Strategic Economic Research, LLC

ECONOMIC IMPACT ANALYSIS OF THE POWERON MIDWEST PROJECT IN MINNESOTA

April 2026

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

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

Dr. David G. Loomis is Professor Emeritus 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, Indiana Utility Regulatory Commission, Iowa Utilities Board, Kentucky State Board on Electric Generation and Transmission Siting, Louisiana Public Service Commission, Mississippi Public Service Commission, Missouri Public Service Commission, New Mexico Public Regulation Commission, Ohio Power Siting Board, the Public Service Commission of West Virginia, Public Service Commission of Wisconsin, and numerous county boards. Dr. Loomis, a widely recognized expert, has appeared on CNN and been quoted in the Wall Street Journal, Forbes Magazine, Associated Press, and the Chicago Tribune.

Dr. Loomis has published 40 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 been conducting economic impact, property tax, and land use analyses for Strategic Economic Research since 2019. He has performed or overseen over 200 wind and solar analyses and provided expert testimony for permitting hearings and open houses in many states, including Colorado, Kansas, Indiana, Illinois, and Iowa. He improved the property tax analysis methodology at SER by researching various state taxing laws, implementing depreciation and taxing jurisdiction millage rates, and incorporating other factors into the tax analysis tool. Before working with SER, Bryan ran a consulting agency that collaborated with over 30 technology startups on their growth and marketing strategies. Bryan received his MBA from Belmont University in 2016.

Christopher Thankan

Director of Economic Impact Analysis
Strategic Economic Research, LLC

Christopher Thankan directs the production of the economic impact studies including sourcing, analyzing, and graphing government data. He also performs economic and property tax analyses for wind, solar, and transmission projects. Chris 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 U.S. We have produced over 400 economic impact reports in over 35 states. Research Associates who performed work on this project include Paige Afram, Amanda Battaglia, Lindsey Cohn, Sawyer Keithley, Clara Lewis, Ethan Loomis, Hannah Loomis, Nita Loomis, Jessica Lucht, Mandi Mitchell, Russell Piontek, Isabelle Piwowarczyk, Tim Roberts, Krista Rust, and Ashley Thompson.

Table of Contents

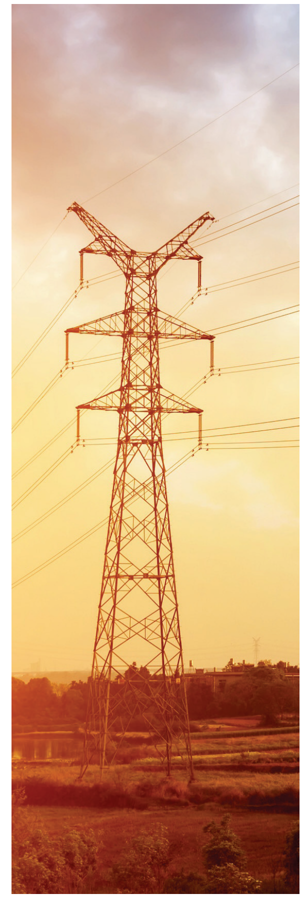


Table of Contents - Figures

Table of Contents - Tables

I. Executive Summary

The PowerOn Midwest Project consists of approximately 350 miles of new 765 kilovolt (kV) transmission lines and approximately 70 miles of rebuilt or added 345 kV transmission lines in Minnesota and South Dakota. Of the 420 miles, 340 miles are in Minnesota. The Project will be part of a 765 kV path connecting Minnesota, South Dakota, Iowa, and Wisconsin. The Project is needed to maintain system reliability amid fundamental changes in demand for electricity and the type and amount of generation interconnected to the grid.

The purpose of this report is to aid decision makers in evaluating the economic impacts of this project on the State of Minnesota. The basis of this analysis is to study the direct, indirect, and induced impacts on job creation, wages, and total economic output of the transmission line and the associated energy projects that the transmission line will enable.

