DANSKAMMER
ENERGY, LLC

DANSKAMMER ENERGY CENTER

Case No. 18-F-0325

1001.27 Exhibit 27

Socioeconomic Effects

Contents

Tables

Appendices

Exhibit 27: Socioeconomic Effects

The Project is located in the Town of Newburgh in Orange County, which is part of the Hudson Valley Region of New York. The current demographic profiles of the communities are presented in Table 27-1 below.

Table 27-1. Demographics[1]

	Town of Newburgh	Orange County	New York
2010 Population[2]	29,801	372,813	19,378,124
2017 Population	30,697	378,174	19,798,228
Median Age	41.2	36.9	38.4
High school graduate or higher	93.2%	89.8%	86.1%
Rural/Urban, 2010[2]			
Inside Urban Area	95.4%	77.7%	87.8%
Inside Rural Area	4.6%	22.3%	12.1%
Race and Ethnicity			
White	74.5%	74.1%	63.8%
Black or African American	12.8%	10.6%	15.7%
American Indian/Alaska Native	0.1%	0.3%	0.4%
Asian	2.0%	2.6%	8.3%
Native Hawaiian/Other Pacific Islander	0.0%	0.1%	0.0%
Some Other Race	6.2%	8.8%	8.7%
Two or more races	4.4%	3.5%	3.0%
Hispanic or Latino (any race)	18.8%	19.7%	18.8%
Total housing units	11,888	141,493	8,255,911
Owner-occupied	81.2%	68.4%	54.0%
Vacancy Rate	8.2%	10.6%	11.5%

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

[2] US Census 2010 decennial census.

As seen above in Table 27-1, the population of the Town of Newburgh totaled 30,697 people in 2017, with an average age of 41.2 years. Within the Town of Newburgh, 93.2 percent of the residents are high school graduates or higher. Approximately three-quarters (74.5 percent) of

the residents indicated being white. Roughly 19 percent of the Town's population is of Hispanic or Latino ethnicity. The racial and ethnic composition of the Town of Newburgh is similar to that of Orange County as a whole. The Town has 11,888 housing units, with an owner-occupancy rate of 81.2 percent. Roughly 8 percent of the housing is unoccupied, lower than the vacancy rates of the county and state.

Table 27-2. Economic Profile[1]

Population	Town of Newburgh	Orange County	New York
Median household income (2017$)	$86,010	$75,146	$62,765
Individuals below poverty level[2]	7.0%	12.2%	15.1%
Labor Force, BLS July 2019	16,653	184,348	9,579,695
Unemployed, July 2019	617	7,148	395,762
Unemployment rate, July 2019	3.7%	3.9%	4.1%

[1] Unless otherwise noted, data are from the US Census Bureau's 2013-2017 ACS 5-year estimates program.

[2] The annual thresholds for the federal poverty level vary with household size and composition. In 2017, the poverty level for a family of four related persons with two children under age 18 was $24,036. For more information, see https://fas.org/sgp/crs/misc/R44780.pdf.

As seen above in Table 27-2, the median income in the Town of Newburgh ($86,010) exceeds that of Orange County ($75,146) and New York ($62,765). The Town also has a lower percentage of its residents living below the poverty level than the County and State. The Bureau of Labor Statistics (BLS) found 3.7 percent of the Town of Newburgh's labor force reported being unemployed during July 2019 (BLS 2019).

Methodology

The potential socioeconomic impacts of the Project include both direct and secondary effects. The Project's direct effects were evaluated based on Danskammer's estimates of projected employment and spending for the Project. Ranges of potential indirect and induced effects were developed using the United States Department of Energy's National Renewable Energy Laboratory's (NREL) Job and Economic Development Impact (JEDI) model (the "JEDI Model"). The JEDI Model estimates the local (State) economic effects associated with the construction and operation of power projects.

In the JEDI Model, economic multipliers are derived from the Minnesota IMPLAN Group's IMPLAN accounting software and State data files. The JEDI Model uses the Project's direct effects as inputs to estimate the indirect and multiplier effects. The multipliers capture the secondary or indirect impacts of the Project development and on-Project Site labor reflecting the economic activity that percolates through the economy as money is re-spent. For example, the Project's salary expenditures result in an induced effect on the economy as workers spend their earnings on goods and services (e.g., dining at local restaurants), which consequently support jobs in sectors that contribute to other industries. Table 27-3 below summarizes the types of impacts evaluated.

Table 27-3. Categories of Economic Impacts

Result Category	Impacts
Direct Development and Construction Onsite Labor Impacts	• Labor costs during the development, construction, operations, and maintenance of the Project. • Examples: labor costs of engineers, permitting specialists, crane operators, electricians, field technicians, and others. • Does not include costs of equipment, parts, and materials.
Local Revenue and Supply Chain Impacts	• Locally-purchased materials and equipment necessary for the construction of the Project. • Examples: wiring, hard hats, replacement parts, and the supply chain of inputs required to produce these materials. • Includes expenses such as land easements, bookkeepers, financing, insurance, and utilities.
Induced Impacts	• Jobs and economic impacts that arise from spending by workers employed and expenditures made in the first two categories.

