Strategic Economic Research, LLC

ECONOMIC IMPACT ANALYSIS OF SILVER MAPLE SOLAR PROJECT

February 2023

Dr. David G. Loomis,
Bryan Loomis, and
Chris Thankan

Strategic Economic Research, LLC
strategiceconomic.com
815-905-2750

About the Authors

Dr. David G. Loomis, PhD

Professor of Economics, Illinois State University
Co-Founder of the Center for Renewable Energy
President of Strategic Economic Research, LLC

Dr. David G. Loomis is Professor of Economics at Illinois State University and Co-Founder of the Center for Renewable Energy. He has over 20 years of experience in the renewable energy field. He has served as a consultant for 43 renewable energy development companies. He has testified on the economic impacts of energy projects before the Illinois Commerce Commission, Iowa Utilities Board, Missouri Public Service Commission, Illinois Senate Energy and Environment Committee, the Wisconsin Public Service Commission, Kentucky Public Service Commission, Ohio Public Siting Board, and numerous county boards. Dr. Loomis is a widely recognized expert and has been quoted in the Wall Street Journal, Forbes Magazine, Associated Press, and Chicago Tribune as well as appearing on CNN.

Dr. Loomis has published over 38 peer-reviewed articles in leading energy policy and economics journals. He has raised and managed over $7 million in grants and contracts from government, corporate and foundation sources. He received the 2011 Department of Energy's Midwestern Regional Wind Advocacy Award and the 2006 Best Wind Working Group Award. Dr. Loomis received his Ph.D. in economics from Temple University in 1995.

Bryan Loomis, MBA

Vice President of Strategic Economic Research, LLC

Bryan Loomis has three years of experience in economic impact, property tax, and land use analysis at Strategic Economic Research. He has performed over 50 wind and solar analyses in the last three years. He improved the property tax analysis methodology by researching various state taxing laws and implementing depreciation, taxing jurisdiction millage rates, and other factors into the tax analysis tool. Before working for SER, Bryan mentored and worked with over 30 startups to help them grow their businesses as CEO and Founder of his own marketing agency. Bryan received his MBA in Marketing from Belmont University in 2016.

Chris Thankan

Economic Analyst

Christopher Thankan assists with the production of the economic impact studies, including sourcing, analyzing, and graphing government data, and performing economic and property tax analysis for wind, solar and transmission projects. Thankan has a Bachelor of Science degree in Sustainable & Renewable Energy, and minored in economics.

Strategic Economic Research, LLC (SER) provides economic consulting for renewable energy projects across the US. We have produced over 200 economic impact reports in 30 states. Research Associates who performed work on this project include Ethan Loomis, Madison Schneider, Zoe Calio, Patrick Chen, Kathryn Keithley, Morgan Stong, Mandi Mitchell, and Paige Afram.

SER Strategic Economic Research, LLC

Table of Contents

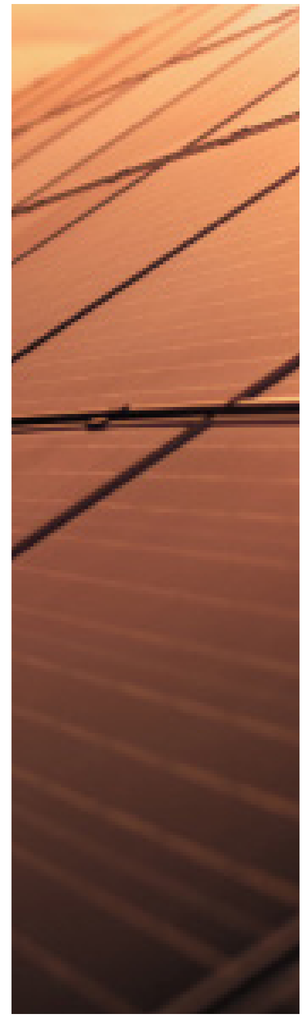


Table of Contents - Figures & Tables

I. Executive Summary

Silver Maple Solar, LLC, a wholly owned subsidiary of Leeward, is developing the Silver Maple Solar Project in Fond du Lac and Winnebago Counties, Wisconsin. The purpose of this report is to aid decision makers in evaluating the economic impact of this project on Fond du Lac County, Winnebago County, and the State of Wisconsin. The basis of this analysis is to study the direct, indirect, and induced impacts on job creation, wages, and total economic output.

The Silver Maple Solar Project is a 200-megawatt alternating current (MWac) utility-scale solar powered-electric generation facility that will utilize photovoltaic (PV) panels installed on a single-axis tracking system. The total Project represents an investment in excess of $223 million. The total development is anticipated to result in the following:

Jobs – all numbers are full-time equivalents

- 156 new local jobs during construction for Fond du Lac County
- 33 new local jobs during construction for Winnebago County
- 445 new local jobs during construction for the State of Wisconsin
- 9.5 new local long-term jobs for Fond du Lac County
- 1.6 new local long-term jobs for Winnebago County
- 19.2 new local long-term jobs for the State of Wisconsin

Earnings

- Over $13 million in new local earnings during construction for Fond du Lac County
- Over $2.7 million in new local earnings during construction for Winnebago County
- Over $36.8 million in new local earnings during construction for the State of Wisconsin
- Over $472 thousand in new local long-term earnings for Fond du Lac County annually
- Over $80.9 thousand in new local long-term earnings for Winnebago County annually
- Over $1.4 million in new local long-term earnings for the State of Wisconsin annually

Output

- Over $19.6 million in new local output during construction for Fond du Lac County
- Over $4.2 million in new local output during construction for Winnebago County
- Over $62.3 million in new local output during construction for the State of Wisconsin
- Over $1.1 million in new local long-term output for Fond du Lac County annually
- Over $155 thousand in new local long-term output for Winnebago County annually
- Over $2.9 million in new local long-term output for the State of Wisconsin annually

Tax Revenue

- Approximately $333,333 annually in total township revenue
- Approximately $466,667 annually in total county tax revenue for Fond du Lac County and Winnebago County

SER Strategic Economic Research, LLC

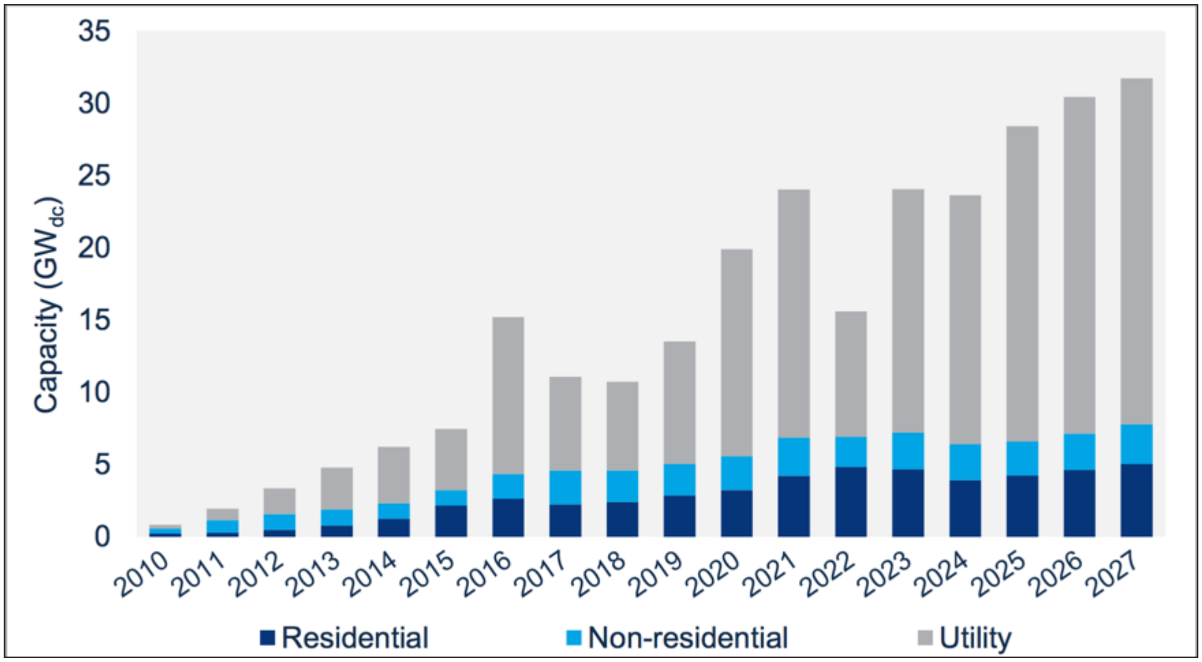
II. U.S. Solar PV Industry Growth and Economic Development

a. U.S. Solar PV Industry Growth

The U.S. solar industry is growing at a rapid but uneven pace, with systems installed for onsite use, including residential, commercial and industrial properties and with utility-scale solar powered-electric generation facilities intended for wholesale distribution, such as Silver Maple Solar. From 2013 to 2018, the amount of electricity generated from solar had more than quadrupled, increasing 444% (SEIA, 2020). The industry has continued to add increasing numbers of PV systems to the grid. In the first half of 2021, the U.S. installed over 11,000 MW direct current (MWdc) of solar PV driven mostly by utility-scale PV which exceeds most of the annual installations in the last decade. Figure 1 shows the historical capacity additions as well as the forecasted additions into 2027. The primary driver of this overall sharp pace of growth is large price declines in solar equipment. The overall price of solar PV has declined from $5.79/watt in 2010 to $1.33/watt in 2020 (SEIA, 2020). According to Figure 2, utility-scale solar fixed tilt and single-axis tracking have declined from $1.50/watt at the beginning of 2015 to near $1.00/watt by the first quarter of 2021.

