

BIG PINE SOLAR

ECONOMIC & FISCAL CONTRIBUTION TO SUSSEX COUNTY, VIRGINIA



Prepared for



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About Mangum Economics, LLC

Mangum Economics is a Glen Allen, Virginia based firm that was founded in 2003. Since then, we have become known as a leader in industry analysis, economic impact assessment, policy and program evaluation, and economic and workforce strategy development. The Mangum Team specializes in producing objective and actionable quantitative economic research that our clients use for strategic decision making in a variety of industries and environments. We know that our clients are unique, and that one size does not fit all. As a result, we have a well-earned reputation for tailoring our analyses to meet the specific needs of specific clients, with a specific audience.

Most of our research falls into four general categories:

- **Information Technology:** Working with some of the largest names in the business, the Mangum Team has produced analyses of the economic and fiscal impact of data centers at the state and local level across the country.
- **Energy:** The Mangum Team has produced analyses of the economic and fiscal impact of over 23 GW of proposed solar, wind, battery energy storage, and hydro projects spanning more than twenty states. Among those projects was Dominion Energy's 2.6 GW Coastal Virginia Offshore Wind project off of Virginia Beach. In addition, the Mangum Team has also performed economic and fiscal impact analyses for the natural gas, nuclear, oil, and pipeline industries.
- **Economic Development and Special Projects:** The Mangum Team has performed hundreds of analyses of proposed economic development projects. Most recently, we were called upon by Henrico County to provide an analysis of the proposed \$2.3 billion Green City "net-zero eco district." The Mangum Team has also authored multiple economic development plans, including identifying industries that were likely recruitment targets because of the high-speed MAREA and BRUSA sub-sea cable landings in Virginia Beach.
- **Policy Analysis:** The Mangum Team also has extensive experience in identifying and quantifying the intended and unintended economic consequences of proposed legislative and regulatory initiatives.

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Executive Summary

This report assesses the economic and fiscal contribution that the proposed Big Pine solar project would make to Sussex County, Virginia. The primary findings from that assessment are as follows:

- 1) **Big Pine is a proposed 150-megawatt (MW) alternating current (AC) solar photovoltaic power generating facility. The project would be located off of Newville Road in Sussex County, Virginia. The actively used, fenced-in solar site would be approximately 1,500 acres of timberland and agricultural land.**

- 2) **The proposed Big Pine project would make a significant economic contribution to Sussex County:**
 - The proposed Big Pine project would employ approximately 217 local and non-local full-time equivalent construction workers.
 - The proposed Big Pine project would provide an estimated one-time pulse of economic activity to Sussex County during its construction phase supporting approximately:
 - 38 direct, indirect, and induced job years.¹
 - \$3.7 million in associated wages and benefits.
 - \$6.6 million in economic output.
 - The proposed Big Pine project would provide an estimated annual economic impact to Sussex County during its ongoing operational phase supporting approximately:
 - 6 direct, indirect, and induced jobs.
 - \$0.6 million in associated wages and benefits.
 - \$0.9 million in economic output.

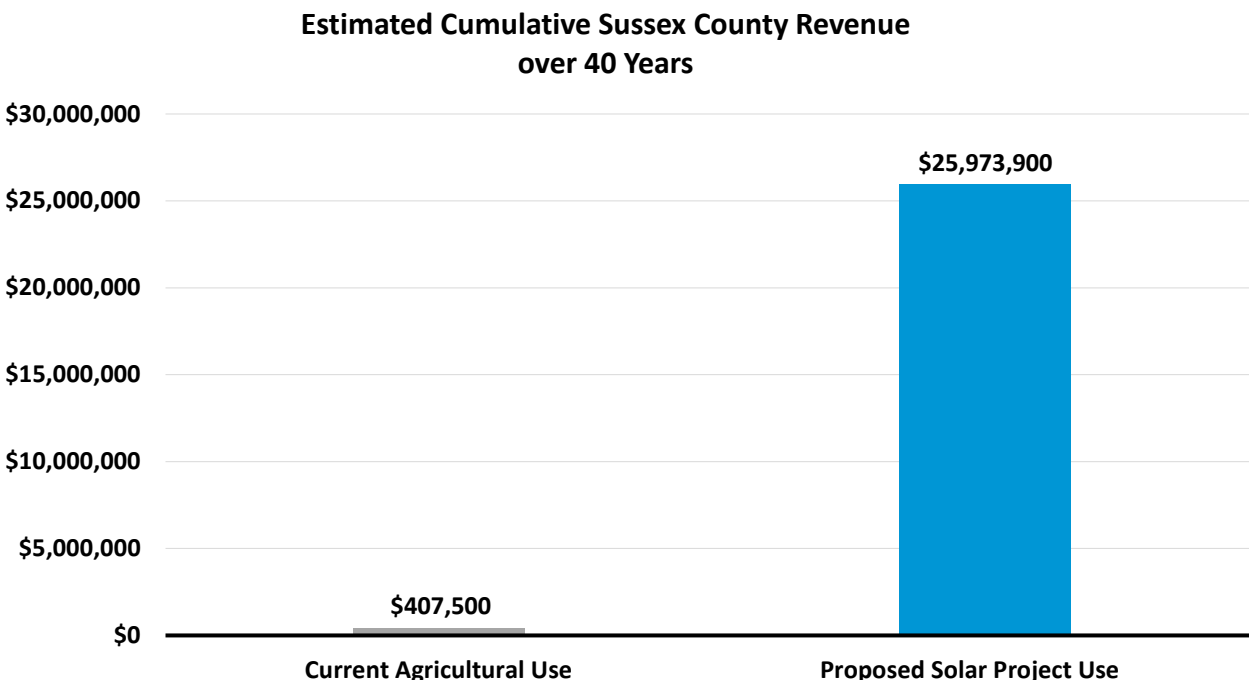
- 3) **The proposed Big Pine project would also make a significant fiscal contribution to Sussex County. The proposed project would generate approximately:**
 - \$0.2 million in state and local tax revenue from the one-time pulse of economic activity associated with the project's construction.
 - \$26.0 million in cumulative county revenue over the facility's anticipated 40-year operational life assuming revenues are generated from the reassessment of the real property and the taxation of the associated capital investments.

¹ A construction sector job, also referred to as a job year, is equal to one job over one year. It is used to denote employment on construction projects where the construction schedule is not exactly one year and to account for the fact that actual on-site employment may vary over the period. It is important to note that it is not possible to know with certainty what proportion of jobs would go to construction contractors in the project region or be filled by project region residents.



4) The proposed Big Pine project would have a significantly greater fiscal impact on Sussex County than the property generates in its current use:

- The proposed Big Pine project would generate approximately \$26.0 million in cumulative county revenue over the facility’s anticipated 40-year operational life, as compared to approximately \$0.4 million in cumulative county revenue in the property’s current use – a difference of approximately \$25.6 million or a 64-fold increase over current revenues.



- To put these numbers into perspective, the approximate \$1.0 million in Sussex County tax revenue² in year 1 of the Big Pine project is equivalent to about 4 percent of Sussex County’s FY 2024 total General Fund or about 9 percent of the FY 2024 property tax fund.³
- The estimated Sussex County tax revenue in year 1 of the Big Pine project could hypothetically fund 12 percent of the county’s education budget for FY 2024 or 41 percent of the Fire, Rescue, and Emergency Services or the entire the Community Development and Parks, Recreation and Cultural budgets FY 2024.⁴

² Please refer to “Fiscal Impact” section for details. Calculations based on total capital investment and current county tax rates.

³ Data Source: Sussex County Fiscal Year 2024 Adopted Budget.

⁴ Data Source: Sussex County Fiscal Year 2024 Adopted Budget.