The PowerOn Midwest Project represents an investment of over $4.9 billion, of which $3.3-$4.3 billion will be invested in Minnesota. The total development is anticipated to result in the following:

Transmission Line

Jobs[1]

- 2,553 new local jobs during construction for all Minnesota Project Counties
- 4,870 new local jobs during construction for the State of Minnesota[2]
- 354.8 new local long-term jobs for all Minnesota Project Counties
- 517.0 new local long-term jobs for the State of Minnesota

Earnings[3]

- Over $259 million in new local earnings during construction for all Minnesota Project Counties
- Over $482 million in new local earnings during construction for the State of Minnesota
- Over $26.5 million in new local long-term earnings for all Minnesota Project Counties annually
- Over $39.4 million in new local long-term earnings for the State of Minnesota annually

Output[4]

- Over $914 million in new local output during construction for all Minnesota Project Counties
- Over $2.0 billion in new local output during construction for the State of Minnesota
- Over $58.6 million in new local long-term output for all Minnesota Project Counties annually
- Over $92.3 million in new local long-term output for the State of Minnesota annually

Tax-Benefits

- Over $1.2 billion in total property taxes for Minnesota Project Counties over 35 years
- Over $490 million in total property taxes for the State of Minnesota over 35 years

[1] All jobs values are full-time equivalents (FTEs) and are the sum of the direct, indirect, and induced jobs during construction and annual operations which can be found in the Economic Impact Results section.

[2] State of Minnesota results are inclusive of Minnesota Project Counties results.

[3] Earnings are a measurement in dollars of the total wages and benefits given to the jobs estimated by the economic impact modeling software.

[4] The value of production in the state or local economy. It is an equivalent measure to the Gross Domestic Product.

New Energy Generation

Jobs

- 2,326 new local jobs during construction for Minnesota Project Counties
- 18,706 new local jobs during construction for the State of Minnesota
- 101 new local jobs during construction for the Minnesota Project Counties
- 547 new local long-term jobs for the State of Minnesota

Earnings

- Over $209 million in new local earnings during construction for Minnesota Project Counties
- Over $1.7 billion in new local earnings during construction for the State of Minnesota
- Over $11.7 million in new local long-term earnings for Minnesota Project Counties annually
- Over $59.4 million in new local long-term earnings for the State of Minnesota annually

Output

- Over $751 million in new local output during construction for Minnesota Project Counties
- Over $5.3 billion in new local output during construction for the State of Minnesota
- Over $18.6 million in new local long-term output for Minnesota Project Counties annually
- Over $117 million in new local long-term output for the State of Minnesota annually

a. The Need for Transmission

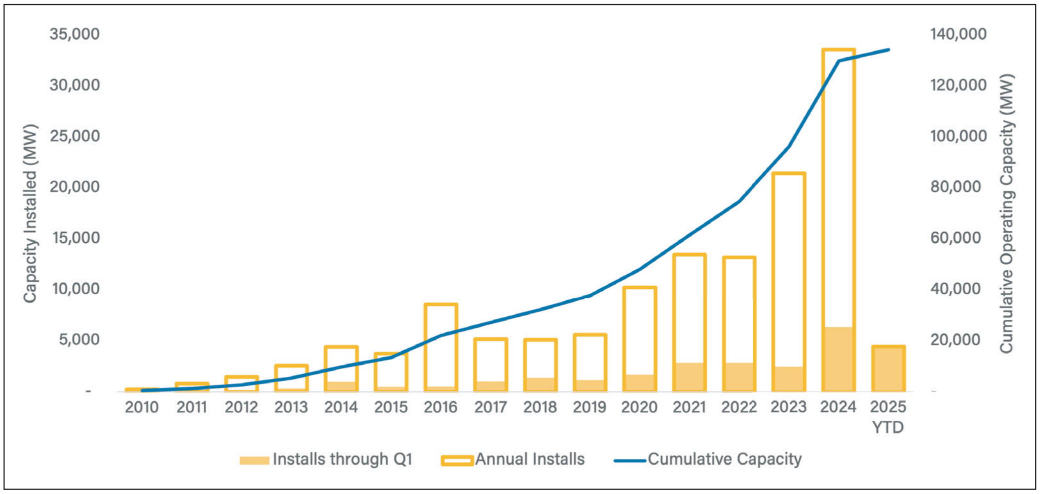
Most consumers of electricity do not give much thought to how their electricity gets delivered to their home or business. A vital piece of this delivery system is the electric transmission system. The transmission system connects large electric generators to the local distribution grid using high voltage transmission lines. Historically, public utilities built transmission lines to connect their own large-scale generators to their distribution system. Such transmission lines helped individual utilities to service their load but were not optimized to the modern realities of an interconnected grid that trades electricity across utility, state, and even international borders. Today, transmission lines are necessary to ensure reliability, allowing electricity to flow from one area to another to ensure that the supply is balanced with demand.