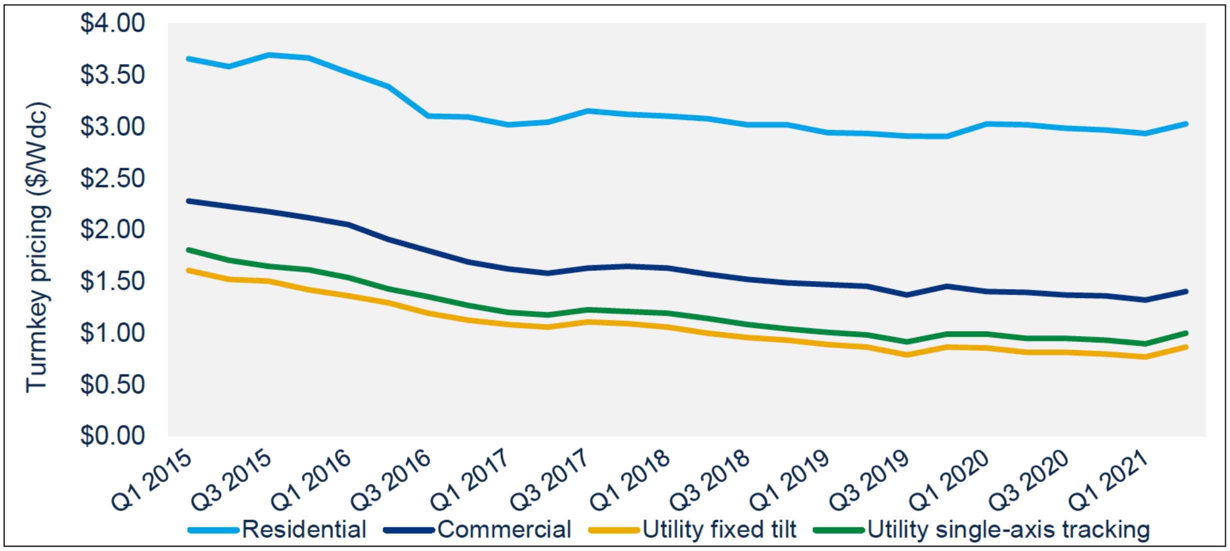
Utility-scale PV leads the installation growth in the U.S. Just under 14 GWdc of utility PV projects were completed in 2020. According to Figure 3, there are 85,000 MWdc of contracted utility-scale installations that have not been built yet.

Figure 1 – Annual U.S. Solar PV Installations, 2010-2027



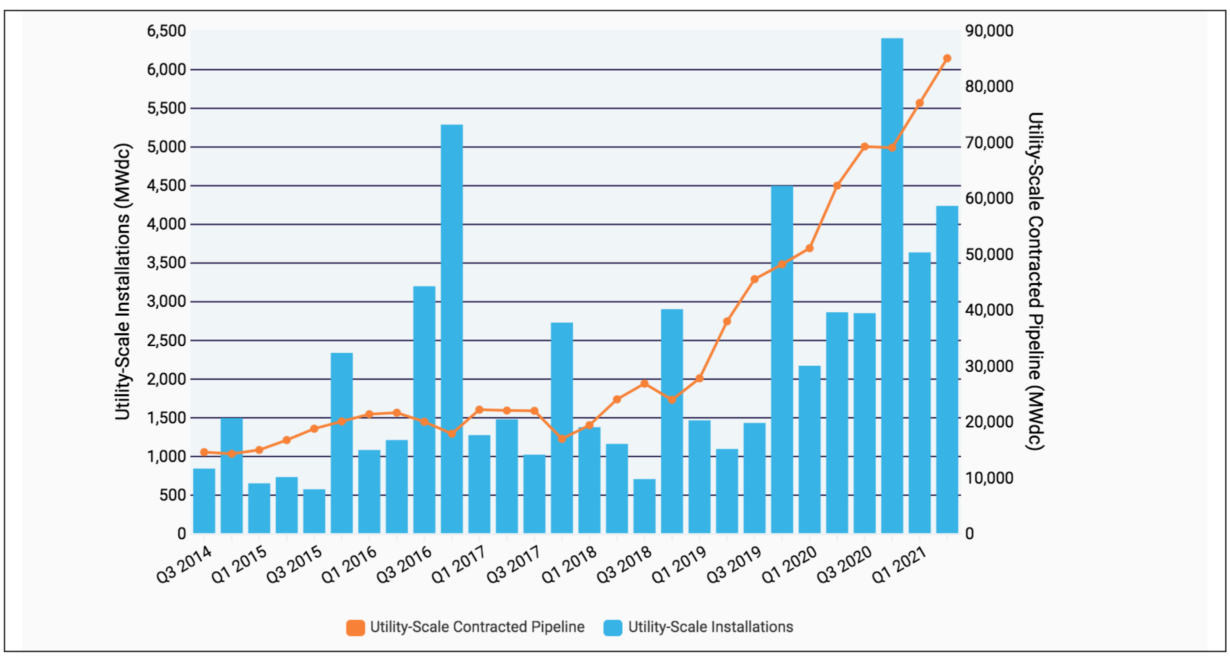
Source: Solar Energy Industries Association, Solar Market Insight Report Q2 2022

Figure 2 – U.S. Annual Solar PV Installed Price Trends Over Time



Source: Solar Energy Industries Association, Solar Market Insight Report Q3 2021

Figure 3 – U.S. Utility PV Installations vs. Contracted Pipeline



Source: Solar Energy Industries Association, Solar Market Insight Report Q2 2021

Strategic Economic Research, LLC

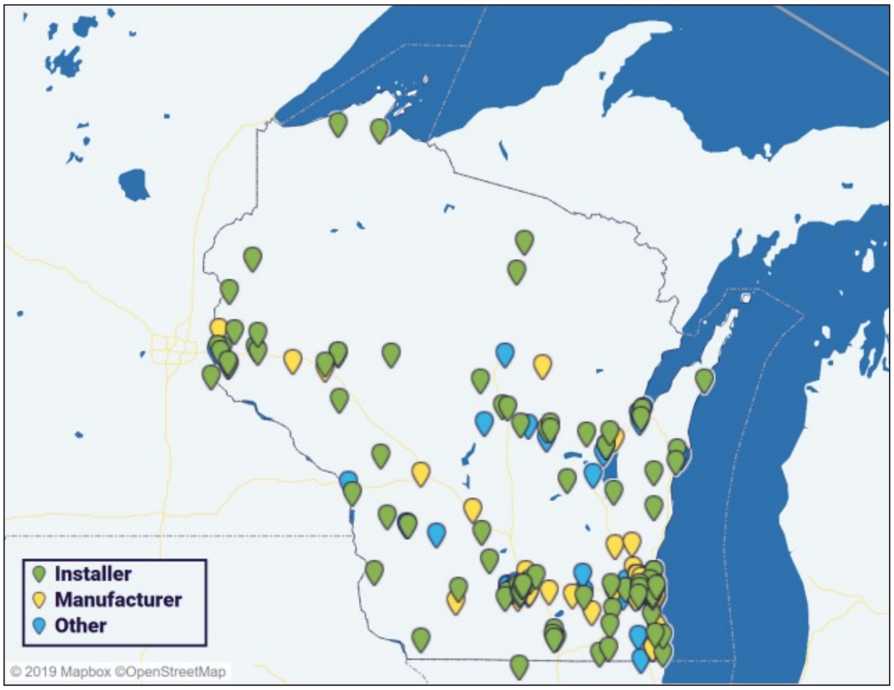
b. Wisconsin Solar PV Industry

According to SEIA, Wisconsin is ranked 26th in the U.S. in cumulative installations of solar PV. California, Texas, and Florida are the top 3 states for solar PV which may not be surprising because of the high solar irradiation that they receive. However, other states with similar solar irradiation to Wisconsin rank highly including New Jersey (8th), Massachusetts (9th), New York (11th), and Maryland (18th). In 2021, Wisconsin installed 395.02 MW of solar electric capacity bringing its cumulative capacity to 854.52 MW.

Wisconsin has great potential to expand its solar installations. Wisconsin has several utility-scale solar farms in operation: Badger Hollow Solar (150 MW) in Iowa County; Two Creeks Solar (150 MW) in Manitowoc County; Point Beach Solar (100 MW) in Manitowoc County; and O'Brien Solar (20 MW) in Dane County.

There are more than 145 solar companies in Wisconsin including 40 manufacturers, 63 installers/developers, and 42 others.   Figure 4 shows the locations of solar companies in Wisconsin as of the time of this report. Currently, there are 2,910 solar jobs in the State of Wisconsin according to SEIA.

Figure 4 – Solar Company Locations in Wisconsin

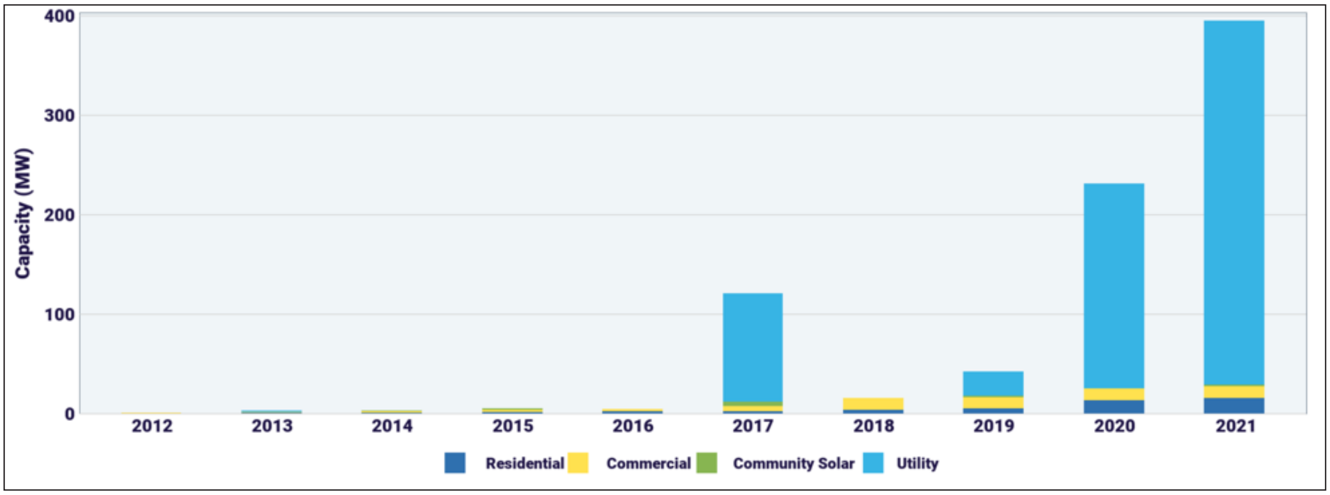


Source: Solar Energy Industries Association, Solar Spotlight: Wisconsin, June 2022

Figure 5 shows the Wisconsin historical installed capacity by year according to the SEIA. Huge growth was seen in 2021 and was forecast to continue to grow in 2022 and beyond. Over the next five years, solar in Wisconsin is projected to grow by 3,256.6 MW.

