

# WOODRIDGE SOLAR

## ECONOMIC & FISCAL CONTRIBUTION TO ALBEMARLE COUNTY, VIRGINIA



Prepared for

HEXAGON  
ENERGY

FEBRUARY 2022

**MANGUM**  
economics

4201 DOMINION BOULEVARD, SUITE 114  
GLEN ALLEN, VIRGINIA 23060  
804-346-8446

[MANGUMECONOMICS.COM](http://MANGUMECONOMICS.COM)

## 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 industry, to date the Mangum Team has produced analyses of the economic and fiscal impact of the data center industry in Virginia, home to the largest concentration of data centers in the world, and in five other states.
- **Energy:** The Mangum Team has produced analyses of the economic and fiscal impact of over 13 GW of proposed solar, wind, battery storage, and hydro projects spanning Virginia and eleven other 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.
- **Education and Workforce:** The Mangum Team has worked with multiple post-secondary and secondary education institutions to quantify their economic contribution to their host communities as well as their impact on regional and statewide workforce needs.

### The Project Team

Rebecca Kyle  
*Research Analyst*

Martina Arel, M.B.A.  
*Director – Economic Development &  
Renewable Energy Research*

A. Fletcher Mangum, Ph.D.  
*Founder and CEO*

## Table of Contents

Executive Summary.....	1
Introduction .....	4
The Project.....	4
Electricity Production in Virginia.....	4
Overall Market .....	4
Sources of Production .....	5
Impact on the Environment .....	6
Local Economic Profile .....	8
Total Employment.....	8
Employment and Wages by Major Industry Sector .....	9
Unemployment .....	11
Economic and Fiscal Impact.....	13
Method .....	13
Construction Phase .....	14
Assumptions.....	14
Results.....	14
Ongoing Operations Phase .....	15
Assumptions.....	15
Results – Economic Impact .....	16
Results – Fiscal Impact .....	16
Reassessment of Property .....	16
Scenario 1: Taxation of Capital Investment .....	17
Scenario 1: Total Fiscal Impact.....	20
Scenario 2: Revenue Share Ordinance.....	20
Scenario 2: Total Fiscal Impact.....	22
Current Agricultural Use .....	22
Assumptions.....	22
Results – Economic Impact .....	22
Results – Fiscal Impact .....	23

## Executive Summary

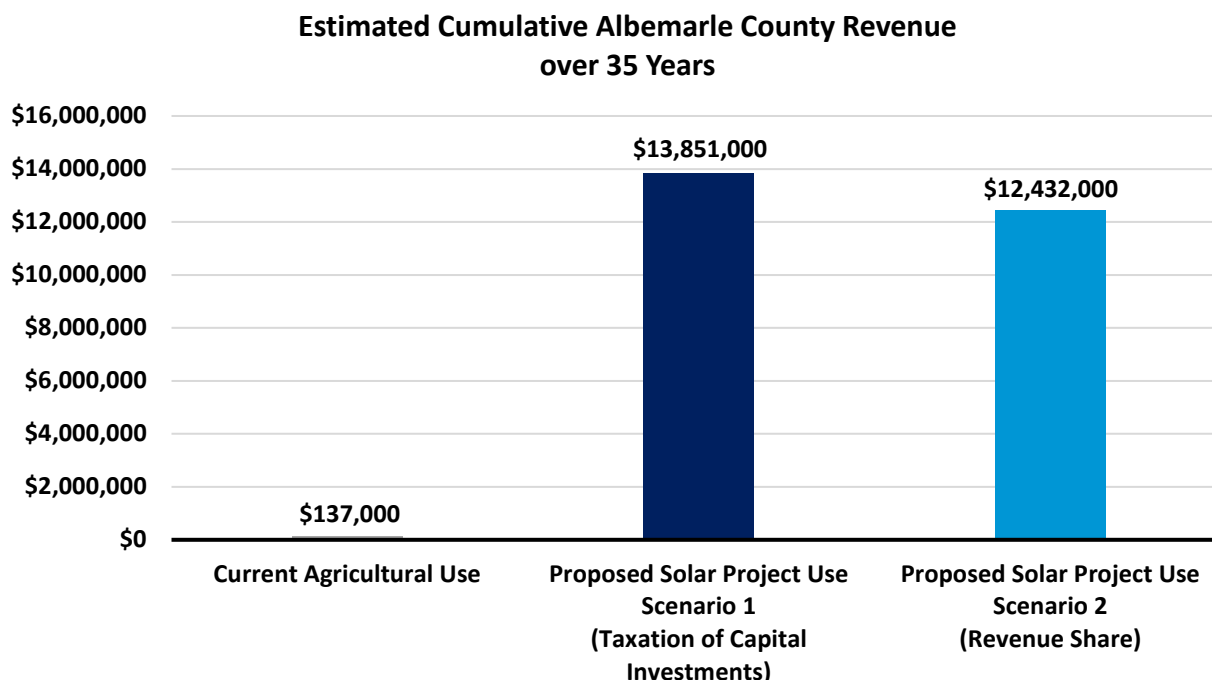
---

This report assesses the economic and fiscal contribution that the proposed Woodridge Solar project would make to Albemarle County, Virginia. The primary findings from that assessment are as follows:

- 1) Woodridge Solar is a proposed 138-megawatt (MW) alternating current (AC) solar photovoltaic power generating facility. The project would be located South of Secretarys Road and West of Jefferson Mill Road in Albemarle County, Virginia. The total acreage leased for the project would be approximately 900 acres of timberland. The actively used, fenced-in portion of the solar site would be approximately 860 acres.**
- 2) The proposed Woodridge Solar project would make a significant economic contribution to Albemarle County:**
  - The proposed Woodridge Solar project would provide an estimated one-time pulse of economic activity to Albemarle County during its construction phase supporting approximately:
    - 249 direct, indirect, and induced jobs.
    - \$14.4 million in associated labor income.
    - \$38.8 million in economic output.
  - The proposed Woodridge Solar project would provide an estimated annual economic impact to Albemarle County during its ongoing operational phase supporting approximately:
    - 5 direct, indirect, and induced jobs.
    - \$267,200 in associated labor income.
    - \$667,500 in economic output.
- 3) The proposed Woodridge Solar project would also make a significant fiscal contribution to Albemarle County. The proposed project would generate approximately:**
  - \$987,100 in state and local tax revenue from the one-time pulse of economic activity associated with the project's construction.
  - \$13.9 million in cumulative county revenue over the facility's anticipated 35-year operational life assuming revenues are generated from the reassessment of the real property and the taxation of the associated capital investments, (Scenario 1); or
  - \$12.4 million in cumulative county revenue over the facility's anticipated 35-year operational life assuming revenues are generated from the reassessment of the real property and payments associated with a locally adopted revenue share ordinance. The payments would be based on the project's generation capacity and would include a 10 percent escalator every five years pursuant to recently passed legislation (Scenario 2).

**4) The proposed Woodridge Solar project would have a significantly greater fiscal impact on Albemarle County than the property generates in its current agricultural use:**

- The proposed Woodridge Solar project would generate approximately \$13.9 million (from taxation on capital equipment) or \$12.4 million (from a revenue share agreement) in cumulative county revenue over the facility's anticipated 35-year operational life, as compared to approximately \$137,000 in cumulative county revenue in the property's current agricultural use – a difference of approximately \$13.7 million and \$12.3 million.



