

Socioeconomic Report

Bluestone Wind Project

Towns of Sanford and Windsor
Broome County, NY

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EXECUTIVE SUMMARY

This socioeconomic report is prepared in connection to the proposed Bluestone Wind Project (the “Facility”), a utility scale wind power project located in the Towns of Sanford and Windsor, Broome County, New York (see Figure 1: Facility Site). As measured to the nearest proposed turbine, the Facility is located approximately 0.9 miles northwest of the Village of Deposit, 3.2 miles east of the Village of Windsor, and 7.3 miles south of the Village of Afton (see Figure 2: Regional Facility Location). The proposed Project consists of the construction and operation of a commercial-scale wind power facility, including the installation and operation of up to 33 wind turbines, together with the associated collection lines, access roads, meteorological towers, and operation and maintenance (O&M) facility. These turbines and related facilities will be sited within privately-owned leased land within an approximately 5,700-acre Facility Site. To deliver electricity to the New York State power grid, the Applicant proposes to construct a collection substation, and a point of interconnection (POI) substation, including a battery storage facility, which will interconnect with NYSEG’s existing Afton to Stilesville 115 kV transmission line in the Town of Sanford. The Facility is scheduled to be constructed and go into operation in 2020.

The report assesses the potential socioeconomic effects of this Facility on the host communities of the Towns of Sanford and Windsor (the “Study Area”), Broome County and New York State. It reviews relevant conditions throughout the area and interprets trends and patterns of change as represented by several demographic and economic indicators. Potential statewide and countywide impacts from the Facility are then assessed considering the current socioeconomic conditions of the area. Although the Applicant has assumed a layout of up to 33 turbines for Article 10 permitting purposes generally, this report and its related Exhibit 27 analyze the total number of positive jobs and economic impacts produced by the Facility based on a 29-turbine layout. This is to both to be consistent with the economic benefit information presented in the Applicant’s New York State Energy Research and Development Authority (NYSERDA) Application and to avoid overestimating the Facility’s economic benefits in the Article 10 Application.

Broome County is in the Southern Tier of New York, along the border of Pennsylvania, and shares many economic and demographic characteristics of the region. Like many other counties in the area, Broome County has experienced a mix of population growth, stagnation and decline over the past 30 years, as have the Towns of Sanford and Windsor. Age distribution patterns and educational attainment levels throughout the Study Area are relatively consistent with those in the surrounding areas. Housing availability throughout the Study Area is stable, and homeownership rates are high (between approximately 73.9% and 89.8%). Housing values are relatively stable and are well below the statewide median value. Poverty rates within the Study Area are mixed with half the towns above the County rate of 17.4%. In decreasing order of total employment, the five dominant employment sectors in Broome County are 1) Health Care and Social Assistance, 2) Educational Services, 3) Retail Trade, 4) Accommodation and Food Services, and 5)

Manufacturing. On-farm employment now represents a much smaller share of countywide employment than previously, although it remains a substantial economic generator throughout the region by several other measures. Although unemployment across all industries within Broome County is higher than the statewide average, recent (slow) growth has begun to bring the unemployment rate down.

The construction and operation of the Facility will have positive impacts throughout the local and statewide economy. Businesses involved in on-site Facility construction and operations, as well as those associated throughout the industrial supply chain, are expected to see a measurable increase in the demand for their services. In addition, the earnings by workers during construction and operation of the Facility are expected to generate additional spending, creating a “ripple effect” throughout the countywide and statewide economy. Using standards and methods established by the National Renewable Energy Laboratory, it is estimated that Facility construction could increase onsite and off-site employment by 556 workers statewide, with total earnings of approximately \$41.4 million. The operation and maintenance of the installed Facility is estimated to increase onsite and off-site employment demand by an additional 24 workers statewide annually, with total annual earnings of approximately \$2.0 million. The total value of onsite and off-site industrial production and induced benefits in the statewide economy associated with Facility construction is estimated at \$96.2 million and at \$5.2 million annually during operation.

Table ES-1. Summary Results of Statewide Jobs and Economic Impact Analysis

	Jobs	Earnings (Millions)	Output (Millions)
Construction			
Project Development and Onsite Labor Total	150	\$11.4	\$12.4
Construction & Interconnection Labor	141	\$10.3	-
Construction-Related Services	9	\$1.1	-
Turbine & Supply Chain Impacts	297	\$21.8	\$62.1
Induced Impacts	109	\$8.2	\$21.7
Total Impacts	556	\$41.4	\$96.2
Annual Operation			
Onsite Labor Impacts	7	\$0.6	\$0.6
Local Revenue & Supply Chain Impacts	11	\$0.9	\$3.3
Induced Impacts	6	\$0.5	\$1.3
Total Impacts	24	\$2.0	\$5.2

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

At a countywide level, it is estimated that the Facility construction could increase onsite and offsite employment by 147 workers, with total earnings of approximately \$7.8 million. The operation and maintenance of the installed Facility is

estimated to increase onsite and offsite employment demand by an additional 18 workers countywide, with total annual earnings of approximately \$0.9 million. The total value of industrial production and induced benefits in the countywide economy associated with construction is \$21.9 million and \$3.1 million annually during operation.

Table ES-2. Summary Results of Countywide Jobs and Economic Impact Analysis

	Jobs	Earnings (Millions)	Output (Millions)
Construction			
Project Development and Onsite Labor Total	19	\$1.3	\$1.3
Construction & Interconnection Labor	19	\$1.3	-
Construction-Related Services	0	\$0.0	-
Turbine & Supply Chain Impacts	87	\$4.6	\$14.3
Induced Impacts	41	\$1.9	\$6.3
Total Impacts	147	\$7.8	\$21.9
Annual Operation			
Onsite Labor Impacts	7	\$0.4	\$0.4
Local Revenue & Supply Chain Impacts	6	\$0.3	\$2.0
Induced Impacts	5	\$0.2	\$0.8
Total Impacts	18	\$0.9	\$3.1

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

Furthermore, the Facility is anticipated to have a positive impact on local taxing jurisdictions through payments in lieu of taxes (PILOT) and payments to local municipalities under Host Community Agreements (HCA). Given the budget constraints that local taxing jurisdictions are currently facing, it is expected that the PILOT/HCA payments will be a positive revenue stream to municipalities and other local taxing jurisdictions. Annual PILOT amounts are estimated to total \$ [REDACTED] of these funds a portion is anticipated to be directed towards host municipalities through annual HCAs (unknown as of July 2018 due to ongoing negotiations). The Facility will not impose significant additional burdens on municipal and school district services and thus will not increase the costs to the participating Towns.

These estimates suggest that the construction and operation of the Bluestone Wind Facility will have a positive impact throughout the statewide and countywide economy through the provision of employment, spending of wages, and increase in industrial output. At the local level, direct payments will occur in the form of land leases and other agreements (i.e., easements, good neighbor agreements), PILOTs and HCAs, as well as a small number of local jobs and purchases of local goods.

INTRODUCTION

On behalf of Bluestone Wind, LLC (Applicant), Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. has prepared this socioeconomic report for the proposed Bluestone Wind Project (the "Facility"), a utility scale wind power project located in the Towns of Windsor and Sanford, Broome County, New York (see Figure 1: Facility Site). As measured to the nearest proposed turbine, the Facility is located approximately 0.9 miles northwest of the Village of Deposit, 3.2 miles east of the Village of Windsor, and 7.3 miles south of the Village of Afton in Chenango County (see Figure 2: Regional Facility Location). The proposed Project consists of the construction and operation of a commercial-scale wind power facility, including the installation and operation of up to 33 wind turbines, together with the associated collection lines, access roads, meteorological towers, and operation and maintenance (O&M) facility. These turbines and related facilities will be sited within privately-owned leased land within an approximately 5,700-acre Facility Site. To deliver electricity to the New York State power grid, the Applicant proposes to construct a collection substation and a point of interconnection substation, including a battery storage facility, which will interconnect with NYSEG's existing Afton to Stilesville 115 kV transmission line in the Town of Sanford. The Facility is scheduled to be constructed and go into operation in 2020.

A comprehensive review of the potential socioeconomic effects on local municipalities and New York State requires an examination of the related impacts generated from the construction and operation of the project under review. Specific to the proposed Facility, this report includes a review of the past and current demographic and economic characteristics and trends across New York State, Broome County, and in the Study Area, which includes the Towns of Windsor and Sanford.

Part I of this report presents a socioeconomic profile of the Study Area, Broome County, and New York State, including a demographic profile with specific data on population size, age and educational attainment, housing occupancy rate and median value. A snapshot of the health of the statewide and local economy follows with specific data on the local labor force and unemployment rates and median household income, including poverty levels. Finally, local, county and state fiscal health is reviewed with attention focused on the existing tax base, recent budgets (including revenues, expenditures, and indebtedness). Part II of this report analyzes the potential positive and negative socioeconomic impacts of the Facility. The economic impacts were determined using the economic input-output Jobs and Economic Development Impact (JEDI) model. This model was created by MRG & Associates under contract with the National Renewable Energy Laboratory and is an industry standard for investigation of the economic impacts of wind energy facilities. Potential measures intended to either eliminate or reduce the potential adverse impact are presented.

PART I: SOCIOECONOMIC PROFILE OF NEW YORK STATE AND STUDY AREA

1. Demographic and Housing Characteristics

This section reviews past, current and projected population, housing, and labor force characteristics and trends at three comparative levels: 1) the State of New York, 2) Broome County, and 3) the Study Area, which includes the Towns of Sanford and Windsor. The most recent Decennial Census conducted by the U.S. Census Bureau was in 2010. For data not collected during the 2010 Decennial Census, the figures used are estimates based on the Census Bureau's American Community Survey, which apply to all years between 2012 and 2016. For the purposes of this report, these estimates will be referred to as estimates for 2016.