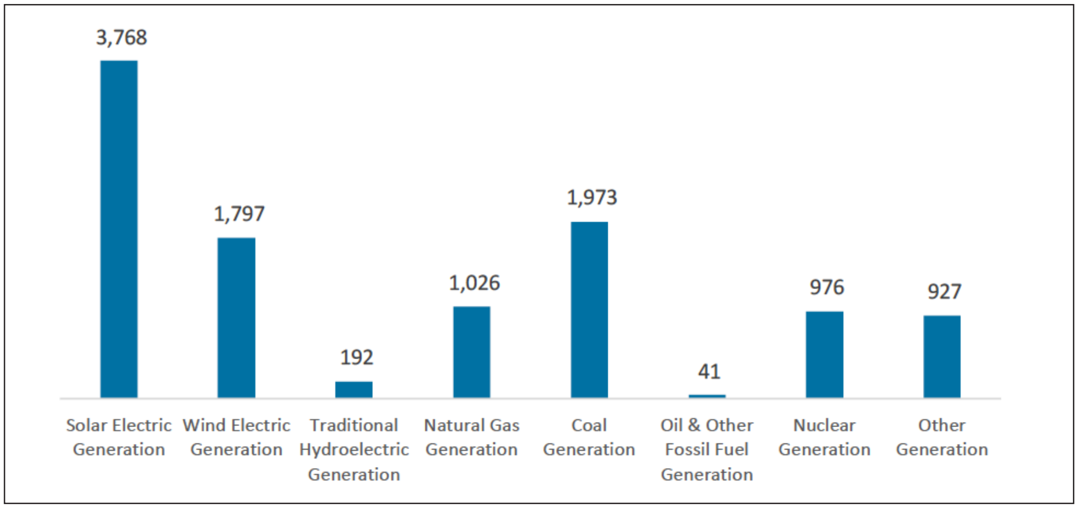
The U.S. Department of Energy sponsors the U.S. Energy and Employment Report each year. Electric Power Generation covers all utility and non-utility employment across electric generating technologies, including fossil fuels, nuclear, and renewable technologies. It also includes employees engaged in facility construction, turbine and other generation equipment manufacturing, operations and maintenance, and wholesale parts distribution for all electric generation technologies. According to Figure 6, employment in the solar energy industry (3,768) is larger than coal generation (1,973) and wind electric generation (1,797).

Figure 5 – Wisconsin Annual Solar Installations



Source: Solar Energy Industries Association, Solar Spotlight: Wisconsin, June 2022

Figure 6 – Electric Generation Employment by Technology



Source: US Energy and Employment Report 2021: Wisonsin

c. Economic Benefits of Utility-Scale Solar PV Energy

Utility-scale solar powered-electric generation facilities have numerous economic benefits. Solar PV installations create job opportunities in the local area during both the short-term construction phase and the long-term operational phase. In addition to the workers directly involved in the construction and maintenance of the solar energy project, numerous other jobs are supported through indirect supply chain purchases and the higher spending that is induced by these workers. Solar PV projects strengthen the local tax base and help improve county services, and local infrastructure, such as public roads.

Numerous studies have quantified the economic benefits of Solar PV projects across the United States and have been published in peer-reviewed academic journals. Some of these studies examine smaller-scale solar systems, and some examine utility-scale solar energy. Croucher (2012) uses NREL's Jobs and Economic Development Impacts ("JEDI") modeling methodology to find which state will receive the greatest economic impact from installing one hundred 2.5 kW residential systems. He shows that Pennsylvania ranked first supporting 28.98 jobs during installation and 0.20 jobs during operations. Illinois ranked second supporting 27.65 jobs during construction and 0.18 jobs during operations.

Mangum, Zorn and Arel (2020) examine fiscal benefits and costs in three different regions of Wisconsin. They find that utility-scale solar had positive net fiscal benefits and can be a viable economic development alternative for all three regions.

Loomis et. al. (2016) estimates the economic impact for the State of Illinois if the state were to reach its maximum potential for solar PV. The study estimates the economic impact of three different scenarios for Illinois – building new solar installations of either 2,292 MW, 2,714 MW or 11,265 MW. The study assumes that 60% of the capacity is utility-scale solar, 30% of the capacity is commercial, and 10% of the capacity is residential. It was found that employment impacts vary from 26,753 to 131,779 job years during construction and from 1,223 to 6,010 job years during operating years.

Several other reports quantify the economic impact of solar energy. Bezdek (2006) estimates the economic impact for the State of Ohio and finds the potential for PV market in Ohio to be $25 million with 200 direct jobs and 460 total jobs. The Center for Competitive Florida (2009) estimates the impact if the state were to install 1,500 MW of solar and finds that 45,000 direct jobs and 50,000 indirect jobs could be created. The Solar Foundation (2013) uses the JEDI modeling methodology to show that Colorado's solar PV installation to date created 10,790 job-years. They also analyze what would happen if the state were to install 2,750 MW of solar PV from 2013 to 2030 and find that it would result in nearly 32,500 job years. Berkman et. al (2011) estimates the economic and fiscal impacts of the 550 MWac Desert Sunlight Solar Farm. The project creates approximately 440 construction jobs over a 26-month period, $15 million in new sales tax revenues, $12 million in new property revenues for Riverside County, CA, and $336 million in indirect benefits to local businesses in the county.

Finally, Jenniches (2018) performed a review of the literature assessing the regional economic impacts of renewable energy sources. After reviewing all of the different techniques for analyzing the economic impacts, he concludes “for assessment of current renewable energy developments, beyond employment in larger regions, IO [Input-Output] tables are the most suitable approach” (Jenniches, 2018, 48). Input-Output analysis is the basis for the methodology used in the economic impact analysis of this report.

III. Project Description and Location

a. Silver Maple Solar Project

Silver Maple Solar, LLC, a wholly owned subsidiary of Leeward, is developing the Silver Maple Solar Project in Fond du Lac County and Winnebago County, Wisconsin. The Project consists of a 200-megawatt alternative current (MWac) utility-scale solar powered-electric generation facility that will utilize photovoltaic (PV) panels installed on a single-axis tracking system. The total Project represents an investment in excess of $223 million.

b. Fond du Lac County, Wisconsin

Fond du Lac County is located in the eastern part of Wisconsin (see Figure 7). It has a total area of 766 square miles and the U.S. Census estimates that the 2020 population was 104,154 with 45,740 housing units. The county has a population density of 144.7 (persons per square mile) compared to 108.8 for the State of Wisconsin. Median household income in the county was $64,147 (U.S. Census Bureau).

Figure 7 – Location of Fond du Lac County, Wisconsin

As shown in Table 1, the largest industry is "Manufacturing" followed by "Health Care and Social Assistance," "Retail Trade," and "Administrative Government." These data for Table 1 come from IMPLAN covering the year 2020 (the latest year available).

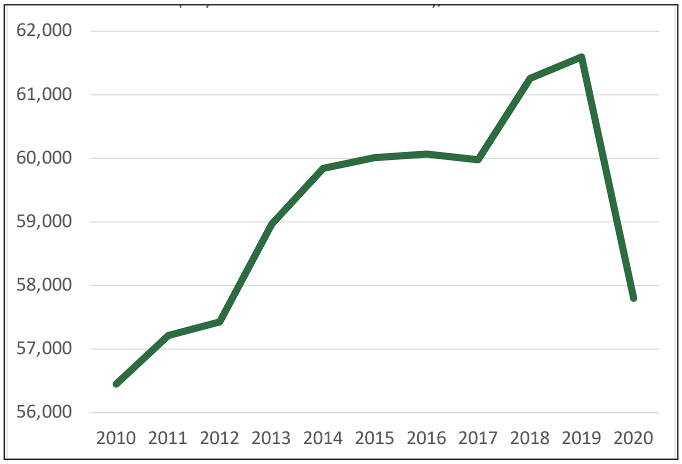
Table 1 provides the most recent snapshot of total employment but does not examine the historical trends within the county. Figure 8 shows employment from 2010 to 2020. Total employment in Fond du Lac County was at its lowest at 56,460 in 2010 and its highest at 61,604 in 2019 (BEA, 2022). Since 2019, employment in the county has declined significantly.

Table 1 – Employment by Industry in Fond du Lac County

Industry	Number	Percent
Manufacturing	9,758	16.3%
Health Care and Social Assistance	6,247	10.5%
Retail Trade	5,683	9.5%
Administrative Government	4,919	8.2%
Other Services (except Public Administration)	4,900	8.2%
Accommodation and Food Services	4,240	7.1%
Construction	4,236	7.1%
Transportation and Warehousing	3,087	5.2%
Finance and Insurance	2,610	4.4%
Agriculture, Forestry, Fishing and Hunting	2,250	3.8%
Professional, Scientific, and Technical Services	2,171	3.6%
Real Estate and Rental and Leasing	2,152	3.6%
Wholesale Trade	1,976	3.3%
Administrative and Support and Waste Management and Remediation Services	1,847	3.1%
Educational Services	903	1.5%
Information	835	1.4%
Arts, Entertainment, and Recreation	822	1.4%
Management of Companies and Enterprises	314	0.5%
Mining, Quarrying, and Oil and Gas Extraction	307	0.5%
Government Enterprises	263	0.4%
Utilities	181	0.3%

Source: Impact Analysis for Planning (IMPLAN), County Employment by Industry, 2020

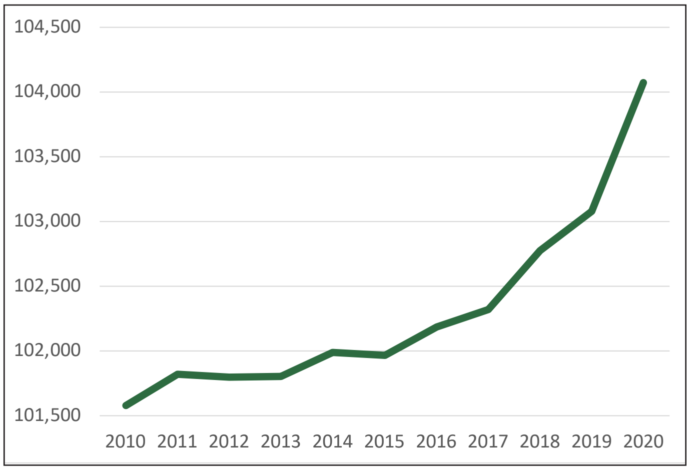
Figure 8 – Total Employment in Fond du Lac County from 2010 to 2020



Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income, 2010-2020

The overall population in the county has been increasing steadily, as shown in Figure 9. Fond du Lac County population was 101,579 in 2010 and 104,076 in 2020, a gain of 2,497 (FRED, 2022). The average annual population increase over this time period was 250.

