



GARNET ENERGY CENTER

Case No. 20-F-0043

1001.27 Exhibit 27

Socioeconomic Effects

Contents

Exhibit 27: Socioeconomic Effects	1
27(a) On-Site Construction Work-Force Impacts.....	5
27(b) Construction Direct and Supply Chain Impacts.....	7
27(c) Indirect (or Secondary) and Induced Impacts during the Construction Phase	10
27(d) Operation and Maintenance Employment Impacts.....	13
27(e) Secondary Operation and Maintenance Impacts	15
27(f) School District Impacts During the Construction and Operation Phases	17
27(g) Municipal, Public Authority, and Utility Services Impacts during the Construction and Operation Phases.....	18
27(h) Designated Tax Jurisdiction, Tax and Payment Impacts.....	18
27(i) Incremental Amount of PILOT Agreements and an HCA	19
27(j) Comparison of Fiscal Costs to Jurisdictions	20
27(k) Analysis of Local Emergency Response	20
27(l) Smart Growth Infrastructure Compliance Impacts.....	21
27(m) Feasibility of Providing Local Access to Energy Generation	25
27(n) Statement on Actual Job Tracking and Tax Payments to Local Jurisdictions	25
27(o) Socioeconomic Impact Estimate Workpapers.....	26

Tables

Table 27-1. Demographics ¹	1
Table 27-2. Applicant’s Forecasted FTE Jobs during Project Construction.....	6
Table 27-3. Applicant’s Forecasted Labor Force during Project Construction.....	6
Table 27-4. Applicant’s Forecasted Labor Force during Project Construction.....	7
Table 27-5. Direct Expenditures during Development and Construction of the Project	8
Table 27-6. Direct Local Expenditures by Industry during Project Development and Construction	9

Table 27-7.	Indirect Local New York Impacts by Industry during Development and Construction of the Project	11
Table 27-8.	Induced Local Impacts by Industry during Construction of the Project	12
Table 27-9.	Applicant’s Forecasted Annual Labor Force during Project Operation and Maintenance.....	14
Table 27-10.	Annual Direct Expenditures during Project Operation and Maintenance.....	14
Table 27-11.	Annual Indirect Local Impacts by Industry during Project Operation and Maintenance.....	15
Table 27-12.	Annual Induced Local Impacts by Industry during Project Operation and Maintenance.....	16
Table 27-13.	Anticipated Annual and Cumulative PILOT and HCA Payments for the Garnet Energy Center	19

Exhibit 27: Socioeconomic Effects

This Exhibit will track the requirements of Stipulation 27, dated March 5, 2021, and, therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) § 1001.27. The Project is located in the Town of Conquest in Cayuga County, New York. The most recent demographic profiles of the communities are presented in Table 27-1 below:

Table 27-1. Demographics¹

Population	Town of Conquest	Cayuga County	New York
2010 Population ²	1,666	80,431	19,378,102
2019 Population	1,899	77,425	19,453,561
Median Age	45.1	42.9	39.2
Foreign born population	6.8%	2.2%	2.2%
Veterans	7.5%	8.5%	4.3%
High school graduate or higher	81.5%	87.8%	87.6%
<i>Race and Ethnicity</i>			
White	97.7%	91.8%	63.2%
Black or African American	0.2%	4.3%	15.9%
American Indian/Alaska Native	0.0%	0.1%	0.4%
Asian	0.0%	0.6%	8.6%
Native Hawaiian/Other Pacific Islander	0.0%	0.0%	0.0%
Some Other Race	0.6%	0.8%	8.6%
Two or more races	1.5%	2.5%	3.3%
Hispanic or Latino (any race)	0.8%	3.0%	19.3%
Total housing units	917	37,077	8,404,205
Median household income (2019\$)	\$57,206	\$58,377	\$72,108
Individuals below poverty level	9.9%	12.1%	13.0%
Labor Force, American Community Survey (ACS)			

