

SUNRISE WIND LLC
SUNRISE WIND NEW YORK CABLE PROJECT

EXHIBIT 6
ECONOMIC EFFECTS OF PROPOSED FACILITY

PREPARED PURSUANT TO 16 NYCRR § 86.7

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Acronyms and Abbreviations

AC	alternating current
ACS	American Community Survey
Applicant	Sunrise Wind LLC
CDP	census-designated place
CFR	Code of Federal Regulations
DC	direct current
ft	feet
FTE	full-time equivalent
km	kilometer(s)
kV	kilovolt(s)
LIPA	Long Island Power Authority
m	meter(s)
MHWL	mean high water line
mi	mile(s)
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSERDA	New York State Energy Research and Development Authority
OCS	Outer Continental Shelf
OnCS-DC	Onshore Converter Station-Direct Current
OREC	Offshore Renewable Energy Credit
Project	Sunrise Wind New York Cable Project
PSL	New York Public Service Law
ROW	right-of-way
SRWEC	Sunrise Wind Export Cable
SRWEC-NYS	Sunrise Wind Export Cable-New York State
SRWF	Sunrise Wind Farm

TJB	transition joint bay
US	United States
USACE	United States Army Corps of Engineers
USCB	United States Census Bureau

EXHIBIT 6: ECONOMIC EFFECTS OF PROPOSED FACILITY

In accordance with New York Public Service Law (PSL) § 122 and 16 New York Codes, Rules and Regulations (NYCRR) § 86.7, this exhibit provides a description of any anticipated effects that the construction or operation of the proposed facility may induce in the residential, commercial, or industrial land use patterns of any area adjacent to any portion of the proposed facility.

6.1 INTRODUCTION

Sunrise Wind LLC (Sunrise Wind or the Applicant), a 50/50 joint venture between Orsted North America Inc. (Orsted NA) and Eversource Investment LLC (Eversource), proposes to construct, operate, and maintain the Sunrise Wind New York Cable Project (the Project). Sunrise Wind executed a 25-year Offshore Wind Renewable Energy Certificate (OREC) contract related to the Sunrise Wind Farm (SRWF) and the Project with the New York State Energy Research and Development Authority (NYSERDA) in October 2019. The Project will deliver power from the SRWF, which will be located in federal waters on the Outer Continental Shelf (OCS), to the existing electrical grid in New York (NYS). The Project includes offshore and onshore components within NYS that are subject to PSL Article VII review and will interconnect at the existing Holbrook Substation, which is owned and operated by the Long Island Power Authority (LIPA).

Specifically, power from the SRWF will be delivered to the existing mainland electric grid via distinct Project segments: the submarine segment of the export cable (SRWEC), which will be located in both federal and NYS waters (the NYS portion of the cable referred to as the SRWEC-NYS); the terrestrial underground segment of the transmission cable (Onshore Transmission Cable); the new Onshore Converter Station (OnCS-DC); and the underground segment of the interconnection cable (Onshore Interconnection Cable). The Onshore Transmission Cable, the OnCS-DC, and Onshore Interconnection Cable (collectively, the Onshore Facilities) are all located in the Town of Brookhaven, Suffolk County, New York.

The Project's components are generally defined into two categories:

- SRWEC-NYS
 - One direct current (DC) submarine export cable bundle (320 kilovolt [kV]) up to 6.2 miles (mi) (10 kilometers [km]) in length in NYS waters and up to 1,575 feet (ft) (480 meters [m]) located onshore (*i.e.*, above the Mean High Water Line [MHWL], as defined by the United States [US] Army Corps of Engineers [USACE] [33 Code of Federal Regulations (CFR) 329]) and underground, up to the transition joint bays (TJBs).

- Onshore Facilities
 - One DC underground transmission circuit (320 kV) (referred to as the Onshore Transmission Cable) up to 17.5 mi (28.2 km) in length within existing roadway rights-of-way (ROW), TJBs, and concrete and/or direct buried joint bays and associated components;
 - One OnCS–DC that will transform the Project voltage to 138 kV alternating current (AC);
 - Two AC underground circuits (138 kV) (referred to as the Onshore Interconnection Cable) up to 1 mi (1.6 km) in length, which will connect the new OnCS–DC to the existing Holbrook Substation; and
 - Fiber optic cables co-located with both the Onshore Transmission Cable and Onshore Interconnection Cable.