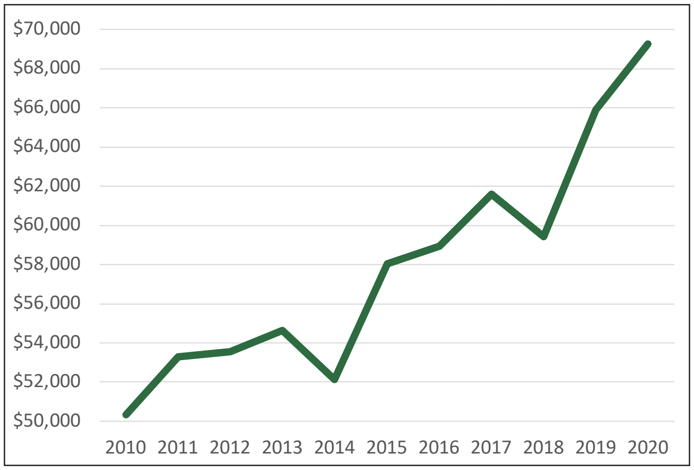
Figure 9 – Population in Fond du Lac County from 2010 to 2020



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Population Estimates, 2010-2020

Similar to the population trend, household income has been trending upward in Fond du Lac County. Figure 10 shows the median household income in Fond du Lac County from 2010 to 2020. Household income was at its lowest at $50,327 in 2010 and its highest at $69,280 in 2020 (FRED, 2022).

Figure 10 – Median Household Income in Fond du Lac County from 2010 to 2020

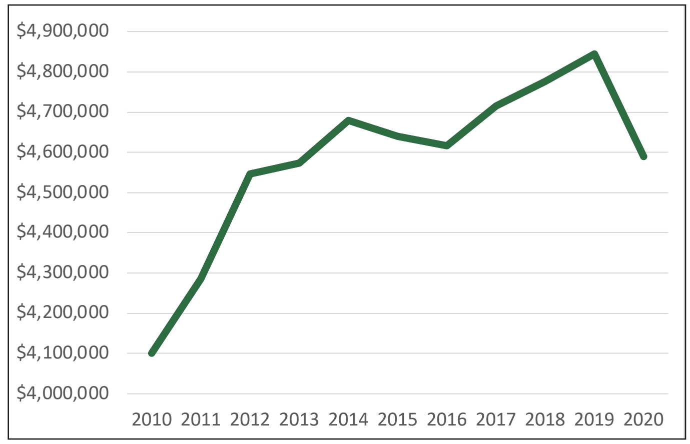


Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income, 2010-2020

Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Fond du Lac County has been fluctuating since hitting a low in 2010, as shown in Figure 11 (BEA, 2022).

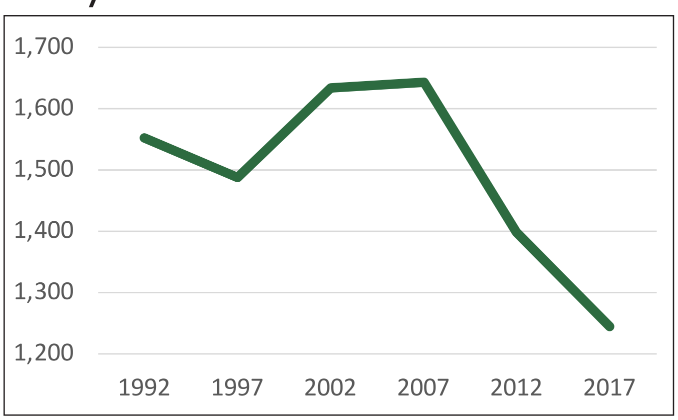
The farming industry has fluctuated in Fond du Lac County. As shown in Figure 12, the number of farms has decreased from a high of 1,643 in 2007 to a low of 1,244 in 2017. The amount of land in farms has fluctuated greatly. The county farmland hit a high of 351,633 acres in 1992 and a low of 315,553 acres in 2012 according to Figure 13.

Figure 11 – Real Gross Domestic Product (GDP) in Fond du Lac County from 2010 to 2020



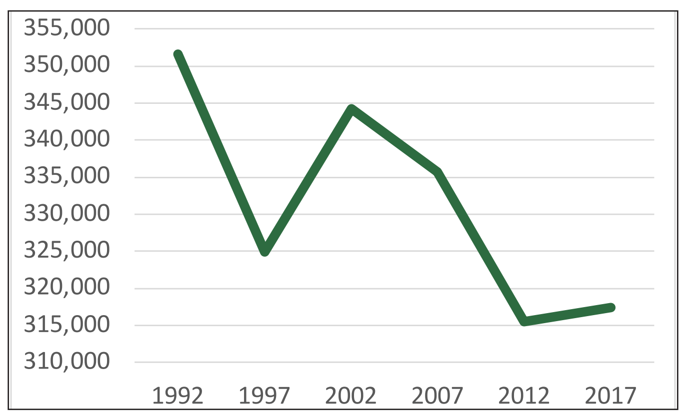
Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income, 2010-2020

Figure 12 – Number of Farms in Fond du Lac County from 1992 to 2017



Source: Census of Agriculture, 1992-2017

Figure 13 – Land in Farms in Fond du Lac County from 1992 to 2017



Source: Census of Agriculture, 1992-2017

ii. Agricultural Statistics

Wisconsin is ranked ninth among U.S. states in total value of agricultural products sold (Census, 2017). It is ranked eighth in the value of livestock, and sixteenth in the value of crops (Census, 2017). In 2021, Wisconsin had 64,100 thousand farms and 14.2 million acres in operation with the average farm being 222 acres (State Agricultural Overview, 2021). Wisconsin had 1.27 million cattle and produced 31.7 billion pounds of milk (State Agricultural Overview, 2021). In 2021, Wisconsin yields averaged 180 bushels per acre for corn with a total market value of $2.84 billion (State Agricultural Overview, 2021). Hay yields averaged 3.47 tons per acre with a total market value of $1.3 billion (State Agricultural Overview, 2021). The average net cash farm income per farm is $36,842 (Census, 2017).

In 2017, Fond du Lac County had 1,244 farms covering 317,371 acres for an average farm size of 255 acres (Census, 2017). The total market value of products sold was $396 million, with 76 percent coming from livestock sales and 24 percent coming from crop sales (Census, 2017). The average net cash farm income of operations was $61,967 (Census, 2017).

c. Winnebago County, Wisconsin

Winnebago County is located in the eastern part of Wisconsin (see Figure 14). It has a total area of 579 square miles and the U.S. Census estimates that the 2020 population was 171,730 with 76,046 housing units. The county has a population density of 395.1 (persons per square mile) compared to 108.8 for the State of Wisconsin. Median household income in the county was $59,947 (U.S. Census Bureau).

Figure 14 – Location of Winnebago County, Wisconsin

i. Economic and Demographic Statistics

As shown in Table 2, the largest industry is "Manufacturing" followed by "Health Care and Social Assistance," "Administrative Government," and "Retail Trade." These data for Table 2 come from IMPLAN covering the year 2020 (the latest year available).

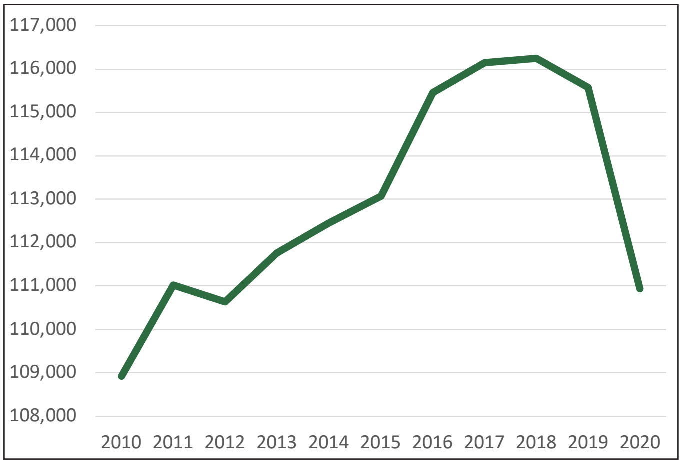
Table 2 provides the most recent snapshot of total employment but does not examine the historical trends within the county. Figure 15 shows employment from 2010 to 2020. Total employment in Winnebago County was at its lowest at 108,916 in 2010 and its highest at 116,244 in 2018 (BEA, 2022). Since 2018, employment in the county has declined significantly.