Table 27-1. Demographics¹

Population	Town of Conquest	Cayuga County	New York
Percent unemployed	3.3%	3.5%	4.4%
Labor Force, Bureau of Labor Statistics (BLS) March 2021 ³	N/A	34,459	9,436,191
Unemployed, March 2021	N/A	2,247	796,730
Unemployment rate, March 2021	N/A	6.5%	8.4%
<p><i>N/A indicates data are not available.</i> ¹<i>Unless otherwise noted, data are from the US Census Bureau's 2015-2019 ACS 5-year estimates program.</i> ²<i>US Census 2010 decennial census.</i> ³<i>BLS. Data are not available at the town level. The 2021 labor statistics may reflect the economic impacts associated with the COVID-19 pandemic.</i></p>			

Economic Modeling

Estimates of the number of direct jobs created during construction of the Project were developed based on guidance from the Applicant's engineering, procurement, and construction (EPC) partners. Job counts by trade and the expected duration (months) of construction were based on the overall size of the Project in terms of megawatts of direct current (MWdc). The expected job counts and construction duration were evaluated to determine the average and peak labor forecast. The Applicant modeled payroll estimates and total labor costs based on the Bureau of Labor Statistics (BLS) New York wage rates for the trades required for the construction of the Project. Adjustments to wage rates and benefits were made to customize the payroll to the specific demands of the Project.¹

The estimate of direct jobs that will be created during the Project's operation and maintenance phase was developed by the Applicant based on the requirements of the Garnet Energy Center. Payroll and wage rates reflect the Applicant's expected pay scale for the Project.

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

¹ Wage rate and payroll details are provided in the workpapers submitted to New York State Department of Public Service (DPS) under separate cover and pursuant to trade secret protection.

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 model² 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 capture the wages or salaries that are associated with jobs attributable to the development of an energy project. Earnings are expressed in terms of 2021 dollars.³ 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 2021 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

² The JEDI Model used is version PV12.23.16. The model has been fully updated with the Applicant's cost estimates, estimates of local percentages, wages, and labor costs.

³ 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 2021 dollars (2021\$).

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' secondary impact 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 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 economic impacts to reflect the uncertainty associated with multiplier-based, secondary impact estimates.

The Applicant customized the JEDI models using inputs specific to the Garnet Energy Center. These project-specific inputs include expenditures, wage rates, and percentages 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.⁴ 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;
- 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. A range of secondary impact estimates has been provided to reflect the uncertainty associated with multiplier-based secondary impacts. Limitations of the JEDI Model are discussed in more detail in later sections of this exhibit.

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

The Applicant estimates a total of 227.9 FTE jobs will be generated during construction. The majority of the workers will be laborers (85.3 FTE jobs) or electricians (74.4 FTE jobs). Table 27-2 summarizes the Applicant's forecast of the employment by job type associated with the construction of the Project.

⁴ See <https://www.nrel.gov/analysis/jedi/limitations.html> for more information.

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

Type of Job	Number of FTE Jobs Created
Laborer	85.3
Electrician	74.4
Equipment Operator	35.9
Professional	12.8
Foreman	19.5
Total FTE Employment, Construction	227.9
Notes: Numbers shown may not sum to totals because of rounding. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).	

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

Timing of Construction Activity	Construction Labor	Engineers and Other Professional Services	Total
3 rd Quarter 2022, Average ¹	120.0	8.0	128.0
4 th Quarter 2022, Average	171.7	10.0	181.7
1 st Quarter 2023, Average	77.3	1.0	78.3
2 nd Quarter 2023, Average	222.7	12.0	234.7
3 rd Quarter 2023, Average	188.7	12.0	200.7
4 th Quarter 2023, Average	77.3	8.0	85.3
Peak Employment (2nd Quarter, 2023)	222.7	12.0	234.7
Note: Numbers shown may not sum to totals because of rounding. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor). ¹ Includes August and September 2022 only. ² Includes October and November 2023 only.			