1.1 Population and Housing Trends

The 2010 populations for the State of New York, Broome County, and the Towns of Sanford and Windsor are shown in Table 1. While New York State showed a notable increase in population from 1980 to 2010 (10.37%), Broome County's population decreased during the same period (-6.11%). At the local level, the Town of Sanford experienced a population decrease (-8.7%) from 1980-2010, while the Town of Windsor experienced a population increase (6.1%) during the same period. Most residents across the State, County and Towns are working adults (ages 16 to 64 years), with a substantial child population (local populations were relatively close to the statewide average of 17.6% of the population ages 0 to 15 years) (see Table 2). There is a slightly lower proportion of people 65-years-or-older across New York State (14.7% of the total population) than in the Study Area (an average of 19.8% between the Towns of Sanford and Windsor).

Table 1. Population

	2010 Population	Change 2000-2010	2000 Population	Change 1990- 2000	1990 Population	Change 1980-1990	1980 Population
New York State	19,378,102	2.1%	18,976,821	5.5%	17,990,778	2.5%	17,558,165
Broome County	200,600	0.03%	200,536	-5.5%	212,160	-0.7%	213,648
Town of Sanford	2,407	-2.8%	2,477	-3.8%	2,576	-2.2%	2,635
Town of Windsor	6,274	-2.3%	6,421	-0.3%	6,440	8.9%	5,911

Source: U.S. Census Bureau, 2010, 2000, 1990 and 1980 Decennial Census

Table 2. Age Groups

	<15 Years	% of Total Pop.	15-44 Years	% of Total Pop.	45-64 Years	% of Total Pop.	65+ Years	% of Total Pop.
New York State	3,466,752	17.6%	8,016,865	40.7%	5,278,918	26.8%	2,895,526	14.7%
Broome County	31,778	16.1%	77,373	39.2%	53,688	27.2%	34,542	17.5%
Town of Sanford	333	14.0%	727	30.6%	727	30.6%	589	24.8%
Town of Windsor	986	16.0%	2,187	35.5%	2,088	33.9%	906	14.7%

Source: American Community Survey 2012-2016 5-Year Estimates

While the statewide population is expected to remain relatively stable over the next 30 years, the population of Broome County is expected to decrease gradually (Cornell University, 2011). With a stable or declining countywide population, it can be anticipated that the distribution of population for each municipality will also slightly decrease.

The level of education attained, particularly in terms of high school degree attainment, has improved in the Study Area. Educational attainment is a measure of the highest level of education that a person has attained. An increase in the number of residents who receive a higher education reflects a better-educated workforce in each community, which is a positive attribute that is attractive to current and future employers. Wind farm projects such as this Facility create jobs that require various levels of education from advanced degrees, to long-term on-the-job training, and trade certifications (Bezdek, 2007). Thus, communities with an educated labor force are better suited to fill the employment positions created by a wind farm project. As illustrated in Table 3, the estimated level of overall education obtained by state and local residents has increased in recent years.

Table 3. Educational Attainment

	% High School Degree or Higher (2016)	2000-2016 Change	% Bachelor's Degree or Higher (2016)	2000-2016 Change
New York State	85.9%	6.8%	34.7%	7.3%
Broome County	90.2%	6.4%	27.8%	5.1%
Town of Sanford	86.8%	6.4%	15.8%	3.1%
Town of Windsor	92.5%	9.5%	18.2%	3.7%

Source: U.S. Census Bureau, 2000 Decennial Census and American Community Survey 2012-2016 5-Year Estimates

Vacancy rate is an indicator of the availability of housing to own or rent. With an 11.3% percent vacancy rate, housing availability in New York State has remained relatively consistent between 2012 to 2016. By comparison, the vacancy

rate is 12.4% in Broome County, 43.8% in the Town of Sanford, and 20.5% in the Town of Windsor. With a slowly-decreasing forecasted population, vacancy rates are projected to increase in these communities.

Within the occupied housing, rates of home ownership are strong for the Towns of Sanford and Windsor at 73.9% and 89.8%, respectively, in 2016. By comparison, the rate of home ownership for New York State in 2016 is only 53.6%. Median housing values statewide are significantly higher than those in the Study Area. In 2016, the estimated statewide median housing value was \$286,300. By comparison, the 2016 estimated median housing value was \$118,100 in the Town of Sanford and \$110,500 in the Town of Windsor, while the median value in Broome County was \$112,300.

2. Economic Characteristics and Local Employment

The economic health of a region and its local municipalities can be discerned from certain indicators such as vacancy rate, median household income, poverty level, unemployment rate and diversity in industry sectors and strength in local employment sources. As discussed in the previous section, the vacancy rate for the local communities is relatively high, indicating some instability in the local housing market.

Household income, as defined by the U.S. Census Bureau, is the sum of income received in a calendar year by all household members 15 years old or older, including nonfamily household members. Included as income are wages or salary; interest, dividends, or net rental or royalty income or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); public assistance or welfare payments; retirement, survivor, or disability pensions; and all other income. Poverty level is determined by the level of income for a family of specific size and composition (number of adults and children) compared to established income thresholds. If the family falls below a certain threshold then they are considered below poverty level (U.S. Census Bureau, 2012).

2.1 Household Income

As illustrated in Table 4, in 2016, the estimated median household income for the Towns of Sanford and Windsor was approximately \$45,089 and \$62,167, respectively. While the estimated median household income for the Town of Sanford was lower than the \$60,741 median household income estimate for New York State, the Town of Windsor was higher. With respect to poverty, the Town of Sanford's poverty rate (10.1%) and the Town of Windsor's poverty rate (6.6%) were both lower than the 17.4% poverty rate of the County and 15.5% poverty rate of the State (Table 4).

Table 4. Household Income and Population below Poverty

	Median Household Income	% of Population Below Poverty
New York State	\$60,741	15.5%
Broome County	\$47,744	17.4%
Town of Sanford	\$45,089	10.1%
Town of Windsor	\$62,167	6.6%

Source: U.S. Census Bureau, 2012-2016 5 Year Estimates

In New York State, public assistance is available for many individuals who live below the poverty level. Examples of public assistance programs in New York State include help with buying food, special tax credits, home energy assistance and WIC (Women, Infant, and Children) programs. The percentage of households receiving cash public assistance is 3.4% for the Town of Sanford and 2.7% for the Town of Windsor. The percentage rate of households receiving cash public assistance in both Towns is less than that in Broome County (5.2%). By comparison, 3.4% of households statewide receive cash public assistance.

2.2 Labor Force Characteristics

The regional and local economy in the Study Area is affected by three major trends; 1) transition from a manufacturing-based to a service-based economy, 2) relative population stability, and 3) a growing workforce. The characteristics of the local labor force, dominant industries and employment sources reveal the economic trends of the area.

As illustrated in Table 5, 63.4% of the State's total population over 16 years was in the labor force in 2016, which is greater than the labor force participation rate in Broome County and the Town of Sanford but less than that in the Town of Windsor. In the last decade, the State's labor force participation rate increased by 2.3%.

Table 5. Labor Force Characteristics

	Working Age Population	Population in Labor Force	% of Working Age Population in Labor Force
New York State	15,964,950	10,121,778	63.4%
Broome County	163,554	95,843	58.6%
Town of Sanford	2,018	991	49.1%
Town of Windsor	5,119	3,332	65.1%

Source: U.S. Census Bureau, 2012-2016 5 Year Estimates

Both New York State's unemployment rate and Broome County's unemployment rate have decreased in recent years. New York State's unemployment rate went from 6.7% in December 2013 to 4.4% in December 2017 (not seasonally

adjusted). Broome County's unemployment rate, which is higher than the statewide average, was 7.0% in December 2013, but decreased at a slightly slower rate to 5.6% in December 2017 (US Bureau of Labor Statistics, 2018). These statistics, including decreasing labor force participation and an improving, yet higher local unemployment rate, are both indicators of a slowly recovering economy.

2.3 Local Industries

In decreasing order of total employment, the five dominant employment sectors in New York State are 1) Health Care and Social Assistance, 2) Retail Trade, 3) Educational Services, 4) Accommodation and Food Services, and 5) Professional, Scientific, and Technical Services (US Census Quarterly Workforce Indicators, 2016). This compares with the five dominant employment sectors in Broome County, which are 1) Health Care and Social Assistance, 2) Educational Services, 3) Retail Trade, 4) Accommodation and Food Services, and 5) Manufacturing (US Census Quarterly Workforce Indicators, 2016). Non-governmental major employers in the County include United Health Services, Lockheed Martin, Lourdes Hospital, Broome Developmental Center, and BAE Systems (Broome County Comprehensive Plan, Economic Profile, 2013).

Although several changes have occurred throughout the economy in recent years, most industries have remained relatively stable in their share of overall State employment. Notable shifts within large individual sectors have been sizeable, however. Cuts in employment have occurred within Public Administration (-3%), Manufacturing (-1%), and Information (-1%) sectors from 2013-2016. Meanwhile, there has been notable growth within some statewide sectors during the same period, including Construction (+17%), Health Care and Social Assistance (+10%), Accommodation and Food Services (+9%), Professional, Scientific and Technical Services (+9%), Administrative and Support and Waste Management and Remediation Services (9%); along with increases in some of the smaller sectors such as Agriculture, Forestry, Fishing and Hunting (+8%), Arts, Entertainment and Recreation (+7%) and Utilities (+5%) over the same period (US Census Quarterly Workforce Indicators, 2016). These increases have contributed to a total growth of 5% in the number of jobs throughout the State.

From 2013-2016 Broome County endured sizeable cuts in the following sectors: Information (-33%), Administrative and Support and Waste Management and Remediation Services (-16%), Finance and Insurance (-10%), Construction (-6%), and Manufacturing (-5%). Like New York State, Broome County experienced job growth in several sectors, including: Management of Companies and Enterprises (+33%), Health Care and Social Assistance (+20%), Real Estate and Rental and Leasing (+11%), and Other Services (except Public Administration) (+9%). In certain sectors, job growth rates in Broome County exceeded the rates statewide. (US Census Quarterly Workforce Indicators, 2016).

Table 6 shows the breakdown of annual average part-time and full-time employment in New York State and Broome County from 2013 to 2016.