Table 2 – Employment by Industry in Winnebago County

Industry	Number	Percent
Manufacturing	21,582	18.8%
Health Care and Social Assistance	11,130	9.7%
Administrative Government	10,653	9.3%
Retail Trade	8,974	7.8%
Accommodation and Food Services	7,510	6.6%
Construction	7,342	6.4%
Professional, Scientific, and Technical Services	7,159	6.3%
Other Services (except Public Administration)	6,727	5.9%
Finance and Insurance	5,675	5.0%
Administrative and Support and Waste Management and Remediation Services	4,952	4.3%
Wholesale Trade	4,428	3.9%
Management of Companies and Enterprises	4,066	3.6%
Transportation and Warehousing	3,976	3.5%
Real Estate and Rental and Leasing	3,597	3.1%
Arts, Entertainment, and Recreation	1,913	1.7%
Information	1,790	1.6%
Agriculture, Forestry, Fishing and Hunting	1,446	1.3%
Educational Services	921	0.8%
Government Enterprises	575	0.5%
Mining, Quarrying, and Oil and Gas Extraction	79	0.1%
Utilities	23	0.0%

Source: Impact Analysis for Planning (IMPLAN), County Employment by Industry, 2020

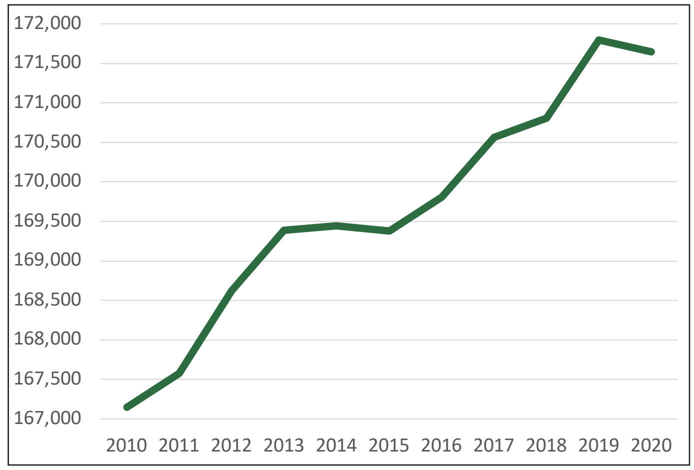
Figure 15 – Total Employment in Winnebago County from 2010 to 2020



Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income, 2010-2020

The overall population in the county has been increasing steadily, as shown in Figure 16. Winnebago County population was 167,144 in 2010 and 171,646 in 2020, a gain of 4,502 (FRED, 2022). The average annual population increase over this time period was 450.

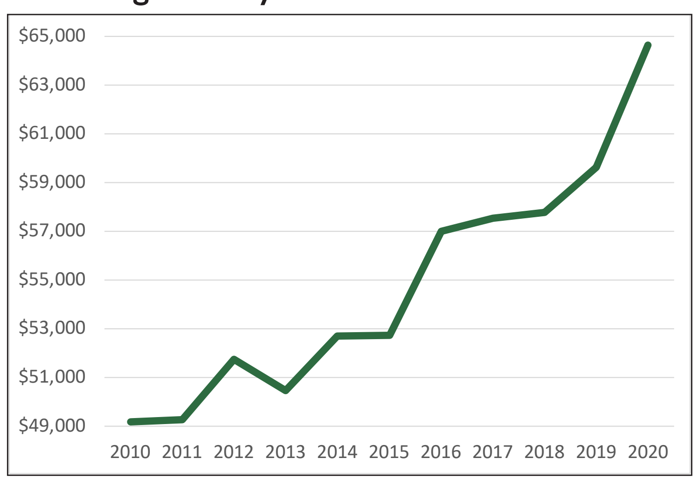
Figure 16 – Population in Winnebago County from 2010 to 2020



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Population Estimates, 2010-2020

Similar to the population trend, household income has been trending upward in Winnebago County. Figure 17 shows the median household income in Winnebago County from 2010 to 2020. Household income was at its lowest at $49,166 in 2010 and its highest at $64,653 in 2020 (FRED, 2022).

Figure 17 – Median Household Income in Winnebago County from 2010 to 2020

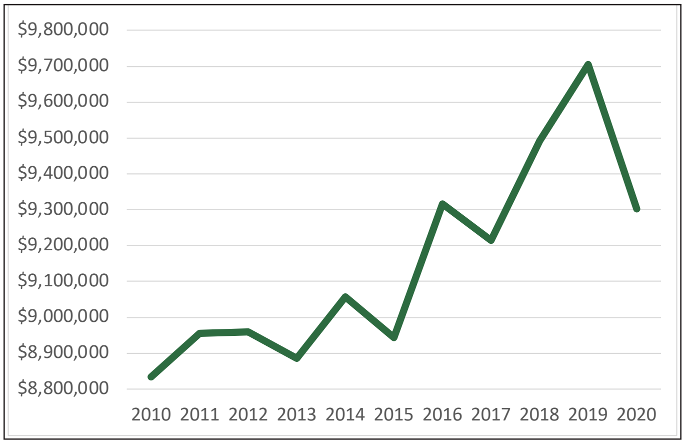


Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income, 2010-2020

Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Winnebago County has fluctuated since 2010, as shown in Figure 18 (BEA, 2022).

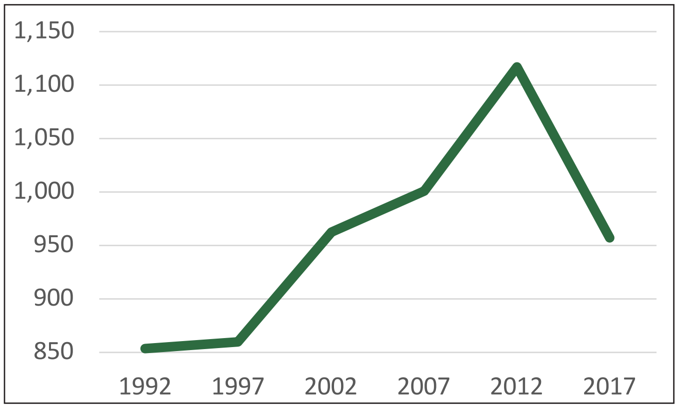
The farming industry has fluctuated in Winnebago County. As shown in Figure 19, the number of farms was at its lowest at 854 in 1992 and its highest at 1,117 in 2012. The amount of land in farms has also fluctuated greatly. The county farmland hit a high of 170,404 acres in 2002 and a low of 155,520 acres in 2012 according to Figure 20.

Figure 18 – Real Gross Domestic Product (GDP) in Winnebago County from 2010 to 2020



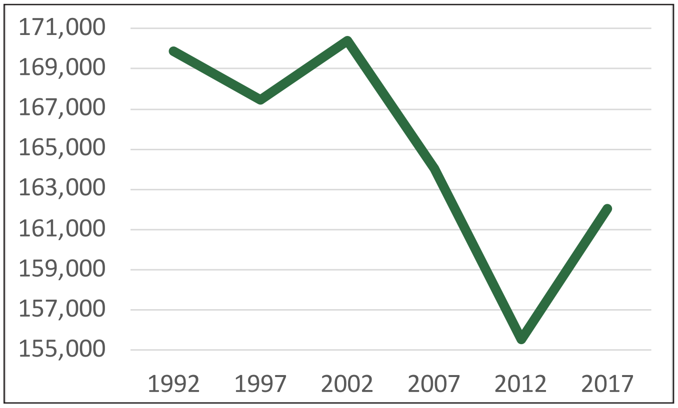
Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income, 2010-2020

Figure 19 – Number of Farms in Winnebago County from 1992 to 2017



Source: Census of Agriculture, 1992-2017

Figure 20 – Land in Farms in Winnebago County from 1992 to 2017



Source: Census of Agriculture, 1992-2017

In 2017, Winnebago County had 957 farms covering 162,052 acres for an average farm size of 169 acres (Census, 2017). The total market value of products sold was $122 million, with 60 percent coming from livestock sales and 40 percent coming from crop sales (Census, 2017). The average net cash farm income of operations was $24,126 (Census, 2017).

IV. Economic Impact Methodology

The economic analysis of the solar PV project presented uses NREL's Jobs and Economic Development Impacts (JEDI) PV Model (PV12.23.16). The JEDI PV Model is an input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output. That is, the JEDI Model takes into account that the output of one industry can be used as an input for another. For example, when a PV system is installed, there are both soft costs consisting of permitting, installation and customer acquisition costs, and hardware costs, of which the PV module is the largest component. The purchase of a module not only increases demand for manufactured components and raw materials, but also supports labor to build and install a module. When a module is purchased from a manufacturing facility, the manufacturer uses some of that money to pay employees. The employees use a portion of their compensation to purchase goods and services within their community. Likewise, when a developer pays workers to install the systems, those workers spend money in the local economy that boosts economic activity and employment in other sectors. The goal of economic impact analysis is to quantify all of those reverberations throughout the local and state economy.

The first JEDI Model was developed in 2002 to demonstrate the economic benefits associated with developing wind farms in the United States. Since then, JEDI models have been developed for biofuels, natural gas, coal, transmission lines and many other forms of energy. These models were created by Marshall Goldberg of MRG & Associates, under contract with the National Renewable Energy Laboratory. The JEDI model utilizes state-specific industry multipliers obtained from IMPLAN (IMpact analysis for PLANning). IMPLAN software and data are managed and updated by the Minnesota IMPLAN Group, Inc., using data collected at federal, state, and local levels. This study analyzes the gross jobs that the new solar energy project development supports and does not analyze the potential loss of jobs due to declines in other forms of electric generation.

The total economic impact can be broken down into three distinct types: direct impacts, indirect impacts, and induced impacts. **Direct impacts** during the construction period refer to the changes that occur in the onsite construction industries in which the direct final demand (i.e., spending on construction labor and services) change is made. Onsite construction-related services include installation labor, engineering, design, and other professional services. Direct impacts during operating years refer to the final demand changes that occur in the onsite spending for the solar operations and maintenance workers.

The initial spending on the construction and operation of the solar PV installation will create a second layer of impacts, referred to as "supply chain impacts" or "indirect impacts." **Indirect impacts** during the construction period consist of changes in inter-industry purchases resulting from the direct final demand changes and include construction spending on materials and PV equipment, as well as other purchases of goods and offsite services. Utility-scale solar PV indirect impacts include PV modules, inverters, tracking systems, cabling, and foundations.

Induced impacts during construction refer to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes. Local spending by employees working directly or indirectly on the Project that receive their paychecks and then spend money in the community is included. The model includes additional local jobs and economic activity that are supported by the purchases of these goods and services.

V. Economic Impact Results

The economic impact results were derived from detailed project cost estimates supplied by Leeward. In addition, Leeward estimated the percentages of project materials and labor that will be coming from within Fond du Lac County, Winnebago County, and the State of Wisconsin.

Three separate JEDI models were produced to show the economic impact of Silver Maple Solar Project. The first JEDI model used the 2020 Fond du Lac County multipliers from IMPLAN. The second JEDI model used the 2020 Winnebago County multipliers from IMPLAN. The third JEDI model used the 2020 IMPLAN multipliers for the State of Wisconsin and the same project costs. Because all new multipliers from IMPLAN and specific project cost data from Silver Maple Solar Project are used, the JEDI model serves only to translate the project costs into IMPLAN sectors.