5) The proposed Big Pine project would provide a boost to Sussex County's construction sector:

- At 134 jobs, construction is one of Sussex County's smaller industry sectors, but it pays average weekly wages (\$1,666/week) that are 79 percent above the countywide average (\$933/week).⁵
- The construction sector was among the industry sectors that posted a job loss in the county between the second quarter of 2022 and the second quarter of 2023 (a loss of 22 jobs).
- The proposed Big Pine project could directly support approximately 23 jobs and \$3.1 million in wages and benefits in Sussex County's construction sector.⁶

The estimates provided in this report are based on the best information available and all reasonable care has been taken in assessing that information. However, because these estimates attempt to foresee circumstances that have not yet occurred, it is not possible to provide any assurance that they will be representative of actual events. These estimates are intended to provide a general indication of likely future outcomes and should not be construed to represent a precise measure of those outcomes.

⁵ Data Source: U.S. Bureau of Labor Statistics.

⁶ Please note that although employment within a local construction sector can sometimes quickly expand to take advantage of new opportunities, because of the relatively small size of Sussex County's existing construction sector it is not possible to know with certainty what proportion of these jobs would go to county construction contractors or be filled by County residents.



Introduction

This report assesses the economic and fiscal contribution that the proposed Big Pine project would make to Sussex County, Virginia. This report was commissioned by RWE Clean Energy and produced by Mangum Economics.

The Project

Big Pine is a proposed 150-megawatt (MW) alternating current (AC) solar photovoltaic power generating facility. The project would be located off of Newville Road in Sussex County, Virginia. The actively used, fenced-in solar site would be approximately 1,500 acres of timberland and agricultural land.

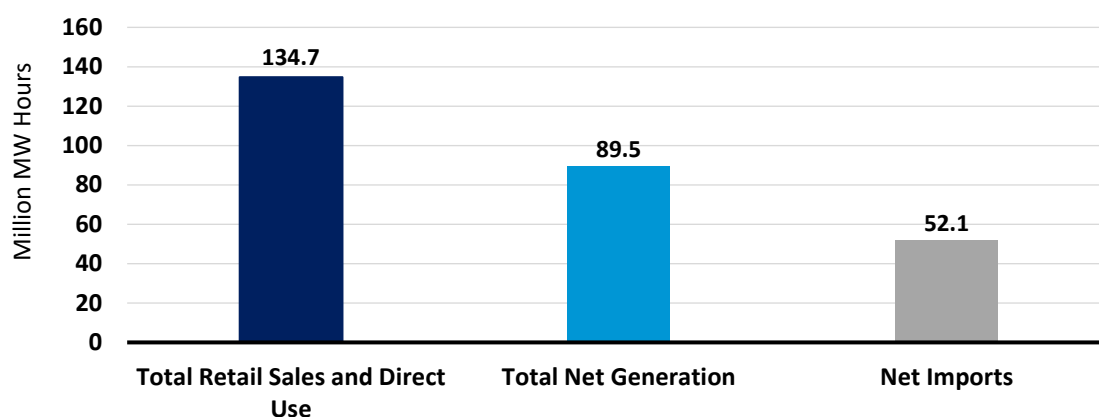
Electricity Production in Virginia

This section provides a backdrop for the proposed Big Pine project by profiling Virginia’s electricity production sector and the role that solar energy could play in that sector.

Overall Market

As shown in Figure 1, in 2022 electricity sales and direct use in Virginia totaled 134.7 million megawatt hours. However, only 66 percent of that demand was met by in-state utilities, independent producers, and other sources. As a result, Virginia had to import the remaining electricity it consumed from producers in other states. As with all imports, this means that the jobs, wages, and economic output created by that production went to localities in those states, not to localities in Virginia.

Figure 1: Demand and Supply of Electricity in Virginia in 2022 (in millions of megawatt-hours)⁷



⁷ Data Source: U.S. Energy Information Administration. In this chart, “Net Imports” also takes into account losses during transmission. As a result, it does not directly equal the residual of “Total Net Generation” minus “Total Retail Sales and Direct Use.”



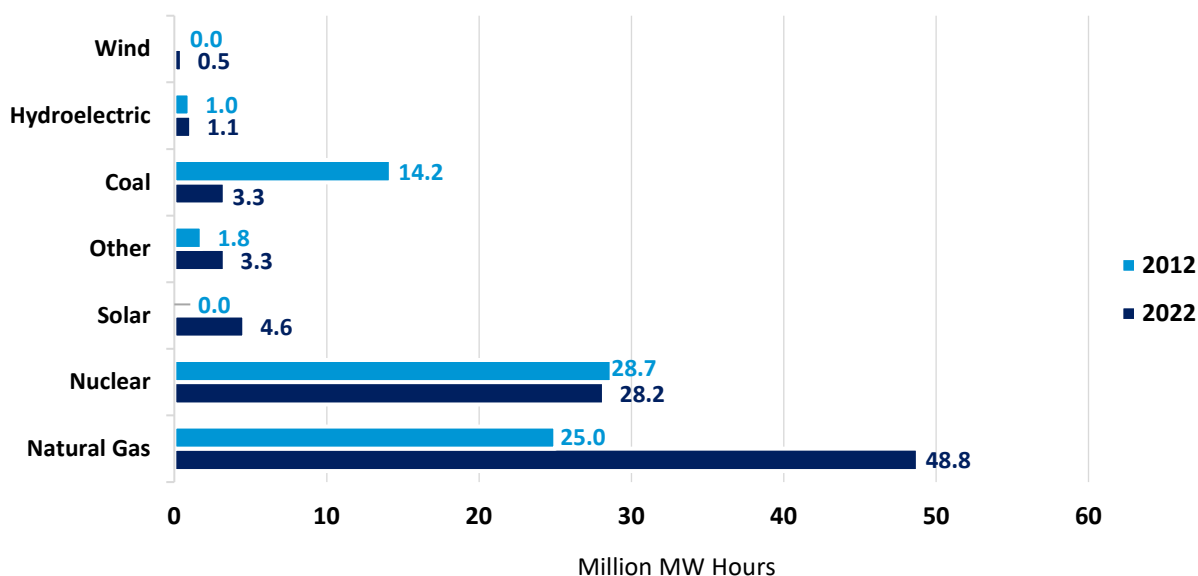
Sources of Production

Between 2012 and 2022, the total amount of electricity produced in Virginia increased from 70.7 to 89.5 million megawatt hours, while retail and direct consumption of electricity increased from 109.9 to 134.7 million megawatt hours. Consequently, imports of electricity increased by 5.3 million megawatt hours (or 11 percent) during this time.⁸ Figure 2 provides a comparison of the energy sources that were used to produce electricity in Virginia in each of those years. As these data show, the most significant change between 2012 and 2022 was a decrease in the use of coal and an increase in the use of natural gas.

Where coal was the state’s third largest source of electricity in 2012, accounting for 14.2 million megawatt hours (or 20 percent) of production, by 2022 production had fallen by 10.8 million megawatt hours, making coal a fourth-place source of electricity with only 4 percent of production.

In contrast, the share of electricity produced using cleaner-burning low-emissions energy sources increased over the period. Where natural gas accounted for 25.0 million megawatt hours (or 35 percent) of Virginia’s electricity production in 2012, by 2022 that proportion had almost doubled to 48.8 million megawatt hours (or 55 percent of production), making natural gas the state’s largest source of electricity. In addition, solar, which entered the Virginia electricity production market in 2016, increased its share to 4.6 million megawatt hours in 2022.