For the purposes of this Exhibit, two distinct time periods, (1) construction and (2) operations and maintenance (O&M), were considered. Quarterly jobs are presented as full-time jobs. Indirect and induced construction jobs are presented in terms of full-time equivalent (FTE) jobs. For example, an 18-month construction job would add 1.5 FTE jobs to total estimated effects of the construction project. Equipment manufacturing jobs are captured in the construction period. The O&M period results, which cover the life of the Project, are reported as annual FTE jobs and annual economic activity.

JEDI results for each period of economic activity (construction and O&M) are measured by three factors: jobs, earnings, and output. Table 27-4 summarizes the characteristics of these factors.

Table 27-4. Types of Impacts

Measurement	Description
Jobs	• Reflects changes in employment attributable to the development, construction, operation and maintenance of the Project. • Expressed in terms of year-long, FTE positions (2,080-hour units of labor).
Earnings[1]	• Captures the wages or salaries that are associated with jobs attributable to the Project. • Expressed in terms of 2019 dollars[2].
Output[3]	• Measures economic activity. • Includes all expenditures estimated to take place in the economy of New York State as a result of the Project. • Expressed in terms of 2019 dollars.

[1] 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.

[2] 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$).

[3] Output differs from gross regional product in that output includes the value of production in addition to the purchases of inputs, whereas gross regional product is a measure of the value of production.

Economic impact analyses were performed using the JEDI Natural Gas Model (NG4.17.17) to analyze the potential impacts associated with the construction and O&M of the Project. A range of results is provided, representing +/- 5 percent of expected costs. Danskammer customized the JEDI Model using inputs specific to the proposed Project. These Project-specific inputs include expenditures, wage rates, and percentage of spending that is local to New York.

Limitations of the JEDI Model

Input-output screening tools, such as the JEDI models, focus on the gross economic impacts directly related to Project construction and O&M. The JEDI Model does not evaluate other economic impacts associated with the Project.[1] On its website, NREL cites examples of other potential economic impacts,[2] including:

[1] See https://www.nrel.gov/analysis/jedi/limitations.html for more information.
[2] See Exhibit 8 for discussion of these impacts.

- Potential increases or decreases in electricity rates resulting from investments in new electricity or fuel infrastructure;
- Impacts associated with the possible cancellation of new power plants made unnecessary by the added capacity of the proposed Project; and
- The displacement of some other type of economic activity due to investment in the proposed Project (NREL 2019).

NREL also notes that JEDI models do not calculate intangible or difficult to quantify effects associated with new projects. Examples of these types of effects, which are addressed in Exhibits 4, 5, 8, 16 and 17 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.[3]

This exhibit presents a range of estimated secondary impacts likely to be generated in the vicinity of the Project during its construction and O&M phases. These ranges of +/-5 percent (95 percent to 105 percent) of the JEDI Model results reflect the uncertainty associated with multiplier-based, secondary impact estimates.

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

Danskammer has estimated the quarterly workforce, by discipline, for the construction phase of the Project. Table 27-5 below presents Danskammer's labor forecast, as well as the estimated number of full-time jobs associated with each discipline (including specialty crafts).

[3] Ibid.

Table 27-5. Employment during Construction, Full-time Jobs by Quarter

Period	CRAFT JOBS					TECHNICAL AND MANAGERIAL JOBS							
Quarter	Electrical	Mechanical	Structural/ Architectural	Civil	Subtotal	C&SU/OEM Technicians[1]	Engineering	Safety[2]	Project Management[3]	Warehouse/ Administration[4]	Owner's Team[5]	Subtotal	TOTAL
Qtr. 1, 2021	-	-	-	8	8	-	8	3	5	3	1	20	28
Qtr. 2, 2021	-	-	-	44	44	-	8	3	7	3	2	23	67
Qtr. 3, 2021	-	-	31	53	84	3	10	4	12	5	2	36	120
Qtr. 4, 2021	1	13	127	13	154	4	12	4	15	5	4	44	198
Qtr. 1, 2022	14	64	164	3	245	6	16	5	32	5	4	68	313
Qtr. 2, 2022	35	181	107	5	328	10	16	5	38	6	4	79	407
Qtr. 3, 2022	52	265	27	1	345	8	14	6	38	6	8	80	425
Qtr. 4, 2022	76	251	4	-	331	12	12	6	38	8	12	88	419
Qtr. 1, 2023	97	147	5	3	252	12	8	5	38	8	16	87	339
Qtr. 2, 2023	78	29	-	1	108	14	6	5	25	8	22	80	188
Qtr. 3, 2023	28	-	-	-	28	14	6	5	18	8	22	73	101
Qtr. 4, 2023	2	-	-	-	2	12	6	5	15	6	24	68	70
Quarterly Average	**32**	**79**	**39**	**11**	**161**	**8**	**10**	**5**	**23**	**6**	**10**	**62**	**223**
Total FTE Jobs[6]	**96**	**237**	**117**	**33**	**483**	**24**	**30**	**15**	**69**	**18**	**30**	**186**	**669**

[1] Commissioning and start-up (C&SU); Original Equipment Manufacturer (OEM)

[2] Includes supervisors and staff.