A more detailed review of State job statistics shows more complex economic transformations towards a more service-based economy, with a focus on the health care and social assistance sector. The employment data for the second quarter (Q2) of 2017 (the most recent available), lag approximately 12 to 15 months behind real employment conditions. The data indicate that the number of total jobs in New York State grew 6.9% between Q1 2013 and Q1 2017, following the trend of the yearly average indicators. During the first two years of the four-year period (Q1 2013 through Q4 2014), there was a net increase of 545,294 jobs (+6.5%) in the State, most of which were created in the Health Care and Social Assistance and Educational Services sectors, with smaller employment increases in the Utilities, Agriculture, Forestry, Fishing and Hunting and Mining, Quarrying and Oil and Gas Extraction sectors. The latter part of the four-year period (Q1 2015 through Q4 2016) was marked by a job growth of +5.6%, with 487,969 jobs added (US Census Quarterly Workforce Indicators, 2016).

At the local level, the economy in Broome County has experienced job growth coupled with periods of job decline between the years of 2013 and 2016. Between Q1 2013 and Q1 2017, the total number of jobs in the County increased 10.6%, following the trend of the yearly average indicators. During the first two years (Q1 2013 through Q4 2014) of this four-year period (2013-2016), there was a net increase of 11,443 jobs (+15.0%) in the County, most of which were created in the Health Care and Social Assistance and Educational Services sectors. In that same two-year timeframe (Q1 2013 through Q4 2014), smaller employment increases also occurred in the Management of Companies and Enterprises, Arts, Entertainment, and Recreation, Agriculture, Forestry, Fishing and Hunting, and Mining, Quarrying, and Oil and Gas Extraction sectors; a decrease of 546 jobs occurred in the Manufacturing sector during the same time frame. By comparison, in the latter part of the four-year period (Q1 2015 to Q4 2016) a smaller increase occurred (+4.1%), with the addition of 3,429 jobs. During that period, the Information sector experienced a decrease of 665 jobs while the Public Administration sector experienced a decrease of 155 jobs (US Census Quarterly Workforce Indicators, 2016).

Across New York State, since 2013, workers experienced a steady increase in average annual earnings in many industry sectors. Jobs in the Real Estate and Rental and Leasing sector had the highest increase in earnings, with 14% over the four-year span (2013-2016). Closely behind were the Information (12%), Arts, Entertainment and Recreation (12%), Accommodation and Food Services (12%) and Construction (11%) sectors. In 2016, the highest average annual earnings were in the Finance and Insurance sector (\$204,216) and Management of Companies and Enterprises sector (\$115,572), Utilities (\$115,056), Professional, Scientific and Technical Services (\$109,476), Information (\$105,564) and Wholesale Trade (\$82,344). At the county level, workers in Broome County experienced a steady increase in

average annual earnings in many industry sectors, particularly Mining, Quarrying, and Oil and Gas Extraction, which witnessed a 25% increase in wages over the four-year span. In 2016, the highest average annual earnings in Broome County were in the Utilities sector (\$104,460) and Manufacturing sector (\$62,352) (US Census Quarterly Workforce Indicators, 2016).

Table 6. Total Employment in New York State and Broome County

	Total full-time and part-time employment by NAICS industry New York State (average annual number of jobs)				Total full-time and part-time employment by NAICS industry Broome County, New York (average annual number of jobs)			
	2013	2014	2015	2016	2013	2014	2015	2016
Health Care and Social Assistance	1,424,878	1,477,064	1,512,202	1,560,417	14,397	15,514	16,830	17,310
Retail Trade	908,139	922,144	925,423	932,729	9,535	9,684	9,503	9,615
Educational Services	889,443	902,688	898,183	904,262	10,948	10,808	11,106	11,125
Accommodation and Food Services	677,956	704,822	728,841	740,334	7,911	8,012	8,013	8,151
Professional, Scientific, and Technical Services	612,673	624,367	650,571	667,195	2,986	2,907	2,893	2,923
Finance and Insurance	502,777	513,368	517,185	518,933	2,054	1,920	1,869	1,842
Public Administration	476,733*	463,209*	461,382*	460,902*	5,654*	5,675*	5,601*	5,502*
Manufacturing	456,829	455,903	454,853	451,099	8,015	7,728	7,712	7,594
Administrative and Support and Waste Management and Remediation Services	456,807	463,295	479,360	497,212	4,716	4,777	4,336	3,968
Other Services (except Public Administration)	339,757	345,477	356,417	365,511	3,223	3,197	3,279	3,513
Wholesale Trade	337,798	338,317	342,016	340,156	4,153	4,119	4,099	4,048
Construction	321,038	339,295	358,370	377,146	3,612	3,408	3,286	3,381
Transportation and Warehousing	292,979	303,800	312,175	313,503	1,435	1,451	1,409	1,458
Information	282,285	286,755	286,953	280,268	1,475	1,743	1,427	981
Real Estate and Rental and Leasing	195,148	198,264	204,056	208,041	1,212	1,264	1,325	1,349
Arts, Entertainment, and Recreation	173,580	178,896	181,702	185,304	826	776	813	817
Management of Companies and Enterprises	146,456	149,807	150,404	150,485	639	724	756	853*
Utilities	40,200	42,012	42,758	42,233	N/A	1,049*	1,051*	1,002*
Agriculture, Forestry, Fishing and Hunting	24,226	25,245	25,894	26,228	144	137*	148	141
Mining, Quarrying, and Oil and Gas Extraction	4,400	4,721	4,674	4,441	34	32	44	35

Source: US Census Bureau Quarterly Workforce Indicators, 2016

*=Values represent an aggregation of sectors, some of which have significantly high margins of error

Agriculture remains a notable economic generator in Broome County, producing a diverse array of agricultural products for sale both local and nationally and offering an important employment opportunity for local laborers. Approximately 18% of the county's land mass is dedicated to agriculture, most of which is comprised of small-scale operations –

nearly a quarter of the County's farms are between 10 and 49 acres, and almost three quarters are less than 140 acres (USDA NASS 2012). At a median size of 76 acres, Broome County farms are substantially smaller in size than operations in neighboring counties (Tioga, Cortland, Chenango, and Delaware), where the median size is closer to 120 acres (USDA NASS 2012). Although local farms tend towards the smaller end of the spectrum as compared to those in the region, these farms do offer important employment opportunities for local laborers. USDA's National Agricultural Statistics Service estimates that most Broome County farm operations with hired staff employ between one and four hired farmworkers (USDA NASS 2012). According to this most recent (2012) USDA Census of Agriculture, there are 563 farm operations within Broome County.

Employment in the Southern Tier, which includes the Study Area, is projected to grow by 7.4% from 2014 through 2024. This projected growth is expected to be concentrated in the service-providing sectors of the economy, while employment in production and administrative support is expected to grow at a much lower rate (under 3%) (NYSDOL, 2014). Service providing sectors expected to experience concentrated growth (12% or more) in the Southern Tier include community and social service occupations, healthcare practitioners/technicians/support occupations, personal care and service occupations, and construction and extraction occupations.

3. Local Municipal Tax Base and Budgets

Understanding the fiscal health of communities in which a project will be located is essential to assessing the potential economic impacts or benefits of that project. The general fiscal profile for any municipality includes its revenues, expenditures, and long-term debt obligations. The majority of revenue collected is through real property taxes, sales taxes, and state aid. In assessing the economic impact of the Facility, it is informative to review local property tax levies and tax rates for each affected taxing jurisdiction, as municipalities have the most direct control over these revenue sources.

Municipalities (towns, villages, and counties) and school districts, as independent taxing jurisdictions, are responsible for providing specific services and facilities to those who live and work within their boundaries and for levying the taxes needed to pay for those services/facilities. The taxing jurisdictions affected by the Facility include Broome County, the Towns of Sanford and Windsor, and the Deposit and Windsor Central School Districts.

Annual municipal expenditures are recovered in large part through each municipality's tax levy, which is borne by taxable properties. Real property taxes are determined by each property's assessed value, multiplied by the tax rate established by each taxing jurisdiction. Table 7 summarizes the most recent data available for municipal and county property tax levies and rates in the County and affected Towns.

Table 7. Property Tax Levy and Municipal Tax Rate¹

	Levy year 2016 (roll year 2015)				Levy year 2017 (roll year 2016)			
	Property Tax Levy	Municipal Tax Rate	County Tax Rate	Eq. Rate	Property Tax Levy	Municipal Tax Rate	County Tax Rate	Eq. Rate
Broome County	\$72,186,044	-	7.41	-	\$72,656,392	-	7.57	-
Town of Sanford	\$3,430,299	4.94	7.41	58.5	\$3,491,425	5.03	7.57	59
Town of Windsor	\$3,723,558	3.26	7.41	69	\$3,811,097	3.28	7.57	71

Source: NYSORPTS, 2018a

Another significant source of revenue for the county and local municipalities is local sales tax revenue. The current sales tax rate for Broome County is 8% (4% local tax plus 4% state tax) (New York State Department of Taxation and Finance, 2015). In 2016, the total sales tax revenue² for the County was \$121,851,844, \$347,572 for the Town of Sanford, and \$1,176,790 for the Town of Windsor (New York State Office of the State Comptroller, 2018a). In 2017, this sales tax revenue increased in Broome County by 4.32%. At a statewide level, this reflects trends indicating inflation increases, as well as improved consumer confidence and stronger, yet modest, wage growth. In addition, New York State's unemployment rate was down slightly in 2017 compared to the previous year of 2016, and at its lowest level since 2006 (New York State Office of the State Comptroller, 2018b).

An overview of the balance of a municipality's revenues, expenditures and indebtedness reveals its general fiscal health. As illustrated in Table 8, from 2015 to 2016, revenues in the Town of Windsor increased by 28%, while decreasing in the Town of Sanford by 32%. With respect to expenditures, both Towns made cuts from 2015 to 2016: Sanford (-27%) and Windsor (-5%). While the Towns have generally decreased their debt levels in recent years, indebtedness remains a lingering challenge for both municipalities.