Figure 2: Electricity Generation in Virginia by Energy Source in 2012 and 2022 (in millions of megawatt-hours)⁹



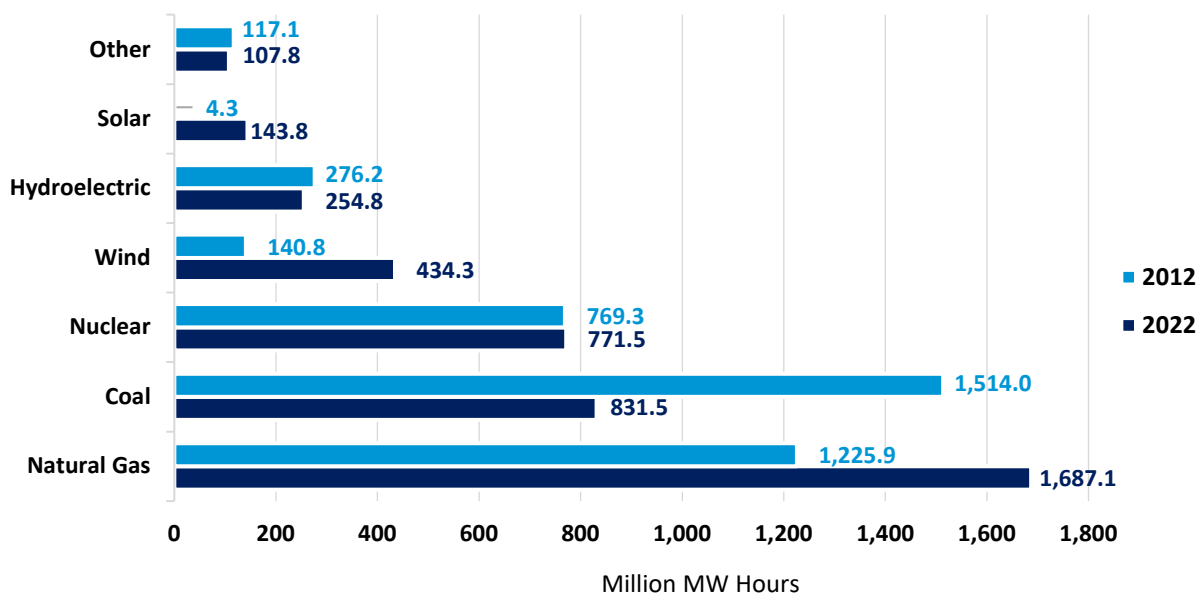
⁸ Imports also takes into account losses during transmission. As a result, totals do not equal sum of components.

⁹ Data Source: U.S. Energy Information Administration. The “Other” category includes battery, wood, petroleum, other biomass, “other”, and pumped storage.



Figure 3 provides similar data for the U.S. as a whole. A quick comparison of Figures 2 and 3 shows that although the degree of reliance on specific energy sources for electricity production is quite different between the U.S. and Virginia, the trend toward lower-emissions energy sources is the same. Nationally, between 2012 and 2022 the amount of electricity produced using coal declined by 682.5 million megawatt hours from 37 to 20 percent of production, while in contrast the amount of electricity produced using natural gas increased by 461.2 million megawatt hours from 30 to 40 percent of production. Nationwide, as in Virginia, the reliance on renewable energy sources such as solar increased during this time but at a slower pace than in Virginia. Between 2012 and 2022, the amount of electricity produced using solar increased by 139.5 million megawatt hours to 3 percent of total electricity production in the nation compared to 5 percent of total electricity production in Virginia.

Figure 3: Electricity Generation in the United States by Energy Source in 2012 and 2022
(in millions of megawatt-hours)¹⁰



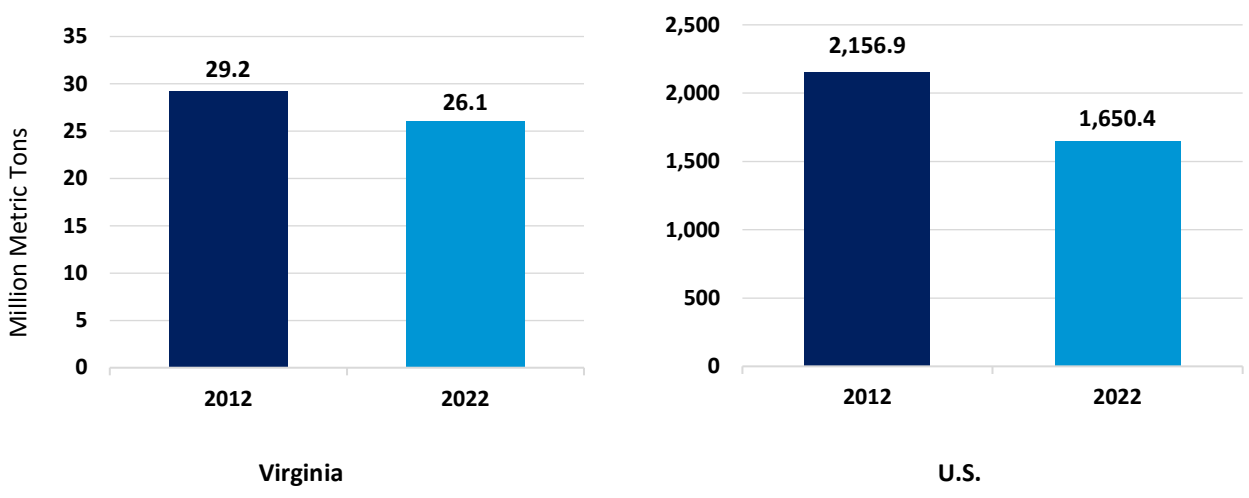
Impact on the Environment

In discussing the impact of these trends on the environment, it is important to realize that electricity production is one of the U.S.’s largest sources of greenhouse gas emissions. Figure 4 depicts carbon dioxide emissions from electricity production in 2012 and 2022 for both Virginia and the U.S. As these data indicate, between 2012 and 2022, as the share of electricity produced in Virginia by coal fell from 20 to 4 percent, carbon dioxide emissions from electricity production fell from 29.2 to 26.1 million metric tons (an 11 percent decrease). Where at the national level, as the share of electricity produced by coal fell from 37 to 20 percent, carbon dioxide emissions from electricity production fell from 2,156.9 to 1,650.4 million metric tons (a 23 percent decrease).

¹⁰ Data Source: U.S. Energy Information Administration. “Other” includes battery, geothermal, other, other biomass, other gas, petroleum, pumped storage, and wood.



Figure 4: Carbon Dioxide Emissions from Electricity Production (millions of metric tons)¹¹

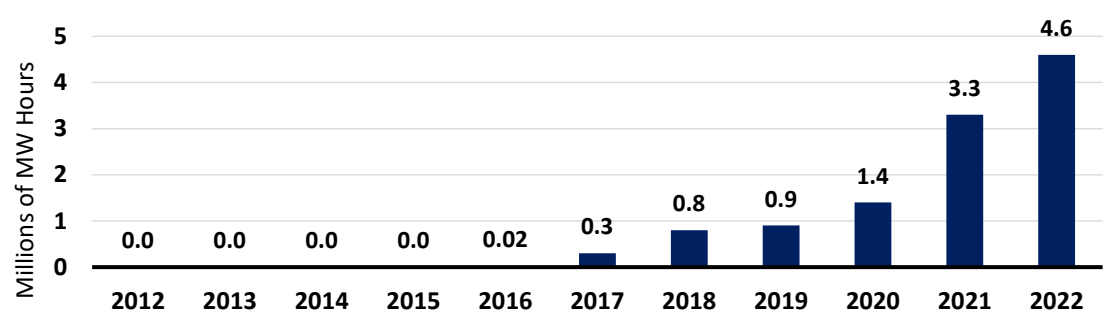


Virginia Solar Industry Trends

As of the second quarter of 2023, Virginia was ranked 10th in the nation for its total installed solar capacity. Over the next five years, Virginia is projected to add almost seven thousand megawatts of solar to its portfolio, ranking it 9th in the nation for projected growth. Total investment into the solar industry in Virginia as of the second quarter of 2023 amounts to \$5.1 billion.¹²

Figure 5 depicts the progression of solar energy generation in Virginia from 2012 to 2022 expressed in millions of megawatt-hours. Solar entered the electricity market in Virginia in 2016 with 0.02 million megawatt hours. Generation has continued to grow throughout the period, reaching its peak, so far, in 2022, with solar generation totaling 4.6 million megawatt-hours. This chart demonstrates Virginia's growing engagement with solar energy, culminating in a noteworthy expansion by the end of the period shown.¹³

Figure 5: Solar Generation in Virginia (in millions of megawatt-hours) – 2012 to 2022¹⁴



¹¹ Data Source: U.S. Energy Information Administration.