[3] Includes field supervisors and QA/QC inspectors.

[4] Includes records and document control activities.

[5] Includes oversight and operations.

[6] FTE jobs are based on 1 year of full-time work (2,080 hours). Jobs that last 18 months, for example, would be counted as 1.5 FTE jobs.

As shown in Table 27-5, an average of 161 full-time craft jobs are expected during the anticipated 3-year construction period. Mechanical jobs will comprise slightly less than half (49 percent) of the craft jobs. Technicians and managerial staff jobs will average 62 full-time positions, with project management taking the largest share (37 percent). The total number of full-time jobs during construction is projected by Danskammer to average 223 jobs per quarter. A total of 669 FTE jobs are expected to be created during the Project's construction.

Table 27-6 below summarizes Danskammer's forecast of the quarterly employment associated with the construction of the Project and highlights the peak construction period.

Table 27-6. Quarterly Labor Demands by Occupation during Project Construction

Quarter of Construction Activity	Craft Jobs	Technical and Managerial Jobs	Total
Quarter 1, 2021	8	20	28
Quarter 2, 2021	44	23	67
Quarter 3, 2021	84	36	120
Quarter 4, 2021	154	44	198
Quarter 1, 2022	245	68	313
Quarter 2, 2022	328	79	407
Quarter 3, 2022	345	80	425
Quarter 4, 2022	331	88	419
Quarter 1, 2023	252	87	339
Quarter 2, 2023	108	80	188
Quarter 3, 2023	28	73	101
Quarter 4, 2023	2	68	70
Peak Employment, Quarter 3, 2022	**345**	**80**	**425**

As shown above, employment at the Project is expected to peak during the third quarter of 2022, with 345 full-time craft jobs and 80 full-time technical and managerial jobs, for a total of 425 full-time jobs.

The Project is located in Orange County, New York, which is part of New York Department of Labor's Hudson Valley Region. The Hudson Valley Region contains Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, and Westchester Counties. The Hudson Valley Region is home to

2.3 million people and has a labor force of 1.1 million. Danskammer estimates approximately 90.3 percent of labor will be local New York hires. This equates to an annual average of approximately 604 FTE jobs to New York workers during the development and construction period. It is the policy of the Orange County Industrial Development Agency (OCIDA) that those obtaining assistance, such as PILOT and sales tax agreements from the IDA, hire 85 percent of its construction labor from the Hudson Valley Region, unless an exemption or waiver is obtained. Therefore, a minimum of 569 FTE jobs are expected to be filled by Hudson Valley workers during the construction of the Project.

A *Labor Report for Danskammer* was developed by the Hudson Valley Building and Construction Trades Council, which is comprised of local labor unions, most of which are located in Orange County, where the Project is located.[4] This report states 7,590 construction workers are members of local labor unions affiliated with the Trades Council. The majority of these are within 75 miles of the Project Site. Three additional local labor unions operate in Dutchess County, directly across the Hudson River from the Project, and are affiliated with the Hudson Valley Building and Construction Trades Council. These local labor unions are available to provide labor to larger-scale construction projects.

27(b) Construction Direct and Supply Chain Impacts

Danskammer has estimated annual payroll, by trade for each year of construction based on the labor estimates shown in Table 27-6 and prevailing wage rates. Table 27-7 below summarizes the payroll forecast for the Project.

Table 27-7. Danskammer's Forecasted Construction Payroll[1]

Occupation	2021	2022	2023	Total
Electrical	$58,944	$10,404,663	$11,961,043	$22,424,650
Mechanical	$822,782	$48,015,116	$10,983,152	$59,821,050
Structural/Architectural	$9,074,660	$17,154,519	$282,788	$26,511,968
Civil	$6,854,541	$519,944	$230,147	$7,604,633
C&SU/OEM Technicians [2]	$413,398	$2,116,128	$3,053,824	$5,583,350
Engineering	$6,802,708	$10,367,469	$4,646,823	$21,817,000
Safety Supervisors/Staff	$2,178,745	$3,422,719	$3,109,935	$8,711,400

[4] Hudson Valley Building and Construction Trades Council, undated.