**5) The proposed Woodridge Solar project would provide a boost to Albemarle County's construction sector:**

- At 2,183 jobs, construction is Albemarle's sixth largest major industry sector.<sup>1</sup>
- However, the construction sector posted the sixth largest employment loss of any major industry sector in the county between the first quarter of 2020 and the first quarter of 2021 (a loss of 110 jobs).
- The proposed Woodridge Solar project could directly support approximately 206 jobs and \$12.1 million in labor income in Albemarle County's construction sector.

<sup>1</sup> Data Source: Bureau of Labor Statistics, QCEW Quarter 1, 2021.

*This page is intentionally left blank.*

*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.*

## Introduction

This report assesses the economic and fiscal contribution that the proposed Woodridge Solar project would make to Albemarle County, Virginia. This report was commissioned by Hexagon Energy and produced by Mangum Economics.

## The Project

Woodridge Solar is a proposed 138-megawatt (MW) alternating current (AC) solar photovoltaic power generating facility. The project would be located South of Secretarys Road and West of Jefferson Mill Road in Albemarle County, Virginia. The total acreage leased for the project would be approximately 900 acres of timberland. The actively used, fenced-in portion of the solar site would be approximately 860 acres.

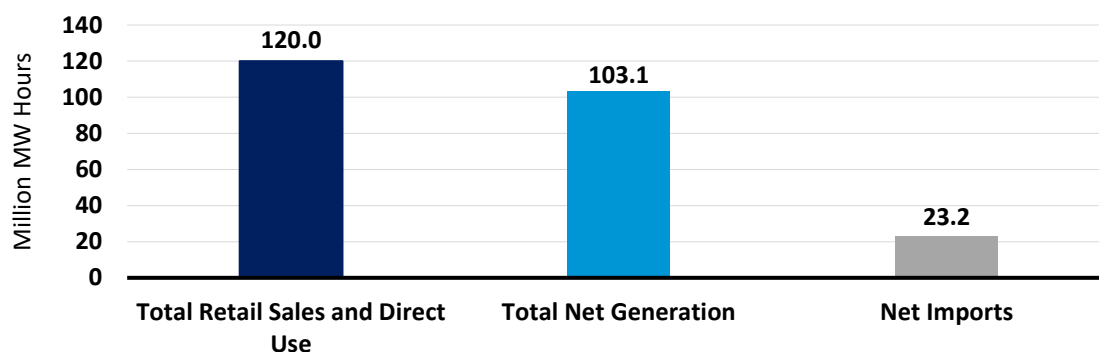
## Electricity Production in Virginia

This section provides a backdrop for the proposed Woodridge Solar 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 2020 electricity sales and direct use in Virginia totaled 120.0 million megawatt hours, ranking the state 10<sup>th</sup> among the fifty states in terms of electricity consumption. However, only 86 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 2020 (in millions of megawatt-hours)<sup>2</sup>



<sup>2</sup> 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."

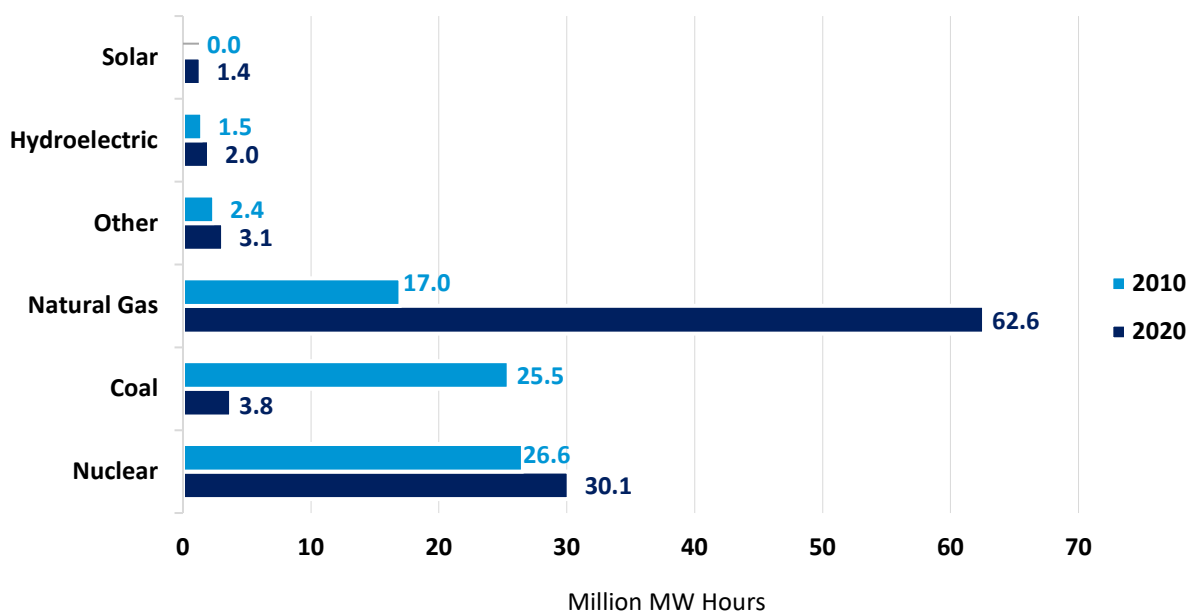


## Sources of Production

Between 2010 and 2020, the total amount of electricity produced in Virginia increased from 73.0 to 103.1 million megawatt hours, while retail and direct consumption of electricity only increased from 115.8 to 120.0 million megawatt hours. Consequently, imports of electricity decreased by 27.6 million megawatt hours (or 54 percent) during this time.<sup>3</sup> 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 2010 and 2020 was a decrease in the use of coal and an increase in the use of natural gas. Where coal was the state's second largest source of electricity in 2010, accounting for 25.5 million megawatt hours (or 35 percent) of production, by 2020 production had fallen by 21.7 million megawatt hours, making coal a distant third 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 only 17.0 million megawatt hours (or 23 percent) of Virginia's electricity production in 2010, by 2020 that proportion had more than tripled to 62.6 million megawatt hours (or 61 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 1.4 million megawatt hours by 2020.

Figure 2: Electricity Generation in Virginia by Energy Source in 2010 and 2020  
(in millions of megawatt-hours)<sup>4</sup>



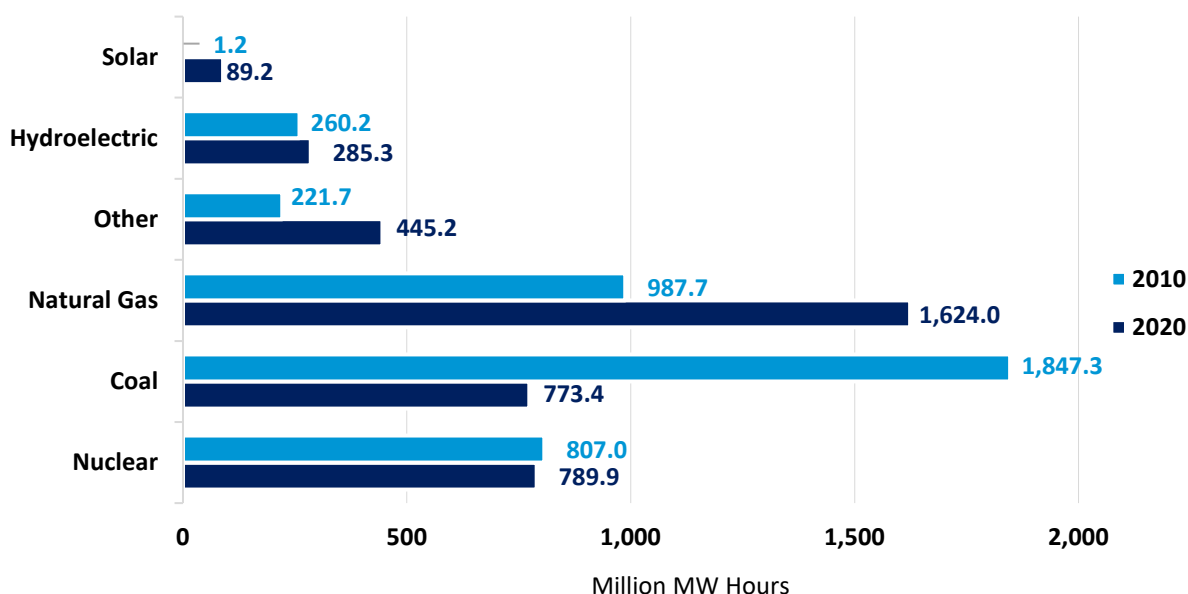
<sup>3</sup> Imports also takes into account losses during transmission. As a result, totals do not equal sum of components.