Tables 3-5 show the output from these models. Table 3 lists the total employment impact from Silver Maple Solar Project for Fond du Lac County, Winnebago County, and the State of Wisconsin. Table 4 shows the impact on total earnings and Table 5 contains the impact on total output.

Table 3 – Total Employment Impact from Silver Maple Solar Project

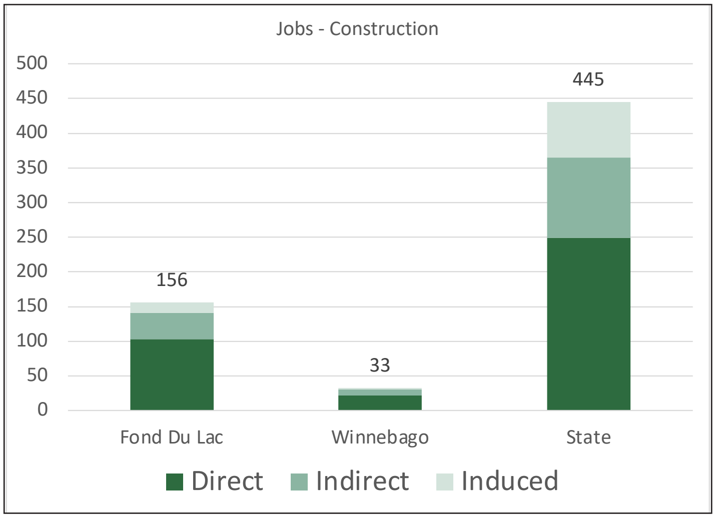
	Fond du Lac County Jobs	Winnebago County Jobs	State of Wisconsin Jobs
Construction			
Project Development and Onsite Labor Impacts (direct)	103	22	249
Module and Supply Chain Impacts (indirect)	38	8	116
Induced Impacts	15	3	80
New Local Jobs during Construction	156	33	445
Operations			
Onsite Labor Impacts (direct)	4.7	1.0	8.2
Local Revenue and Supply Chain Impacts (indirect)	2.9	0.3	5.2
Induced Impacts	1.9	0.3	5.8
New Local Long-Term Jobs	9.5	1.6	19.2

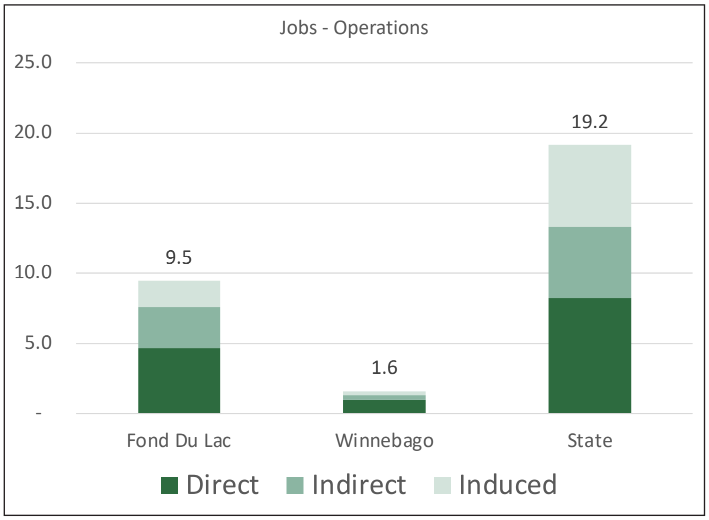
The results from the JEDI model show significant employment impacts from Silver Maple Solar Project. Employment impacts can be broken down into several different components. Direct jobs created during the construction phase typically last anywhere from 12 to 18 months depending on the size of the project; however, the direct job numbers present in Table 3 from the JEDI model are based on a full time equivalent (FTE) basis for a year. In other words, 1 job = 1 FTE = 2,080 hours worked in a year. A part time or temporary job would constitute only a fraction of a job according to the JEDI model. For example, the JEDI model results show 103 new direct jobs during construction in Fond du Lac County, though the construction of the solar center could involve closer to 206 workers working half-time for a year. Thus, due to the short-term nature of construction projects, the JEDI model often significantly understates the actual number of people hired to work on the project. It is important to keep this fact in mind when looking at the numbers or when reporting the numbers.

As shown in Table 3, new local jobs created or retained during construction total 156 for Fond du Lac County, 33 for Winnebago County, and 445 for the State of Wisconsin. New local long-term jobs created from Silver Maple Solar Project total 9.5 for Fond du Lac County, 1.6 for Winnebago County, and 19.2 for the State of Wisconsin.

Direct jobs created during the operational phase last the life of the solar PV project, typically 20-30 years. Both direct construction jobs and operations and maintenance jobs require highly-skilled workers in the fields of construction, management, and engineering. These well-paid professionals boost economic development in rural communities where new employment opportunities are often welcome due to economic downturns.

Figure 21 – Total Employment Impact from Silver Maple Solar Project



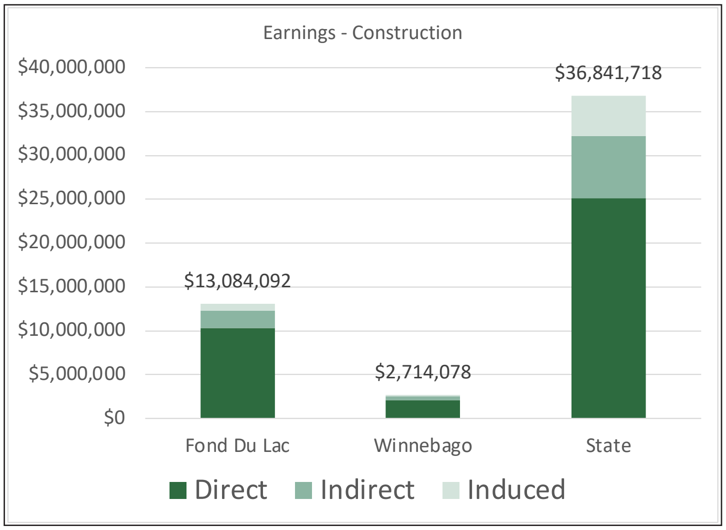


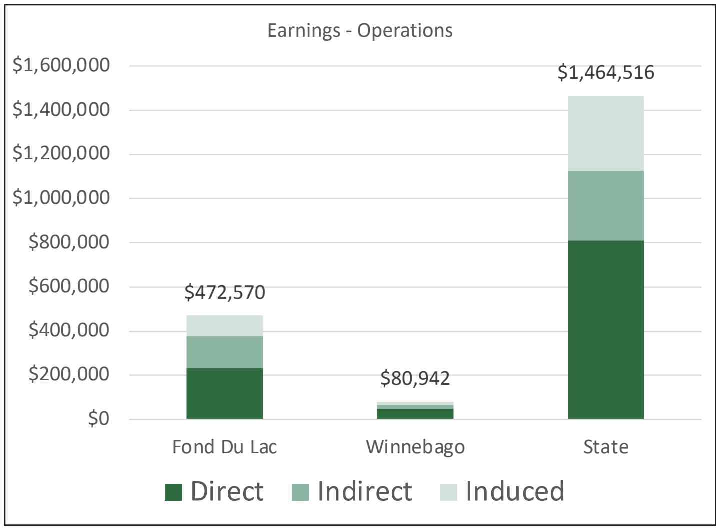
Accordingly, it is important to not just look at the number of jobs but also the earnings that they produce. Table 4 shows the earnings impacts from Silver Maple Solar Project, which are categorized by construction impacts and operations impacts. The new local earnings during construction totals over $13 million for Fond du Lac County, over $2.7 million for Winnebago County, and over $36.8 million for the State of Wisconsin. The new local long-term earnings totals over $472 thousand for Fond du Lac County, over $80.9 thousand for Winnebago County, and over $1.4 million for the State of Wisconsin.

Table 4 – Total Earnings Impact from Silver Maple Solar Project

	Fond du Lac County	Winnebago County	State of Wisconsin
Construction			
Project Development and Onsite Earnings Impacts	$10,345,462	$2,135,199	$25,161,353
Module and Supply Chain Impacts	$2,001,296	$436,663	$7,070,951
Induced Impacts	$737,334	$142,216	$4,609,414
New Local Earnings during Construction	$13,084,092	$2,714,078	$36,841,718
Operations (Annual)			
Onsite Labor Impacts	$231,715	$49,260	$812,511
Local Revenue and Supply Chain Impacts	$147,674	$15,751	$314,920
Induced Impacts	$93,181	$15,931	$337,085
New Local Long-Term Earnings	$472,570	$80,942	$1,464,516

Figure 22 – Total Earnings Impact from Silver Maple Solar Project



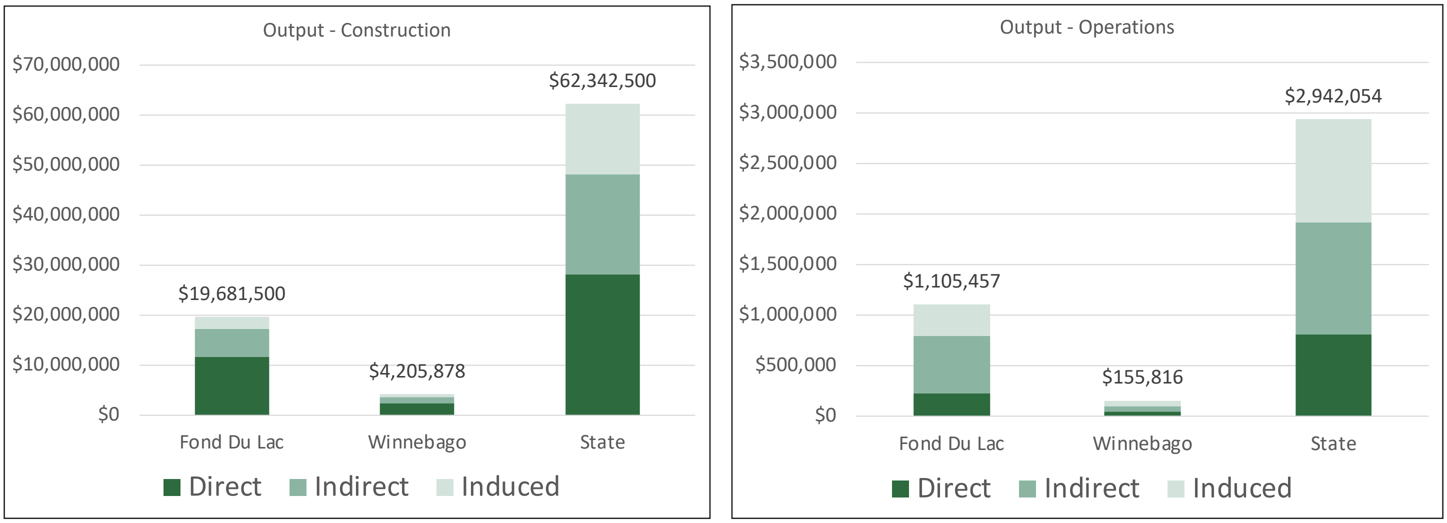


Output refers to economic activity or the value of production in the state or local economy. It is an equivalent measure to the Gross Domestic Product, which measures output on a national basis. According to Table 5, the new local output during construction totals over $19.6 million for Fond du Lac County, over $4.2 million for Winnebago County, and over $62.3 million for the State of Wisconsin. The new local long-term output totals over $1.1 million for Fond du Lac County, over $155 thousand for Winnebago County, and over $2.9 million for the State of Wisconsin.