Table 27-7. Danskammer's Forecasted Construction Payroll[1]

Occupation	2021	2022	2023	Total
Project Management/Field Supervisors/QA-QC Inspection	$6,493,041	$ 24,258,369	$15,907,440	$46,658,850
Warehouse/Records/Document Control/Admin	$1,310,037	$2,045,716	$2,451,847	$5,807,600
Owners Oversight/Operations Team	$643,305	$2,001,637	$5,995,057	$8,640,000
Total Payroll	**$34,652,161**	**$120,306,281**	**$58,622,058**	**$213,580,500**

[1] Payroll includes wages and salaries, benefits, and payroll taxes.

[2] Commissioning and start-up (C&SU); Original Equipment Manufacturer (OEM)

As shown, over the anticipated 3 year construction period, construction payroll at the Project is expected to total approximately $213.6 million. More than half of the labor costs will be expended in 2022, when $120.3 million in payroll is spent. Labor associated with mechanical costs will be the largest expense at $59.8 million, followed by project management/field supervisors/QA-QC inspection at $46.7 million.

Danskammer also evaluated the expected total direct non-payroll expenditures associated with the construction of the Project (including materials, services, rentals and similar categories). The anticipated expenditures are shown in Appendix 27-1. Estimates of the New York share of expenditures to be spent are also presented.

The JEDI Model generates spending estimates at the industry level. Danskammer expects that $294.3 million will be spent locally (in New York) during the development and construction of the Project. The largest New York expenditures during the construction phase of the Project will be in the *Construction/Installation* industry, with $178.5 million spent locally.[5] Table 27-8 below presents these details.

[5] The JEDI model includes the following local expenditures types in the *Construction/Installation* category: *General Facilities*, *Construction Labor*, and *Grid Intertie*.

Table 27-8. Direct Local Expenditures by Industry during Project Development and Construction

Industry	Local NY Expenditures (2019$)
Construction	$178,519,198
Machinery	$48,329,350
Professional Services	$62,444,953
Government	$5,050,000
Total	**$294,343,500**
Note: Numbers shown do not sum to totals because of rounding. Spending is based on assumptions noted in Appendix 27-1.	

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

The discussion above, in the introduction section of this Exhibit, provides an explanation of, and basis for, the JEDI Model and the economic multiplier factors that were used to estimate the ranges of potential secondary socioeconomic effects associated with the Project's direct spending. Indirect impacts are economic effects associated with business-to-business spending, such as suppliers of hardware used to make the equipment installed on the Project Site.

Table 27-9 below presents ranges of the indirect impacts likely to be generated in the vicinity of the Project by its construction.

Table 27-9. Indirect Local New York Impacts by Industry during Development and Construction of the Project

Industry	Labor Impacts (FTE Jobs)	Earning Impacts (Millions 2019$)	Output Impacts (Millions 2019$)
Construction	351.2 to 388.2	$22.3 to $24.7	$57.0 to $63.0
Machinery	52.9 to 58.5	$5.0 to $5.5	$14.2 to $15.7
Professional Services	62.9 to 69.5	$8.1 to $8.9	$20.3 to $22.4
Government	4.8 to 5.3	$0.2 to $0.2	$0.5 to $0.5
Total	**471.8 to 521.5**	**$35.6 to $39.3**	**$91.9 to $101.6**
Note: Numbers shown may not sum to totals because of rounding.			

The JEDI Model estimates that indirect local impacts during the construction phase will generate between 471.8 and 521.5 FTE jobs, payroll totaling between $35.6 million and $39.3 million, and output totaling between $91.9 million and $101.6 million. The construction industry in New

York is expected to experience the largest impact with between 351.2 and 388.2 FTE jobs and between $22.3 million and $24.7 million in payroll and between $57.0 million and $63.0 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 proposed Project. Table 27-10 below presents ranges of the induced impacts likely to be generated in the vicinity of the Project by its construction.

Table 27-10. Induced Local Impacts by Industry during Construction of the Project

Industry	Labor Impacts (FTE Jobs)	Earning Impacts (Millions 2019$)	Output Impacts (Millions 2019$)
Construction	301.9 to 333.6	$20.9 to $23.1	$52.2 to $57.7
Machinery	44.4 to 49.1	$3.7 to $4	$9.1 to $10.1
Professional Services	77.7 to 85.9	$8.6 to $9.5	$21.6 to $23.8
Government	30.7 to 33.9	$1 to $1.1	$2.5 to $2.7
Total	**454.6 to 502.5**	**$34.1 to $37.7**	**$85.3 to $94.3**
Note: Numbers shown may not sum to totals because of rounding.			

As shown in Table 27-10 above, induced impacts in New York are expected to generate between 454.6 and 502.5 FTE jobs, payroll of between $34.1 million and $37.7 million, and output of between $85.3 million and $94.3 million. The construction industry is expected to experience the largest impact with between 301.9 and 333.6 FTE jobs and between $20.9 million and $23.1 million in payroll.