Employment is forecast to peak during the 2nd Quarter, 2023. During peak employment, there are expected to be an average of 234.7 workers on the job. Of this total, 222.7 jobs will be in the construction discipline and 12 jobs will be onsite managers.

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 from Cayuga County and the surrounding counties. The Project is located in the Central New York Economic Region, which also includes Cortland, Madison, Onondaga, and Oswego counties. The region, which includes the City of Syracuse, is home to almost 773,000 people and has a labor force of approximately 357,000 workers.⁵ 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 crews 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 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 141 and 211 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

Based on prevailing New York wages, the Applicant estimated the construction payroll by trade for the anticipated 16-month construction period. As shown in Table 27-4, the Project’s construction payroll is forecast to be approximately \$ [REDACTED]. The payroll estimate includes wages and salaries, employer-paid insurance costs, paid leave, and payroll taxes. Additional jobs and payroll will be generated during the permitting and engineering processes.

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

Type of Job	Number of FTE Jobs ¹ Created	Estimated Payroll ²
Laborer	85.3	\$ [REDACTED]
Electrician	74.4	\$ [REDACTED]

⁵ Bureau of Labor Statistics (BLS), 2020.

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

Type of Job	Number of FTE Jobs ¹ Created	Estimated Payroll ²
Equipment Operator	35.9	\$ [REDACTED]
Foreman	12.8	\$ [REDACTED]
Construction Managers	19.5	\$ [REDACTED]
Total FTE Jobs	227.9	\$ [REDACTED]

Notes: Numbers shown may not sum to totals because of rounding.
¹Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).
²Payroll 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 (2021\$)	Local NY Share	Local NY Spending
Installation Costs			
Materials & Equipment			
Mounting (rails, clamps, fittings, etc.)	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Modules and Inverter	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Electrical (wire, connectors, breakers, etc.)	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
<i>Subtotal</i>	\$ [REDACTED]		\$ [REDACTED]
Labor	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Other Costs/Development Costs	\$ [REDACTED]		\$ [REDACTED]
Permitting ¹	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Other Costs ²	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Business Overhead ³	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]

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

	Cost (2021\$)	Local NY Share	Local NY Spending
<i>Subtotal</i>	\$ [REDACTED]		\$ [REDACTED]
Subtotal All Costs (without sales tax)	\$ [REDACTED]		\$ [REDACTED]
Sales Tax (Materials & Equipment Purchases) ⁴	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Total	\$ [REDACTED]		\$ [REDACTED]

Notes: Numbers shown may not sum to totals because of rounding.
¹Permitting includes the fees paid to local governments.
²Other Costs include construction mobilization, concrete, and gravel, as well as other miscellaneous costs.
³Business Overhead includes engineering and environmental permitting costs.
⁴Garnet Energy Center will apply for sales tax abatement through a Payment-in-Lieu-of-Taxes agreement.

As shown above, the Applicant estimates the Project costs to be approximately \$ [REDACTED]. These costs include approximately \$ [REDACTED] in New York labor costs. Approximately \$ [REDACTED] 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 total \$ [REDACTED], with [REDACTED] percent spent in-state (\$ [REDACTED]). Sales tax on materials and equipment purchases may be abated through a potential Payment in Lieu of Taxes (PILOT) agreement. Total project expenditures within New York are projected to be \$ [REDACTED].

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 approximately \$25.6 million spent on local employment. Table 27-6 presents this detail.

Table 27-6. Direct Local Expenditures by Industry during Project Development and Construction

Industry	Local New York Expenditures
Construction/Installations - Non-Residential	\$25,581,023
Wholesale Trade	\$ 503,701

Table 27-6. Direct Local Expenditures by Industry during Project Development and Construction

Industry	Local New York Expenditures
Retail trade	\$ 50,707
Transportation, Communications, Public Utilities	\$ 64,443
Office Services	\$ 2,496,711
Architectural and Engineering Services	\$ 302,400
Other services	\$ 1,882,101
Government	\$ 71,359
Total	\$30,952,445
Notes: Industries with no local NY expenditures are not shown. Numbers shown may not sum to totals because of rounding.	