Table 5 – Total Output Impact from Silver Maple Solar Project

	Fond du Lac County	Winnebago County	State of Wisconsin
Construction			
Project Development and Onsite Jobs Impacts on Output	$11,638,988	$2,421,337	$28,226,633
Module and Supply Chain Impacts	$5,593,347	$1,306,506	$20,059,837
Induced Impacts	$2,449,165	$478,035	$14,056,030
New Local Output during Construction	$19,681,500	$4,205,878	$62,342,500
Operations (Annual)			
Onsite Labor Impacts	$231,715	$49,260	$812,511
Local Revenue and Supply Chain Impacts	$565,561	$53,012	$1,102,391
Induced Impacts	$308,181	$53,544	$1,027,152
New Local Long-Term Output	$1,105,457	$155,816	$2,942,054

Figure 23 – Total Output Impact from Silver Maple Solar Project



VI. Tax Revenue

Utility-scale solar PV projects, like other utility-scale energy generating facilities in Wisconsin, are exempt from property taxes. However, the county and township in which the projects are located will receive increased revenue through the shared revenue utility aid fund. This funding creates a new revenue source for county and township government services and is intended to reimburse the communities for the lost property tax revenue due to the tax exemption.

Table 6 details the shared revenue utility aid tax implications of the Silver Maple Solar Project. There are two important assumptions built into the analysis in this table. First, the analysis assumes that the Project has a capacity of 200 MW for taxing purposes. Second, the projections use the MW based payment and incentive payment formulas in the "Wisconsin Shared Revenue Utility Aid Summary" developed by the Wisconsin Department of Revenue.

The host townships will share approximately $333,333 annually, and Fond du Lac County and Winnebago County will share approximately $466,667 annually.

In comparison, the counties received $9,234 in property taxes in 2021 from the parcels in question and the townships received $3,958.

Table 6 – Illustration of "Utility Aid" Paid

	Total	Townships	Counties
MW based Payment	$400,000	$133,333	$266,667
Incentive Payment	$400,000	$200,000	$200,000
Total	**$800,000**	**$333,333**	**$466,667**

VII. Glossary

Bb

Battery Energy Storage Systems (BESS)

An array of hundreds or thousands of small batteries that enable energy from renewables, like solar and wind, to be stored and released at a later time.

Cc

Consumer Price Index (CPI)

An index of the changes in the cost of goods and services to a typical consumer, based on the costs of the same goods and services at a base period.

Dd

Direct impacts

During the construction period: the changes that occur in the onsite construction industries in which the direct final demand change is made.

During operating years: the final demand changes that occur in the onsite spending for the solar operations and maintenance workers.

Ee

Equalized Assessed Value (EAV)

The product of the assessed value of property and the state equalization factor. This is typically used as the basis for the value of property in a property tax calculation.

Ff

Farming profit

The difference between total revenue (price multiplied by yield) and total cost regarding farmland.

Full-time equivalent (FTE)

A unit that indicates the workload of an employed person. One FTE is equivalent to one worker working 2,080 hours in a year. One half FTE is equivalent to a half-time worker or someone working 1,040 hours in a year.

Hh

HV line extension

High-voltage electric power transmission links used to connect generators to the electric transmission grid.

Ii

IMPLAN (IMpact analysis for PLANning)

A business who is the leading provider of economic impact data and analytic applications. IMPLAN data is collected at the federal, state, and local levels and used to create state-specific and county-specific industry multipliers.

Indirect impacts

Impacts that occur in industries that make up the supply chain for that industry.

During the construction period: the changes in inter- industry purchases resulting from the direct final demand changes, including construction spending on materials and wind farm equipment and other purchases of good and offsite services.

During operating years: the changes in inter-industry purchases resulting from the direct final demand changes.

Induced impacts

The changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes.

Inflation

A persistent rise in the general level of prices related to an increase in the volume of money and resulting in the loss of value of currency. Inflation is typically measured by the CPI.

Mm

Median Household Income (MHI)

The income amount that divides a population into two equal groups, half having an income above that amount, and half having an income below that amount.

Millage rate

The tax rate, as for property, assessed in mills per dollar.

Multiplier

A factor of proportionality that measures how much a variable changes in response to a change in another variable.

MW

A unit of power, equal to one million watts or one thousand kilowatts.

MWac (megawatt alternating current)

The power capacity of a utility-scale solar PV system after its direct current output has been fed through an inverter to create an alternating current (AC). A solar system's rated MWac will always be lower than its rated MWdc due to inverter losses. AC is the form in which electric energy is delivered to businesses and residences and that consumers typically use when plugging electric appliances into a wall socket.

MWdc (megawatt direct current)

The power capacity of a utility-scale solar PV system before its direct current output has been fed through an inverter to create an alternating current. A solar system's rated MWdc will always be higher than its rated MWac.

Nn

Net economic impact

Total change in economic activity in a specific region, caused by a specific economic event.

Net Present Value (NPV)

Cash flow determined by calculating the costs and benefits for each period of investment.

NREL's Jobs and Economic Development Impacts (JEDI) Model

An input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output.

Oo

Output

Economic output measures the value of goods and services produced in a given area. Gross Domestic Product is the economic output of the United States as a whole.

Pp

PV (photovoltaic) system

Solar modules, each comprising a number of solar cells, which generate electrical power.

Rr

Real Gross Domestic Product (GDP)

A measure of the value of goods and services produced in an area and adjusted for inflation over time.

Real-options analysis

A model used to look at the critical factors affecting the decision to lease agricultural land to a company installing a solar powered electric generating facility.

Ss

Stochastic

To have some randomness.

Tt

Tax rate

The percentage (or millage) of the value of a property to be paid as a tax.

Total economic output

The quantity of goods or services produced in a given time period by a firm, industry, county, or country.

Uu

Utility-scale solar

Solar powered-electric generation facilities intended for wholesale distribution typically over 5MW in capacity.

VIII. References

Berkman, M., M. Tran, and W. Ahlgren. 2011. "Economic and Fiscal Impacts of the Desert Sunlight Solar Farm." Prepared for First Solar, Tempe, AZ (US).

Bezdek (2007) Economic and Jobs Impacts of the Renewable Energy and Energy Efficiency Industries: U.S. and Ohio, presented at SOLAR 2007, Cleveland, Ohio, accessed at https://www.utoledo.edu/centers/urban-affairs/publications/jobs_report.pdf.

Bhavin, Shah. (2008). Solar Cell Supply Chain. Asia Pacific Equity Research, accessed on 11/1/2013 at Solar Cell Supply Chain

Bureau of Economic Analysis (BEA). (2022). Interactive Data Tools: Regional Data. GDP and Personal Income. Accessed at https://apps.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=

Census of Agriculture – Wisconsin State and County Data. (1992). United States Department of Agriculture. Accessed at https://agcensus.library.cornell.edu/census_year/1992-census/

Census of Agriculture – Wisconsin State and County Data. (1997). United States Department of Agriculture. Accessed at https://agcensus.library.cornell.edu/census_year/1997-census/

Census of Agriculture – Wisconsin State and County Data. (2002). United States Department of Agriculture. Accessed at https://agcensus.library.cornell.edu/census_year/2002-census/

Census of Agriculture – Wisconsin State and County Data. (2007). United States Department of Agriculture. Accessed at https://agcensus.library.cornell.edu/census_year/2007-census/

Census of Agriculture – Wisconsin State and County Data. (2012). United States Department of Agriculture. Accessed at https://agcensus.library.cornell.edu/census_year/2012-census/

Census of Agriculture – Wisconsin State and County Data. (2017). United States Department of Agriculture. Accessed at https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/

Center for Competitive Florida. (2009). The Positive Economic Impact of Solar Energy on the Sunshine State, Briefings, accessed 11/25/2013 at https://floridataxwatch.org/Research/Blog/ArtMID/34888/ArticleID/15997/The-Positive-Economic-Impact-of-Solar-Energy-on-the-Sunshine-State.

Center for Rural Affairs. 2021. Taxing Utility-Scale Solar Projects in Iowa, accessed 5/21/21 at: https://www.cfra.org/publications/resource-guide-taxing-utility-scale-solar-projects-iowa

Croucher, Matt, 2012. Which state is Yoda?. Energy Policy, Elsevier, vol. 42(C), pages 613-615.

Federal Reserve Bank of St. Louis Economic Data (FRED). (2022). U.S. Census Bureau, Population Estimates. Accessed at https://fred.stlouisfed.org/searchresults/?st=population.

Federal Reserve Bank of St. Louis Economic Data (FRED). (2022). U.S. Census Bureau, Median Household Income. Accessed at https://fred.stlouisfed.org/searchresults/?st=Median%20household%20income

IMPLAN Group LLC. IMPLAN 2021. Huntersville, NC. IMPLAN.com.

Jenniches, Simon. 2018. Assessing the Regional Economic Impacts of Renewable Energy Sources, Renewable and Sustainable Energy Reviews, Elsevier, 93, 35-51. Accessed at https://www.sciencedirect.com/science/article/pii/S1364032118303447.