¹² Data Source: Solar Energy Industries Association.

¹³ Data Source: Solar Energy Industries Association.

¹⁴ Data Source: U.S. Energy Information Administration.



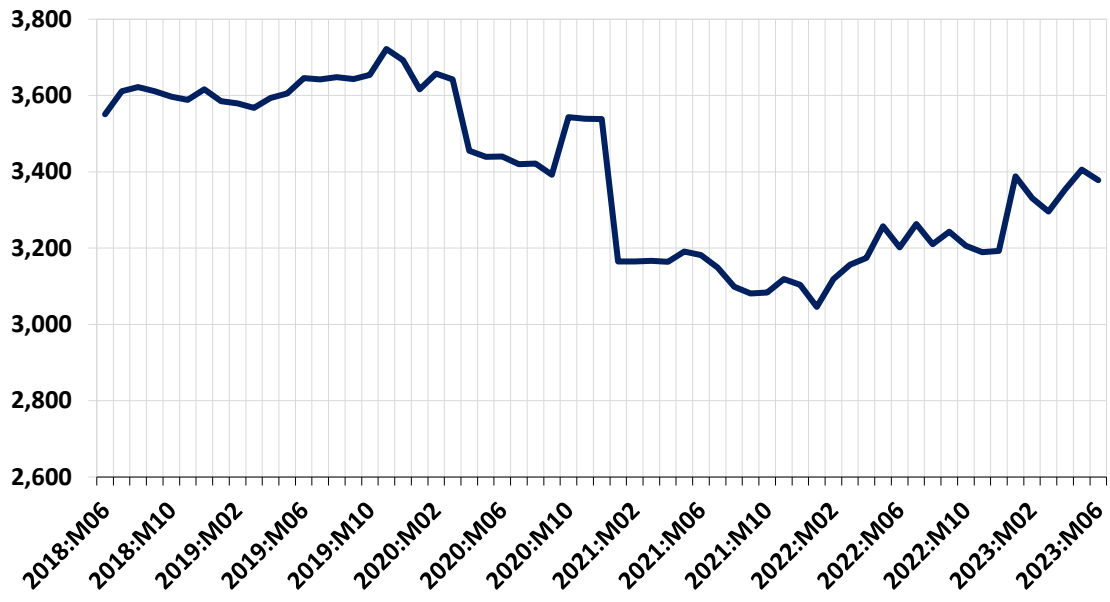
Local Economic Profile

This section provides context for the economic and fiscal impact assessments to follow by profiling the local economy of Sussex County.

Total Employment

Figure 6 depicts the trend in total employment in Sussex County from June 2018 through June 2023. As these data show, total employment in the county was generally stable through 2019. Then, in April 2020 total employment declined significantly due to the lockdowns imposed as a result of the COVID-19 pandemic. Employment continued to decline through 2021 but has increased since. As of June 2023, employment had not yet reached pre-pandemic levels and total employment in the county stood at 3,378 jobs, which represents an overall decrease in employment of 4.9 percent (or 173 jobs) over the five-year period. To put this number in perspective, over this same period, total statewide employment in Virginia increased by 3.5 percent.¹⁵

Figure 6: Total Employment in Sussex County – June 2018 to June 2022¹⁶



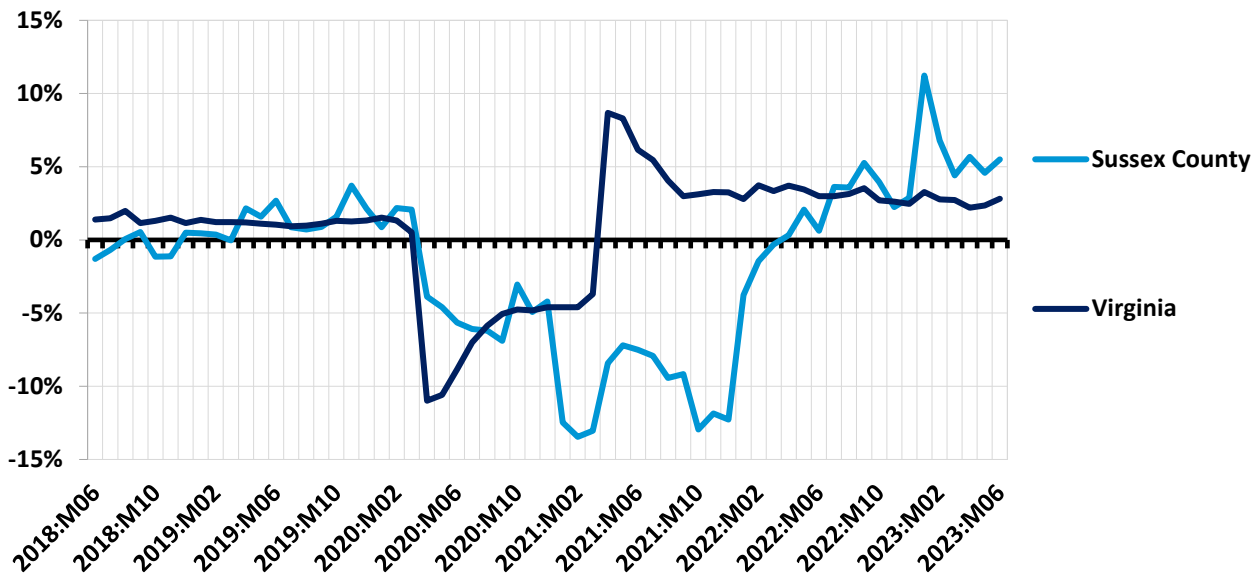
To control for seasonality and provide a point of reference, Figure 7 compares the year-over-year change in total employment in Sussex County to that of the state of Virginia over the same five-year period. Any point above the zero line in this graph indicates an increase in employment, while any point below the zero line indicates a decline in employment. As these data show, Sussex County underperformed the statewide average for most of the five-year period. As of June 2023, the year-over-

¹⁵ Data Source: U.S. Bureau of Labor Statistics.
¹⁶ Data Source: U.S. Bureau of Labor Statistics.



year change in total employment in Sussex County was 5.5 percent as compared to 2.8 percent statewide in Virginia.

Figure 7: Year-Over-Year Change in Total Employment – June 2018 to June 2023¹⁷



Employment and Wages by Industry Supersector

To provide a better understanding of the underlying factors motivating the total employment trends depicted in Figures 6 and 7, Figures 8 through 10 provide data on private employment and wages in Sussex County by industry supersector.¹⁸

Figure 8 provides an indication of the distribution of private sector employment across industry supersectors in Sussex County in the second quarter of 2023. As these data indicate, the county’s largest industry sectors that quarter were Trade, Transportation and Utilities (656 jobs), followed by Education and Health Services (506 jobs), and Professional and Business Services (342 jobs).

Figure 9 provides a similar ranking for average private sector weekly wages by industry supersector in Sussex County in the second quarter of 2023. As these data show, the highest paying industry sectors that quarter were Construction (\$1,666 per week), Natural Resources and Mining (\$1,282 per week), and Professional and Business Services (\$1,158) per week. To provide a point of reference, the average private sector weekly wage across all industry sectors in Sussex County that quarter was \$933 per week.