<sup>4</sup> 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 different between the U.S. and Virginia, the trend toward lower-emissions energy sources is the same. Nationally, between 2010 and 2020 the amount of electricity produced using coal declined by 1,073.9 million megawatt hours from 45 to 19 percent of production, while in contrast the amount of electricity produced using natural gas increased by 636.3 million megawatt hours from 24 to 41 percent of production. Nationwide, as in Virginia, the reliance on renewable energy sources such as solar increased during this time but at a much faster pace than in Virginia. Between 2010 and 2020, the amount of electricity produced using solar increased by 88.0 million megawatt hours to 2 percent of total electricity production in the nation compared to 1 percent of total electricity production in Virginia.

**Figure 3: Electricity Generation in the United States by Energy Source in 2010 and 2020**  
(in millions of megawatt-hours)<sup>5</sup>

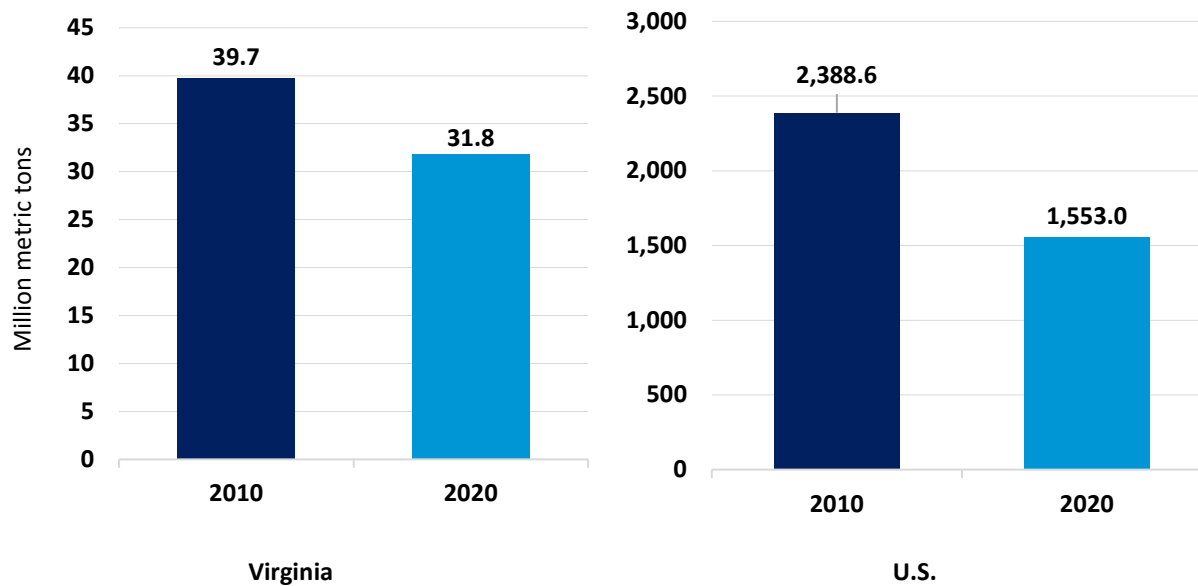


## Impact on the Environment

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 2010 and 2020 for both Virginia and the U.S. As these data indicate, between 2010 and 2020, as the share of electricity produced in Virginia by coal fell from 35 to 4 percent, carbon dioxide emissions from electricity production fell from 39.7 to 31.8 million metric tons. Where at the national level, as the share of electricity produced by coal fell from 45 to 19 percent, carbon dioxide emissions from electricity production fell from 2,388.6 to 1,553.0 million metric tons.

<sup>5</sup> Data Source: U.S. Energy Information Administration. "Other" includes battery, geothermal, other, other biomass, other gas, petroleum, pumped storage, wind, and wood.

Figure 4: Carbon Dioxide Emissions from Electricity Production (millions of metric tons)<sup>6</sup>



<sup>6</sup> Data Source: U.S. Energy Information Administration.

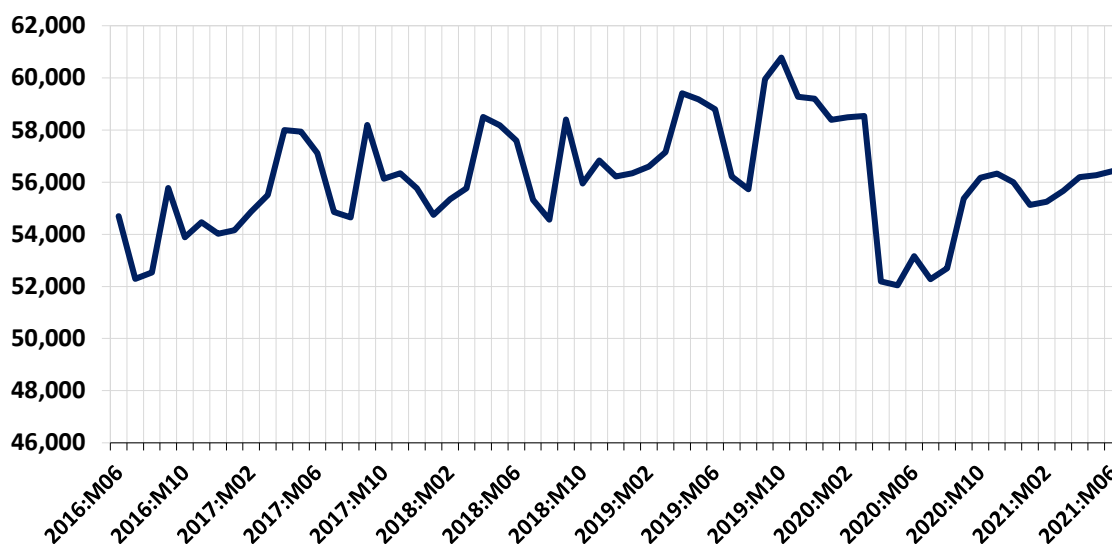
## Local Economic Profile

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

### Total Employment

Figure 5 depicts the trend in total employment in Albemarle County from June 2016 to June 2021. As these data show, employment in the county increased overall, aside from seasonal fluctuations, until the decrease in economic activity associated with the COVID-19 pandemic led to a steep employment decline in Albemarle County in April 2020. Since then, employment has rebounded, but has not yet reached pre-pandemic levels. As of June 2021, total employment in the county stood at 56,421 jobs, which represents an overall increase in employment of 3.2 percent (or 1,726 jobs) over the five-year period. To put this number in perspective, over this same period, total statewide employment in Virginia increased by 0.6 percent.<sup>7</sup>

