



# **HIGH RIVER ENERGY CENTER**

**Case No. 17-F-0597**

**1001.27 Exhibit 27**

**Socioeconomic Effects**

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## Exhibit 27: Socioeconomic Effects

This Exhibit will track the requirements of proposed Stipulation 27, dated August 26, 2019 and therefore, the requirements of 16 NYCRR § 1001.27. The Project is located in the Town of Florida in Montgomery County, which is part of the Central Region of New York. The current demographic profiles of the communities are presented in Table 27-1 below:

**Table 27-1. Demographics<sup>1</sup>**

Population	Town of Florida	Montgomery County	New York
2010 Population <sup>2</sup>	2,696	50,219	19,378,124
2017 Population	2,718	49,500	19,798,228
Median Age	49.2	41.1	38.4
Foreign born population	2.0%	3.4%	22.7%
Veterans	8.3%	7.9%	4.9%
High school graduate or higher	93.1%	85.2%	86.1%
<i>Rural/Urban, 2010<sup>2</sup></i>			
Inside Urban Area	0.9%	59.1%	87.8%
Inside Rural Area	99.1%	40.9%	12.1%
<i>Race and Ethnicity</i>			
White	96.3%	88.2%	63.8%
Black or African American	0.0%	1.8%	15.7%
American Indian/Alaska Native	0.0%	0.1%	0.4%
Asian	1.8%	0.8%	8.3%
Native Hawaiian/Other Pacific Islander	0.0%	0.0%	0.0%
Some Other Race	0.0%	5.5%	8.7%
Two or more races	1.9%	3.6%	3.0%
Hispanic or Latino (any race)	3.2%	13.2%	18.8%
Total housing units	1,283	23,480	8,255,911
Median household income (2017\$)	\$49,293	\$47,449	\$62,765
Individuals below poverty level	13.9%	19.6%	15.1%
Labor Force, ACS	1,410	23,743	10,176,202
Percent unemployed	5.7%	7.3%	6.8%

Population	Town of Florida	Montgomery County	New York
Labor Force, BLS May 2019 <sup>3</sup>	N/A	22,250	9,541,725
Unemployed, May 2019	N/A	956	360,661
Unemployment rate, May 2019	N/A	4.3%	3.8%

<sup>1</sup>Unless otherwise noted, data are from the US Census Bureau's 2013-2017 American Community Survey (ACS) 5-year estimates program.

<sup>2</sup>US Census 2010 decennial census.

<sup>3</sup>Bureau of Labor Statistics (BLS). Data are not available at the town level.

**Economic Modeling**

The Applicant used the Job and Economic Development Impact (JEDI) model to estimate a range of likely secondary socioeconomic effects of the Project. The JEDI model was developed by the United States Department of Energy's National Renewable Energy Laboratory to estimate the economic effects associated with the construction and operation of power projects at the local or state level. For the purposes of this study, economic impacts were evaluated using the JEDI model to capture the cumulative effects of the proposed Project.

The JEDI model relies on economic multipliers derived from Minnesota IMPLAN Group's IMPLAN accounting software and state data files. The multipliers capture the influence of the project development and onsite labor impacts and the subsequent rounds of economic activity. For example, a project's salary expenditures result in local revenue and supply chain impacts on the economy as workers spend their wages or salaries on goods and services (e.g., dining at local restaurants), which consequently supports jobs in sectors that contribute to other industries (induced impacts).

JEDI addresses three measures of local direct and secondary economic impacts:

- Jobs: The jobs measure reflects changes in employment attributable to the development of an energy project. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).
- Earnings: Earnings captures the wages or salaries that are associated with jobs attributable to the development of an energy project. Earnings are expressed in terms of

2019 dollars.<sup>1</sup> While earnings represent wages or salaries for workers, this expense is recorded as *payroll* for the project. For the purposes of this analysis, JEDI's earnings projections will be reported as payroll.

- Output: Output measures economic activity. It includes all expenditures that are estimated to take place in an economy as a result of the development of a project. Output differs from gross regional product (GRP) in that output includes the value of production in addition to the purchases of inputs, whereas GRP is a measure of the value of production. Output is expressed in terms of 2019 dollars.

JEDI results, in terms of jobs, payroll (earnings), and output, are provided across three categories:

- Project development/construction and onsite labor impacts: These impacts include labor costs during the development, construction, and operation and maintenance (O&M) of a project. Labor costs may be associated with engineers, permitting specialists, crane operators, electricians, field technicians, and others. Parts and materials are not included in these types of impacts.
- Local revenue and supply chain impacts: This category includes all materials and equipment necessary for the construction of a project that are purchased locally. This may include wiring, hard hats, replacement parts, and the supply chain of inputs required to produce these materials. Expenses such as land easements, bookkeeping, financing, insurance, and utilities are also included in this category.
- Induced impacts: Induced impacts encompass the jobs and economic impacts that arise from spending by workers in the first two categories.

Together, the above impacts form the total direct and secondary economic impacts calculated by the JEDI models.

The JEDI models' results include two distinct time periods: construction, and operations and maintenance. Construction jobs are presented in terms of FTE jobs. While a part-time or temporary job may be considered one job by other models, it would only constitute a fraction of a job under the JEDI framework. For example, a three-month engineering job would add 0.25 FTE

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<sup>1</sup> Conversions between dollar years were made based on the JEDI models' deflator factors. These conversions were necessary to present all monetary amounts in terms of 2019 dollars (2019\$).

jobs to total estimated effects of the solar project. Equipment manufacturing jobs, such as solar module manufacturing, are captured in the construction period. The operation period results, which cover the life of a project, are reported as annual FTE jobs and annual economic activity.