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

Indirect (or Secondary) and Induced Impacts

As discussed previously, the JEDI model was used to estimate the likely secondary socioeconomic effects of the Project’s spending. These 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 Cayuga 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

Industry	Labor Impacts (Jobs)	Earning Impacts (2021\$)	Output Impacts (2021\$)
Construction/Installations – Non-Residential	52.2 to 57.7	\$3,455,000 to \$3,819,000	\$8,863,000 to \$9,796,000
Wholesale Trade	0.8 to 0.9	\$68,000 to \$75,000	\$170,000 to \$188,000
Retail Trade	0.1 to 0.1	\$6,000 to \$7,000	\$17,000 to \$19,000
Transportation, Communications, Public Utilities	0.1 to 0.1	\$10,000 to \$11,000	\$28,000 to \$31,000
Office Services	1.9 to 2.1	\$167,000 to \$185,000	\$410,000 to \$454,000
Architectural and Engineering Services	0.5 to 0.6	\$50,000 to \$56,000	\$116,000 to \$129,000
Other Services	2.8 to 3.1	\$248,000 to \$274,000	\$647,000 to \$715,000
Government	0 to 0	\$3,000 to \$3,000	\$7,000 to \$8,000
Total	58.4 to 64.6	\$4,008,000 to \$4,430,000	\$10,258,000 to \$11,338,000
<i>Notes: Numbers shown may not sum to total because of rounding and because industries with small impacts (less than \$1,000 in earnings) are not shown. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).</i>			

Indirect local impacts during the construction phase are expected to range from 58.4 and 64.6 FTE jobs, payroll between \$4.0 million and \$4.4 million, and total output of \$10.3 million to \$11.3 million. The construction/installation industry in New York is expected to experience the largest impact, with 52.2 and 57.7 FTE jobs expected to be created, with a payroll of \$3.5 million to \$3.8 million, and between \$8.9 million and \$9.8 million in total 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 expected 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

Industry	Labor Impacts (Jobs)	Earning Impacts (2021\$)	Output Impacts (2021\$)
Construction/Installations – Non-Residential	43.3 to 47.8	\$3,161,000 to \$3,494,000	\$8,159,000 to \$9,018,000
Wholesale Trade	0.9 to 1	\$62,000 to \$69,000	\$161,000 to \$178,000
Retail Trade	0.1 to 0.1	\$7,000 to \$8,000	\$19,000 to \$21,000
Transportation, Communications, Public Utilities	0.1 to 0.1	\$7,000 to \$8,000	\$18,000 to \$20,000
Office Services	7.3 to 8.1	\$540,000 to \$597,000	\$1,394,000 to \$1,540,000
Architectural and Engineering Services	0.8 to 0.9	\$63,000 to \$69,000	\$162,000 to \$179,000
Other Services	3.3 to 3.6	\$256,000 to \$283,000	\$660,000 to \$730,000
Government	0.2 to 0.2	\$14,000 to \$16,000	\$36,000 to \$40,000
Total	55.9 to 61.8	\$4,111,000 to \$4,543,000	\$10,608,000 to \$11,725,000
<p><i>Notes: Numbers shown may not sum to total because of rounding and because industries with small impacts (less than \$1,000 in earnings) are not shown. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).</i></p>			

As shown in Table 27-8 above, induced impacts in New York are estimated to be between 55.9 to 61.8 FTE jobs, payroll of between \$4.1 million and \$4.5 million, and output of between \$10.6 million and \$11.7 million. The construction industry is expected to experience the largest impact, with between 43.3 and 47.8 FTE jobs and between \$3.2 million and \$3.5 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 revenue may occur based on land use prior to the construction and operation of the proposed project, it will be negated by payments to those landowners from the Applicant.