6.2 DEMOGRAPHICS AND ECONOMIC CONDITIONS

Table 6.2-1 summarizes US Census Bureau (USCB) data (2000 and 2010 Census and 2014–2018 American Community Survey [ACS] 5-year Estimates) on population and population trends for NYS, Suffolk County, the Town of Brookhaven, and communities along the Project corridor (defined by the USCB as census-designated places [CDPs]). Suffolk County had a population of nearly 1.5 million in 2014–2018 (or approximately 7.6 percent of the population of NYS). The Town of Brookhaven had a population of 484,671 (or nearly 33 percent of the population of Suffolk County) and is made up of a number of villages and hamlets. The hamlets of North Patchogue and Holbrook within the Town of Brookhaven are relatively dense communities, each with between approximately 3,600 and 3,800 persons per square mile (sq mi). The median age ranges from a low of 33 in the hamlet of North Bellport to a high of 50 in the Brookhaven CDP.

Table 6.2-1. Selected Demographics

Entity	Land Area (sq. mi.) a/	Decennial Census Population Count (2000)	Decennial Census Population Count (2010)	ACS Population Estimate (2014-2018)	Population Density per sq. mi. (2014-2018) b/	Population Change (2000-2018)	ACS Median Age (2014-2018)
Brookhaven CDP	6	3,570	3,451	3,531	609	-1%	50
Holbrook CDP	7	27,512	27,195	26,286	3,664	-4%	42
Holtsville CDP	7	17,006	19,714	19,365	2,724	+14%	44
East Patchogue CDP	8	20,824	22,469	22,637	2,720	+9%	42
Fire Island CDP	9	310	292	249	27	-20%	42
Mastic Beach CDP	5	11,543	12,930	11,953	2,532	+4%	39
Medford CDP	11	21,985	24,142	24,247	2,245	+10%	41
North Bellport CDP	5	9,007	11,545	11,593	2,367	+29%	33
North Patchogue CDP	2	7,825	7,246	7,561	3,832	-3%	38
Shirley CDP	11	25,395	27,854	28,698	2,502	+13%	36
Yaphank CDP	14	5025	5,945	6,390	468	+27%	38
Town of Brookhaven	259	448,248	486,040	484,671	1,869	+8%	40
Suffolk County	912	1,419,369	1,493,350	1,487,901	1,632	+5%	41
NYS	47,126	18,976,457	19,378,102	19,618,453	416	+3%	39

NOTES:

a/ Rounded to nearest square mile (sq. mi.)

b/ Values from USCB and may not be computed from table due to rounding.

SOURCES:

USCB Census 2000, Census 2010, 2014-2018 ACS 5-Year Estimates.

Employment characteristics for Suffolk County and NYS are summarized in Table 6.2-2. Suffolk County had 777,784 workers in the labor force (as of 2018), or approximately 8.2 percent of the labor force in the entire NYS.¹ The unemployment rate is slightly lower in Suffolk County (3.9 percent) compared to NYS (4.1 percent).¹ Per capita personal income in 2018 was similar in the county (\$68,617) and NYS (\$68,668).² NYS had more than 9.5 million people in the labor force in 2018.³

¹ US Bureau of Labor Statistics (BLS), Labor Force Data by County, 2018 Annual Averages. Accessed October 12, 2020, <https://www.bls.gov/lau/laucounty18.txt>.

² US Bureau of Economic Analysis (BEA), Per Capita Personal Income by County, 2016-2018

³ New York State Department of Labor. Labor Area Unemployment Statistics Program. Accessed April 14, 2020.

<https://labor.ny.gov/stats/lslaus.shtm>.

Table 6.2-2. Economic Conditions

Entity	Labor Force (2018)	Employed (2018)	Unemployed (2018)	Unemployment Rate (2018)	Per Capita Personal Income (2018)
Suffolk County	777,784	747,832	29,952	3.9%	\$68,617
NYS	9,521,900	9,127,700	394,200	4.1%	\$68,668
SOURCES: US Bureau of Labor Statistics, 2020; US Bureau of Economic Analysis, 2018; New York State Department of Labor, 2020.					