For this Project, economic impact analyses were performed using the JEDI Model to analyze the construction of the Project. A range of results is provided, representing +/- 5 percent (95% to 105%) of expected costs to reflect the uncertainty associated with multiplier-based, secondary impact estimates. Key assumptions used in the JEDI models for this Project include:

- Construction of the Project in 2021;
- 113.15 megawatts of DC power; and
- Construction in the State of New York.

The Applicant customized the JEDI models using inputs specific to the High River Energy Center. These project-specific inputs include expenditures, wage rates, and percentage of spending that are local to New York.

### ***Limitations of the JEDI Model***

As with most input-output screening tools, the JEDI models focus on the economic impacts directly related to Project construction and operation (gross economic impacts). The JEDI Model does not evaluate other economic impacts associated with the Project.<sup>2</sup> Examples of other potential impacts include:

- Potential increases or decreases in electricity rates resulting from investments in new electricity infrastructure;
- Impacts associated with the possible cancellation of new power plants made unnecessary by the added capacity of the Project; and
- The displacement of some other type of economic activity due to investment in the proposed Project.

JEDI models do not calculate intangible or difficult to quantify effects associated with new projects. These types of effects include:

- Improvements in transmission or grid reliability;

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<sup>2</sup> See <https://www.nrel.gov/analysis/jedi/limitations.html> for more information.

- Changes in air or water emissions;
- Changes in water use from power generation;
- Changes in land use; and
- Stability of electricity prices that might result from the reduced fuel price risk of renewable sources of electricity.

Based on the JEDI results, this exhibit presents estimates of the annual secondary employment and economic activity likely to be generated in the vicinity of the Facility by the construction of the solar facility. To reflect the uncertainty associated with such, possibly multiplier-based, secondary impact estimates a range of estimates are provided. Limitations of the JEDI Model are discussed in more detail later sections of this exhibit.

**27(a) On-Site Construction Work-Force Impacts**

Based on prior industry experience, the Applicant estimates a total of 87.1 FTE jobs will be generated during construction. The majority of the workers will be laborers (31.4 FTE jobs) or electricians (27.4 FTE jobs). Table 27-2 summarizes the Applicant’s forecast of the employment by job type associated with the construction of the Project.

**Table 27-2. Applicant’s Forecasted FTE Jobs during Project Construction**

Type of Job	Number of FTE Jobs <sup>1</sup> Created
Laborers	31.4
Electricians	27.4
Equipment Operator	13.2
Construction Managers	8.0
Foreman	7.2
<b>Total FTE Jobs</b>	<b>87.1</b>

Note: Construction is anticipated to take place in 2021. Numbers shown may not sum to totals because of rounding.

<sup>1</sup>Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).

Based on prior industry experience, the Applicant has evaluated the expected quarterly total level of labor that will be required during the construction phase of the Project. Table 27-3 summarizes the Applicant’s forecast of the employment associated with the construction of the Project. This forecast is not based upon JEDI modeling.



**Table 27-3. Applicant’s Forecasted Labor Force during Project Construction**

<b>Timing of Construction Activity</b>	<b>Construction Labor</b>	<b>Engineers and Other Professional Services</b>	<b>Total</b>
2 <sup>nd</sup> Quarter 2021, Average	125.7	12.0	137.7
3 <sup>rd</sup> Quarter 2021, Average	157.3	12.0	169.3
4 <sup>th</sup> Quarter 2021, Average	47.0	12.0	59.0
<b>Peak Employment (June-August)</b>	<b>189.0</b>	<b>12.0</b>	<b>201.0</b>

Note: Construction is anticipated to take place in 2021. Numbers shown may not sum to totals because of rounding.

Peak employment is forecast to occur during the end of the 2<sup>nd</sup> Quarter through the second month of the 3<sup>rd</sup> Quarter (June – August), with employment averaging 201 jobs. During this period of peak employment, 189 jobs will be in the construction discipline and 12 jobs will be in the engineering and other professional services disciplines.

Although the exact mix of local and non-local workers cannot be accurately forecast, the Applicant anticipates a significant number of local hires will be made. The Project is located in Montgomery County, which is part of the Albany-Schenectady Combined Statistical Area (CSA). The CSA is home to almost 1.2 million people and has a labor force of 585,096.<sup>3</sup> A CSA is a larger region that reflects broader social and economic interactions. The large labor force in the area provides an expanded opportunity for the hiring of local labor.

The *2018 National Solar Jobs Census* (The Solar Foundation, 2018) found that 65.5% of field crew were hired within the regional or metropolitan area, with 12.9% hired outside of the region, but within the state. The report also highlights two engineering, procurement, and construction (EPC) firms. The one firm reported using 60% local labor on average, while the other reported using 90% local labor. Based on the findings of the report and the large regional labor force, it is estimated that during the peak construction period, between 113 to 170 construction workers from the local region would be hired at the Project. Additional construction workers are expected to be hired from within New York State

**27(b) Construction Direct and Supply Chain Impacts**

Independent of the JEDI model, the Applicant estimated, the construction payroll by trade for the anticipated 8-month construction period. As shown in Table 27-4, the Project’s construction

<sup>3</sup> Bureau of Economic Analysis (BEA) May 2019.

payroll is forecast to be \$9.8 million. The payroll estimate includes wages and salaries, employer-paid insurance costs, paid leave, and payroll taxes. An estimated 60% to 90% of the total payroll is expected to be paid to workers in the region (\$5.9 million to \$8.9 million). Additional jobs and payroll will be generated during the permitting and engineering processes.