¹ Property tax levy reflects the amount of revenue required by the municipality through the property tax base and is equal to total municipal spending minus aid and other revenues. Tax base is equal to the sum of taxable parcel values. Municipal tax rate is determined by dividing the levy by the tax base, such that each taxable parcel produces that amount of property tax per \$1,000 assessed value. For a \$100,000 property in the Town of Sanford, property tax liability = $(5.03 / 1000) * 100,000$, or \$503. An equalization rate is the state's measurement of a municipality's level of assessment (LOA). An equalization rate of 100 means that the municipality is assessing property at 100 percent of market value. An equalization rate lower than 100 means that the municipality's total market value is greater than its assessed value.

² Sales tax revenue is distributed to towns, not directly collected by them. Not all towns receive distribution payments from Sales Tax Revenue.

Table 8. Municipal Budgets

	2015	2016
	Broome County	
Total Revenues & other sources	\$520,804,579	\$569,447,233
Total Expenditures & other uses	\$534,978,830	\$558,321,293
Total Indebtedness	\$158,227,029	\$138,191,235
	Town of Sanford	
Total Revenues & other sources	\$3,389,724	\$2,298,859
Total Expenditures & other uses	\$3,012,161	\$2,212,188
Total Indebtedness	\$951,000	\$869,000
	Town of Windsor	
Total Revenues & other sources	\$3,270,086	\$4,196,036
Total Expenditures & other uses	\$3,241,461	\$3,082,878
Total Indebtedness	\$6,180,594	\$5,833,927

Source: New York State Office of the State Comptroller, 2018.

School districts in New York are subject to a separate budgeting process. The budgets of the Deposit and Windsor Central School Districts both faced budget shortfalls and indebtedness in recent years (see Table 9).

Table 9. School District Budgets

	2015	2016
	Deposit Central School District	
Total Revenues & other sources	\$15,893,084	\$17,693,224
Total Expenditures & other uses	\$16,084,625	\$19,381,007
Total Indebtedness	\$8,311,731	\$8,827,119
	Windsor Central School District	
Total Revenues & other sources	\$36,958,156	\$38,704,130
Total Expenditures & other uses	\$37,152,934	\$44,951,361
Total Indebtedness	\$15,904,785	\$25,678,229

Source: New York State Office of the State Comptroller, 2018

In the face of budget shortfalls and a statewide property tax cap, municipalities may find it advantageous to maximize other, less traditional forms of revenue.

PART II: SOCIOECONOMIC EFFECTS OF PROPOSED WIND FACILITY

The Facility will have positive onsite, supply chain, local revenue and induced economic effects on Broome County, the Towns of Sanford and Windsor, and the Deposit and Windsor Central School Districts. The Facility will provide direct financial benefits to the individual landowners leasing their land to the Applicant for the Facility. Some of these effects have already begun for participating landowners and will continue during construction and throughout the operating life of the Facility. The participating towns and school districts are anticipated to receive direct financial benefits from the Facility in the form of PILOT and HCA payments. In addition, the local and statewide economy will experience employment opportunities and related economic benefits through onsite (e.g., construction laborers), supply chain (e.g., component manufacturers) and induced jobs (e.g., retail associates) and associated economic impacts. The overall socioeconomic impact of Facility construction and operation is discussed in detail below.

1. Effects on Population and Housing

As mentioned previously, the towns hosting this Facility experienced a slight population decrease between 2000 and 2010—2.8% in the Town of Sanford – and 2.3% in the Town of Windsor. The proposed Facility is not expected to influence these trends. For the duration of construction (approximately nine months) there could be a temporary increase in local population and demand for temporary housing by out-of-town workers. However, this demand will be relatively modest, and can easily be accommodated by the available rental or temporary housing in the local municipalities and surrounding communities. Beyond this relatively minor (and positive) short-term impact, Facility construction will have no significant impact on population and housing.

The Facility will also result in a small number of permanent positions when it becomes operational (see Part II Section 3.2). These employees are expected to reside locally, which could translate into a small but steady improvement to the local economy. Although this represents a positive economic impact, long-term employment associated with the Facility is not large enough to have a significant impact on the local population or housing market.

2. Jobs and Economic Development Impact (JEDI) Model of the Wind Farm

The proposed Bluestone Wind Facility is anticipated to have local and statewide economic benefits. Wind power development, like other commercial development projects, can expand the local, regional, and statewide economies through both direct and indirect means. Income generated from direct employment during the construction and operation phases of the wind farm is used to purchase local goods and services, creating a ripple effect throughout the state. The job and economic impacts of the Facility were assessed using the Job and Economic Impact (JEDI) wind model. The JEDI model allows users to estimate the jobs and economic development impacts from wind power generation projects for both the construction and operation phases of a proposed project (USDOE NREL, 2017). These economic development impacts, categorized by the levels of impact and indicators described below, include onsite jobs and earnings, economic output from these onsite earnings, turbine/local revenue/supply chain jobs and earnings, economic output from these turbine/local revenue/supply chain earnings, induced jobs and earnings, and economic output from these induced jobs and earnings. The JEDI model was created by the National Renewable Energy Laboratory (NREL), a national laboratory of the United States Department of Energy. It calculates the aforementioned indicators for each level of impact using project-specific data provided by the Applicant and geographically-defined multipliers. These multipliers are produced by IMPLAN Group, LLC using a software/database system called IMPLAN (IMpact analysis for PLANning), a widely-used and widely-accepted general input-output modeling software and data system that tracks each unique industry group in every level of the regional data (IMPLAN Group, 2015).

This report analyzes three levels of impact that the proposed Facility may have on the economy:

On-site labor impacts: These are the direct impacts experienced by the companies/individuals residing in New York State engaged in the onsite construction and operation of the Facility. These values represent expenditure of dollars on labor (wages, salaries and associated expenses) by Facility onsite construction personnel as well as operation and maintenance (O&M) personnel. On-site labor impacts do not reflect material expenditures. Most other input-output models consider this level as "direct impacts," referring to changes in jobs, economic activity and earnings associated with the immediate impacts created by the investment, which would include the equipment installed onsite, the concrete used onsite, etc. However, the immediate economic impacts of the physical items used onsite, normally included in direct impacts, typically occur at some geographic distance from the project itself. Because of JEDI's focus on the local impacts of a Facility, only the labor associated with the on-site location of the Facility (Construction, Construction-Related Services and Onsite Labor during Operational Years) is counted at this level.

Turbine, local revenue, and supply chain impacts: These impacts measure the estimated increase in demand for goods and services in industry sectors that supply or otherwise support the companies engaged

in construction and operation (also known as “backward-linked” industries). These measures account for the demand for goods and services such as turbine components, project analysis, legal services, financing, insurance, etc. Most other input-output models consider this level as “indirect impacts,” referring to economic impacts associated with linked sectors in the economy that are upstream of the direct impacts, such as suppliers of hardware used to make the equipment installed onsite or the concrete used onsite. However, because of JEDI’s focus on the local impacts of the Facility, labor for components of this Facility (e.g., turbine manufacturers) occurring at off-site locations is also counted in this level as a local revenue and supply chain impact.

Induced impacts: Induced impacts measure the estimated effect of increased household income resulting from the project. Induced impacts reflect the reinvestment of earned wages, as measured throughout the first two levels of economic impact. This reinvestment can occur anywhere throughout the local, regional, or state economy on household goods, entertainment, food, clothing, transportation, etc.

Each of these three levels of impact can be measured in terms of three indicators: jobs (as expressed through the increase in employment demand), the amount of money earned through those jobs, and the overall economic output associated with each level of economic impact. These indicators are described in further detail:

Jobs: Jobs refer to the increase in employment demand because of facility development. These positions are measured across each level of impact, so that they capture the estimated number of jobs on site, in supporting industries, and in the businesses that benefit from household spending. For the purposes of this analysis, this term refers to the total number of year-long full-time equivalent (FTE) positions created by the Facility. Persons employed for less than full time or less than a full year are included in this total, each representing a fraction of a FTE position (e.g., a half-time, year-round position is 0.5 FTE).

Earnings: This measures the wages and salary compensation paid to the employees described above.

Output: Output refers to the value of industry production in the state economy, across all appropriate sectors, associated with each level of impact. For the manufacturing sector, output is calculated by total sales plus or minus changes in inventory. For the retail sector, output is equal to gross profit margin. For the service sector, it is equal to sales volume. For example, output would include the profits incurred by those businesses that sell electrical transmission line, concrete, or motor vehicle fuel to the Applicant.

Calculating the number of jobs and economic output from a proposed facility using the JEDI model is a two-step process. The first step requires facility-specific data inputs (such as year of construction, size of facility, turbine size and location). These facility-specific data were used to provide a baseline set of assumptions that would produce a

conservative estimate of the total positive jobs and economic impacts produced by this Facility. Note that although the Applicant presents a turbine layout of up to 33 turbines for Article 10 permitting purposes, the economic analysis for the socioeconomic report assumes a 29-turbine layout. This is to both to be consistent with the economic benefit information presented in the Applicant's NYSERDA Application and to avoid overestimating the Facility's economic benefits in the Article 10 Application. The economic analysis assumes 29 rather than 33 turbines, and as such the maximum project nameplate capacity also has been reduced (from up to 124 MW identified elsewhere in the Application to 121.8 MW). This reduction in project nameplate capacity is also consistent with the Applicant's NYSERDA Application and avoids overestimating facility benefits

For purposes of the JEDI model, the Applicant has assumed the following inputs:

- Location: Broome County and New York State
- Year of Construction: 2020
- Total Project Nameplate Capacity: 121.8 MW
- Number of Projects: 1
- Number of Turbines: 29

Using this facility-specific data, the JEDI model then creates a list of default values, which include project cost values, default tax values, default lease payment values, and default local share of spending values. These default values are derived from 10 years of research by NREL, and stem from various sources, including interviews and surveys of leading project owners, developers, engineering and design firms, and construction firms active in the wind energy sector. The second step of the JEDI model methodology requires the review, and if warranted, the customization of default project cost values to more reasonable estimates. The Applicant reviewed the default project cost values subtotaled by each of the following categories in the JEDI model: Equipment during Construction, Balance of Plant Construction, Labor during Operation & Maintenance (O&M), Materials and Services during Operation & Maintenance, Tax Parameters, Land Payments during Operation and Payroll Parameters and determines whether they are appropriate for the project under review. In this case, the Applicant reviewed the default values for the various categories in the JEDI model to determine whether they were on par with the real costs as experienced by the Applicant's team of development and financial experts. As a result of that review, adjustments were made to specific default values (see Table 10) The remaining actual cost values were unknown at the time of analysis (May 2018); therefore, the remaining JEDI default values were reviewed and determined to be reasonable estimates based on the Applicant's previous experience in wind energy development.