Jo, J.H., Cross, J., Rose, Z., Daebel, E., Verderber, A., and Loomis, D. G. (2016). Financing options and economic impact: distributed generation using solar photovoltaic systems in Normal, Illinois, AIMS Energy, 4(3): 504-516.

Jo J. H., Loomis, D.G., and Aldeman, M. R. (2013). Optimum penetration of utility-scale grid-connected solar photovoltaic systems in Illinois, Renewable Energy, 60, 20-26. Accessed at https://www.semanticscholar.org/paper/Optimum-penetration-of-utility-scale-grid-connected-Jo-Loomis/e5c89236f450baf9a84f8b64efc29ab3aa81015e.

Kozak, M.; Pudełko, R. 2021. Impact Assessment of the Long-Term Fallowed Land on Agricultural Soils and the Possibility of Their Return to Agriculture. Agriculture, 11, 148.

Loomis, D.G., Jo, J.H., and Aldeman, M.R., (2016). Economic Impact Potential of Solar Photovoltiacs in Illinois, Renewable Energy, 87, 253-258.

Mangum, A.F., Zorn, D. and Arel, M. (2020). The Economic Contribution of Utility Scale Solar Development to Virginia. Magnum Economics. Accessed at: https://randolphsolar.solunesco.com/wp-content/uploads/2020/08/Mangum-Economic-Contribution-of-Utility-Scale-Solar-Dev-in-VA.pdf

Michaud, G., Khalaf, C., Zimmer, M. & Jenkins, D. (2020). Measuring the economic impacts of utility-scale solar in Ohio. Developed for the Utility Scale Solar Energy Coalition of Ohio (USSEC). Accessed at https://www.ohio.edu/voinovich-school/news-resources/reports-publications/utility-scale-solar.

National Renewable Energy Laboratories. (2012). Utility-Scale Concentrating Solar Power and Photovoltaics Projects: A Technology and Market Overview. National Renewable Energy Laboratory. Accessed at https://www.nrel.gov/docs/fy12osti/51137.pdf.

Overview of the Solar Energy Industry and Supply Chain, accessed on 10/30/2013 at http://www.thecemc.org.

Platt, R.H. (1985). The Farmland Conversion Debate: NALS and Beyond. The Professional Geographer, 37 (4), 433-442. Accessed at https://www.tandfonline.com/doi/abs/10.1111/j.0033-0124.1985.00433.x.
Solar Energy Industries Association (SEIA). (2022). State Solar Spotlight: Wisconsin. June 2022. Solar Energy Industries Association, accessed at https://www.seia.org/sites/default/files/2022-06/Wisconsin.pdf

Solar Energy Industries Association (SEIA). (2021). U.S. Solar Market Insight Report 2021 Q2. June 2021. Solar Energy Industries Association, accessed at https://www.seia.org/research-resources/solar-market-insight-report-2021-q2.

Solar Energy Industries Association (SEIA). (2021). U.S. Solar Market Insight Report 2021 Q3. September 2021. Solar Energy Industries Association, accessed at https://www.seia.org/research-resources/solar-market-insight-report-2021-q3.

Solar Energy Industries Association (SEIA). (2022). U.S. Solar Market Insight Report 2022 Q2. June 2022. Solar Energy Industries Association, accessed at https://www.seia.org/research-resources/solar-market-insight-report-2022-q2

Solar Foundation. (2013). An Assessment of the Economic, Revenue, and Societal Impacts of Colorado's Solar Industry. October 2013, accessed at https://www.bizjournals.com/denver/blog/earth_to_power/2013/10/solar-power-industry-says-economic.html.

Stone & Associates (2011). Overview of the Solar Energy Industry and Supply Chain, Prepared for the Blue Green Alliance, accessed at https://www.bgafoundation.org/wp-content/uploads/2016/08/Solar-Overview-for-BGA-Final-Jan-2011.pdf.

Toothman, Jessica, and Aldous, Scott. (2013). How Solar Cells Work, How Stuff Works, accessed at https://science.howstuffworks.com/environmental/energy/solar-cell.htm.

United States Census Bureau. (2022). QuickFacts: Fond du Lac County, Wisconsin. Accessed at https://www.census.gov/quickfacts/FondduLaccountyWisconsin

United States Census Bureau. (2022). QuickFacts: Winnebago County, Wisconsin. Accessed at https://www.census.gov/quickfacts/WinnebagocountyWisconsin

United States Department of Agriculture (USDA). (2022). 2021 State Agricultural Overview: Wisconsin. Accessed at https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=WISCONSIN

U.S. Department of Energy. (2022). 2021 U.S. Energy & Employment Report. Energy Employment by State. Accessed at https://static1.squarespace.com/static/5a98cf80ec4eb7c5cd928c61/t/5e78198f28dc473dd3225f04/1584929183186/USEER-Energy-Employment-by-State-2021.pdf.

U.S. Energy Information Administration (EIA). (2021). Power Plant Operations Report. December 2021. EIA-923, accessed at https://www.eia.gov/electricity/monthly/.

IX. Curriculum Vitae (Abbreviated)

David G. Loomis
Illinois State University
Department of Economics
Campus Box 4200
Normal, IL 61790-4200
(815) 905-2750
dloomis@ilstu.edu

Education

Doctor of Philosophy, Economics, Temple University, Philadelphia, Pennsylvania, May 1995.

Bachelor of Arts, Mathematics and Honors Economics, Temple University, Magna Cum Laude, May 1985.

Experience

1996-present Illinois State University, Normal, IL
Full Professor – Department of Economics (2010-present)
Associate Professor - Department of Economics (2002-2009)
Assistant Professor - Department of Economics (1996-2002)

- Taught Regulatory Economics, Telecommunications Economics and Public Policy, Industrial Organization and Pricing, Individual and Social Choice, Economics of Energy and Public Policy and a Graduate Seminar Course in Electricity, Natural Gas and Telecommunications Issues.
- Supervised as many as 5 graduate students in research projects each semester.
- Served on numerous departmental committees.

1997-present Institute for Regulatory Policy Studies, Normal, IL
Executive Director (2005-present)
Co-Director (1997-2005)

- Grew contributing membership from 5 companies to 16 organizations.
- Doubled the number of workshop/training events annually.
- Supervised 2 Directors, Administrative Staff and internship program.
- Developed and implemented state-level workshops concerning regulatory issues related to the electric, natural gas, and telecommunications industries.

2006-2018 Illinois Wind Working Group, Normal, IL
Director

- Founded the organization and grew the organizing committee to over 200 key wind stakeholders
- Organized annual wind energy conference with over 400 attendees
- Organized strategic conferences to address critical wind energy issues
- Initiated monthly conference calls to stakeholders
- Devised organizational structure and bylaws

<u>**2007-2018**</u> Center for Renewable Energy, Normal, IL
Director

- Created founding document approved by the Illinois State University Board of Trustees and Illinois Board of Higher Education.
- Secured over $150,000 in funding from private companies.
- Hired and supervised 4 professional staff members and supervised 3 faculty members as Associate Directors.
- Reviewed renewable energy manufacturing grant applications for Illinois Department of Commerce and Economic Opportunity for a $30 million program.
- Created technical "Due Diligence" documents for the Illinois Finance Authority loan program for wind farm projects in Illinois.

<u>**2011-present**</u> Strategic Economic Research, LLC
President

- Performed economic impact analyses on policy initiatives and energy projects such as wind energy, solar energy, natural gas plants and transmission lines at the county and state level.
- Provided expert testimony before state legislative bodies, state public utility commissions, and county boards.
- Wrote telecommunications policy impact report comparing Illinois to other Midwestern states.
- Published 38 articles in leading journals such as AIMS Energy, Renewable Energy, National Renewable Energy Laboratory Technical Report, Electricity Journal, Energy Economics, Energy Policy, and many others
- Testified over 57 times in formal proceedings regarding wind, solar and transmission projects
- Raised over $7.7 million in grants
- Raised over $2.7 million in external funding

Bryan A. Loomis
Strategic Economic Research, LLC
Vice President

Education

Master of Business Administration (M.B.A.), Marketing and Healthcare, Belmont University, Nashville, Tennessee, 2017.

Experience

2019-present Strategic Economic Research, LLC, Bloomington, IL
Vice President
(2021-present)
Property Tax Analysis and Land Use Director
(2019-2021)

- Directed the property tax analysis by training other associates on the methodology and overseeing the process for over twenty states
- Improved the property tax analysis methodology by researching various state taxing laws and implementing depreciation, taxing jurisdiction millage rates, and other factors into the tax analysis tool
- Executed land use analyses by running Monte Carlo simulations of expected future profits from farming and comparing that to the solar lease
- Performed economic impact modeling using JEDI and IMPLAN tools
- Improved workflow processes by capturing all tasks associated with economic modeling and report-writing, and created automated templates in Asana workplace management software

2019-2021 Viral Healthcare Founders LLC, Nashville, TN
CEO and Founder

- Founded and directed marketing agency for healthcare startups
- Managed three employees
- Mentored and worked with over 30 startups to help them grow their businesses
- Grew an email list to more than 2,000 and LinkedIn following to 3,500
- Created a Slack community and grew to 450 members
- Created weekly video content for distribution on Slack, LinkedIn and Email

Christopher Thankan
Strategic Economic Research, LLC
Economic Analyst

Education

Bachelor of Science in Sustainable & Renewable Energy (B.A.), Minor in Economics, Illinois State University, Normal, IL, 2021

Experience

2021-present Strategic Economic Research, LLC, Bloomington, IL
Economic Analyst

- Create economic impact results on numerous renewable energy projects Feb 2021-Present
- Utilize IMPLAN multipliers along with NREL's JEDI model for analyses
- Review project cost Excel sheets
- Conduct property tax analysis for different US states
- Research taxation in states outside research portfolio
- Complete ad hoc research requests given by the president
- Hosted a webinar on how to run successful permitting hearings
- Research school funding and the impact of renewable energy on state aid to school districts
- Quality check coworkers JEDI models
- Started more accurate methodology for determining property taxes that became the main process used

SER Strategic Economic Research, LLC

by Dr. David G. Loomis,
Bryan Loomis, and Chris Thankan
Strategic Economic Research, LLC
strategiceconomic.com
815-905-2750