**Table 27-4. Applicant’s Forecasted Labor Force during Project Construction**

<b>Type of Job</b>	<b>Number of FTE Jobs<sup>1</sup> Created</b>	<b>Estimated Payroll<sup>2</sup></b>
Laborers	31.4	\$2,611,513
Electricians	27.4	\$3,105,238
Equipment Operator	13.2	\$1,431,605
Construction Managers	8.0	\$1,706,669
Foreman	7.2	\$ 993,318
<b>Total FTE Jobs</b>	<b>87.1</b>	<b>\$9,848,342</b>

*Note: Construction is anticipated to take place in 2021. Numbers shown may not sum to totals because of rounding.*

<sup>1</sup>Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).

<sup>2</sup>Payroll includes wages and salaries, benefits, and payroll taxes.

Table 27-5 below presents the expected total direct expenditures during construction of the Project. In-state (local) expenditures are also presented.

**Table 27-5. Direct Expenditures during Development and Construction of the Project**

	Cost (2019\$)	Local NY Share	Local NY Spending
<b>Installation Costs</b>			
<b>Materials &amp; Equipment</b>			
Mounting (rails, clamps, fittings, etc.)	██████████	██████████	██████████
Modules and Inverter	██████████	██████████	██████████
Electrical (wire, connectors, breakers, etc.)	██████████	██████████	██████████
<b>Subtotal</b>	██████████		██████████
<b>Labor</b>			
<b>Installation</b>	██████████	██████████	██████████
<b>Other Costs/Development Costs</b>			
Permitting <sup>1</sup>	██████████	██████████	██████████
Other Costs	██████████	██████████	██████████
Business Overhead <sup>2</sup>	██████████	██████████	██████████
<b>Subtotal</b>	██████████		██████████
<b>Subtotal All Costs (without sales tax)</b>	██████████		██████████
<b>Sales Tax (Materials &amp; Equipment Purchases)<sup>3</sup></b>	██████████	██████████	██████████
<b>Total</b>	██████████		██████████

Notes: Numbers shown may not sum to totals because of rounding.

Construction is anticipated to take place in 2021.

<sup>1</sup>Permitting includes the fees paid to local governments.

<sup>2</sup>Business Overhead includes engineering and environmental permitting costs.

<sup>3</sup>Assumes 8% local (Montgomery County) sales tax.

As shown above, the Applicant estimates the Project costs to be roughly \$██████████. These costs include \$██████████ in labor costs. Permitting, a local expense, is anticipated to be \$██████████. Approximately \$██████████ of Other Costs are anticipated to be spent locally. These Other Costs include materials such as concrete and gravel. Business Overhead, which includes engineering and environmental permitting costs, is estimated to be \$██████████, with ██████████ spent in-state (\$██████████). An additional \$██████████ in sales taxes on materials and equipment purchases is forecasted, although sales tax may be abated through a potential Payment-in-Lieu-of-Taxes agreement. Sales tax is a local expenditure. Total project expenditures within New York are projected to be \$██████████.

The JEDI Model provides additional detail on spending at the industry level. The largest New York expenditures during the construction phase of the Project will be in the construction/installation industry, with roughly \$9.8 million spent locally. Table 27-6 presents this detail.

**Table 27-6. Direct Local Expenditures by Industry during Project Development and Construction (2019\$)**

<b>Industry</b>	<b>Local NY Expenditures<sup>1</sup></b>
Construction/Installations - Non Residential	\$ 9,848,342
Wholesale Trade	\$ 270,686
Retail trade	\$ 32,993
TCPU	\$ 34,631
Office Services	\$ 1,341,718
Architectural and Engineering Services	\$ 353,600
Other services <sup>2</sup>	\$ 1,011,430
Government	\$ 134,983
<b>Total</b>	<b>\$13,028,384</b>

*Note: Industries with no local NY expenditures are not shown.*

**27(c) Indirect (or Secondary) and Induced Impacts during the Construction Phase**

***Indirect and Induced Impacts***

As discussed previously, the JEDI model was used to estimate the likely secondary socioeconomic effects of the Project’s spending. The indirect impacts are economic effects 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. For the purposes of this discussion, estimates are assumed to vary from 95% to 105% of the indirect, and induced impact estimates developed for this Project. The range accounts for the small changes that take place over time in the IMPLAN multipliers used in the JEDI model. Estimates for New York are for the entire state, including Montgomery County.

Table 27-7 below presents ranges of the indirect impacts estimated to be generated in the vicinity of the solar facility by its construction.