Figure 5: Total Employment in Albemarle County – June 2016 to June 2021<sup>8</sup>



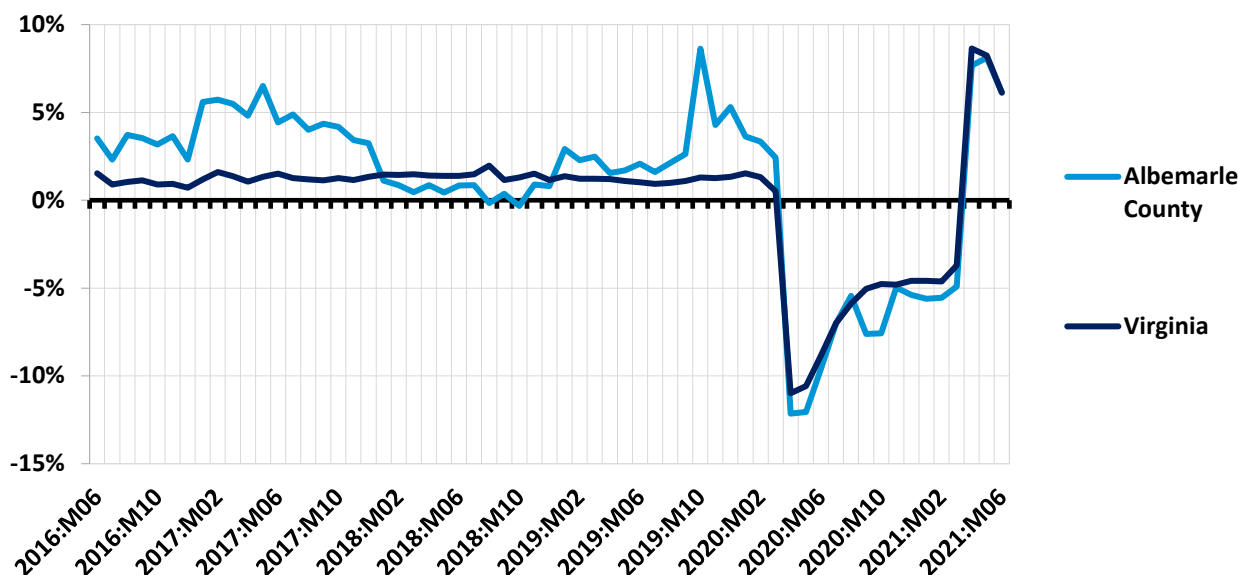
To control for seasonality and provide a point of reference, Figure 6 compares the year-over-year change in total employment in Albemarle County to that of the state of Virginia over the same five-year period. Any point above the zero line in this graph indicates an increase in employment, while any point below the zero line indicates a decline in employment. As these data show, Albemarle County experienced positive year-over-year employment increases, outperforming the statewide average throughout most of the period. However, Albemarle County was more adversely impacted than the state as a whole in April 2020 by the “lockdowns” in response to the COVID-19 virus, but the county

<sup>7</sup> Data Source: Bureau of Labor Statistics.

<sup>8</sup> Data Source: Bureau of Labor Statistics.

tracked closely with the statewide norm during the recovery. As of June 2021, the year-over-year change in total employment in both, Albemarle County and Virginia as a whole, was 6.1 percent.

Figure 6: Year-Over-Year Change in Total Employment – June 2016 to June 2021<sup>9</sup>



## Employment and Wages by Major Industry Sector

To provide a better understanding of the underlying factors motivating the total employment trends depicted in Figures 5 and 6, Figures 7 through 9 provide data on private employment and wages in Albemarle County by major industry sector.

Figure 7 provides an indication of the distribution of private sector employment across major industry sectors in Albemarle County in the first quarter of 2021. As these data indicate, the county's largest industry sector that quarter was Health Care and Social Assistance (6,763 jobs), followed by Retail Trade (5,967 jobs), and Professional and Technical Services (3,925 jobs).

Figure 8 provides a similar ranking for average private sector weekly wages by major industry sector in Albemarle County in the first quarter of 2021. As these data show, the highest paying industry sectors that quarter were Finance and Insurance (\$2,459 per week), Wholesale Trade (\$2,002 per week), and Management of Companies and Enterprises (\$1,779 per week). To provide a point of reference, the average private sector weekly wage across all industry sectors in Albemarle County that quarter was \$1,062 per week.

<sup>9</sup> Data Source: Bureau of Labor Statistics.

Figure 7: Private Employment by Major Industry Sector in Albemarle County – 1<sup>st</sup> Qu. 2021<sup>10</sup>

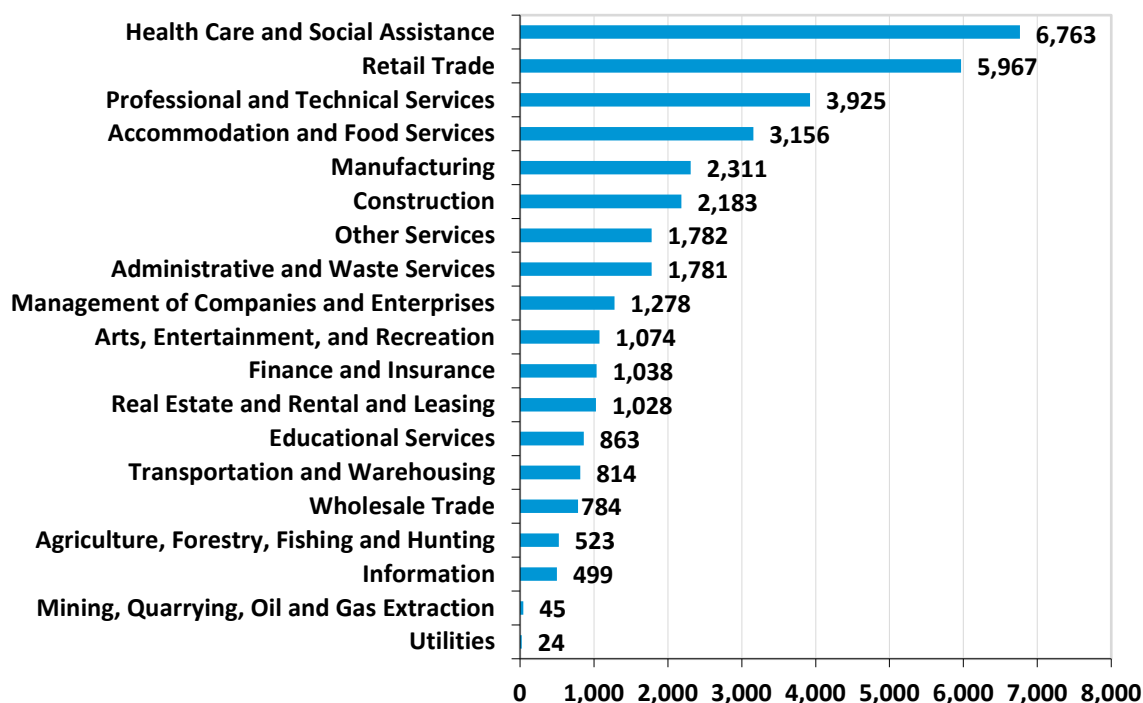
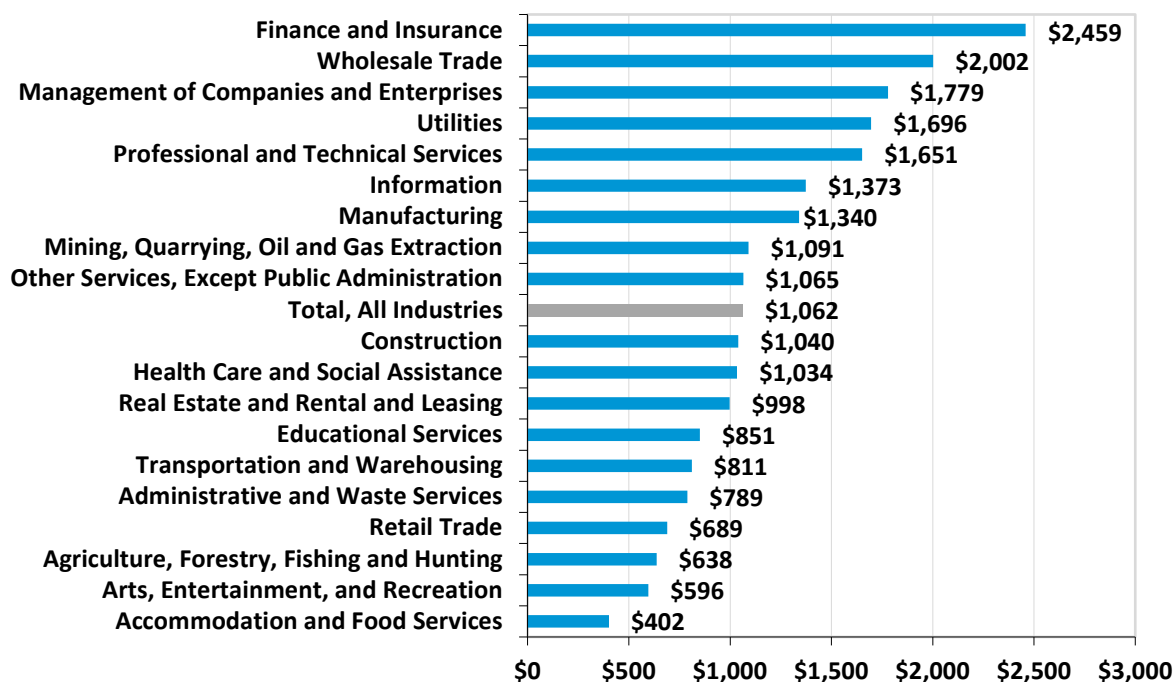