Changes in land use are addressed in Exhibit 4. The land use analysis found that although the solar arrays and energy storage facilities 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 total fenced-in area of Project components to be located on agricultural land represents only 5.7 percent of agricultural land within the two-mile Study Area and 0.3 percent of agriculture land within Cayuga County. Further, existing land uses on lands adjacent to the Project parcels, including those that are used for agriculture, will continue. Additionally, solar farms typically result in a minimal amount of ground disturbance for the installation of racking and mounting posts, which comprise less than a tenth of an acre, thereby preserving the ability to use the land for agricultural purposes in the future following decommissioning.

The payments provided to landowners from the Applicant will stabilize revenues for local participating farms (as prices for agriculture products often fluctuate from year to year). Further, payments to landowners are expected to be 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

Type of Job	Number of FTE Jobs Created ¹	Payroll (2021\$) ²
Solar Technician	█	\$ █
Notes:		
¹ Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).		
² Payroll includes wages and salaries, benefits, and payroll taxes.		

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

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 Garnet 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

	Cost (2021\$)	Local Share	Local Spending (2021\$)
Labor: Technicians	\$ █	█%	\$ █
Materials and Equipment	\$ █	█%	\$ █
Services	\$ █	█%	\$ █
Subtotal All Costs (without sales tax)	\$ █		\$ █
Sales Tax (Materials & Equipment Purchases)	\$ █	█%	\$ █
Total	\$ █		\$ █
Note: Numbers shown may not sum to totals because of rounding.			

As shown above, annual O&M costs are estimated to be \$ █, with \$ █ in labor costs, \$ █ in materials and equipment costs, \$ █ in services, and \$ █ in sales taxes. The annual expenditures on materials and equipment and on services are expected to be made locally. Over 30 years, █ FTE jobs will be generated by the Project. Payroll for the FTE jobs will total an estimated \$ █, in 2021 dollars. The Project is expected to pay approximately \$ █ in sales taxes over the 30-year operational period.

In addition to the above expenditures, the Applicant will make payments to local landowners for approximately 2,300 acres.⁶

27(e) Secondary Operation and Maintenance Impacts

Indirect Impacts

As shown in Table 27-11 below, annual indirect local impacts during the O&M phase⁷ are expected to total between 1.2 and 1.4 FTE jobs, with payroll totaling between \$116,000 and \$129,000 and output totaling between \$300,000 and \$331,000. *Government* is expected to experience the largest annual impact, with approximately 0.5 FTE jobs, between \$49,000 and \$54,000 in payroll, and between \$123,000 and \$135,000 in output.

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

Industry	Labor Impacts (Jobs)	Earning Impacts (2021\$)	Output Impacts (2021\$)
Wholesale Trade	0.2 to 0.2	\$14,000 to \$16,000	\$36,000 to \$40,000
Retail Trade	0.1 to 0.1	\$10,000 to \$11,000	\$28,000 to \$31,000
Transportation, Communications, Public Utilities	0.1 to 0.1	\$7,000 to \$8,000	\$19,000 to \$21,000
Insurance and Real Estate	0.1 to 0.1	\$8,000 to \$8,000	\$23,000 to \$25,000
Office Services	0.2 to 0.2	\$19,000 to \$21,000	\$47,000 to \$52,000
Other Services	0.1 to 0.1	\$8,000 to \$9,000	\$21,000 to \$24,000
Government	0.5 to 0.5	\$49,000 to \$54,000	\$123,000 to \$135,000
Total	1.2 to 1.4	\$116,000 to \$129,000	\$300,000 to \$331,000
<p><i>Note: Numbers shown may not sum to total because of rounding and because industries with small impacts (less than \$1,000 in earnings) are not shown. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).</i></p>			

⁶ Leased acreage is estimated. The final acreage leased will be based on the project's final engineering and construction.