**Table 27-7. Indirect Local New York Impacts by Industry during Development and Construction of the Project**

<b>Industry</b>	<b>Labor Impacts (Jobs)</b>	<b>Earning Impacts (Millions 2019\$)</b>	<b>Output Impacts (Millions 2019\$)</b>
Construction/Installations - Non Residential	20.9 to 23.1	\$1.330 to \$1.470	\$3.412 to \$3.771
Wholesale Trade	0.4 to 0.5	\$0.036 to \$0.040	\$0.092 to \$0.101
Retail trade	0 to 0.1	\$0.004 to \$0.004	\$0.011 to \$0.012
TCPU	0.1 to 0.1	\$0.005 to \$0.006	\$0.015 to \$0.017
Office Services	1.1 to 1.2	\$0.090 to \$0.099	\$0.221 to \$0.244
Architectural and Engineering Services	0.7 to 0.7	\$0.059 to \$0.065	\$0.136 to \$0.150
Other services <sup>2</sup>	1.5 to 1.7	\$0.133 to \$0.147	\$0.348 to \$0.384
Government	0.1 to 0.1	\$0.005 to \$0.006	\$0.013 to \$0.014
<b>Total</b>	<b>24.7 to 27.3</b>	<b>\$1.663 to \$1.838</b>	<b>\$4.247 to \$4.694</b>

*Notes: Numbers shown may not sum to totals because of rounding.  
Construction is anticipated to take place in 2021.  
Industries with no local NY expenditures are not shown.*

Indirect local impacts during the construction phase are estimated to be between 24.7 and 27.3 FTE jobs, payroll totaling between \$1.7 million and \$1.8 million, and output totaling between \$4.2 million and \$4.7 million. The construction/installation industry in New York is expected to experience the largest impact, with between 20.9 and 23.1 FTE jobs and between \$1.3 million and \$1.5 million in payroll and between \$3.4 million and \$3.7 million in output.

Induced impacts include the jobs and economic impacts generated from spending by workers whose jobs result from direct or indirect impacts of the Project. Table 27-8 presents ranges of the induced impacts likely to be generated in the vicinity of the solar facility by its construction.

**Table 27-8. Induced Local Impacts by Industry during Construction of the Project**

<b>Industry</b>	<b>Labor Impacts (Jobs)</b>	<b>Earning Impacts (Millions 2019\$)</b>	<b>Output Impacts (Millions 2019\$)</b>
Construction/Installations - Non Residential	17.3 to 19.1	\$1.217 to \$1.345	\$3.141 to \$3.471
Wholesale Trade	0.5 to 0.5	\$0.033 to \$0.037	\$0.086 to \$0.096
Retail trade	0.1 to 0.1	\$0.005 to \$0.005	\$0.012 to \$0.013
TCPU	0.1 to 0.1	\$0.004 to \$0.004	\$0.010 to \$0.011
Office Services	4.1 to 4.5	\$0.290 to \$0.321	\$0.749 to \$0.828
Architectural and Engineering Services	1.0 to 1.1	\$0.073 to \$0.081	\$0.189 to \$0.209
Other services <sup>2</sup>	1.8 to 2.0	\$0.137 to \$0.152	\$0.355 to \$0.392
Government	0.3 to 0.4	\$0.027 to \$0.029	\$0.069 to \$0.076
<b>Total</b>	<b>25.2 to 27.8</b>	<b>\$1.787 to \$1.975</b>	<b>\$4.611 to \$5.096</b>

*Notes: Numbers shown may not sum to totals because of rounding.*

*Construction is anticipated to take place in 2021.*

*Industries with no local NY expenditures are not shown.*

As shown in Table 27-7 above, induced impacts in New York are estimated to be between 25.2 and 27.8 FTE jobs, payroll of between \$1.8 million and \$2.0 million, and output of between \$4.6 million and \$5.1 million. The construction industry is expected to experience the largest impact, with between 17.3 and 19.1 FTE jobs and between \$1.2 million and \$1.3 million in payroll.

### **Annual Net Secondary Effects**

As discussed previously, the JEDI Model addresses the gross economic impacts of the proposed Project. Annual net secondary effects from the Project's construction include consideration of the above modeled impacts, as well as other difficult to quantify considerations that may be associated with the Project. The JEDI Model, for example, does not consider the following impacts that would occur as a result of the construction of the proposed Project:

- The displacement of some other type of economic activity due to investment in the proposed Project; and
- Changes in land use.

Economic displacement occurs when increases in economic activity in one business sector or geographic area leads, indirectly, to decreases in economic activity elsewhere. While displacement of some farming revenue will occur, it will be offset by lease payments to the landowners from the Applicant. In any event, even if there were a net loss, the overall impact on investment in New York is expected to be negligible, as the Gross Domestic Product (GDP) for the state as whole is \$1.68 trillion and the GDP attributable to construction is \$51.3 billion.<sup>4</sup>

Changes in land use are addressed in Exhibit 4. The land use analysis found that although the solar arrays will occupy a portion of active farmland, this impact on active farmland will be insignificant when considering farmland at both the town and county levels. The lease or purchase payments provided to landowners will stabilize revenues for local participating farms (as crop and dairy prices often fluctuate from year to year) and revenues paid to landowners are typically reinvested in the community, helping to create jobs and improve the local economy. This diversified income helps support the agricultural community base in the area.

#### **27(d) Operation and Maintenance Employment Impacts**

The Applicant has evaluated the expected annual level of labor that will be required during the O&M phase of the Project. The jobs presented here are expected to be performed by local New York workers. Table 27-9 summarizes the Applicant’s forecast of the annual employment associated with the O&M of the Project.

**Table 27-9. Applicant’s Forecasted Annual Labor Force during Project Operation and Maintenance**

<b>Type of Job</b>	<b>Number of FTE Jobs Created</b>	<b>Payroll (2019\$)<sup>1</sup></b>
Solar Technician (preventive and corrective maintenance)	2.0	\$178,419
Site Manager	0.25	\$ 41,587
High Voltage Technician	0.25	\$ 39,551
<b>Total</b>	<b>2.5</b>	<b>\$259,556</b>

*Note: Construction is anticipated to take place in 2021.*

<sup>1</sup>*Payroll includes wages and salaries, benefits, and payroll taxes. These figures are consistent with the salary total of \$177,277 presented in Attachment J of the NYSERDA application.*

<sup>4</sup> Source: Bureau of Economic Analysis (2019).