Figure 8: Average Private Weekly Wages by Major Industry Sector in Albemarle County – 1<sup>st</sup> Qu. 2021<sup>11</sup>

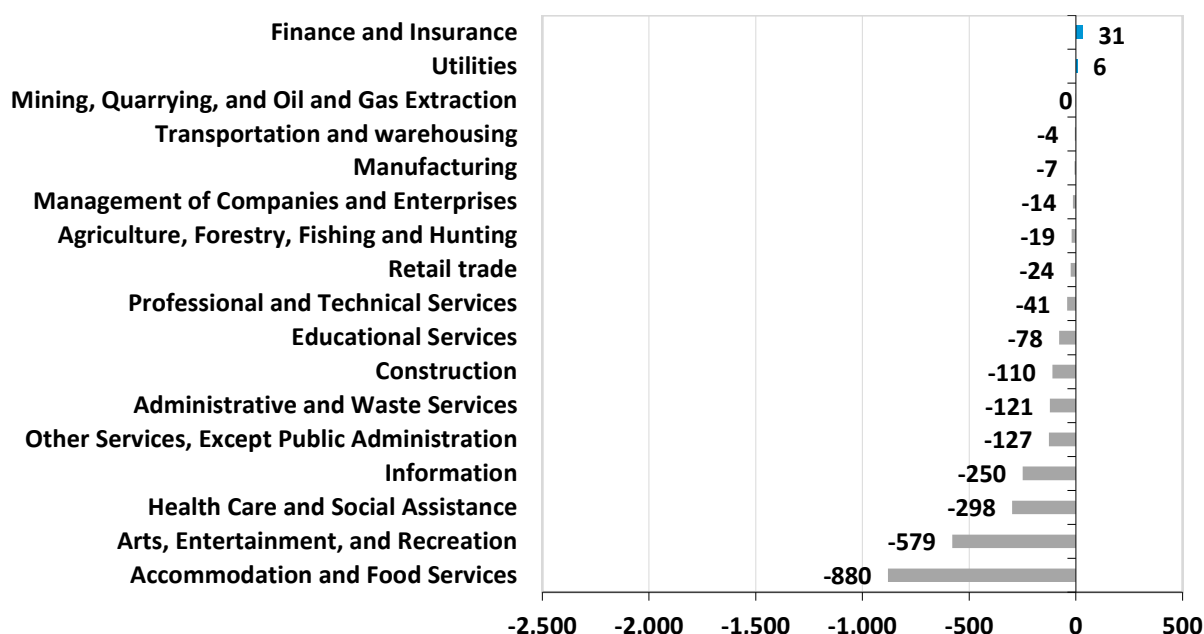


<sup>10</sup> Data Source: Bureau of Labor Statistics.

<sup>11</sup> Data Source: Bureau of Labor Statistics.

Lastly, Figure 9 details the year-over-year change in private sector employment from the first quarter of 2020 to the first quarter of 2021 in Albemarle County by major industry sector. Over this period, the largest employment gains occurred in the Finance and Insurance (up 31 jobs) sector. Most of the other sectors experienced employment losses. The largest employment losses occurred in the Accommodation and Food Services (down 880 jobs), Arts, Entertainment, and Recreation (down 579 jobs), and Health Care and Social Assistance (down 298 jobs) sectors.

**Figure 9: Change in Private Employment by Major Industry Sector in Albemarle County from 1<sup>st</sup> Qu. 2020 to 1<sup>st</sup> Qu. 2021<sup>12</sup>**