Table 10. Adjustments Made to JEDI Model Cost Inputs

JEDI Cost Items (Annual Estimates)	Default Value	Adjusted Value	Change
Construction Equipment Costs	\$153,664,902	\$ [REDACTED]	[REDACTED]
Construction Materials Costs	\$32,200,273	\$ [REDACTED]	[REDACTED]
Construction Labor Total Costs	\$14,314,933	\$ [REDACTED]	[REDACTED]
Development/Other Costs	\$5,731,286	\$ [REDACTED]	[REDACTED]
Sales Tax for Construction Materials and Equipment	\$6,776,921	\$ [REDACTED]	[REDACTED]
Operating/Maintenance Labor Costs	\$495,661	\$ [REDACTED]	[REDACTED]
Operating/Maintenance Materials and Services	\$2,427,539	\$ [REDACTED]	[REDACTED]
Sales Tax for Operating/Maintenance Materials and Equipment	\$71,429	\$ [REDACTED]	[REDACTED]
Revenues for Local Tax Jurisdictions (\$/MW)	N/A	\$ [REDACTED]	[REDACTED]
Land Payments (during Operation)	\$365,400	\$ [REDACTED]	[REDACTED]

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018); Applicant customization

Estimated non-payroll expenditures estimated to be made both within New York State and within Broome County are listed in Table 11a (Construction Period) and Table 11b (Operation Period).

Table 11a. Estimate of Annual Direct Non-Payroll Expenditures during Construction

Construction Cost Item	Project Expenditures	State Share	Statewide Expenditures	County Share	County Expenditures
Equipment Costs					
Turbines (excluding blades and towers)	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Blades	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Towers	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Transportation	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Balance of Plant Materials					
Construction (concrete, rebar, equip, roads and site prep)	\$ [REDACTED]	90%	\$ [REDACTED]	49%	\$ [REDACTED]
Transformer	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Electrical (drop cable, wire)	\$ [REDACTED]	100%	\$ [REDACTED]	0%	\$ [REDACTED]
HV line extension	\$ [REDACTED]	70%	\$ [REDACTED]	0%	\$ [REDACTED]
Development/Other Costs					
HV Sub/Interconnection Materials	\$ [REDACTED]	90%	\$ [REDACTED]	0%	\$ [REDACTED]
Engineering	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Legal Services	\$ [REDACTED]	100%	\$ [REDACTED]	0%	\$ [REDACTED]
Land Easements	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Site Certificate/Permitting	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Sales Tax (Material and Equipment Purchases)	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018); Applicant customization

Table 11b. Estimate of Annual Direct Non-Payroll Expenditures during Operation

Operation Cost Item	Project Cost	State Share	Statewide Expenditures	County Share	Countywide Expenditures
Materials and Services					
Vehicles	\$ [REDACTED]	100%	\$ [REDACTED]	48%	\$ [REDACTED]
Site Maintenance/Misc. Services	\$ [REDACTED]	80%	\$ [REDACTED]	9%	\$ [REDACTED]
Fees, Permits, Licenses	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Utilities	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Insurance	\$ [REDACTED]	0%	\$ [REDACTED]	0%	\$ [REDACTED]
Fuel (motor vehicle gasoline)	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Consumables/Tools & Misc. Supplies	\$ [REDACTED]	100%	\$ [REDACTED]	17%	\$ [REDACTED]
Replacement Parts, Equipment, Spare Parts Inventory	\$ [REDACTED]	2%	\$ [REDACTED]	0%	\$ [REDACTED]
Sales Tax (Materials & Equipment Purchases)	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Other Taxes/Payments	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Revenues for Local Tax Jurisdictions	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]
Land Payments (during Operation)	\$ [REDACTED]	100%	\$ [REDACTED]	100%	\$ [REDACTED]

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018); Applicant customization

The analysis presented here used the most currently available multiplier data specific to New York (2016) and specific to Broome County (2016) to estimate potential impacts on a statewide and countywide basis. The results of this analysis, estimated for both the construction and operation phases of the proposed Facility, are presented in Tables 12a and 12b and described in the narrative that follows.

Table 12a. Summary Results of Statewide Jobs and Economic Impact Analysis

	Jobs	Earnings (Millions)	Output (Millions)
Construction			
Project Development and Onsite Labor Total	150	\$11.4	\$12.4
Construction & Interconnection Labor	141	\$10.3	-
Construction-Related Services	9	\$1.1	-
Turbine & Supply Chain Impacts	297	\$21.8	\$62.1
Induced Impacts	109	\$8.2	\$21.7
Total Impacts	556	\$41.4	\$96.2
Annual Operation			
Onsite Labor Impacts	7	\$0.6	\$0.6
Local Revenue & Supply Chain Impacts	11	\$0.9	\$3.3
Induced Impacts	6	\$0.5	\$1.3
Total Impacts	24	\$2.0	\$5.2

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

Table 12b. Summary Results of Countywide Jobs and Economic Impact Analysis

	Jobs	Earnings (Millions)	Output (Millions)
Construction			
Project Development and Onsite Labor Total	19	\$1.3	\$1.3
Construction & Interconnection Labor	19	\$1.3	-
Construction-Related Services	0	\$0.0	-
Turbine & Supply Chain Impacts	87	\$4.6	\$14.3
Induced Impacts	41	\$1.9	\$6.3
Total Impacts	147	\$7.8	\$21.9
Annual Operation			
Onsite Labor Impacts	7	\$0.4	\$0.4
Local Revenue & Supply Chain Impacts	6	\$0.3	\$2.0
Induced Impacts	5	\$0.2	\$0.8
Total Impacts	18	\$0.9	\$3.1

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

2.1 Economic Impact of Construction in Broome County and New York State

Based upon JEDI model computations, it is anticipated that construction of the proposed Facility will generate employment of an estimated 150 FTE onsite Construction and Construction-Related positions for New York State residents, 141 of which will be for Construction and Interconnection labor and 9 of which will be Construction-Related Services (engineers and other professional services). At the county level, the Facility is estimated to generate employment of an estimated 19 FTE onsite Construction and Construction-Related positions for County residents, all of which will be for Construction and Interconnection labor.

The JEDI model estimates a total of \$11.4 million for annual earnings of the 150 onsite construction jobs for New York State residents; \$1.3 million of which is the estimated for annual earnings of the 19 onsite construction jobs for Broome County residents. These estimates of the annual construction earnings by trade are listed in Tables 13a and 13b. Estimated earnings represent total wages and salary compensation paid to New York State and Broome County employees (i.e., wages plus 37.6% average annual overhead costs including SSI, Medicare, workers' compensation, and disability). Project Development and Onsite Labor earnings are realized by New York State and Broome County residents who are engaged in the construction of the Facility, including the Construction, Engineering and Professional Services trades. Turbine, Local Revenue, and Supply Chain earnings are estimated for New York State and Broome County residents based on the increased demand for goods and services in industry sectors that supply or otherwise support the companies engaged in construction and operation (known as "backward-linked industries"). Induced earnings reflect the estimated increase in household spending by onsite employees due to an increase in their earnings, which is subsequently used to purchase local goods and services, creating a ripple effect throughout the County and State.

Table 13a. Annual Earnings by Trade Statewide During Construction Period (in \$ Millions)

Trade	Project Development and Onsite Labor Earnings	Turbine & Supply Chain Earnings	Induced Earnings
Agriculture	\$0.0	\$0.0	\$0.0
Mining	\$0.0	\$0.0	\$0.0
Construction	\$10.3	\$9.9	\$3.6
Manufacturing	\$0.0	\$4.1	\$1.1
Fabricated Metals	\$0.0	\$0.0	\$0.0
Machinery	\$0.0	\$0.0	\$0.0
Electrical Equipment	\$0.0	\$0.0	\$0.0
Transport., Communication & Utilities	\$0.0	\$0.0	\$0.0
Wholesale Trade	\$0.0	\$0.0	\$0.0
Retail Trade	\$0.0	\$3.3	\$0.9
Finance, Insurance, and Real Estate	\$0.0	\$0.4	\$0.1
Misc. Services	\$0.0	\$3.5	\$0.9
Engineering & Professional Services.	\$1.1	\$0.3	\$0.4
Government	\$0.0	\$0.2	\$1.2
Total	\$11.4	\$21.8	\$8.2

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Earnings are independently rounded, and therefore may not add up directly to the integers shown in this table.

Table 13b. Annual Earnings by Trade Countywide During Construction Period (in \$ Millions)

Trade	Project Development and Onsite Labor Earnings	Turbine & Supply Chain Earnings	Induced Earnings
Agriculture	\$0.0	\$0.0	\$0.0
Mining	\$0.0	\$0.0	\$0.0
Construction	\$1.3	\$4.1	\$1.0
Manufacturing	\$0.0	\$0.0	\$0.0
Fabricated Metals	\$0.0	\$0.0	\$0.0
Machinery	\$0.0	\$0.0	\$0.0
Electrical Equipment	\$0.0	\$0.0	\$0.0
Transport., Communication & Utilities	\$0.0	\$0.0	\$0.0
Wholesale Trade	\$0.0	\$0.0	\$0.0
Retail Trade	\$0.0	\$0.0	\$0.0
Finance, Insurance, and Real Estate	\$0.0	\$0.2	\$0.1
Misc. Services	\$0.0	\$0.0	\$0.0
Engineering & Professional Services.	\$0.0	\$0.0	\$0.0
Government	\$0.0	\$0.2	\$0.9
Total	\$1.3	\$4.6	\$1.9

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Earnings are independently rounded, and therefore may not add up directly to the integers shown in this table.