Net Secondary Effects Associated with Construction

NREL's JEDI Model evaluates gross economic impacts of power projects. However, to evaluate the annual net secondary effects from the Project's construction, consideration must also be given to difficult to quantify considerations that may be associated with the Project. Two such considerations are 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. The local (New York) spending directly associated with the Project is estimated to be $294.3 million over 3

years. This total represents less than 0.006 percent of New York's Gross Domestic Product over a 3-year period of approximately $5.0 trillion.[6]

As noted in Exhibit 4 of this Application, which addresses land use, the proposed Project will be located entirely within the bounds of Danskammer owned property, which encompasses all lands needed for the construction and operation of the proposed Project. The land has an existing 532-MW nameplate capacity power generation facility (the Danskammer Generating Station) located at this Site. The land use in the Project Site consists of the existing power generation facility, associated facilities, as well as some undeveloped areas. The proposed Project will be consistent with existing development and visual patterns that already exist in the area.[7] Thus, as further set forth in detail on Exhibit 4 of this Application, no significant impacts to land use will occur with the construction or operation of the proposed Project.

27(d) Operation and Maintenance Employment Impacts

The Project is proposed to repower and replace the existing Danskammer Generating Station. Danskammer 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 workers who reside in the Hudson Valley Region. Table 27-11 below summarizes Danskammer's forecast of the annual employment associated with the O&M of the Project as well as the projected payroll for such employment, by discipline.

Table 27-11. Danskammer's Forecasted Annual Labor Force during Project O&M

Occupation	Number of FTE Jobs Created	Payroll (2019$)[1]
Plant Management	5	$989,297
Plant Shift Lead	5	$794,820
Plant Operator	5	$694,854
Mechanics and Technicians	4	$562,140
Miscellaneous	4	$402,667
Total	**23**	**$3,443,778**

[1] Payroll includes wages and salaries, benefits, and payroll taxes.

Note: Operation of the Project is anticipated to begin in 2024.

[6] Source: Bureau of Economic Analysis (2019).
[7] See Exhibit 4.

Danskammer anticipates that Project O&M will require 23 FTE jobs, as shown above. Payroll associated with these jobs is estimated to total $3.4 million annually.

Appendix 27-1 includes a summary of the estimated total, annual direct expenditures during the Project's O&M phase. Danskammer's budgeted labor costs are based on anticipated employment levels, wage rates by worker type, and overhead (including insurance benefits, taxes, and unpaid leave). Materials, services, and variable costs, including turbine maintenance, are also specific to the Project. Danskammer's expected local O&M expenditures are also provided.

27(e) Secondary Operation and Maintenance Impacts

Indirect Impacts

Based on the results of the analysis performed using the JEDI Model, Table 27-12 below presents a range of annual indirect or secondary impacts on the local economy and employment during the operation and maintenance of the Project.

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

Industry	Labor Impacts (Jobs)	Earning Impacts (Millions 2019$)	Output Impacts (Millions 2019$)
Mining (including natural gas)	7.6 to 8.4	$0.6 to $0.6	$1.6 to $1.7
Manufacturing	0.5 to 0.6	$0.0 to $0.0	$0.1 to $0.1
Machinery	0.9 to 1.0	$0.1 to $0.1	$0.2 to $0.2
TCPU[1]	16.9 to 18.6	$1.3 to $1.4	$3.6 to $4.0
Wholesale Trade	1.3 to 1.4	$0.1 to $0.1	$0.3 to $0.3
Retail Trade	0.6 to 0.7	$0.1 to $0.1	$0.1 to $0.1
FIRE[1]	2.5 to 2.8	$0.2 to $0.3	$0.6 to $0.7
Misc. Services	2.2 to 2.5	$0.2 to $0.2	$0.5 to $0.6
Professional Services	3.3 to 3.6	$0.3 to $0.3	$0.7 to $0.7
Government	5.9 to 6.6	$0.6 to $0.6	$1.4 to $1.6
Total	**41.7 to 46.0**	**$3.4 to $3.8**	**$9.1 to $10.1**

[1] Transportation, Communications, and Public Utilities.

[2] Finance, Insurance, and Real Estate.

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

Total annual indirect local impacts during the O&M phase are modeled to be between 41.7 and 46.0 FTE jobs. The JEDI Model estimates payroll as between $3.4 million and $3.8 million, with output between $9.1 million and $10.1 million. The transportation, communications, and public utilities (TCPU) industry is expected to experience the largest annual impact, with approximately 16.9 to 18.6 FTE jobs, between $1.3 million and $1.4 million in payroll, and between $3.6 million and $4.0 million in output.

In Table 27-13 below, annual induced impacts associated with the Project's annual O&M are expected to yield between 74.5 and 82.4 New York FTE jobs, with payroll of between $5.6 million and $6.2 million. Output is estimated to be between $13.9 million and $15.4 million.