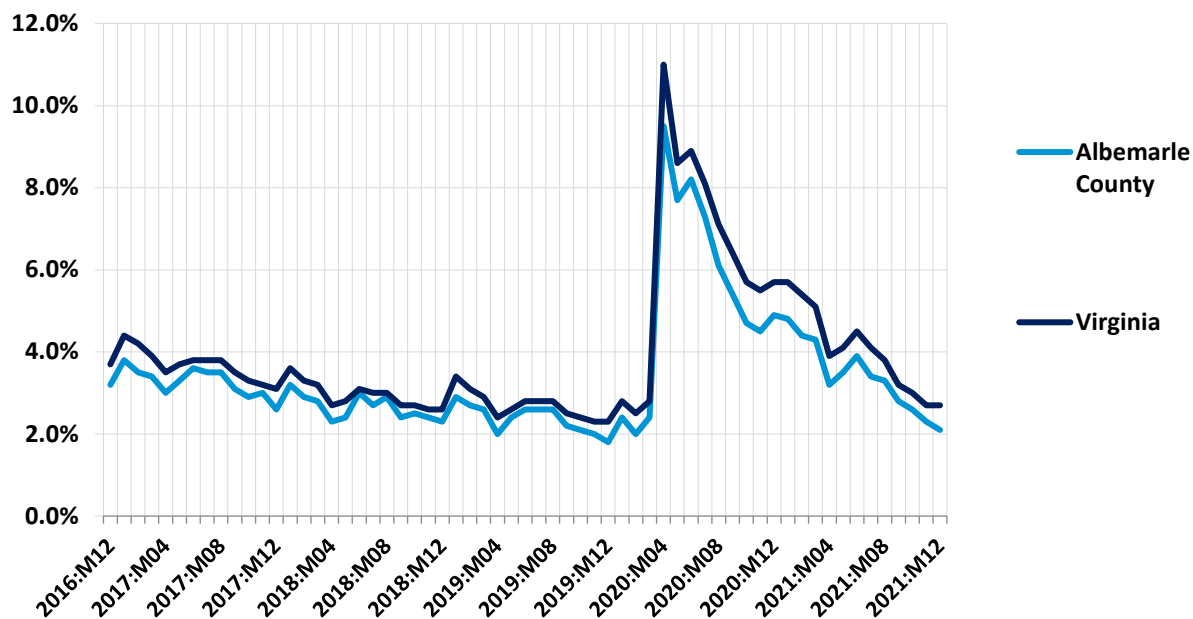


## Unemployment

Figure 10 illustrates the trend in Albemarle County's unemployment rate over the five-year period from December 2016 through December 2021 and benchmarks those data against the statewide trend for Virginia. As these data show, unemployment rates in Albemarle County were consistently lower than the statewide trend by an average of 0.4 percentage points throughout the period until April 2020 when unemployment in the county and state significantly rose as a result of the labor dislocations caused by the COVID-19 pandemic. Albemarle County's unemployment rate did not peak as high as the statewide rate and has remained below the statewide average during the recovery from the pandemic. As of December 2021, unemployment stood at 2.1 percent in Albemarle County compared to 2.7 percent in Virginia as a whole.

<sup>12</sup> Data Source: Bureau of Labor Statistics.

Figure 10: Unemployment Rate – December 2016 to December 2021<sup>13</sup>



<sup>13</sup> Data Source: Bureau of Labor Statistics.



## Economic and Fiscal Impact

---

This section quantifies the economic and fiscal contribution that the proposed Woodridge Solar project would make to Albemarle 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 Woodridge Solar project, the analysis employs a regional economic impact model called IMPLAN.<sup>14</sup> 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 Woodridge Solar 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 Woodridge Solar 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).

---

<sup>14</sup> 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 Woodridge Solar project would have on Albemarle County.

### Assumptions

The analysis is based on the following assumptions:

- For ease of analysis, all construction expenditures are assumed to take place in a single year.
- Total investment in the Woodridge Solar project is estimated to be approximately \$177.0 million.<sup>15</sup>
- Of that total:
  - Architecture, engineering, site preparation, and other construction and development costs are estimated to be approximately \$70.8 million.<sup>16</sup> It is estimated that approximately 45 percent of that total could be spent with vendors in Albemarle County.<sup>17</sup>
  - Capital equipment costs are estimated to be approximately \$106.2 million.<sup>18</sup> It is anticipated that no capital equipment would be purchased from vendors in Albemarle County.<sup>19</sup>

### Results

Applying these assumptions 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 Woodridge Solar project would directly provide a one-time pulse supporting approximately: 1) 206 jobs, 2) \$12.1 million in labor income, and 3) \$31.9 million in economic output to Albemarle County.<sup>20</sup>

Taking into account the economic ripple effects that direct investment would generate, the total estimated one-time impact on Albemarle County would support approximately: 1) 249 jobs, 2) \$14.4 million in labor income, 3) \$38.8 million in economic output, and 4) \$987,100 in state and local tax revenue.

---

<sup>15</sup> Data Source: Hexagon Energy. Investment estimate is subject to change based on final design and vendor contracts.

<sup>16</sup> Data Source: Hexagon Energy.

<sup>17</sup> Please note that due to data limitations, this estimate is based on industrywide averages. The ultimate percentage spent in Albemarle County may therefore vary.

<sup>18</sup> Data Source: Hexagon Energy.

<sup>19</sup> Data Source: IMPLAN Group LLC.

<sup>20</sup> It is important to 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.

Table 1: Estimated One-Time Economic and Fiscal Impact on Albemarle County from Construction of the Woodridge Solar Project<sup>21</sup>

Economic Impact	Employment	Labor Income	Output
<b>1<sup>st</sup> Round Direct Economic Activity</b>	206	\$12,134,800	\$31,857,300
<b>2<sup>nd</sup> Round Indirect and Induced Economic Activity</b>	43	\$2,255,100	\$6,975,700
<b>Total Economic Activity</b>	<b>249</b>	<b>\$14,389,900</b>	<b>\$38,833,000</b>
<b>Fiscal Impact</b>			
<b>State and Local Tax Revenue</b>			<b>\$987,100</b>

*\*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 Woodridge Solar project would have on Albemarle County during its anticipated 35-year operational phase.

## Assumptions

The analysis is based on the following assumptions:

- The Woodridge Solar project would spend approximately \$828,000 each year for maintenance and repair, vegetative control, and other operational expenditures.<sup>22</sup>
- The Woodridge Solar project would involve an investment of approximately \$177.0 million in capital equipment and improvements to the existing property.<sup>23</sup>
- The Woodridge Solar project would be situated on approximately 860 acres of fenced-in acres within a 900-acre tract of leased land.<sup>24</sup>
- Only the actively used, fenced-in acreage of the leased parcels would be removed from the land use program and reappraised at \$10,000 per acre.<sup>25</sup>
- The Woodridge Solar project's total generation capacity would be 138 MW AC.<sup>26</sup>
- The Woodridge Solar project would become operational in 2024.<sup>27</sup>

<sup>21</sup> It is important to 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.

<sup>22</sup> Data Source: Hexagon Energy. Expenditure estimate is subject to change based on final design and vendor contracts.

<sup>23</sup> Data Source: Hexagon Energy.

<sup>24</sup> Data Source: Hexagon Energy.

<sup>25</sup> Data Source: Estimated future assessment value based on an informal discussion with the Albemarle County Assessor's Office. Actual future assessment value may vary.

<sup>26</sup> Data Source: Hexagon Energy.

<sup>27</sup> Data Source: Hexagon Energy.

## Results – 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 Woodridge Solar project would directly support approximately: 1) 4 jobs, 2) \$221,400 in labor income, and 3) \$521,000 in economic output to Albemarle County.

Taking into account the economic ripple effects that direct impact would generate, the total estimated annually supported impact on Albemarle County would be approximately: 1) 5 jobs, 2) \$267,300 in labor income, and 3) \$667,600 in economic output.

**Table 2: Estimated Annual Economic Impact on Albemarle County from the Ongoing Operation of the Woodridge Solar Project**

Economic Impact	Employment	Labor Income	Output
<b>1<sup>st</sup> Round Direct Economic Activity</b>	4	\$221,400	\$521,000
<b>2<sup>nd</sup> Round Indirect and Induced Economic Activity</b>	1	\$45,900	\$146,600
<b>Total Economic Activity</b>	<b>5</b>	<b>\$267,300</b>	<b>\$667,600</b>

*\*Totals may not sum due to rounding.*

## Results – Fiscal Impact

This portion of the section quantifies the direct fiscal contribution that the proposed Woodridge Solar project would make to Albemarle County. The analysis considers two scenarios. Both scenarios include the additional revenue that the Woodridge Solar project would generate for Albemarle County over a 35-year period from the increased property assessments associated with reassessing the site as solar use property. Scenario 1 then describes the additional revenue Woodridge Solar would generate for Albemarle County from taxes levied on the capital investment, while Scenario 2 assumes tax revenue generated from the capital investment will be replaced with revenue associated with a locally adopted revenue share ordinance and based on the project's total generation capacity.