Table 6.2-3 presents the count and share of workers employed in each of the affected regions by industry. As shown in the table, in 2017, the Town of Brookhaven had the largest share of its employment in the educational and health services sector (approximately 39 percent), consistent with trends in Suffolk County (26 percent) and NYS overall (28 percent). Retail trade is also prominent at 14.0 percent, compared with 11.7 percent in the County and 9.8 percent in NYS. The Town of Brookhaven also provides a considerable amount of employment in the accommodation and food services industry (9.0 percent compared to 7.4 percent in Suffolk County and 8.1 percent in NYS). In total, in 2017, the Town of Brookhaven included 154,959 jobs, or approximately 23.7 percent of the total number of jobs in the County. NYS included a total of approximately 9.2 million jobs in 2017.

Table 6.2-3. Workers Employed in Region by Industry

Industry	NYS		Suffolk County		Town of Brookhaven	
	Count	Share (percent)	Count	Share (percent)	Count	Share (percent)
Agriculture, forestry, fishing, and hunting	24,760	0.3	2,714	0.4	505	0.3
Mining	4,324	0.0	182	0.0	69	0.0
Utilities	43,507	0.5	1,431	0.2	203	0.1
Construction	386,373	4.2	47,775	7.3	10,435	6.7
Manufacturing	448,115	4.9	54,273	8.3	4,654	3.0
Wholesale trade	341,675	3.7	41,531	6.3	5,621	3.6
Retail trade	906,840	9.8	76,784	11.7	21,623	14.0
Transportation and warehousing	328,567	3.6	20,025	3.1	3,905	2.5
Information	283,889	3.1	9,459	1.4	1,985	1.3
Finance and insurance	516,480	5.6	21,217	3.2	2,584	1.7
Real estate and rental and leasing	205,968	2.2	7,387	1.1	953	0.6
Professional, scientific, and technical services	678,745	7.4	42,448	6.5	10,678	6.9
Management of companies and enterprises	152,310	1.7	8,385	1.3	619	0.4

Administrative and support, waste management, and remediation	519,534	5.6	45,015	6.9	6,072	3.9
Educational services	978,139	10.6	76,672	11.7	34,794	22.5
Health care and social assistance	1,615,622	17.5	92,474	14.1	25,544	16.5
Arts, entertainment, recreation	178,429	1.9	9,657	1.5	1,968	1.3
Accommodation and food services	747,204	8.1%	48,727	7.4%	13,999	9.0%
Other services, except public administration	376,886	4.1%	25,802	3.9%	6,066	3.9%
Public administration	477,896	5.2%	22,775	3.5%	2,682	1.7%
Total	9,215,263	100.0%	654,733	100.0%	154,959	100.0%
SOURCE: USCB OnTheMap 2017.						

6.3 ECONOMIC EFFECTS

6.3.1 Economic Effects of Construction and Operation in NYS

The Applicant conducted economic modeling to characterize the economic benefits that will be generated in NYS, including Suffolk County from the Project (Appendix 6-A: Economic Modeling Report). These benefits were estimated for the Project during construction as well as annual operations over a 35-year operational period⁴. Economic benefits are expressed in terms of: job-years (a measure of temporary employment during construction, equivalent to one person working full time for a year); full-time equivalent (FTE) jobs (a measure of employment during operations); labor income (which includes employee compensation and benefits as well as proprietor income); value added (comparable to Gross Domestic Product); and total economic output (the total value of industry production).

Each of these benefits are further categorized as direct, indirect, or induced effects, defined as follows:

- **Direct effects** represent the initial benefits to the economy of a specific new investment, for example, the on-site employment and associated labor income.
- **Indirect effects** represent the benefits generated by industries purchasing from other industries as a result of direct investments. For example, indirect employment resulting from the Project's operational expenditures will include jobs in industries that provide goods and services to support the Project's operations.
- **Induced effects** represent the impacts caused by increased household income in a region. Direct and indirect effects generate more worker income by increasing employment and/or salaries in

⁴ Per the Applicant's lease agreement for the SRWF, the operations term of the SRWF is 25 years but could be extended to 30 or 35 years.

certain industries. Households spend some of this additional income on local goods and services such as food and drink, recreation, and medical services.