Based on the Applicant’s evaluation, the employment during the O&M phase will be 2.5 FTE jobs. Payroll associated with these jobs is expected to be \$259,556 annually.

As these operational jobs will be required over 30 years, they constitute 75 FTE jobs over the service life of the Project. Total payroll, in 2019 dollars, is expected to total approximately \$7.8 million.

Table 27-10 below presents the total direct expenditures during the O&M phase of the Project. Labor costs were estimated by the Applicant based on anticipated employment levels, wage rates by worker type, and overhead (including insurance benefits, taxes, and unpaid leave). Materials and equipment costs were also developed by the Applicant specifically for the High River Energy Center. The expected local shares of spending and local spending amounts are also included.

**Table 27-10. Annual Direct Expenditures during Project Operation and Maintenance.**

	<b>Cost (2019\$)</b>	<b>Local Share</b>	<b>Local Spending (2019\$)</b>
Labor: Technicians	\$259,556	100%	\$259,556
Materials and Equipment	\$545,378	100%	\$545,378
<b>Subtotal All Costs (without sales tax)</b>	<b>\$804,935</b>		<b>\$804,935</b>
Sales Tax (Materials & Equipment Purchases)	\$ 43,630	100%	\$ 43,630
<b>Total</b>	<b>\$848,565</b>		<b>\$848,565</b>

*Notes: Numbers shown may not sum to totals because of rounding.  
Construction is anticipated to take place in 2021.*

As shown above, annual O&M costs are expected to be \$0.85 million, with \$0.26 million in labor costs, \$0.55 million in materials and equipment costs, and \$43,630 in sales taxes. While all of the personnel will be local, health benefits and payroll taxes will be spent outside the state. The annual expenditure of \$0.55 million in materials and equipment costs is expected to be spent locally.

In addition to the above expenditures, the Applicant will make lease payments to local landowners for an estimated 480 acres. The payments are anticipated to total \$750,000 in the first year and escalate at 2 percent annually. Total payments over the first three years is estimated to be roughly \$3.0 million.



## 27(e) Secondary Operation and Maintenance Impacts

### **Indirect Impacts**

As shown in Table 27-11 below, annual indirect local impacts during the O&M phase are expected to total between 1.3 and 1.5 FTE jobs, with payroll totaling between \$117,000 and \$129,000 and output totaling between \$306,000 and \$338,000. The wholesale trade industry is expected to experience the largest annual impact, with approximately 0.5 FTE jobs, between \$42,000 and \$46,000 in payroll, and between \$104,000 and \$115,000 in output.

**Table 27-11. Annual Indirect Local Impacts by Industry during Project Operation and Maintenance**

<b>Industry</b>	<b>Labor Impacts (Jobs)</b>	<b>Earning Impacts (Millions 2019\$)</b>	<b>Output Impacts (Millions 2019\$)</b>
Manufacturing	0 to 0	\$0 to \$0.001	\$0.001 to \$0.001
Wholesale Trade	0.5 to 0.5	\$0.042 to \$0.046	\$0.104 to \$0.115
Retail trade	0.1 to 0.1	\$0.006 to \$0.007	\$0.017 to \$0.019
TCPU	0.2 to 0.3	\$0.019 to \$0.021	\$0.053 to \$0.059
Insurance and Real Estate	0.1 to 0.1	\$0.011 to \$0.013	\$0.035 to \$0.038
Finance	0 to 0	\$0.001 to \$0.001	\$0.001 to \$0.002
Other services <sup>2</sup>	0.1 to 0.1	\$0.011 to \$0.012	\$0.029 to \$0.032
Government	0.3 to 0.3	\$0.026 to \$0.028	\$0.065 to \$0.071
<b>Total</b>	<b>1.3 to 1.5</b>	<b>\$0.117 to \$0.129</b>	<b>\$0.306 to \$0.338</b>

*Notes: Numbers shown may not sum to totals because of rounding.*

*Construction is anticipated to take place in 2021.*

*Industries with no local NY expenditures are not shown.*

Table 27-12 presents the annual induced local impacts by industry. Annual induced impacts are expected to generate between 2.8 and 3.0 New York FTE jobs, payroll of between \$211,000 and \$234,000, and output of between \$546,000 and \$603,000.

**Table 27-12. Annual Induced Local Impacts by Industry during Project Operation and Maintenance**

<b>Industry</b>	<b>Labor Impacts (Jobs)</b>	<b>Earning Impacts (Millions 2019\$)</b>	<b>Output Impacts (Millions 2019\$)</b>
Manufacturing	0 to 0	\$0 to \$0	\$0.001 to \$0.001
Wholesale Trade	0.5 to 0.6	\$0.038 to \$0.042	\$0.098 to \$0.109
Retail trade	0.1 to 0.1	\$0.008 to \$0.008	\$0.019 to \$0.021
TCPU	0.2 to 0.2	\$0.013 to \$0.014	\$0.033 to \$0.037
Insurance and Real Estate	0.1 to 0.1	\$0.008 to \$0.009	\$0.021 to \$0.024
Finance	0 to 0	\$0.001 to \$0.001	\$0.002 to \$0.003
Other Professional Services	0 to 0	\$0 to \$0	\$0.001 to \$0.001
Other services <sup>2</sup>	0.2 to 0.2	\$0.011 to \$0.013	\$0.030 to \$0.033
Government	1.6 to 1.8	\$0.132 to \$0.146	\$0.340 to \$0.376
<b>Total</b>	<b>2.8 to 3.0</b>	<b>\$0.211 to \$0.234</b>	<b>\$0.546 to \$0.603</b>