The Applicant's construction management team has further evaluated the estimated peaks of 150 FTE statewide construction jobs and 19 FTE countywide construction jobs to provide the following estimated distribution of average work force, by discipline, for each quarter during the construction year 2020. The results are summarized in Tables 14a and 14b.

Table 14a. Estimated Quarterly Statewide Labor Averages

Quarterly Period	Construction and Interconnection Labor Quarterly Average FTE Jobs	Construction-Related Services (Engineers and Other Professional Services) Quarterly Average FTE Jobs
Q1 (Jan-Mar)	27	3
Q2 (Apr-Jun)	95	7
Q3 (Jul-Sep)	120	8
Q4 (Oct-Dec)	34	5

Source: Jobs and Economic Development Impact Model (USD OE NREL, 2018), Evaluation by Applicant's Construction Management Team

Table 14b. Estimated Quarterly Countywide Labor Averages

Quarterly Period	Construction and Interconnection Labor Quarterly Average FTE Jobs	Construction-Related Services (Engineers and Other Professional Services) Quarterly Average FTE Jobs
Q1 (Jan-Mar)	5	0
Q2 (Apr-Jun)	14	0
Q3 (Jul-Sep)	17	0
Q4 (Oct-Dec)	5	0

Source: Jobs and Economic Development Impact Model (USD OE NREL, 2018), Evaluation by Applicant's Construction Management Team

As estimated by the JEDI model, turbine manufacturing and supply chain industries could in turn generate an additional 297 jobs (with a total \$21.8 million in earnings) in New York State and 87 jobs (with a total \$4.6 million in earnings) in Broome County over the course of Facility construction. In addition, Facility construction could induce demand for 109 jobs (with a total \$8.2 million in earnings) statewide and 41 jobs (with a total \$1.9 million in earnings) countywide through the spending of additional household income. The total estimated impact of 556 new jobs statewide during construction could result in up to \$41,400,000 of earnings, assuming a 2020 construction schedule and wage rates consistent with statewide averages. County residents are estimated to obtain 147 of those construction jobs, resulting in up to \$7.8 million of earnings countywide. Facility construction labor wages for similar positions within New York State range from approximately \$21 to \$32 per hour for laborers, and \$44 per hour for project management. Local, regional, and statewide employment during the construction phase will primarily benefit those in the construction trades, including equipment operators, truck drivers, laborers, and electricians. Facility construction will also require workers

with specialized skills, such as crane operators, turbine assemblers, specialized excavators, and high voltage electrical workers. It is anticipated that many of the highly-specialized workers will come from outside the area and will remain only for the duration of construction.

In addition to jobs and earnings, the construction of the Facility is expected to have a positive impact on statewide economic output, a measurement of the value of goods and services produced and sold by backward-linked industries. As described in the definition above, output provides a general measurement of the amount of profit earned by manufacturers, retailers, and service providers connected to a given project. The value of economic output associated with Facility construction is estimated to be \$96,200,000 statewide and \$21,900,000 countywide. Between workers' additional household income and industries' increased production, the impacts associated with the Facility are likely to be experienced throughout many different sectors and regions of the statewide economy.

2.2 Economic Impact of Operations in Broome County and New York State

Based upon JEDI model computations, the operation and maintenance of the proposed Facility is estimated to generate seven full-time jobs for NYS residents with combined estimated annual earnings of approximately \$600,000. Broome County residents are anticipated to hold all seven of these onsite operational jobs. These seven positions have been verified as reasonable by the Applicant based on actual job numbers at other facilities in New York, and are anticipated to be comprised of technicians, project management and administrative personnel. Projected wage rates are anticipated to be consistent with statewide averages, which are estimated to range from approximately \$17 for administrative personnel per hour to approximately \$27 per hour for technical personnel to approximately \$43 per hour for facility management. Table 15 provides an overview of annual wages of each full-time job position. These seven full-time local jobs generated by the wind energy facility comprise the Facility's onsite long-term employment impact.

Table 15. Hourly and Annual Wages of Onsite Labor during Operational Years

Positions	Number of Positions	Hourly Wage per Job	Annual Wages per Job ³
Technicians	5	\$29.25	\$60,846
Administrative/Secretarial	1	\$18.72	\$38,941
Site Management	1	\$46.80	\$97,353

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2018)

Note: Wages and number of positions are independently rounded, and therefore may not equate directly to the totals shown.

³ Note that hourly and annual wages of onsite labor during operational years do not include total employer costs (employee wages plus 37.6% average annual overhead costs including SSI, Medicare, workers' compensation, and disability). Total employer costs are represented in the total of annual earnings of onsite labor during operational years (see Table 12b).

Operation and maintenance should also generate new jobs in other sectors of the statewide economy through secondary employment, consisting of supply chain and local revenue impacts and the expenditure of new and/or increased household earnings. In total, while in operation, the Facility is estimated to generate a secondary employment demand of 17 jobs statewide with annual earnings of approximately \$1,400,000 and 11 jobs countywide with annual earnings of approximately \$500,000. This secondary employment is estimated to have an economic output of \$4.6 million annually statewide and \$2.8 million annually countywide. Total economic output is projected to increase by an estimated \$5.2 million statewide and \$3.1 million countywide as a result of Facility operation and maintenance (see Tables 12a and 12b).

In addition to the economic benefits of Facility-related jobs, operation of the Facility also will result in payment to local landowners in association with the lease and easement agreements executed to host Facility components, as well as GNAs executed with certain adjacent properties receiving compensation for the landowner's consent and waiver and of certain requirements applicable to the landowner's property. These annual lease, easement, and GNA payments will offer direct benefits to participating landowners, in addition to any income generated from the existing underlying land use (e.g., agricultural production). As indicated above, the Applicant has estimated these payments to be \$[REDACTED] annually (see Table 11b). These lease, easement and GNA payments will have a positive impact on the region to the extent that landowners spend their revenue locally.

Thus, the local economy will experience a positive increase in jobs, earnings, and local economic activity that will last during the operational years of the Facility.

2.3 Economic Impacts on Property Taxes and Local Taxing Jurisdictions

Local Public Expenditures and Tax Revenues

The Bluestone Wind Facility will place little, if any, demand on municipal and school district services and so will have virtually no impact on municipal expenses. As a preliminary matter, wind turbines do not require municipal water, sewer, or solid waste disposal services.

With respect to police services, as part of its Application, the Applicant has committed to developing and implementing security measures, including security lighting, fencing, locked gates, signage and other measures designed to restrict site access and deter trespassers during construction and operation of the Facility. The Applicant also will implement an emergency action plan that includes measures for responding to various emergencies, including those that could

potentially involve the police. These measures, taken together, will limit the need for the Facility to utilize municipal police services.

With respect to fire, local fire departments may be called upon to respond to fire-related emergencies common to construction projects generally. However, once the Facility is operational, municipal fire departments are not expected to be called upon to fight turbine fires since the current best practice is to let the fire burn out at a turbine (although the local fire department may be called upon to monitor turbine fires to prevent or respond to fires on the ground resulting from a turbine fire). As a result, Facility operations are not expected to impact municipal fire services. In the unlikely event that municipal fire services are utilized, the annual revenues from the Facility's fire district taxes to the Town of Windsor's Fire District 3 and the Town of Sanford's Fire Protection District 1 will be an available revenue source to cover any costs.

With respect to emergency medical response, local emergency medical services may be called upon to respond to medical emergencies common to construction projects generally. Once the Facility is operational, the nacelle of each turbine will likely be equipped with an emergency descent for use in lowering sick or injured employees to the ground. Local emergency responders will not be expected to supply equipment or assist with the task of rescuing personnel from the tower. In the event an employee takes ill or is injured during maintenance/repair of a turbine or related equipment, local emergency services may be called to assist the employee once he/she has been lowered to the ground. However, given the small number of employees required to operate and maintain the Facility, the potential financial burden on a particular town of providing such services is expected to be comparatively small.

Although transportation of major Facility components during construction could potentially impact certain roadways, the Applicant has committed to addressing/mitigating these impacts in accordance with Road Use Agreements entered into with the towns either separately or as part of the HCA, which require the Applicant to restore any roadways impacted by the transportation of Facility components during construction and operation of the Facility. By virtue of these agreements, the towns in which the Facility is located will not incur any additional highway maintenance costs related to the Facility other than normal wear and tear associated with the use of non-oversized/overweight vehicles required to transport workers and equipment to and from the Facility Site for operation and maintenance purposes.

More generally, some wind farm employees may elect to live in the towns in which the Facility is located. However, the impact of these employees and their facilities on town services are expected to be miniscule. Moreover, any marginal increase in services is expected to be recovered through the employees' property tax payments.

With respect to the local school districts, some of the wind farm employees may have school-aged children. This may cause a marginal increase in school district services and expenditures; however, it is assumed that such expenditures can be recovered through those employees' school tax payments and the respective district's state aid. Moreover, as presented in Table 16, the affected school districts will receive a considerable share of the PILOT that will more than offset any possible increase in expenses incurred by the districts as a result of Facility employee children entering the districts.