¹⁷ Data Source: U.S. Bureau of Labor Statistics.

¹⁸ A “supersector” is the highest level of aggregation in the coding system that the Bureau of Labor Statistics uses to classify industries.



Figure 8: Private Employment by Industry Supersector in Sussex County – 2nd Qu. 2023¹⁹

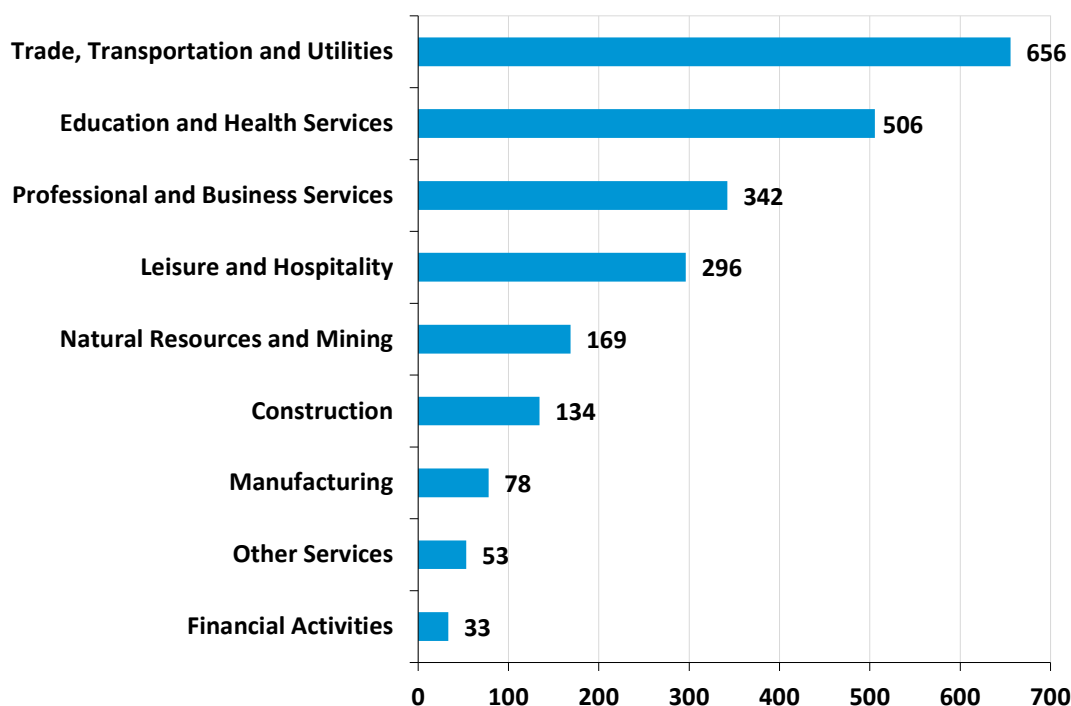
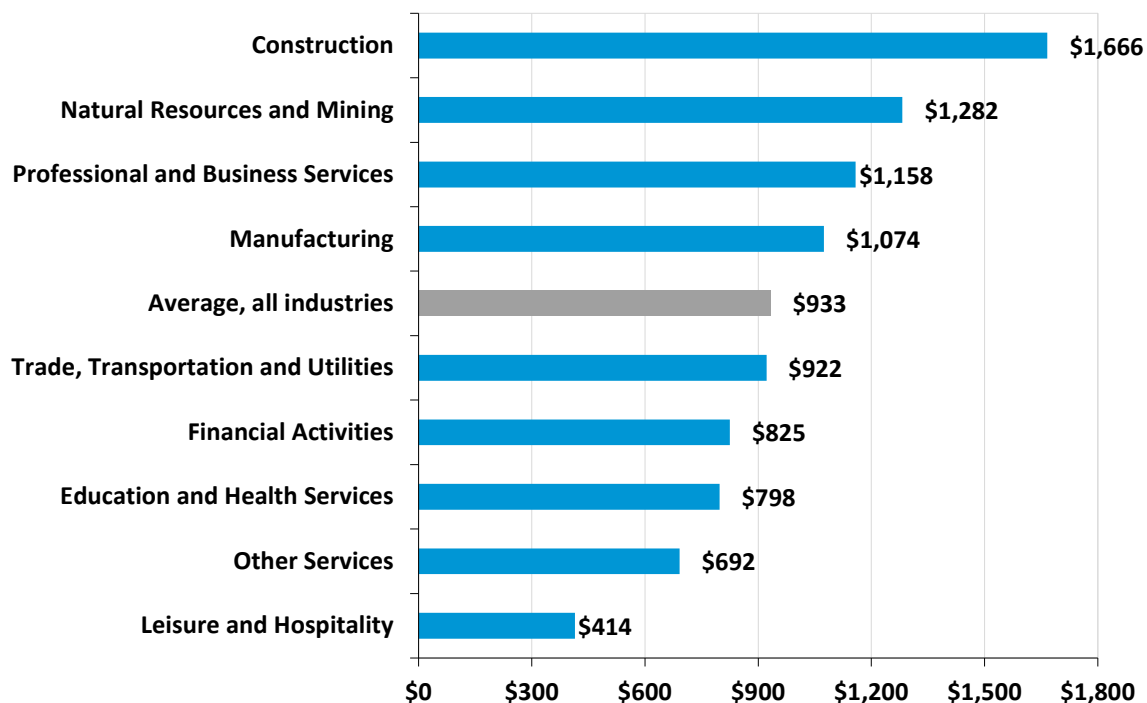


Figure 9: Average Private Weekly Wages by Industry Supersector in Sussex County – 2nd Qu. 2023²⁰



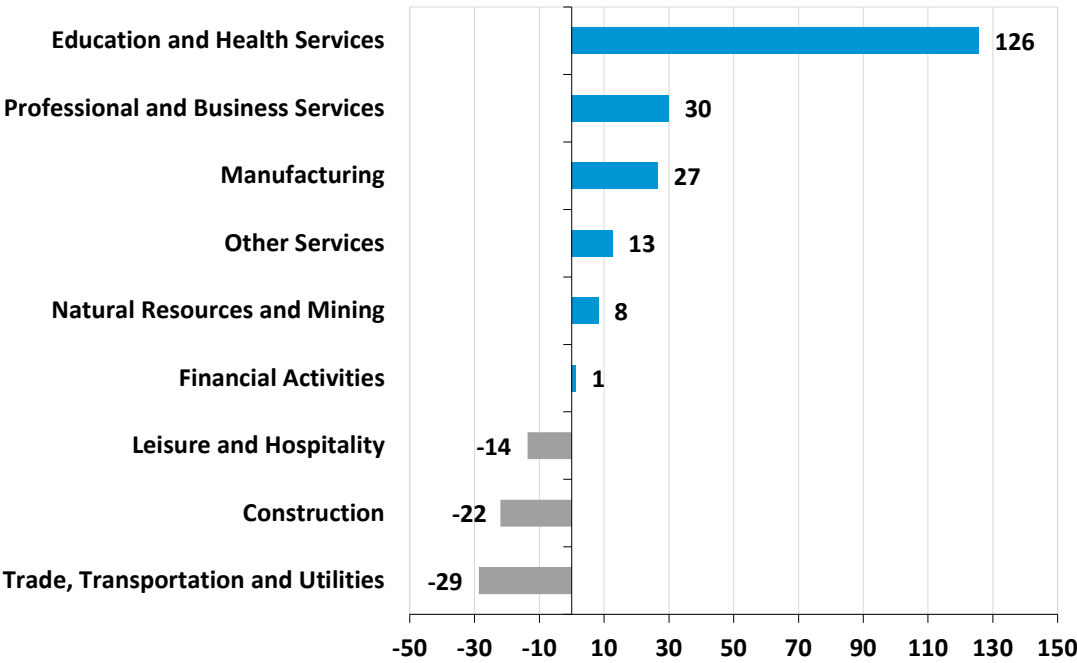
¹⁹ Data Source: U.S. Bureau of Labor Statistics. *Data on the Information sector has been suppressed due to data confidentiality.*

²⁰ Data Source: U.S. Bureau of Labor Statistics. *Data on the Information sector has been suppressed due to data confidentiality.*



Figure 10 details the year-over-year change in private sector employment from the second quarter of 2022 to the second quarter of 2023 in Sussex County by industry supersector. Over this period, the only employment gain occurred in the Education and Health Services (up 126 jobs), Professional and Business Services (up 30 jobs), and Manufacturing (up 27 jobs) sectors. The largest employment losses occurred in the Trade, Transportation and Utilities (down 29 jobs), Construction (down 22 jobs), and Leisure and Hospitality (down 14 jobs) sectors.