*Notes: Numbers shown may not sum to totals because of rounding.  
Construction is anticipated to take place in 2021.  
Industries with no local NY expenditures are not shown.*

**Annual Net Secondary Effects**

As discussed previously, the JEDI model results for the proposed Project address secondary economic effects. Annual net secondary effects from the Project’s O&M include the impacts discussed above and other difficult to quantify impacts associated with the Project. The JEDI Model, for example, does not consider the following impacts that are likely to occur as a result of the operation of the Project:

- Potential increases or decreases in electricity rates resulting from investments in new electricity or fuel infrastructure;
- Stability of electricity prices that might result from the reduced fuel price risk of renewable sources of electricity.
- Impacts associated with the possible displacement of new power plants made unnecessary by the added capacity of the proposed Project;
- Improvements in transmission or grid reliability;
- Changes in air or water emissions; and
- Changes in water use from power generation.

The Project is projected to have a positive effect on zonal prices in the control area load zone in which it is located. New York Independent System Operator (NYISO) Zone F,<sup>5</sup> which includes all of Montgomery County, is expected to experience a reduction in the average zonal prices of approximately \$0.08/MWh in 2023. If this reduction helps keep retail electric rates lower than they would otherwise be, there would be additional positive impacts to New York's economy arising from the operation of the proposed Project. Conversely, higher retail rates would have a negative impact on the state's economy. The Project may also support increased stability in electricity prices by reducing the fossil fuel price risk.

The Applicant is not aware of any reliable method to determine if the Project's added solar capacity would result in the cancellation of new power projects. Rather, the Project is being driven by New York State law, New York Public Service Commission's (NYPSC's) Clean Energy Standard and the NYS State Energy Plan. The additional solar capacity is vital to meeting the state's goals to have 70 percent of energy generation produced from renewable energy sources by 2030 to achieve a 40 percent reduction in greenhouse gas emissions from the 1990 level by 2030 and to generate electricity carbon free by 2040 (Climate Leadership and Community Protection Act (CL&CPA) of 2019). Positive impacts to air quality are also projected, with an anticipated reduction in annual statewide emissions by 11 tons of SO<sub>2</sub>, 14 tons of NO<sub>x</sub> and 49,754 tons of CO<sub>2</sub> (see Exhibit 8).

As a solar power generating facility, the Project will not use or emit any water discharges. There is no public water supply interconnection required for the operation of the Project, as stated in Exhibit 38. The Project will provide power generation without using water, which is a benefit when compared to thermoelectric generating facilities.

#### **27(f) School District Impacts During the Construction and Operation Phases**

The Project is located within the Greater Amsterdam School District. The largest impact in terms of jobs would be during the construction period. Families do not, however, typically relocate for short-term construction jobs. Further, it is anticipated that some portion of the workers during both the construction and O&M phases of the Project will be local hires. No negative impacts to school district, therefore, are anticipated during the construction phase of the Project.

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<sup>5</sup> NYISO Zone F is also referred to as the Capital Zone.

During the O&M phase of the Project, total annual impacts (direct, indirect, and induced) associated with employment are forecast to be between 6.6 and 7.0 FTE jobs. Long term population impacts in the school districts are anticipated to be minimal during the O&M phase of the Project. Payments in Lieu of Taxes (PILOT) payments are anticipated to be paid to the Greater Amsterdam School District during the O&M phase of the Project. This analysis does not include potential benefits from the Education and Workforce Development program proposal.

#### **27(g) Municipal, Public Authority, and Utility Services Impacts during the Construction and Operation Phases**

As described above, population impacts from the construction and operation of the Project are expected to be negligible. In addition, the cost of any services required by Project employees living within the local municipalities would be offset by property taxes (or PILOT payments) and utility fees. Further, the Project construction and operation are not anticipated to place any burdens on local services but will likely generate PILOT revenue or payments from both the Host Community Agreement (HCA) for the taxing jurisdictions. This analysis does not include the potential Education and Workforce Development program proposal.

#### **27(h) Designated Tax Jurisdiction, Tax and Payment Impacts**

The Project includes property within three taxing jurisdictions that are expected to receive PILOT revenues or payments as part of an HCA. The jurisdictions are:

- Montgomery County;
- Town of Florida; and
- Greater Amsterdam School District.

These jurisdictions will benefit from a PILOT agreement or an HCA as described in the following section, and from additional economic activity in the vicinity of the Project. New York State is also anticipated to benefit from additional tax revenue generated by the construction and O&M of the Project. Tax payments will also be made to local fire and light districts, as applicable.

#### **27(i) Incremental Amount of PILOT Agreements and an HCA**

The Applicant anticipates executing PILOT agreements with Montgomery County and the Greater Amsterdam School District, which will require annual PILOT payments for up to 20 years. An HCA is expected to be executed with the Town of Florida. While the specific terms of the PILOT agreement and HCAs have not yet been negotiated, these agreements will increase the revenues

of the local taxing jurisdictions and will represent a significant portion of their total tax levy. For the purposes of this Exhibit, annual PILOT and HCA payments are estimated to be \$689,970 beginning in 2022<sup>6</sup>. Total PILOT and HCA payments over the 20-year agreement period are estimated to total \$15.4 million.<sup>7</sup> Table 27-13 below details the estimated PILOT and HCA payments to each taxing jurisdiction.