### Reassessment of Property

Table 3 details the increased property assessments associated with removing the affected acreage from the land use program and reassessing the 860-acre fenced-in site as solar use property. The county real estate tax revenue from the project after reassessment is estimated to be approximately \$73,444 per year, for a cumulative total of approximately \$2.6 million over the project's anticipated 35-year operational life expectancy.<sup>28</sup> Adding one-time rollback taxes of approximately \$147,431 increases that cumulative total to approximately \$2.7 million. In contrast, the property currently generates

<sup>28</sup> Assumes property will be reassessed at \$10,000 per acre once it is under solar use.

approximately \$3,923 per year in real estate tax revenue for the county, for a cumulative total of approximately \$137,289 over 35 years.<sup>29</sup>

**Table 3: Estimated County Revenue Generated by the Proposed Woodridge Solar Project over 35 Years from Real Estate Taxes**

Estimated Increased Appraised Value of Property under Solar Use <sup>30</sup>	\$8,600,000
Albemarle County Real Estate Tax Rate	0.00854
Annual County Real Estate Tax – Solar Use	<b>\$73,444</b>
<b>Cumulative Revenue over 35 Years</b>	<b>\$2,570,540</b>
<b>One-time Rollback Taxes<sup>31</sup></b>	<b>\$147,431</b>
<b>Cumulative Revenue over 35 Years</b>	<b>\$2,717,971</b>

*\*Totals may not sum due to rounding.*

### *Scenario 1: Taxation of Capital Investment*

Table 4 separately details the additional annual revenue that the proposed Woodridge Solar project would generate for Albemarle County over a 35-year period from taxes levied on capital investment. This calculation is based on: 1) the taxable portion of capital investments pursuant to the stepdown local tax exemption pursuant to Virginia Code §58.1-3660<sup>32</sup>, times 2) the State Corporation Commission’s utility assessment ratio of 0.97 for taxation of public utilities in Albemarle County<sup>33</sup>, times 4) the State Corporation Commission’s depreciation guidelines for solar facilities, times 5) Albemarle County’s real property tax rate of \$0.854 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 Woodridge Solar project would be approximately \$264,988 in the project’s first year of operation, with that figure projected to increase to approximately \$509,719 in the project’s 11<sup>th</sup> year of operation, and then to decline to approximately \$58,886 in the project’s 34<sup>th</sup> year of operation and thereafter, as the value of the proposed capital investments is depreciated, for a cumulative total of approximately \$11.1 million.

<sup>29</sup> Derived from Albemarle County’s GIS Website. Includes value of affected structure.

<sup>30</sup> Calculated as 860 acres times \$10,000.

<sup>31</sup> Rollback taxes are computed as the difference between the land use value assessment tax and the tax on the fair market value for the affected acreage for five complete tax years plus the current year, including 10 percent simple interest. Does not account for changes in assessment values.

<sup>32</sup> The Virginia Code §58.1-3660 stipulates that solar facilities over 5MW and under 150 MW are subject to a stepdown exemption from local property taxes if the interconnection request was filed on or after January 1, 2019. The amount of the exemption is 80 percent in the first five years, 70 percent in years six through ten, and 60 percent thereafter.

<sup>33</sup> Average of county’s locality ratios of the previous five years. Values shown rounded to two digits.

**Table 4: Estimated County Revenue Generated by the Proposed Solar Investment over 35 Years**

Year	Total Capital Investment subject to Exemption <sup>34</sup>	Exemption <sup>35</sup>	Capital Investment Less Exemption <sup>36</sup>	Depreciation <sup>37</sup>	Depreciated Value of Taxable Capital Investment	Additional Annual County Tax Revenue Solar Investment <sup>38</sup>
1	\$176,985,000	80%	\$34,476,678	90.0%	\$31,029,010	\$264,988
2	\$176,985,000	80%	\$34,476,678	90.0%	\$31,029,010	\$264,988
3	\$176,985,000	80%	\$34,476,678	90.0%	\$31,029,010	\$264,988
4	\$176,985,000	80%	\$34,476,678	90.0%	\$31,029,010	\$264,988
5	\$176,985,000	80%	\$34,476,678	90.0%	\$31,029,010	\$264,988
6	\$176,985,000	70%	\$51,715,017	90.0%	\$46,543,515	\$397,482
7	\$176,985,000	70%	\$51,715,017	90.0%	\$46,543,515	\$397,482
8	\$176,985,000	70%	\$51,715,017	90.0%	\$46,543,515	\$397,482
9	\$176,985,000	70%	\$51,715,017	89.7%	\$46,383,199	\$396,113
10	\$176,985,000	70%	\$51,715,017	88.2%	\$45,597,130	\$389,399
11	\$176,985,000	60%	\$68,953,356	86.6%	\$59,686,025	\$509,719
12	\$176,985,000	60%	\$68,953,356	84.9%	\$58,513,818	\$499,708
13	\$176,985,000	60%	\$68,953,356	83.1%	\$57,272,657	\$489,108
14	\$176,985,000	60%	\$68,953,356	81.1%	\$55,948,753	\$477,802
15	\$176,985,000	60%	\$68,953,356	79.1%	\$54,549,000	\$465,848
16	\$176,985,000	60%	\$68,953,356	77.0%	\$53,066,503	\$453,188
17	\$176,985,000	60%	\$68,953,356	74.7%	\$51,494,366	\$439,762
18	\$176,985,000	60%	\$68,953,356	72.3%	\$49,832,590	\$425,570
19	\$176,985,000	60%	\$68,953,356	69.7%	\$48,060,489	\$410,437

<sup>34</sup> Data Source: Hexagon Energy.

<sup>35</sup> Pursuant to Virginia Code §58.1-3660, solar facilities over 5MW and under 150 MW are subject to a stepdown exemption from local property taxes if the interconnection request was filed on or after January 1, 2019. The amount of the exemption is 80 percent in the first five years, 70 percent in years six through ten, and 60 percent thereafter.

<sup>36</sup> Accounts for the State Corporation Commission's five-year average utility assessment ratio of 0.97 for taxation of public utilities in Albemarle County (value shown rounded to second digit).

<sup>37</sup> Data Source: State Corporation Commission guidelines.

<sup>38</sup> 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 Albemarle County's real property tax rate of \$0.854 per \$100 of assessed value.

**Table 4: Estimated County Revenue Generated by the Proposed Solar Investment over 35 Years**

Year	Total Capital Investment subject to Exemption <sup>34</sup>	Exemption <sup>35</sup>	Capital Investment Less Exemption <sup>36</sup>	Depreciation <sup>37</sup>	Depreciated Value of Taxable Capital Investment	Additional Annual County Tax Revenue Solar Investment <sup>38</sup>
20	\$176,985,000	60%	\$68,953,356	67.0%	\$46,191,853	\$394,478
21	\$176,985,000	60%	\$68,953,356	64.1%	\$44,205,997	\$377,519
22	\$176,985,000	60%	\$68,953,356	61.1%	\$42,102,919	\$359,559
23	\$176,985,000	60%	\$68,953,356	57.8%	\$39,875,726	\$340,539
24	\$176,985,000	60%	\$68,953,356	54.4%	\$37,510,626	\$320,341
25	\$176,985,000	60%	\$68,953,356	50.8%	\$35,007,619	\$298,965
26	\$176,985,000	60%	\$68,953,356	46.9%	\$32,346,019	\$276,235
27	\$176,985,000	60%	\$68,953,356	42.8%	\$29,532,722	\$252,209
28	\$176,985,000	60%	\$68,953,356	38.5%	\$26,547,042	\$226,712
29	\$176,985,000	60%	\$68,953,356	33.9%	\$23,388,978	\$199,742
30	\$176,985,000	60%	\$68,953,356	29.1%	\$20,030,950	\$171,064
31	\$176,985,000	60%	\$68,953,356	23.9%	\$16,479,852	\$140,738
32	\$176,985,000	60%	\$68,953,356	18.4%	\$12,714,999	\$108,586
33	\$176,985,000	60%	\$68,953,356	12.7%	\$8,722,600	\$74,491
34	\$176,985,000	60%	\$68,953,356	10.0%	\$6,895,336	\$58,886
35	\$176,985,000	60%	\$68,953,356	10.0%	\$6,895,336	\$58,886
<b>CUMULATIVE TOTAL</b>						<b>\$11,132,989</b>



### *Scenario 1: Total Fiscal Impact*

Table 5 combines the results from the calculations depicted in Tables 3 and 4 to provide an estimate of the cumulative fiscal contribution that the proposed Woodridge Solar project would make to Albemarle County over its 35-year anticipated operational life under Scenario 1. As these data indicate, that cumulative total is approximately \$13.9 million.