Construction Effects

The construction of the Project is conservatively estimated to support at least 496 direct construction job-years, or approximately 248 FTE jobs over the approximately 2-year construction period in Suffolk County. Construction is also estimated to support at least 355 indirect and induced job-years (175 FTE jobs) in NYS, including 286 job-years in Suffolk County (143 FTE jobs). Indirect jobs are in industries that provide materials and services for construction, including wholesale goods, machinery and equipment rental and sales, and truck transportation. Increased household spending is estimated to support induced employment in industries such as restaurants and retail.

The Project is estimated to generate approximately \$80.1 million in direct, indirect, and induced labor income in NYS, including \$72.2 million in Suffolk County, during construction. The total direct, indirect, and induced economic output is estimated to be \$172.9 million in NYS, including approximately \$153.5 million in Suffolk County.

Operation Effects

Typical of transmission and substation facilities, once operational the Project will be unmanned, but will require project managers and maintenance workers. The Project is estimated to support approximately 2 direct jobs (FTE) annually.

Operation of the Project is estimated to support an additional approximately 1.2 indirect and induced FTE off-site in NYS, including 1.0 FTE in Suffolk County. The indirect jobs are in industries that provide goods and services to the operations and maintenance firms. Indirectly linked industries include retail (*e.g.*, building equipment and landscaping material supply stores). Additionally, increased household income from direct and indirect employment and spending by employees will generate induced economic activity. Induced employment will affect industries such as include restaurants and doctor's offices, for example). Direct, indirect, and induced employment from annual operations of the Project is estimated to total 3.2 FTE in NYS overall, including 3.0 in Suffolk County.

Over the 35-year period, the Project is estimated to support approximately 112 job-years in NYS, including about 106 in Suffolk County. Over the 35-year period, the Project is estimated to result in approximately \$4.4 million in labor income in NYS overall, including \$4.2 million in Suffolk County. The Project will result in nearly \$7.0 million in total output in Suffolk County over 35 years, and approximately \$7.7 million in NYS overall (including \$6.0 million in value added).

This estimated number of jobs represents employment associated with the operations and maintenance of the SRWEC-NYS and Onshore Facilities, and is not inclusive of jobs created for the operations and maintenance of the SRWF and the portion of the export cable installed in federal waters.

6.3.2 Benefits to Local Community

Project construction and operation activities will generate local and regional economic benefits in terms of job creation, increased spending, and revenues from taxes. Adverse economic effects could occur if, for example, Project-generated traffic conditions were sufficiently persistent, severe, or disruptive so as to adversely impact existing businesses over an extended duration. However, the Project is not anticipated to have measurable adverse effects on employment, economics, or demographics. Instead, the anticipated Project employment, economic, and demographic benefits are measurable.

The Project will generate economic activity throughout the Suffolk County region during construction and operation. Construction of the Project's various components will require construction labor and will support jobs in existing businesses that provide goods and services for construction, including meeting the consumer needs of workers. The Project's construction phase will create numerous jobs, including jobs for specialized construction workers, equipment operators, and construction laborers. Where possible, local workers will be hired to meet labor needs for Project construction and operations.

Beyond direct, indirect, and induced job creation, additional beneficial impacts to the local economy are anticipated through the creation of tax revenue, the demand for construction materials, and the increase in spending in general.

The job opportunities, tax revenues, and increased spending associated with construction activities will be Project benefits, without measurable adverse effects. Due to the short duration of construction activities, it is unlikely that non-local workers will relocate families to the area permanently to meet construction-related labor demands. Incremental indirect and induced jobs in supporting industries will largely be absorbed by the existing resident members of the labor force. Therefore, the Project's construction activities are not anticipated to have measurable effects on the availability or cost of housing, nor will construction activities have measurable impacts on demographics within the local area.

The operational phase will also support permanent jobs, including project managers and maintenance technicians.

Overall, the Project is expected to provide numerous economic benefits, including job opportunities, increased spending, and tax revenues, without measurable adverse effects to employment, economics, or demographics.