**Table 27-13. Anticipated Annual and Cumulative PILOT and HCA Payments for Solar Energy Center**

<b>Taxing Jurisdiction</b>	<b>2022 Annual Payment</b>	<b>Cumulative (20-year) Payment</b>
Montgomery County	\$119,988	\$ 2,915,393
Greater Amsterdam School District	\$179,982	\$ 4,373,089
Town of Florida	\$390,000 <sup>1</sup>	\$ 8,069,727
<b>Total</b>	<b>\$689,970</b>	<b>\$15,358,209</b>

*Notes: Payments related to the solar energy center are anticipated to increase over time by 2% per year. Numbers shown may not sum to totals because of rounding. Payments made to local fire and light districts are not included in the figures shown.*

<sup>1</sup>*Includes a one-time, upfront payment of \$120,000 under the HCA.*

The Greater Amsterdam School District is anticipated to receive the largest payments, with a 20-year total of \$8.1 million. The Town of Florida is expected to receive \$4.4 million over the 20-year period, with Montgomery County receiving a total of \$2.9 million over 20 years.

The payments shown in Table 27-13 do not include tax payments made to local fire and light districts, as applicable.

### **27(j) Comparison of Fiscal Costs to Jurisdictions**

As discussed previously, the Project is not anticipated to impose fiscal costs related to the services provided by the local taxing jurisdictions. Employment during the construction phase will be temporary and is not expected to result in the relocation of families. Job-related impacts during the O&M of the solar energy center are relatively small. With the expected payments associated with the PILOT agreement and the HCA, the Project should result in positive fiscal impacts for the local jurisdictions.

<sup>6</sup> This total includes a one-time, upfront payment of \$120,000 to the Town of Florida as part of the HCA.

<sup>7</sup> Payments are anticipated to increase over time by 2% per year.

## **27(k) Analysis of Local Emergency Response**

Exhibit 18 outlines safety and security for Project. Detailed information regarding the emergency response procedures for possible contingencies (such as a fire emergency) is found in the Emergency Response Plan (ERP) in Appendix 18-2. The ERP includes information on local fire departments and local police/sheriff departments/offices. In the event of an emergency, the Site Leader will assess the situation and perform the proper actions and procedures as outlined in the ERP. This may include potential evacuation and contacting emergency services.

The ERP for the Project will be shared with the local emergency response teams. Local emergency response teams will be given an opportunity to review these plans, ask questions and provide suggestions. The Applicant understands the importance of coordination with local fire, police and other emergency services and will work to ensure that they are kept updated on the status of the Project and are made aware of potential safety and security emergencies. Preliminary introductions and discussions have been conducted with local fire and police as described in the Public Involvement Plan (PIP) meeting log and additional discussions will occur prior to construction and prior to the start of operations. The Applicant will work with local emergency responders to coordinate any training that may be necessary. To the knowledge of the Applicant, no equipment not presently owned by the public fire department or other first responders will be needed to respond to emergencies at the Project either during the construction or operation of the Project.

## **27(l) Smart Growth Infrastructure Compliance Impacts**

The Project is a privately-funded energy project and, as such, is not subject to New York Environmental Conservation Law Article 6, Section 107 (ECL § 6-107) requiring the construction of new or expanded “public infrastructure” to meet certain Smart Growth Criteria. New York State’s Smart Growth Public Infrastructure Policy Act outlines 10 criteria for evaluating public infrastructure. An additional criterion was added at a later date. While not required, the Project’s consistency with Smart Growth Criteria is addressed below for illustrative purposes. Under the statute, state infrastructure agencies shall not approve, undertake, or finance a public infrastructure project, unless the project, to the extent practicable, meets the relevant criteria set forth in the document (ECL § 6-107).

**Criteria 1: To advance projects for the use, maintenance or improvement of existing infrastructure**

The development of the Project will improve the State's existing energy infrastructure by creating an economically viable, solar-powered electrical-generating facility that provides renewable energy to the New York State power grid. The Project will generate up to 90 MW of renewable energy that will be provided to the New York State electric system that is managed by the NYISO. The Project will use the existing electric system for the distribution of electricity to end users. Existing transportation infrastructure will be used for the conveyance of equipment and construction materials. No long-term impacts to the transportation infrastructure are anticipated.

Based on the contribution to the state electric system and the limited use of transportation infrastructure, the Project is consistent with Smart Growth Criteria 1.

**Criteria 2: To advance projects located in municipal centers**

New York State's Smart Growth Public Infrastructure Policy Act defines "municipal centers" 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 (ECL § 6-107),*

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 (ECL § 6-107).*

The development of solar power projects requires a large land area. As such, solar projects, such as this, are incompatible with municipal centers. Therefore, compliance with this criterion is impracticable. Additionally, siting a solar project requires willing land owners and access to a point of interconnection (POI) in order to provide the electricity generated to the electric system that is managed by the NYISO.

***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***

Solar projects require a large land area and, thus, are incompatible with infill development and waterfront revitalization. The Project is not located in a designated brownfield area. Therefore, compliance with this criterion is impracticable. Additionally, siting a scale solar project requires willing land owners and access to a POI in order to provide the electricity generated to the electric system that is managed by the NYISO.