Annual Payment Amounts to Local Taxing Jurisdictions

In exchange for a partial real property tax exemption, the Applicant expects to execute a PILOT Agreement, which will require annual PILOT payments to each taxing jurisdiction identified in Table 16 for the next 25 years. Although the terms of the PILOT Agreement have not been finalized, similar to other wind projects in New York State, the Applicant plans to enter into a PILOT with an estimated total annual payment rate of \$[REDACTED] per megawatt installed during the term of the PILOT. Over the expected 25-year term of the PILOT, the estimated annual PILOT amount would total \$[REDACTED] per year, accumulating up to \$[REDACTED] (in 2018 dollars) over 25 years. The total amount will be distributed across five taxing jurisdictions. Within the \$[REDACTED] MW PILOT, the Applicant expects a portion of that rate to be allocated to HCAs with host municipalities. Final HCAs will consider the capacity for each turbine installed by the Applicant in the municipality as part of this project. However, at the time of this report, the exact amount of these HCAs is unknown due to ongoing negotiations with local municipalities. The Applicant also estimates that a total of \$[REDACTED] will be paid annually to the Town of Windsor Fire District 3 and an estimated \$[REDACTED] will be paid annually to the Town of Sanford Fire District 1. Over 30 years, the Applicant estimates that the taxes will total \$[REDACTED] for the Town of Windsor Fire District 3, and \$[REDACTED] for the Town of Sanford Fire District 1.

The Applicant plans to execute PILOTs with each taxing jurisdiction within the Study Area. Towns receiving PILOTs will include the Towns of Sanford and Windsor. Schools districts receiving PILOTs will include Deposit and Windsor Central School Districts. Broome County also will receive PILOTs. Table 16 summarizes the estimated PILOT payments projected to be made to each taxing jurisdiction within the Study Area. The estimated annual PILOTs for each taxing jurisdiction are determined by multiplying the proportional share of school/town/county property taxes by the prevailing PILOT rate \$[REDACTED] MW, then multiplying this product by the total installed capacity within each jurisdiction. The 2017 local tax rates are presented for each jurisdiction within the Study Area. Table 16 also reflects the varied turbine distributions across towns and school districts by the number of turbines located within each taxing jurisdiction and their estimated nameplate capacity. Among the towns, the most turbines (25 out of 29 turbines) are in the Town of Sanford. Among the school districts, the most turbines (23 out of 29 turbines) are in the Deposit Central School District.

Table 16. Estimated Annual and Total PILOT Amounts⁴

Taxing Jurisdictions Receiving PILOTs	Full Value 2017 Tax Rates ⁵	Number of Turbines within Jurisdiction	Estimated Annual Installed Capacity (MW) within Jurisdiction ⁶	Payment per MW	Share of Total	Annual PILOT Estimate	25-Year PILOT Estimate
Town of Sanford	0.29%	25	16.8	████████	15.7%	\$ ██████████	\$ ██████████
Town of Windsor	0.47%	4	105.0	████████	1.3%	\$ ██████████	\$ ██████████
Deposit Central School District	1.29%	23	96.6	████████	40.7%	\$ ██████████	\$ ██████████
Windsor Central School District	2.09%	6	25.2	████████	13.5%	\$ ██████████	\$ ██████████
Broome County	0.76%	29	121.8	████████	28.8%	\$ ██████████	\$ ██████████
Facility Total	N/A	29	121.8	████████	100.0%	\$ ██████████	\$ ██████████

As reflected in Table 16, over the span of the 25-year PILOT Agreement, an estimated total of \$ ██████████ (in 2018 dollars) will be paid to the local taxing jurisdictions. The structure of this agreement will be guaranteed for the 25-year period of the PILOT agreement, providing a continuous revenue stream to each affected jurisdiction. Upon expiration of the PILOT Agreement, tax payments will be dependent upon the depreciated value of the Facility's generating assets and the appraised value of the Facility at that time.

3. Consistency with State Smart Growth Public Infrastructure Criteria

The New York State Smart Growth Public Infrastructure Policy Act (hereinafter "Smart Growth Act") is meant to maximize the social, economic, and environmental benefits from public infrastructure development by minimizing the impacts associated with unnecessary sprawl. Under the Smart Growth Act, State infrastructure agencies, such as the New York State Department of Transportation (NYSDOT), shall not approve, undertake, or finance a public

⁴ All values in this table, apart from number of turbines within jurisdictions, are independently rounded, and therefore may not directly add up to the totals shown. All calculations utilized unrounded values.

⁵ These represent 2017 tax obligations to each type of taxing jurisdiction within the Study Area. This approach is utilized to provide a reasonable estimate at this time only. Final PILOT rates for all jurisdictions have yet to be determined.

⁶ Annual nameplate capacity within jurisdictions is calculated by multiplying the number of turbines located within each jurisdiction by the turbine nameplate capacity (4.2 MW/turbine).

infrastructure project, unless, to the extent practicable, the project is consistent with the smart growth criteria set forth in New York Environmental Conservation Law (ECL) § 6-0107.

Although the Facility will not result in the construction or operation of public infrastructure and will not result in unnecessary sprawl, approvals from the NYSDOT may be required to allow Facility components to cross state highways (e.g., State Route 17). Therefore, this section provides a detailed statement regarding the Facility's consistency with the smart growth criteria in ECL § 6-0107(2). As discussed below, the Facility is consistent with five applicable criteria while the remaining five criteria do not apply to the Facility.

1) Criterion 1: To advance projects for the use, maintenance, or improvement of existing infrastructure

The purpose of the Facility is to create an economically viable wind-powered electrical-generating facility that will provide a source of renewable energy to the New York State grid, and in doing so, improve the State's existing energy infrastructure. The Facility components include up to 33 wind turbines and their associated access roads, collection lines, permanent meteorological towers, operations and maintenance building, laydown area, collection substation, and point of interconnection (POI) substation, including battery storage. While these Facility components are not public infrastructure and are generally not expected to result in the operation of public infrastructure, the Facility will contribute up to 124 MW of renewable energy to the New York State grid⁷. As reported by the Preliminary Scoping Statement (August 2017), total net generation delivered to the existing NYSEG's existing Afton to Stilesville 115 kV transmission line is expected to generate enough electricity to meet the average annual consumption of thousands of households in New York State. Additionally, the Facility will use portions of existing State highway infrastructure to transport equipment. However, none of these activities are anticipated to have any long-term impact on existing infrastructure.

After careful consideration of its contribution to and utilization of both the New York State power grid and transportation routes identified above, it has been determined the Bluestone Wind Facility is consistent with this smart growth criterion. Consequently, the necessary changes to the public infrastructure (contribution of renewable energy to power grid, utilization of existing transportation routes and construction of access road intersections to existing roads) are also consistent with the criterion.

⁷ Note although the Applicant has assumed a layout of up to 33 turbines for Article 10 permitting purposes generally, this socioeconomic report (and its related Exhibit 27) analyze the total number of positive jobs and economic impacts produced by the Facility based on a 29-turbine layout. This is to both to be consistent with the economic benefit information presented in the Applicant's New York State Energy Research and Development Authority (NYSERDA) Application and to avoid overestimating the Facility's economic benefits in the Article 10 Application.

2) Criterion 2: To advance projects located in municipal centers

"Municipal centers" are defined in the Smart Growth Act as "areas of concentrated and mixed land uses that serve as centers for various activities, including, but not limited to, central business districts, main streets, downtown areas, brownfield opportunity areas, downtown areas of local waterfront revitalization program areas, transit-oriented development, environmental justice areas, and hardship areas," as well as "areas adjacent to municipal centers, which have clearly defined borders, are designated for concentrated development in the future in a municipal or regional comprehensive plan, and exhibit strong land use, transportation, infrastructure and economic connections to a municipal center; and areas designated in a municipal or comprehensive plan, and appropriately zoned in a municipal zoning ordinance, as a future municipal center."

Large-scale wind energy projects, such as the Facility, require extensive land; moreover, the requirement for setbacks from residences and other structures restricts large-scale wind energy projects to comparatively isolated rural areas. Therefore, this criterion does not apply to the Facility.

3) Criterion 3: To advance projects in developed areas or areas designated for concentrated infill development in a municipally approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan

See discussion of Criterion 2 above. Large-scale wind energy projects such as the Bluestone Wind Facility cannot be located within areas designated for concentrated infill development nor are they well-suited to developed waterfront areas and/or brownfield opportunity areas. Therefore, this criterion does not apply to the Facility.

4) Criterion 4: To protect, preserve and enhance the state's resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources

The Facility will generate up to 124 MW of much-needed clean energy while largely preserving the vacant, agricultural and forested land that comprises the Facility Site. The Facility's Article 10 Application provides a detailed analysis of the potential environmental impacts and benefits, including analyses specifically associated with agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources. In addition, a Visual Impact Assessment (VIA) has been prepared

which assesses potential visual impacts within a 10-mile radius of the Facility Site. As documented in the VIA and the Project's Cultural Resources Work Plan (EDR, 2018), the Applicant will continue to work with the local stakeholders to identify potential opportunities for mitigation. For instance, the Applicant may fund one more visual/cultural mitigation projects previously identified by State and local agencies. Based on these analyses, the Applicant believes that the Facility has avoided and minimized impacts to these resources to the maximum extent practicable (based on the layout as currently proposed), and that any remaining impacts are outweighed by the benefit provided by the Facility's generation of up to 124 MW of clean, renewable energy. Therefore, the Facility is consistent with this criterion.

- 5) Criterion 5: To foster mixed land uses and compact development; downtown revitalization; brownfield redevelopment; the enhancement of beauty in public spaces; the diversity and affordability of housing in proximity to places of employment, recreation, and commercial development; and the integration of all income and age groups.

See response to Criterion 2 above. The Facility must necessarily be located in a rural area well removed from any areas that would potentially experience compact development, downtown revitalization, or significant quantities of housing, etc. (e.g., villages and cities). Therefore, this criterion is not applicable.

- 6) Criterion 6: To provide mobility through transportation choices including improved public transportation and reduced automobile dependency

The Facility is does not directly or indirectly affect transportation options. Therefore, this criterion is not applicable.