Figure 10: Change in Private Employment by Industry Supersector in Sussex County from 2nd Qu. 2022 to 2nd Qu. 2023²¹



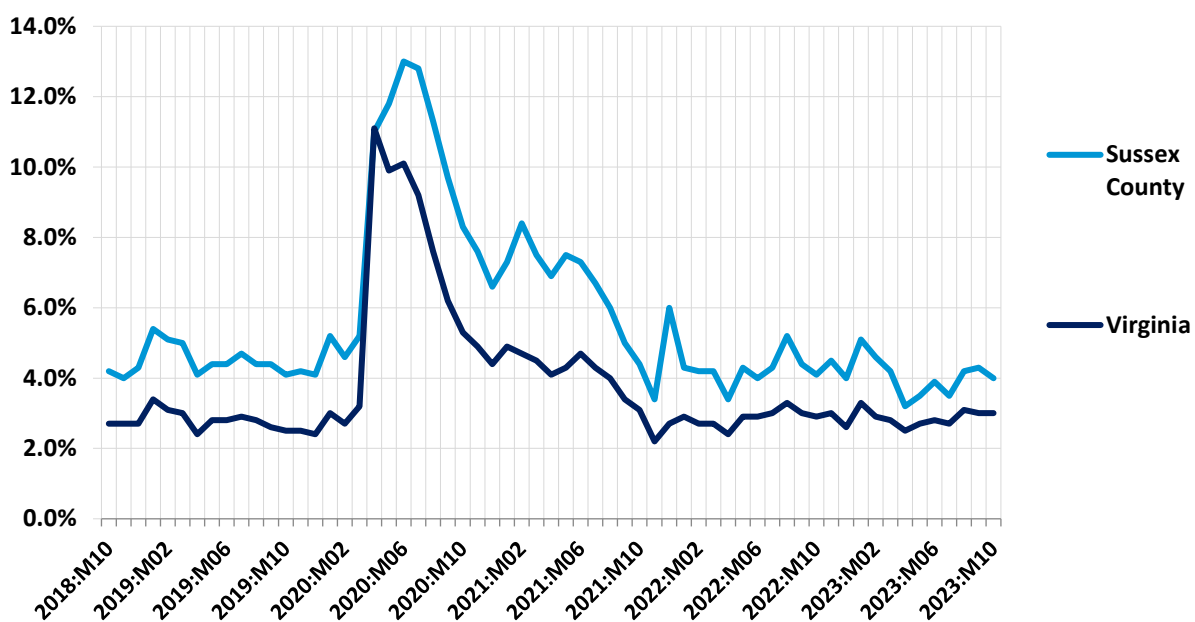
Unemployment

Figure 11 illustrates the trend in Sussex County’s unemployment rate over the five-year period from October 2018 through October 2023 and benchmarks those data against the statewide trend for Virginia. As these data show, unemployment rates in Sussex County were consistently higher than the statewide trend throughout the five-year period. In April 2020 unemployment in the county and state significantly rose as a result of the labor dislocations caused by the COVID-19 pandemic. Sussex County’s unemployment rate has remained higher than the state’s during recovery from the pandemic. As of October 2023, unemployment stood at 4.0 percent in Sussex County compared to 3.0 percent in Virginia as a whole.

²¹ Data Source: U.S. Bureau of Labor Statistics. *Data on the Information sector has been suppressed due to data confidentiality.*



Figure 11: Unemployment Rate – October 2018 to October 2023²²



²² Data Source: U.S. Bureau of Labor Statistics.

Economic and Fiscal Impact

This section quantifies the economic and fiscal contribution that the proposed Big Pine project would make to Sussex County. The analysis separately evaluates the one-time pulse of economic activity that would occur during the construction phase of the project, as well as the annual economic activity that the project would generate during its ongoing operations phase.

Method

To empirically evaluate the likely local economic impact attributable to the proposed Big Pine project, the analysis employs a regional economic impact model called IMPLAN.²³ The IMPLAN model is one of the most commonly used economic impact simulation models in the U.S., and in Virginia is used by UVA's Weldon Cooper Center, the Virginia Department of Planning and Budget, the Virginia Employment Commission, and other state agencies and research institutes. Like all economic impact models, the IMPLAN model uses economic multipliers to quantify economic impact.

Economic multipliers measure the ripple effects that an expenditure generates as it makes its way through the economy. For example, as when the Big Pine project purchases goods and services – or when contractors hired by the facility use their salaries and wages to make household purchases – thereby generating income for someone else, which is in turn spent, thereby becoming income for yet someone else, and so on, and so on. Through this process, one dollar in expenditures generates multiple dollars of income. The mathematical relationship between the initial expenditure and the total income generated is the economic multiplier.

One of the primary advantages of the IMPLAN model is that it uses regional and national production and trade flow data to construct region-specific and industry-specific economic multipliers, which are then further adjusted to reflect anticipated actual spending patterns within the specific geographic study area that is being evaluated. As a result, the economic impact estimates produced by IMPLAN are not generic. They reflect as precisely as possible the economic realities of the specific industry, and the specific study area, being evaluated.

In the analysis that follows, these impact estimates are divided into three categories. First round direct impact measures the direct economic contribution of the entity being evaluated (e.g., own employment, wages paid, goods and services purchased by the Big Pine project). Second round indirect and induced impact measures the economic ripple effects of this direct impact in terms of business to business, and household (employee) to business, transactions. Total impact is simply the sum of the preceding two. These categories of impact are then further defined in terms of employment (the jobs that are created), labor income (the wages and benefits associated with those jobs), and economic output (the total amount of economic activity that is created in the economy).

²³ IMPLAN is produced by IMPLAN Group, LLC.

Construction Phase

This portion of the section assesses the economic and fiscal impact that the one-time pulse of activity associated with construction of the proposed Big Pine project would have on Sussex County.

Inputs and Assumptions

The analysis is based on the following inputs and assumptions:

- Total investment in the Big Pine project is estimated to be approximately \$243.2 million.²⁴
- Of that total:
 - Architecture, engineering, site preparation, and other construction and development costs are estimated to be approximately \$130.8 million.²⁵
 - Capital equipment costs are estimated to be approximately \$112.3 million.²⁶ It is anticipated that no capital equipment would be purchased from vendors in Sussex County.²⁷
- Big Pine would employ approximately 217 local and non-local full-time equivalent construction workers.²⁸
- For ease of analysis, all construction expenditures are assumed to take place in a single year.

Economic Impact

Applying these inputs in the IMPLAN model results in the following estimates of one-time economic and fiscal impact. As shown in Table 1, construction of the proposed Big Pine project would directly provide a one-time pulse supporting approximately: 1) 23 job years, 2) \$3.1 million in wages and benefits, and 3) \$4.6 million in economic output to Sussex County.