Table 27-13. Annual Induced Local Impacts by Industry during Project Operation and Maintenance

Industry	Labor Impacts (Jobs)	Earning Impacts (Millions 2019$)	Output Impacts (Millions 2019$)
Mining (including natural gas)	8.5 to 9.4	$0.6 to $0.6	$1.4 to $1.6
Manufacturing	0.4 to 0.4	$0.0 to $0.0	$0.1 to $0.1
Machinery	0.7 to 0.8	$0.0 to $0.1	$0.1 to $0.1
TCPU[1]	13.3 to 14.7	$0.9 to $1.0	$2.3 to $2.5
Wholesale Trade	1.4 to 1.5	$0.1 to $0.1	$0.3 to $0.3
Retail Trade	0.8 to 0.9	$0.1 to $0.1	$0.2 to $0.2
FIRE[2]	4.0 to 4.4	$0.3 to $0.3	$0.7 to $0.8
Misc. Services	3.7 to 4.1	$0.3 to $0.3	$0.7 to $0.8
Professional Services	4.0 to 4.5	$0.3 to $0.3	$0.7 to $0.8
Government	37.7 to 41.6	$3.0 to $3.3	$7.5 to $8.3
Total	**74.5 to 82.4**	**$5.6 to $6.2**	**$13.9 to $15.4**

[1] Transportation, Communications, and Public Utilities.

[2] Finance, Insurance, and Real Estate.

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

Annual Net Secondary Effects Associated with O&M

While the JEDI Model produces gross economic impact estimates for the Project, the annual net secondary effects from the Project's O&M also include other difficult-to-quantify impacts. NREL notes that the JEDI Model, for example, does not consider the following impacts that would occur as a result of the operation of the proposed 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 cancellation of new power plants made unnecessary by the added capacity of the proposed Project;
- Improvements in transmission or grid reliability (see Exhibit 5);
- Changes in air or water emissions (see Exhibit 17 and 39); and
- Changes in water use from power generation (see Exhibit 38).

As shown in Exhibit 8, the Project is projected to have a positive effect on the average annual spot prices in all NYISO zones. Additional positive impacts to New York's economy would occur if this reduction results in lower retail power rates. Conversely, higher retail power rates would negatively impact the state's economy.

The Project is not anticipated to result in the cancellation of new power projects. Rather, the Project will primarily replace the current 532-MW nameplate production from the Danskammer Generating Station at the Project Site. Additionally, the proposed upgrades will allow the Project to provide fast-start, fast-ramping power. As described more fully in Exhibit 10 of this Application, this capability is particularly important as more intermittent renewable resources are built in New York in support of the State's goals to have 70 percent of energy generation produced from renewable energy sources.

As described in Exhibit 38 of this Application, the proposed Project will be equipped with an air-cooled condenser for heat dissipation, rather than relying on once-through or evaporative cooling technologies. When the proposed Project is operational, the need for continued operation of the cooling water intake structures for Units 1 through 4 at the existing Danskammer Generating Station, as well as the discharge of heated effluent into the Hudson River, will be eliminated. Other measures will further minimize water supply and wastewater discharge needs. Overall, the decommissioning of the older steam electric generating equipment that is part of the existing Danskammer Generating Station at the Project Site will result in a significant reduction in total water use and eliminate the discharge of heated effluent into the Hudson River.

27(f) School District Impacts during the Construction and Operation Phases

The Project is located in the Marlboro Central School District (CSD). The largest impact in terms of jobs would be during the construction period. Families do not, however, typically relocate for short-term constructions jobs. Further, it is anticipated that the majority of the workers during the construction of the Project will be hired locally from the region. No negative impacts to the Marlboro CSD, therefore, are anticipated during the construction phase of the Project. Danskammer met with the Superintendent of the Marlboro CSD on October 28, 2019. The discussion concluded that the school district agrees that they do not expect any additional financial burden on their operations in relation to the proposed Project.

During the O&M phase of the Project, total annual impacts (direct, indirect, and induced) associated with employment are forecast to be between 139.2 and 151.4 FTE jobs. With 12,379 residents in the Marlboro CSD's geographic area, long term population impacts to the school district are anticipated to be minimal during the O&M phase of the Project. As discussed more fully in Section 27(i) below, Danskammer anticipates making annual payments under a Payment in lieu of Taxes (PILOT) Agreement, a portion of which will be paid to the Marlboro CSD for a defined amount of years during the O&M phase of the Project.

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

The labor force needs associated with the Project's construction and O&M are expected to have minimal impact on the population in the Town of Newburgh and Orange County, where the Project is located. In addition, the cost of any services required by Project employees living within the local municipalities would be offset by property taxes and utility user fees paid by those residents.

With the exception of water, the Project's construction and O&M activities are not anticipated to place any additional burdens on local services because infrastructure currently in place (for the existing Danskammer Generating Station) will be utilized for the Project and the same amount of such local services is capable of also supporting the Project. As explained in Exhibit 38, the Town of Newburgh has indicated that it has adequate water, in terms of quantity and pressure, to support any need for increased water supply for the Project. The Project will generate PILOT Agreement payments, Host Community Benefit Agreements (HCBA) payments, and other special district property tax revenue for the taxing jurisdictions and host communities in which the Project are located. Danskammer met with representatives from both the Orange County

Sheriff's Office and Town of Newburgh Police on October 23, 2019, to discuss the impact of the Project on budgeting for both agencies. The discussions concluded that neither the Orange County Sheriff's Office nor the Town of Newburgh Police anticipated any additional financial burden on their operations in relations to the proposed Project.