**Table 5: Estimated Cumulative County Revenue from the Proposed Woodridge Solar Project over 35 Years under Scenario 1**

County Real Estate Tax	\$2,717,971
County Revenue from Taxation of Capital Investments	\$11,132,989
<b>TOTAL Cumulative Revenue over 35 Years</b>	<b>\$13,850,960</b>

### *Scenario 2: Revenue Share Ordinance*

The following section describes the additional annual revenue that the proposed Woodridge Solar project would generate for Albemarle County assuming the county adopts an energy revenue share ordinance under Virginia Code §58.1-2636 in lieu of taxes on capital investment. This statute currently stipulates that a locality may assess an annual revenue share of up to \$1,400 per megawatt (MW) alternating current (AC) generation capacity of a solar facility. However, legislation that was passed in the 2021 General Assembly (SB 1201/HB 2006) and went into effect July 1, 2021, allows a 10 percent escalator to be applied to the \$1,400 per MW revenue share every five years, beginning in 2026.

Table 6 details the revenue generated from a revenue share ordinance between Woodridge Solar and Albemarle County including the 10 percent escalator. Based on a total generation capacity of 138 MW AC and an assumed commissioning date in 2024, a revenue share agreement would generate approximately \$9.7 million over the anticipated 35-year operational life of the project.

**Table 6: Estimated County Revenue Generated from a Revenue Share Ordinance over 35 Years**

Year	MW	Revenue Share per MW with Escalator	Annual County Revenue
1	138	\$1,400	\$193,200
2	138	\$1,400	\$193,200
3	138	\$1,540	\$212,520
4	138	\$1,540	\$212,520
5	138	\$1,540	\$212,520
6	138	\$1,540	\$212,520
7	138	\$1,540	\$212,520
8	138	\$1,694	\$233,772
9	138	\$1,694	\$233,772
10	138	\$1,694	\$233,772
11	138	\$1,694	\$233,772
12	138	\$1,694	\$233,772
13	138	\$1,863	\$257,149
14	138	\$1,863	\$257,149
15	138	\$1,863	\$257,149
16	138	\$1,863	\$257,149
17	138	\$1,863	\$257,149
18	138	\$2,050	\$282,864
19	138	\$2,050	\$282,864
20	138	\$2,050	\$282,864
21	138	\$2,050	\$282,864
22	138	\$2,050	\$282,864
23	138	\$2,255	\$311,151
24	138	\$2,255	\$311,151
25	138	\$2,255	\$311,151
26	138	\$2,255	\$311,151
27	138	\$2,255	\$311,151
28	138	\$2,480	\$342,266
29	138	\$2,480	\$342,266
30	138	\$2,480	\$342,266
31	138	\$2,480	\$342,266
32	138	\$2,480	\$342,266
33	138	\$2,728	\$376,492
34	138	\$2,728	\$376,492
35	138	\$2,728	\$376,492
<b>Cumulative Total</b>			<b>\$9,714,484</b>

*\*Totals may not sum due to rounding*

## Scenario 2: Total Fiscal Impact

Table 7 combines the results from the calculations depicted in Tables 3 and 6 to provide an estimate of the cumulative fiscal contribution that the proposed Woodridge Solar project would make to Albemarle County over its 35-year anticipated operational life under Scenario 2. As these data indicate, that cumulative total is approximately \$12.4 million.

**Table 7: Estimated Cumulative County Revenue from the Proposed Woodridge Solar Project over 35 Years under Scenario 2**

County Real Estate Tax	\$2,717,971
County Revenue from Revenue Share Ordinance	\$9,714,484
<b>TOTAL Cumulative Revenue over 35 Years</b>	<b>\$12,432,455</b>

## Current Agricultural Use

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

### Assumptions

The analysis is based on the following assumptions:

- The proposed Woodridge Solar project would be situated on an approximately 860-acre tract of land of actively managed timberland.<sup>39</sup>
- The average annual revenue per acre for the current use of the site is approximately \$29.<sup>40</sup>
- The current assessment value of the affected acreage is approximately \$459,300.<sup>41</sup>

## Results – Economic Impact

Applying these assumptions in the IMPLAN model results in the following estimates of annual economic impact. As shown in Table 8, in a timber production use, the proposed Woodridge Solar project site directly supports approximately: 1) < 1 job, 2) \$20,300 in labor income, and 3) \$24,800 in economic output to Albemarle County.

Taking into account the economic ripple effects that direct impact generates, on average, the total annually supported impact on Albemarle County is approximately: 1) < 1 job, 2) \$24,800 in labor income, and 3) \$34,700 in economic output.

<sup>39</sup> Data Source: Hexagon Energy.

<sup>40</sup> Data Source: Estimated based on data from the U.S. Department of Agriculture 2017 Census and IMPLAN Group, LLC for Virginia and Albemarle County.

<sup>41</sup> Data Source: Derived from Albemarle County's GIS Website database. Includes value of affected structure.

**Table 8: Total Estimated Annual Economic Impact of the Woodridge Solar Project Site on Albemarle County – Current Agricultural Use**

Economic Impact	Employment	Labor Income	Output
<b>1<sup>st</sup> Round Direct Economic Activity</b>	< 1	\$20,300	\$24,800
<b>2<sup>nd</sup> Round Indirect and Induced Economic Activity</b>	0	\$4,500	\$9,900
<b>Total Economic Activity</b>	<b>&lt; 1</b>	<b>\$24,800</b>	<b>\$34,700</b>

*\*Totals may not sum due to rounding.*

## Results – Fiscal Impact

Table 9 details the estimated tax revenue that the proposed Woodridge Solar site generates for Albemarle County in its current agricultural use. As the data in Table 9 indicate, the current county real estate tax revenue from the project site is estimated to be approximately \$3,923 per year, for a cumulative total of approximately \$137,289 over 35 years.

**Table 9: Estimated County Revenue Generated by the Proposed Woodridge Solar Project Site over 35 Years from Real Estate Taxes – Current Agricultural Use**

Estimated Assessed Value of Property – Agricultural Use <sup>42</sup>	\$459,314
Albemarle County Current Real Estate Tax Rate	0.00854
Estimated Annual County Real Estate Tax – Agricultural Use	\$3,923
<b>Total Cumulative Revenue over 35 Years</b>	<b>\$137,289</b>

*\*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.*

<sup>42</sup> Data Source: Derived from Albemarle County's GIS Website database. Includes value of affected structure.