Taking into account the economic ripple effects that direct investment would generate, the total estimated one-time impact on Sussex County would support approximately: 1) 38 job years, 2) \$3.7 million in wages and benefits, 3) \$6.6 million in economic output, and 4) \$0.2 million in state and local tax revenue.

²⁴ Data Source: RWE Clean Energy. Investment estimate subject to change based on final design and vendor contracts.

²⁵ Data Source: RWE Clean Energy.

²⁶ Data Source: RWE Clean Energy.

²⁷ Data Source: IMPLAN Group LLC.

²⁸ Data Source: RWE Clean Energy.



Table 1: Estimated One-Time Economic and Fiscal Impact on Sussex County from Construction of the Big Pine Project)^{29,30,31}

Economic Impact	Employment (Job Years)	Wages and Benefits	Output
1st Round Direct Economic Activity	23	\$3,123,300	\$4,602,700
2nd Round Indirect and Induced Economic Activity	15	\$533,300	\$1,984,400
Total Economic Activity	38	\$3,656,600	\$6,587,100
Fiscal Impact			
State and Local Tax Revenue			\$189,500

**Totals may not sum due to rounding.*

Ongoing Operations Phase

This portion of the section assesses the annual economic and fiscal impact that the proposed Big Pine project would have on Sussex County during its anticipated 40-year operational phase.

Economic Impact Assumptions

The analysis is based on the following assumptions:

- The Big Pine project would employ approximately 3 individuals and would spend approximately \$0.5 million each year for maintenance and repair, vegetative control, and other operational expenditures.³²
- Vegetative maintenance would be outsourced to contractors.³³

Economic Impact

Applying these assumptions in the IMPLAN model results in the following estimates of annual economic impact. As shown in Table 2, annual operation of the proposed Big Pine project would on average directly support approximately: 1) 6 jobs, 2) \$0.5 million in wages and benefits, and 3) \$0.8 million in economic output to Sussex County.

²⁹ Please note that construction sector jobs are not necessarily new jobs, but the investments made can also support an existing job during the construction of the project. A construction sector job, also referred to as a job year, is equal to one job over one year. It is used to denote employment on construction projects where the construction schedule is not exactly one year and to account for the fact that actual on-site employment may vary over the period.

³⁰ The analysis includes the impact of a portion of the per diem spending of non-local construction workers.

³¹ Please note that although employment within a local construction sector can sometimes quickly expand to take advantage of new opportunities, because of the relatively small size of Sussex County's construction sector, it is not possible to know with certainty what proportion of these jobs would go to county construction contractors or be filled by County residents.

³² Data Source: RWE Clean Energy. Subject to change based on final design and vendor contracts.

³³ Data Source: RWE Clean Energy.

Taking into account the economic ripple effects that direct impact would generate, the total estimated annually supported impact on Sussex County would be approximately: 1) 6 jobs, 2) \$0.6 million in wages and benefits, and 3) \$0.9 million in economic output.

Table 2: Estimated Annual Economic Impact on Sussex County from the Ongoing Operation of the Big Pine Project

Economic Impact	Employment	Wages and Benefits	Output
1st Round Direct Economic Activity	6	\$525,500	\$765,900
2nd Round Indirect and Induced Economic Activity	< 1	\$31,500	\$119,900
Total Economic Activity	6	\$557,000	\$885,800

**Totals may not sum due to rounding.*

Fiscal Impact Assumptions

The analysis is based on the following assumptions:

- The Big Pine project would involve an investment of approximately \$243.2 million in capital equipment and improvements to the existing property.³⁴
- The Big Pine project would be situated on approximately 1,500 acres of fenced-in, purchased and leased land.³⁵
- The fenced-in acreage would be reassessed at \$12,650 per acre.³⁶
- The initial interconnection request for Big Pine was filed in January 2019.³⁷
- Tax rates and ratios remain constant throughout the analysis.

Fiscal Impact

This portion of the section quantifies the direct fiscal contribution that the proposed Big Pine project would make to Sussex County. The analysis considers two revenue sources. The first source is the additional revenue that the Big Pine project would generate for Sussex County over a 40-year period from the increased real property value associated with reassessing the site for solar use. The second source is revenue associated with taxes levied on capital investment.

Reassessment of Property

Table 3 details the increased property increased property assessments associated with reassessing the 1,500-acre fenced-in site as solar use property. The county real estate tax revenue from the project after

³⁴ Data Source: RWE Clean Energy. Subject to change based on final design and vendor contracts.

³⁵ Data Source: RWE Clean Energy.

³⁶ Data Source: Sussex County's Commissioner of the Revenue. Current assessment value of existing solar farm in the county.

³⁷ Data Source: RWE Clean Energy.

reassessment is estimated to be approximately \$91,100 per year, for a cumulative total of approximately \$3.6 million over the project’s anticipated 40-year operational life expectancy. In contrast, the property currently generates approximately \$10,200 per year in real estate tax revenue for the county, for a cumulative total of approximately \$0.4 million over 40 years.³⁸

Table 3: Estimated County Revenue Generated by the Proposed Big Pine Project over 40 Years from Real Estate Taxes

Estimated Increased Assessed Value of Property under Solar Use ³⁹	\$18,975,000
Sussex County Real Estate Tax Rate ⁴⁰	0.0048
Annual County Real Estate Tax – Solar Use	\$91,100
Cumulative Revenue over 40 Years	\$3,643,200

**Totals may not sum due to rounding.*

Taxation of Capital Investment

Table 4 separately details the additional annual revenue that the proposed Big Pine project’s solar facility component would generate for Sussex County over a 40-year period from taxes levied on capital investment. This calculation is based on: 1) the taxable portion of capital investments pursuant to Virginia Code §58.1-3660⁴¹, times 2) the State Corporation Commission’s utility assessment ratio for taxation of public utilities in Sussex County, times 3) the State Corporation Commission’s depreciation guidelines for solar facilities, times 4) Sussex County’s real property tax rate of \$0.48 per \$100 of assessed value pursuant to Virginia Code §58.1-2606.

As the data in Table 4 indicate, based on these calculations the estimated additional county revenue from taxation of capital investments associated with the proposed Big Pine project would be approximately \$0.9 million in the project’s first year of operation, with that figure projected to decline to approximately \$0.1 million in the project’s 34th year of operation and thereafter, as the value of the proposed capital investments is depreciated, for a cumulative total of approximately \$22.3 million over 40 years.

³⁸ Derived from Sussex County’s Online GIS database.

³⁹ Calculated as 1,500 acres times \$12,650.

⁴⁰ Data Source: Sussex County FY 2024 Adopted Budget.

⁴¹ The Virginia Code §58.1-3660 stipulates that solar facilities 150 MW and more for which an interconnection request was filed on or after January 1, 2019 are subject to full taxation (no exemption from local property taxes).