- 7) Criterion 7: To coordinate between state and local government and inter-municipal and regional planning

The Applicant has conducted extensive public outreach to local government and planning agencies throughout the development and review of the Facility. This has included the public outreach conducted in accordance with the requirements of the Article 10 process and the Public Involvement Program (PIP) plan prepared specifically for the Facility, which includes frequent stakeholder consultation and other forms of engagement, public education, public meetings, ample notification periods, and public comment periods at key milestones. The Applicant also has reached out individually to each of the local governments that will be directly affected by the Facility. Moreover, the Article 10 process specifically requires outreach and coordination between the Applicant and State agencies with a role in reviewing the Application for the proposed Facility. To the extent applicable, these outreach efforts

and municipal/agency consultations satisfy the criterion related to coordination between State and local governments.

8) Criterion 8: To participate in community-based planning and collaboration

The Applicant team has conducted and will continue to conduct extensive public outreach to community-based organizations throughout the development and review of the Facility. This has included the public outreach conducted in accordance with the requirements of the PIP. See response to Criterion 7 for additional detail. These outreach efforts satisfy the criterion related to participation in community-based planning and collaboration.

9) Criterion 9: To ensure predictability in building and land use codes

The Applicant has no role in or authority over the development or enforcement of building or land use codes in the Towns of Windsor and Sanford. Therefore, this criterion does not apply to this Facility.

10) Criterion 10: To promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations by among other means, encouraging broad-based public involvement in developing and implementing a community plan and ensuring the governance structure is adequate to sustain its implementation

The Facility is consistent with State policies designed to encourage initiatives that reduce greenhouse gas emissions and contribute to the transition of New York's energy markets by encouraging renewable alternatives. The Facility promotes the reduction of greenhouse gas emissions through the use of renewable energy. The Facility, therefore, supports this smart growth criterion.

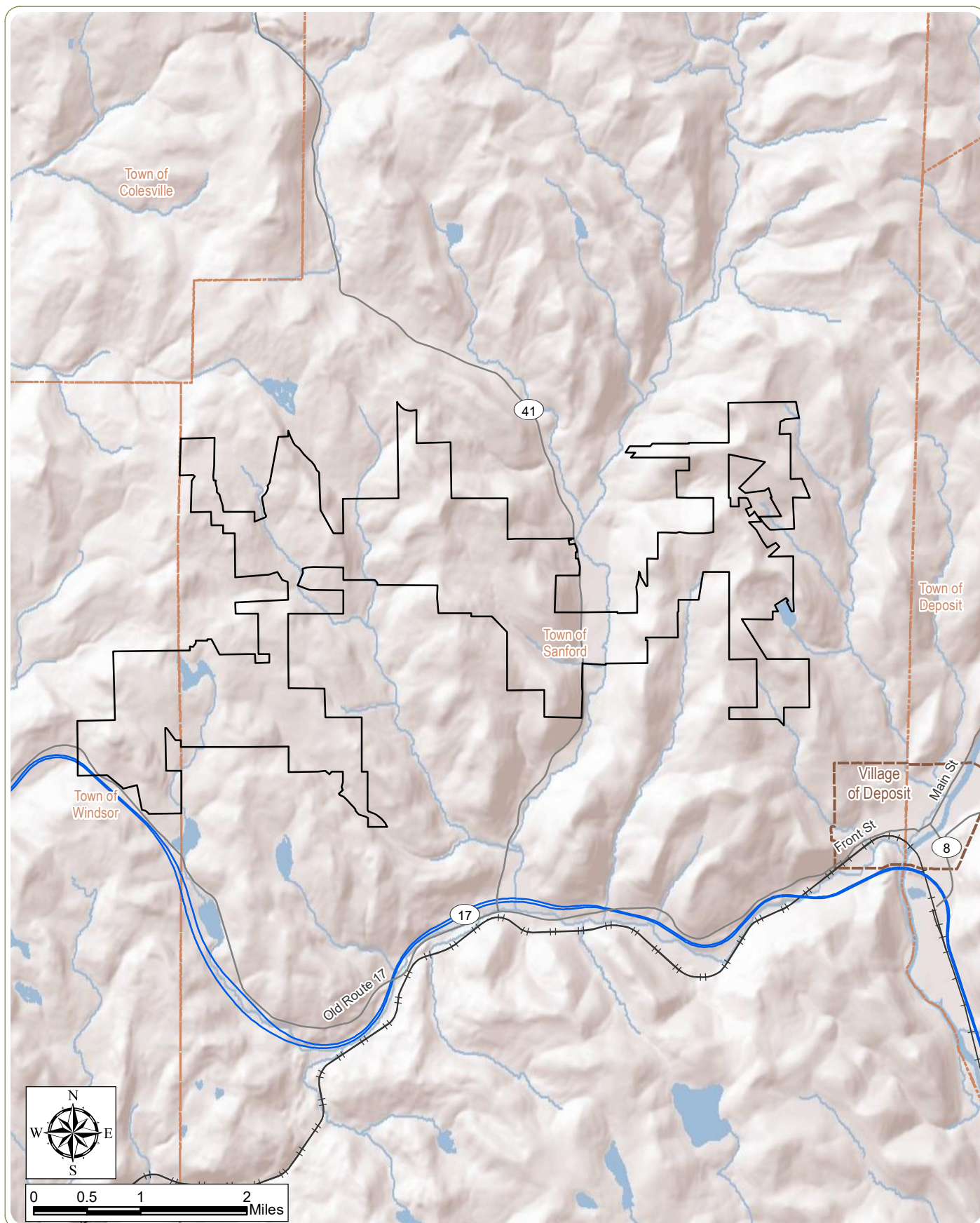
11) Smart Growth Attestation

The Smart Growth Act requires that the chief executive officer of a state infrastructure agency (or his or her designee) attest in writing that the project under review, to the extent practicable, meets the relevant smart growth criteria in ECL § 6-0107(2). As previously noted, the Facility will not result in the construction or operation of public infrastructure as that term is used in the Smart Growth Act. As a result, the requirement to obtain an attestation from the chief executive officer of a state infrastructure agency does not apply to the Facility.

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FIGURES



Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Socioeconomic Report

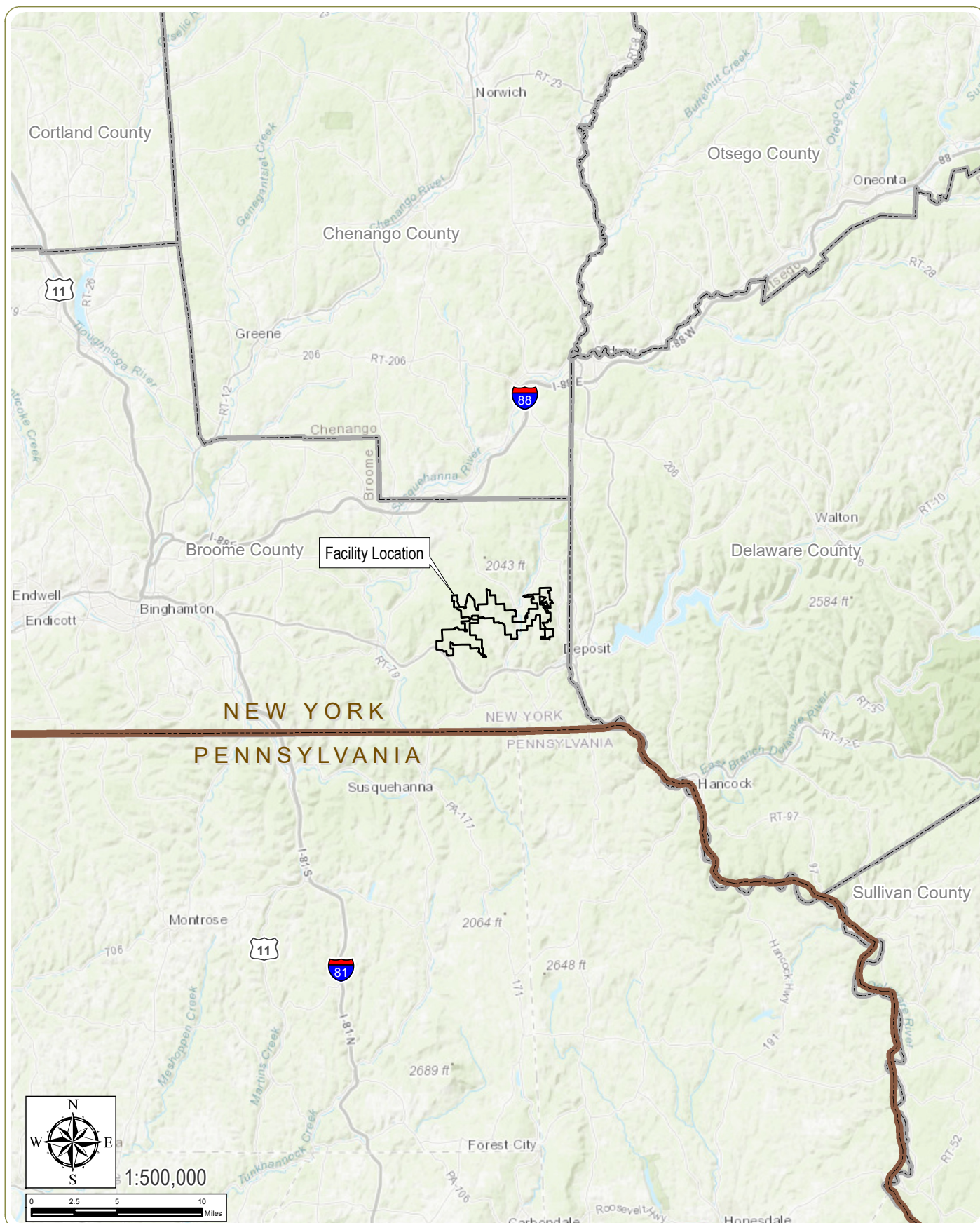
Figure 1: Facility Site

Notes: 1. Basemap: ESRI ArcGIS Online "World Shaded Relief" map service. 2. This map was generated in ArcMap on July 9, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

□ Facility Site



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Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Socioeconomic Report

Figure 2: Regional Facility Location

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic" map service. 2. This map was generated in ArcMap on May 24, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



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