⁷ JEDI modeling for the O&M period includes 2024 anticipated PILOT and HCA payments.

Table 27-12 presents the annual induced local impacts by industry. Annual induced impacts are expected to generate between 4.4 and 4.9 New York FTE jobs, payroll of between \$357,000 and \$395,000, and output of between \$922,000 and \$1,019,000.

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

Industry	Labor Impacts (Jobs)	Earning Impacts (2021\$)	Output Impacts (2021\$)
Wholesale Trade	0.2 to 0.2	\$13,000 to \$15,000	\$34,000 to \$38,000
Retail Trade	0.1 to 0.2	\$12,000 to \$13,000	\$31,000 to \$35,000
Transportation, Communications, Public Utilities	0.1 to 0.1	\$5,000 to \$5,000	\$12,000 to \$13,000
Insurance and Real Estate	0.1 to 0.1	\$5,000 to \$6,000	\$14,000 to \$15,000
Finance	0 to 0	\$1,000 to \$1,000	\$2,000 to \$2,000
Office Services	0.8 to 0.9	\$62,000 to \$69,000	\$161,000 to \$178,000
Other Services	0.1 to 0.1	\$8,000 to \$9,000	\$22,000 to \$24,000
Government	3.0 to 3.3	\$250,000 to \$276,000	\$645,000 to \$712,000
Total	4.4 to 4.9	\$357,000 to \$395,000	\$922,000 to \$1,019,000
<p><i>Note: Numbers shown may not sum to total because of rounding and because industries with small impacts (less than \$1,000 in earnings) are not shown. Jobs are expressed in terms of year-long, full-time equivalent (FTE) positions (2,080-hour units of labor).</i></p>			

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 B is expected to experience a reduction in the average zonal prices of approximately \$0.05/MWh in 2023, as shown in Exhibit 8. 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, NYSPSC'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 an 85 percent reduction in greenhouse gas (GHG) emissions from the 1990 level by 2050 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 8 tons of SO₂, 41 tons of NO_x, and 71,680 tons of CO₂ (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 Cato-Meridian Central School District, the Port Byron Central School District, and the Weedsport Central 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 the school districts, therefore, are anticipated during the construction phase of the Project.

During the O&M phase of the Project, total annual impacts (direct, indirect, and induced) associated with employment are forecast to be between ■■■ and ■■■ FTE jobs. Long term population impacts in the school districts are anticipated to be minimal during the O&M phase of the Project. PILOT payments are anticipated to be allocated to the Cato-Meridian Central School District, the Port Byron Central School District, and the Weedsport central School District during the O&M phase of the Project.

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, during Project operation, 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 new PILOT or tax revenue and additional new payments from any Host Community Agreement (HCA) for the Town that may be entered into with the Applicant.

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

The Project includes property within five taxing jurisdictions that are expected to receive new PILOT or tax revenues. The Town may also receive new payments as part of an HCA. The jurisdictions are:

- Cayuga County
- Town of Conquest
- Cato-Meridian Central School District
- Port Byron Central School District, and
- Weedsport Central School District.

These jurisdictions will benefit from a PILOT agreement, increased tax revenues 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. After the PILOT and HCA periods, the Garnet Energy

Center will pay property taxes to the local jurisdictions for the remainder of the Project’s useful life.

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

The Applicant anticipates executing PILOT agreements with Cayuga County, the Town of Conquest, the Cato-Meridian Central School District, the Port Byron Central School District, and the Weedsport Central School District. An HCA is also expected to be executed with the Town of Conquest. While the specific terms of the PILOT agreement and HCA 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 \$2,675,000 in 2023. The 2024 payments are estimated to total \$1.3 million. The payments will increase from their 2024 level by 2 percent per annum in years 2025 through 2042.