Inclusive of the SRWF, the Project and ancillary components, the Applicant expects to support up to 800 direct job-years and up to 1,500 to 2,000 indirect and induced job-years. In addition to the economic benefits to the local area during the construction and operation of the Project, the Applicant has committed to invest more than \$400 million in NYS in accordance with the OREC agreement with NYS and this agreement includes several commitments. The Applicant is committed to working with minority and women-owned businesses so that the developing offshore wind supply chain is inclusive and diverse. The Applicant is also providing \$10 million in seed funding to create a National Offshore Wind Training Center in Suffolk County. Together with partners from labor, academia, and the environmental community, the National Offshore Wind Training Center will feature specialized facilities and programming that is essential to offshore work, aiming to cement Suffolk County's role as an integral part of the emerging offshore wind industry. Suffolk County Community College will serve as the academic arm of this initiative. Finally, the Applicant has also committed to performing secondary steel fabrication in the New York Capital Region and funding the Upper Hudson Valley Work Force Initiative. These initiatives will ensure residents throughout NYS have the access to this opportunity and the training needed to succeed in the offshore wind industry.

In addition, the Applicant is entering negotiations with NYS contractors and trade labor organizations on a Project Labor Agreement to cover construction activities for the Project and committing to paying prevailing wages. The Applicant is also working with the Town of Brookhaven to establish a Host Community Benefits Agreement, which will benefit Brookhaven residents directly, in addition to the taxable income from the infrastructure itself.

6.4 EFFECTS OF CONSTRUCTION AND OPERATION ON LAND USE PATTERNS

This section describes the potential effects of the construction and operation of the Project on residential, commercial or industrial land use patterns.

6.4.1 Potential Construction Effects

Construction activities associated with the Project may result in limited short-term impacts to residential, commercial, or industrial land use patterns.

The SRWEC–NYS will be constructed mainly in NYS waters with a short segment, up to 1,570 ft (480 m) onshore within Smith County Park; therefore, construction will not adversely land use patterns as further described in Exhibit 4: Environmental Impact.

The Onshore Transmission Cable and Onshore Interconnection Cable will be constructed entirely underground and predominantly within existing ROWs. Construction activity will result in some visible site disturbance, such as tree clearing, earth moving, trenchless crossing installations, and cable

installation, all of which could temporarily alter land use patterns (*e.g.*, traffic) along the routes. Following construction activities, temporarily disturbed areas within existing ROW will be stabilized and restored to their pre-existing condition in coordination with local entities. Therefore, land disturbance during construction of the Onshore Transmission Cable and Onshore Interconnection Cable is expected to result in only short-term and limited effects on residential, commercial, or industrial land use patterns, as further described in Exhibit 4: Environmental Impact.

The OnCS–DC will be constructed on a parcel in the Town of Brookhaven’s L Industrial 1 zoning district. Therefore, no significant impacts to land use are anticipated from the construction of the OnCS–DC, as further described in Exhibit 4: Environmental Impact.

6.4.2 Potential Operation Effects

Operation of the Project is not anticipated to result in any impacts to residential, commercial, or industrial land use patterns.

The SRWEC–NYS will be installed beneath the seabed; therefore, after construction is completed, it will not adversely land use patterns as further described in Exhibit 4: Environmental Impact.

The Onshore Transmission Cable and Onshore Interconnection Cable will be located entirely underground, within existing developed roadway, railroad and utility ROWs. Routine maintenance of the Onshore Transmission Cable and Onshore Interconnection Cable will primarily involve observation and testing of existing equipment. Non-routine maintenance may cause limited impacts during temporary access to assess damage and for repair or replacement of infrastructure, but such occurrences are expected to be infrequent, localized, and short-term and largely limited to developed roadway and utility ROWs. Therefore, operation of the Onshore Transmission Cable and Onshore Interconnection Cable will not impact residential, commercial, or industrial land use patterns, as further described in Exhibit 4: Environmental Impact.

Operation of the OnCS–DC will also be consistent with the existing land use and, as a result, is not expected to have any impacts residential, commercial, or industrial land use patterns, as further described in Exhibit 4: Environmental Impact.

REFERENCES

2018 IMPLAN model

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