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

The Project includes property within three taxing jurisdictions that will receive PILOT payments and/or tax revenues in connection with the Project. The taxing jurisdictions and special tax districts are:

- Orange County,[8]
- The Town of Newburgh,
- The Marlboro Central School District (CSD),[9] and
- Special tax districts (Middlehope Fire District, Consolidated Water District 1, and Consolidated Water District 2).

These jurisdictions will benefit from PILOT and/or property taxes as described in the following section. Tax revenues will also be indirectly generated from additional economic activity in the vicinity of the Project. New York State will benefit as well from additional tax revenue generated by the Project's construction and O&M.

27(i) Incremental Amount of Annual Taxes and PILOT

Danskammer intends to apply to the Orange County Industrial Development Agency (OCIDA) for a PILOT Agreement and other assistance in early 2020. If Danskammer successfully negotiates payment structures and receives the required approvals from OCIDA to enter into a PILOT Agreement, the PILOT Agreement will establish a defined set of payments that will be paid to each of the affected taxing jurisdictions for the property parcels covered by the PILOT Agreement. The affected tax jurisdictions are: Orange County,[10] Town of Newburgh and the Marlboro CSD.[11] PILOT Agreement terms are commonly 15 years, but can be longer at the discretion of OCIDA. The affected tax jurisdictions may use the payments from the PILOT in the same fashion as they would use property tax proceeds. Such uses include funding for

[8] Includes highway funds.
[9] Includes library funds.
[10] Includes highway funds.
[11] Includes library funds.

administration, infrastructure, government services, law enforcement, and other budgetary funding needs. In addition, Danskammer will continue to pay special district charges for fire and water, and such payments will be used to fund the annual budgetary requirements for such districts. The PILOT Agreement may include a mechanism to reduce the PILOT payment by the amount that the special district charges exceed an agreed upon limit.

Danskammer anticipates executing a PILOT Agreement with OCIDA for the parcels of land comprising the Project Site. Danskammer may also enter into HCBAs with the Town of Newburgh and the Marlboro CSD. The agreements will increase the revenues of the local taxing jurisdictions and are anticipated to be a significant portion of the jurisdictions' total tax levies. Agreements are in the process of being negotiated. However, estimates have been developed for the purposes of this exhibit.

Appendix 27-2 details the estimated potential payments to each taxing jurisdiction during the first 4 years of the HCBA and PILOT Agreement with the OCIDA. Beginning in 2025, PILOT payments are anticipated to increase by 2.5 percent per year. Additionally, Appendix 27-2 presents the cumulative payments over the lifetime of the PILOT Agreement and any HCBA terms. The last HCBA payments would be made in 2029, with the PILOT payments continuing through 2036.

27(j) Comparison of Fiscal Costs to Jurisdictions

As discussed previously, the Project is not anticipated to impose additional 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. Significant impacts to the local populations, and therefore, local jurisdictions, are not anticipated during the O&M phase of the Project. With the PILOT, HCBA, and property tax payments, the Project is expected to generate positive fiscal impacts for the local jurisdictions.

27(k) Analysis of Local Emergency Response

Exhibit 18 presents key elements of the Safety and Security Plan for the construction and operation of the proposed Project. The Site Security Plan and preliminary Safety Response Plan for the proposed Project are attached in Appendix 18-1 and Appendix 18-2, respectively. Danskammer will provide information and training to local emergency response organizations, including the Middlehope Fire Department and other local emergency responders, to provide instruction on how to respond to emergencies that occur on or near Project components.

Danskammer will work with the emergency response organizations listed above, as well as county and state safety officials, as appropriate, to provide annual trainings to emergency response leadership and their assigned staff.

Danskammer has provided a copy of the preliminary Safety Response Plan to the Middlehope Fire Department, local emergency responders, Orange County Emergency Management Office, and the Town of Newburgh Police Department and request that they review the plans. First responders will also be given an opportunity to provide comments and ask questions. Danskammer will review responses received from local emergency first responders and adjust the plans if warranted. Danskammer also has provided a copy of the plans required in Sections 18(a), 18(b), and 18(c) of Exhibit 18 to the New York State Division of Homeland Security and Emergency Services and has requested they review and comment on the preliminary Safety Response Plan.

On-Project Site equipment and systems to prevent or handle fire emergencies and hazardous substance incidents include the following, located at pre-determined locations across the Project Site:

- Wall mounted fire extinguisher;
- Spill containment units;
- Emergency eye wash stations;
- Wall-mounted first aid kits;
- Portable first aid kits and eyewash bottles;
- Portable fire extinguishers;
- Safety vests;
- Safety masks, gloves, and goggles;
- Automated external defibrillators; and
- Backboard pallets.