Total PILOT and HCA payments over a 20-year period are estimated to be \$33.0 million. 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 the Garnet Energy Center

Taxing Jurisdiction	2023 Payment¹	2024 Annual Payment²	Cumulative (10-year) Payment	Cumulative (20-year) Payment
Town of Conquest	\$ 321,917	\$ 259,269	\$ 2,850,992	\$ 6,243,771
Cato-Meridian Central School District	\$1,144,581	\$ 518,877	\$ 6,206,030	\$12,996,013
Port Byron Central School District	\$ 188,584	\$ 85,491	\$ 1,022,519	\$ 2,141,252
Weedsport Central School District	\$ 211,632	\$ 95,940	\$ 1,147,488	\$ 2,402,949
Cayuga County	\$ 808,286	\$ 366,423	\$ 4,382,608	\$ 9,177,595
Total	\$2,675,000	\$1,326,000	\$15,609,637	\$32,961,581
Notes: Numbers shown may not sum to totals because of rounding. ¹ Includes additional Year 1 payments that are not continued in following years. ² Annual payments shown are anticipated to increase over time by 2% per year.				

The Cato-Meridian Central School District is anticipated to receive the largest payments, with a 20-year total of \$13.0 million in PILOT payments. Cayuga County is anticipated to receive a total

of \$9.2 million in PILOT payment, with the Town of Conquest receiving \$6.2 million in PILOT and HCA payments over the 20-year period. The Port Byron Central School District and the Weedsport Central School District are projected to received \$2.1 million and \$2.4 million, respectively, over the 20-year period.

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 anticipated PILOT agreement or increased tax revenues, and the HCA, the Project should result in positive fiscal impacts for the local jurisdictions, with a total of \$33.0 million in new revenue anticipated over the 20-year period. After the 20-year PILOT and HCA periods, the Garnet Energy Center will pay property taxes to the local jurisdictions for the remainder of the Project's useful life.

27(k) Analysis of Local Emergency Response

Exhibit 18 outlines safety and security for the 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. 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 (Environmental Conservation Law [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 200 MW of clean, renewable energy that will be provided to the New York State electric system that is managed by the NYISO. Additionally, the Project will include 20 MW of energy storage. The Project will use the existing electric system for the transmission and 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 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 landowners 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 landowners 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. Any remaining impacts are outweighed by the benefit provided by the Project's generation of up to 200 MW of renewable energy with 20 MW of battery storage, 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 Conquest. 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 landowners and access to a POI 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 Public Involvement Program (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 Plan, 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 Plan for more information). Information is also available to the community via the website www.garnetenergycenter.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 Cayuga County or in the Town of Conquest.

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_x, SO₂ and CO₂ emissions from the power sector in New York. In 2023, the Project is expected to reduce the annual statewide emissions by 8 tons of SO₂, 41 tons of NO_x, and 71,680 tons of CO₂ (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, an 85 percent reduction in GHG emissions from the 1990 level by 2050, 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 GHG 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 GHG emissions. As described in *Climate Smart Communities Guide to Local Action: Taking Steps to Combat Climate Change*, reducing GHG 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 GHG 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 Conquest was to become a 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.⁸

27(n) Statement on Actual Job Tracking and Tax Payments to Local Jurisdictions

The Applicant is committed to tracking and reporting 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.

⁸ 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.

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.

References

Bureau of Labor Statistics (2021). Local Area Unemployment Statistics. Available at: <https://www.bls.gov/lau/#data>. Accessed June 6, 2021.

National Renewable Energy Laboratory (NREL) (2019). "Limitations of the JEDI Model." Available at: <https://www.nrel.gov/analysis/jedi/limitations.html>. Accessed January 14, 2021.

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U.S. Census Bureau. (2021). 2015-2019 American Community Survey 5-Year Estimates. Available at: <https://data.census.gov>. Accessed February 17, 2021.