Table 4: Estimated County Revenue Generated by the Proposed Solar Investment over 40 Years

Year	Total Capital Investment ⁴²	Depreciated Value of Taxable Capital Investment ⁴³	Additional Annual County Tax Revenue Solar Investment ⁴⁴
1	\$243,171,600	\$183,837,700	\$882,400
2	\$243,171,600	\$183,837,700	\$882,400
3	\$243,171,600	\$183,837,700	\$882,400
4	\$243,171,600	\$183,837,700	\$882,400
5	\$243,171,600	\$183,837,700	\$882,400
6	\$243,171,600	\$183,837,700	\$882,400
7	\$243,171,600	\$183,837,700	\$882,400
8	\$243,171,600	\$183,837,700	\$882,400
9	\$243,171,600	\$183,204,500	\$879,400
10	\$243,171,600	\$180,099,700	\$864,500
11	\$243,171,600	\$176,811,000	\$848,700
12	\$243,171,600	\$173,338,600	\$832,000
13	\$243,171,600	\$169,661,800	\$814,400
14	\$243,171,600	\$165,739,900	\$795,600
15	\$243,171,600	\$161,593,400	\$775,600
16	\$243,171,600	\$157,201,700	\$754,600
17	\$243,171,600	\$152,544,500	\$732,200
18	\$243,171,600	\$147,621,700	\$708,600
19	\$243,171,600	\$142,372,100	\$683,400
20	\$243,171,600	\$136,836,600	\$656,800
21	\$243,171,600	\$130,953,700	\$628,600
22	\$243,171,600	\$124,723,700	\$598,700
23	\$243,171,600	\$118,126,000	\$567,000
24	\$243,171,600	\$111,119,700	\$533,400
25	\$243,171,600	\$103,704,900	\$497,800
26	\$243,171,600	\$95,820,300	\$459,900
27	\$243,171,600	\$87,486,300	\$419,900
28	\$243,171,600	\$78,641,700	\$377,500
29	\$243,171,600	\$69,286,400	\$332,600
30	\$243,171,600	\$59,338,700	\$284,800
31	\$243,171,600	\$48,819,100	\$234,300
32	\$243,171,600	\$37,666,300	\$180,800
33	\$243,171,600	\$25,839,400	\$124,000
34	\$243,171,600	\$20,426,400	\$98,000
35	\$243,171,600	\$20,426,400	\$98,000
36	\$243,171,600	\$20,426,400	\$98,000

⁴² Data Source: RWE Clean Energy.

⁴³ Accounts for the State Corporation Commission’s depreciation guidelines for solar facilities and the utility assessment ratio for taxation of public utilities in Sussex County. Please note that the project is not eligible for any exemptions from local property taxes as, pursuant to Virginia Code §58.1-3660, solar facilities of 150 MW or more are subject to full taxation if the interconnection request was filed on or after January 1, 2019.

⁴⁴ Calculated pursuant to Virginia Code §58.1-2606 which stipulates that capital equipment owned by utilities is taxed as real property and the local tax rate on that capital equipment would be capped at Sussex County’s real property tax rate of \$0.48 per \$100 of assessed value.

Year	Total Capital Investment ⁴²	Depreciated Value of Taxable Capital Investment ⁴³	Additional Annual County Tax Revenue Solar Investment ⁴⁴
37	\$243,171,600	\$20,426,400	\$98,000
38	\$243,171,600	\$20,426,400	\$98,000
39	\$243,171,600	\$20,426,400	\$98,000
40	\$243,171,600	\$20,426,400	\$98,000
Cumulative Total			\$22,330,700

**Totals may not sum due to rounding.*

Total Fiscal Impact

Table 5 combines the results from the calculations depicted in Tables 3 through 4 to provide an estimate of the cumulative fiscal contribution that the proposed Big Pine project would make to Sussex County over its 40-year anticipated operational life. As these data indicate, that cumulative total is approximately \$26.0 million.

Table 5: Estimated Cumulative County Revenue from the Proposed Big Pine Project over 40 Years

County Real Estate Tax	\$3,643,200
County Revenue from Taxation of Capital Investments	\$22,330,700
Total Cumulative Revenue over 40 Years⁴⁵	\$25,973,900

**Totals may not sum due to rounding.*

Relative Comparisons

To put these numbers into perspective, as shown in Table 6, the approximate \$1.0 million in Sussex County tax revenue in year 1 of the Big Pine project is equivalent to about 4 percent of Sussex County's FY 2024 general fund budget and about 9 percent of the FY 2024 property tax fund. The year 1 tax revenue of approximately \$1.0 million could hypothetically fund 12 percent of the county's education budget for FY 2024 or 41 percent of the Fire, Rescue, and Emergency Services or the entire the Community Development and Parks, Recreation and Cultural budgets FY 2024.

⁴⁵ Please note that estimated revenues do not include voluntary payments associated with a siting agreement, which is subject to negotiation between Big Pine and Sussex County.

Table 6: Year 1 County Revenue Generated by the Proposed Big Pine Project as a Percent of the FY 2024 Sussex County Budget⁴⁶

	Sussex County Budget	Percent of Budget Item
Big Pine Year 1 Tax Revenue		\$973,500
Revenue Funds		
General Fund	\$26,075,100	4%
Property Tax Fund	\$10,891,500	9%
Select Expenditure Funds		
Education	\$7,996,200	12%
Sheriff's Operations & Jail	\$6,336,900	15%
Fire, Rescue, & Emergency Services	\$2,374,700	41%
Public Works	\$1,798,400	54%
Health & Welfare	\$890,000	109%
Community Development	\$541,300	180%
Parks, Recreation and Cultural	\$236,600	411%

⁴⁶ Data Source: Sussex County's Fiscal Year 2024 Adopted Budget.



Current Use

This section provides a benchmark for the previous estimates of the economic contribution that the proposed Big Pine project would make to Sussex County by estimating the economic and fiscal contribution that the site makes to the county in its current use.

Economic Impact Inputs

The analysis is based on the following Inputs:

- The proposed Big Pine project would be situated on approximately 1,500 acres of timber tracts and agricultural land used for the production of corn and soybeans.⁴⁷

Economic Impact

Applying these inputs in the IMPLAN model results in the following estimates of annual economic impact. As shown in Table 7, in its current use, the proposed Big Pine project site on average directly supports approximately: 1) 1 job, 2) \$62,600 in wages and benefits, and 3) \$0.3 million in economic output to Sussex County.

Taking into account the economic ripple effects that direct impact generates, on average, the total annually supported impact on Sussex County is approximately: 1) 1 job, 2) \$82,800 in wages and benefits, and 3) \$0.3 million in economic output.

Table 7: Total Estimated Annual Economic Impact of the Big Pine Project Site on Sussex County – Current Use⁴⁸

Economic Impact	Employment	Wages and Benefits	Output
1st Round Direct Economic Activity	1	\$62,600	\$267,400
2nd Round Indirect and Induced Economic Activity	< 1	\$20,200	\$57,400
Total Economic Activity	1	\$82,800	\$324,800

**Totals may not sum due to rounding.*

Fiscal Impact Inputs

The analysis is based on the following inputs:

- The current assessment value of the affected acreage is approximately \$2.1 million.⁴⁹

⁴⁷ Data Source: RWE Clean Energy.

⁴⁸ Calculations based data from the U.S. Department of Agriculture and IMPLAN Group, LLC for Virginia and Sussex County.

⁴⁹ Data Source: Derived from Sussex County’s online property card database.

Fiscal Impact

Table 8 details the estimated tax revenue that the proposed Big Pine project site generates for Sussex County in its current use. As the data in Table 8 indicate, the current county real estate tax revenue from the project site is estimated to be approximately \$10,200 per year, for a cumulative total of approximately \$0.4 million over 40 years.

Table 8: Estimated County Revenue Generated by the Proposed Big Pine Project Site over 40 Years from Real Estate Taxes – Current Use

Estimated Assessed Value of Property – Current Use ⁵⁰	\$2,122,600
Sussex County Current Real Estate Tax Rate	0.0048
Estimated Annual County Real Estate Tax – Current Use	\$10,200
Total Cumulative Revenue over 40 Years	\$407,500

**Totals may not sum due to rounding.*

The estimates provided in this report are based on the best information available and all reasonable care has been taken in assessing that information. However, because these estimates attempt to foresee circumstances that have not yet occurred, it is not possible to provide any assurance that they will be representative of actual events. These estimates are intended to provide a general indication of likely future outcomes and should not be construed to represent a precise measure of those outcomes.

⁵⁰ Data Source: Derived from Sussex County's online property card database.