27(l) Smart Growth Infrastructure Compliance Impacts

New York Environmental Conservation Law (ECL) Article 6, Section 107 requires that the construction of new or expanded “public infrastructure” projects be evaluated relative to the State’s 11 Smart Growth Criteria. Under the statute, state agencies cannot approve, undertake, or finance a public infrastructure project unless that project meets the criteria to the extent practicable. The Project, however, is privately funded and not subject to the law. Nonetheless,

the Project's consistency with each of the State's Smart Growth criteria has been explored, as addressed below.

Criterion 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 electrical-generating facility that provides energy to the New York State power grid. It will redevelop an existing industrial property with a more efficient power generation technology than currently exists on the Project Site. The proposed Project will have a maximum net capacity of approximately 600 MW, providing energy for 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. Based on the contribution to the State power grid and redevelopment of an existing industrial property, the Project is consistent with Criterion 1.

Criterion 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 section 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 section 6-107).

The Project will be located on Danskammer owned property, which encompasses all lands needed for the construction and operation of the proposed Project. The Project is located in an area adjacent to a municipal center. Therefore, the Project is consistent with Criterion 3.

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

The Project is consistent with Criterion 3. The Project will be located on Danskammer owned property. The land has an existing 532-MW nameplate capacity power generation facility (the Danskammer Generating Station) located at the Project Site and is located in close proximity to the Roseton Generating Station. The land use in the Project Site consists of the existing power generation facility, associated facilities, as well as some undeveloped areas. The proposed Project will be consistent with existing development and visual patterns that already exist in the area (see Exhibits 4 and 24). The Project is in an area developed for power generation and is consistent with the local land use plan. Additional information on the existing zoning and land use plans is provided in Exhibit 4.

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

The Project is consistent with Criterion 4. Exhibits 4, 17, 20, 22, 23, 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 and is consistent with Criterion 4.

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 Site has an existing power facility, the Danskammer Generating Station, located on it. The Project Site 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, this Project involves the repowering of an existing generation station on the Project Site and, thus, is incompatible with downtown revitalization. Compliance with this criterion is not applicable.

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

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

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

Danskammer 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 in Appendix 2-2 of this Application provides a list of identified host community, adjacent community, county, and agency stakeholders. Appendix 2-1 provides information on the public outreach efforts, including meetings with local community and governmental representatives and the most current PIP Meeting Log. The Project is therefore consistent with Criterion 7.

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

As described above, Danskammer 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, included in Appendix 2-1, for more information). Information is also available to the community via the website www.danskammerenergy.com. These outreach efforts are consistent with Criterion 8 related to participation in community-based planning and collaboration.

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

The Project will have no influence over building and land use codes in Orange County or in the Town of Newburgh. Existing land use plans are discussed in Exhibit 4. This criterion is not applicable.

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.

Anticipated reductions in annual statewide emissions are projected to be 161 tons of SO_2 and 242 tons of NO_x. CO_2 is anticipated to increase by 321,786 tons in New York. Within the Northeast region, however, CO_2 is forecast to decrease by 332,825 tons. Greater reductions in NO_x and SO_2 are also expected to be achieved in the Northeast region, with declines of 463 tons and 437 tons, respectively. Additional information is provided in Exhibit 8. Accordingly, the Project is consistent with Criterion 10.

Criterion 11: 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 reduce greenhouse gas emissions. As described in *Climate Smart Communities Guide to Local Action: Taking Steps to Combat* Climate *Change*, reducing greenhouse gas emissions "will help stabilize atmospheric GHGs (greenhouse gas) 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, 2017). With the Project, CO_2 is forecast to decrease in the Northeast region by 332,825 tons. Additional information is provided in Exhibit 8 and Appendix 17-2. Therefore, the Project is expected to have a positive impact on the mitigation of future physical climate risk, thereby supporting Criterion 11.

27(m) Input Data and Work Files

Danskammer has provided, subject to a request for confidential treatment of trade secret information pursuant to section 87(2)(d) of the Public Officers Law and section 6-1.4 of the Commission's regulations, input data and work files used to develop the job impact estimates to the Department of Public Service in electronic file format.

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

Danskammer commits that it will track 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. Jobs will be measured in terms of full-time equivalents.

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APPENDIX 27-1

DIRECT EXPENDITURES

This document contains confidential commercial information, trade secrets, or proprietary information, and/or critical infrastructure information and/or information that is statutorily exempt, as such is entitled to confidential treatment under Section 87(2) of the New York State Public Officers Law and the Commission's Rules and Regulations (16 NYCRR 6-1).

An unredacted version of this document has been submitted under separate cover pursuant to 16 NYCRR § 6-1.4.

APPENDIX 27-2

Anticipated Annual and Cumulative PILOT, CBA and Property Tax Payments

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