***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 archeological resources***

The Project is consistent with Criterion 4. Exhibits 4, 17, 20, 21, 22, 23, and 24, and related studies, analyze the potential effects on agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources. These analyses illustrate that the Project has avoided and minimized impacts to the relevant resources to the maximum extent practicable (based on the layout as currently proposed). Any remaining impacts are outweighed by the benefit provided by the Project's generation of up to 90 MW of renewable energy, which will enhance the state's air quality.

***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***

The proposed Project is in the rural community of Florida. The area is not conducive to mixed land uses, compact development, or the development of diverse and affordable housing in the proximity to places of employment, recreation and commercial development. Further, as mentioned previously, a solar project requires significant open space and, thus, is incompatible with downtown revitalization. The location is not in a brownfield. Compliance with this criterion is impracticable. Additionally, siting a solar project requires willing land owners and access to a point of interconnection in order to provide the electricity generated to the electric system that is managed by the NYISO.



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

The Project will not be designed to impact transportation choices in the area. Therefore, compliance with this criterion is impracticable.

***Criterion 7: To coordinate between state and local government and intermunicipal and regional planning***

The Applicant has been involved in public outreach to local government and planning agencies throughout the development and review of the Project, in accordance with the requirements of the Article 10 process and the PIP plan prepared specifically for the Project. The stakeholder list and information on the public coordination efforts are included in Exhibit 2 and its appendices.

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

The Applicant has conducted and will continue to conduct stakeholder outreach throughout the development and review of the proposed Project. These efforts have been conducted in accordance with the requirements of the PIP, which includes stakeholder consultation and other forms of engagement, public education, public meetings, ample notification periods, and public comment periods at key milestones (see Exhibit 2 and the PIP for more information). Information is also available to the community via the website [highriverenergycenter.com/](http://highriverenergycenter.com/). These outreach efforts satisfy the criterion related to participation in community-based planning and collaboration.

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

The Applicant's Project will have no influence over building and land use codes in Montgomery County or in the Town of Florida.

***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***

Solar power, a renewable energy source, generates electricity without the by-product of greenhouse emissions and can reduce the dependence on conventional power plants, thereby

reducing the emissions of conventional air pollutants. In fact, the Project is expected to reduce NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> emissions from the power sector in New York. In 2023, the Project is expected to reduce the annual statewide emissions by 11 tons of SO<sub>2</sub>, 14 tons of NO<sub>x</sub> and 49,754 tons of CO<sub>2</sub> (see Exhibit 8).

The Project will help the state achieve the goals of having 70 percent of energy generation produced from renewable energy sources by 2030, a 40 percent reduction in greenhouse gas emissions from the 1990 level by 2030, and carbon-free generation of electricity by 2040 (CL&CPA of 2019). As this Project will expand the state's clean, renewable energy infrastructure and reduce greenhouse gas emissions, the Project is consistent with and will help the state achieve its goals in Criterion 10.

***Criterion 11 (effective March 21, 2015): To mitigate future physical climate risk due to sea level rise, and/or storm surges and/or flooding, based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data if applicable***

The Project is consistent with New York's efforts to expand reliance on renewable energy sources and reduce greenhouse gas (GHG) emission. As described in *Climate Smart Communities Guide to Local Action: Taking Steps to Combat Climate Change*, reducing greenhouse gas emissions "will help stabilize atmospheric GHG at manageable levels and avoid severe climatic changes." The State recognizes that this action will "minimize the risks of climate change and reduce its long-term costs" (New York Department of Environmental Conservation (NYSDEC\_2017)). Solar power, as a zero-emission, renewable energy source, not only expands available power generation capabilities without increasing greenhouse gas emissions, the addition of a solar power project will result in a decrease in existing GHG emission levels, as solar power displaces generation from fossil fuel facilities. Therefore, the Project is expected to have a positive impact on the mitigation of future physical climate risk, thereby supporting Smart Growth Criterion 11.

### **27(m) Feasibility of Providing Local Access to Energy Generation**

If the Town of Florida were to become Community Choice Aggregation (CCA), the local community could have access to energy generated by the Project. The purpose of a CCA is to allow participating local governments to procure energy supply service and distributed energy resources for eligible energy customers in the community. These customers would have the

opportunity to opt out of purchasing power from the existing power provider, while maintaining transmission and distribution service from that utility.

CCA allows local governments to work together through a shared purchasing model to put out for bid the total amount of electricity and/or natural gas being purchased by eligible customers within the jurisdictional boundaries of participating municipalities. Eligible customers have the opportunity to have more control to lower their overall energy costs, to spur clean energy innovation and investment, to improve customer choice and value, and to protect the environment, thereby fulfilling an important public purpose. New York State Energy Research and Development Authority (NYSERDA) has developed a toolkit to assist local governments and CCA Administrators to develop CCA programs in New York State.<sup>8</sup>

#### **27(n) Statement on Actual Job Tracking and Tax Payment to Local Jurisdiction**

The Applicant is committed to tracking and report the actual number of direct jobs created during the construction and operational phases of the Project. Additionally, tax payments to local jurisdictions made during the course of the Project will be recorded and reported.

#### **27(o) Socioeconomic Impact Estimate Workpapers**

Workpapers associated with the socioeconomic impact analysis presented in this Exhibit will be provided to the New York State Department of Public Service (DPS) under separate cover.

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<sup>8</sup> See <https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities/Clean-Energy-Communities-Program-High-Impact-Action-Toolkits/Community-Choice-Aggregation> for additional information.

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