b. Energy Industry Growth

Solar Energy

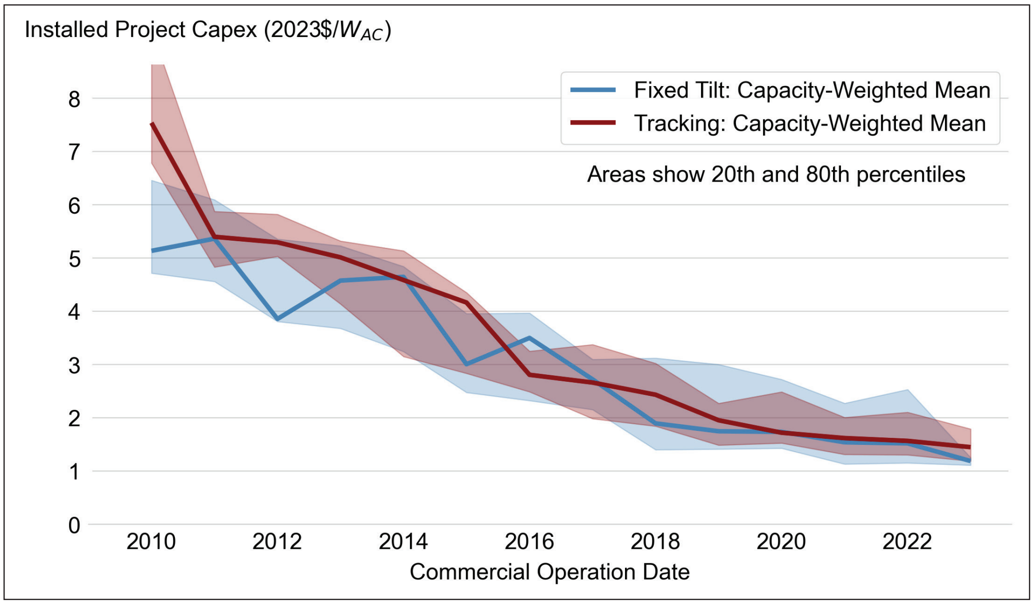
The U.S. solar industry is growing at a rapid but uneven pace. Solar energy systems are installed for onsite use — including residential, commercial, and industrial properties — and utility-scale solar powered-electric generation facilities intended for wholesale distribution. From 2013 to 2018, the amount of solar-generated electricity more than quadrupled, increasing by 444% (SEIA, 2020). The industry has continued to add PV systems to the grid. Figure 2.1 shows the historical capacity additions. The primary driver of this overall sharp pace of growth is large price declines in solar equipment. According to Figure 2.2, costs of utility-scale solar fixed tilt and single-axis tracking have decreased from an average of $6/watt in 2010 to slightly more than $1/watt in 2023.

Figure 2.1 – Annual U.S. Solar PV Installations, 2010 – Q1, 2025



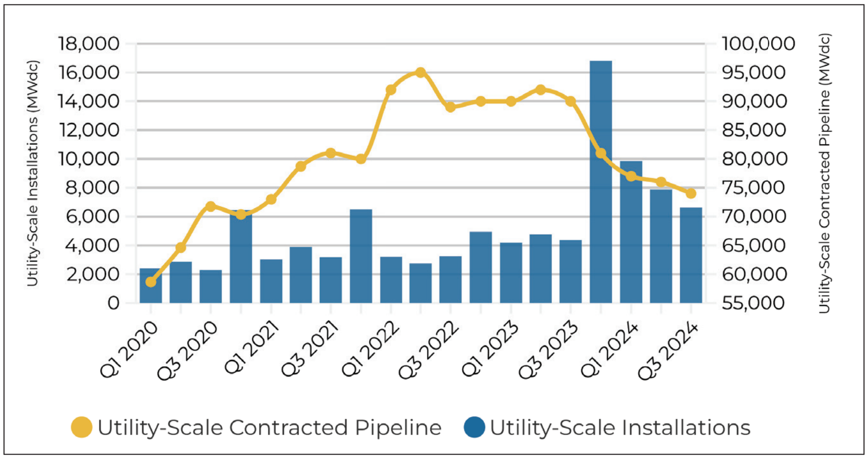
Source: ACP, Clean Power Market Report, Q1 2025

Figure 2.2 – Installed Costs of Utility-Scale Solar from 2010 to 2023 (adjusted for inflation)



Source: Lawrence Berkeley National Laboratory, Utility-Scale Solar, 2024 Edition

Figure 2.3 – U.S. Utility PV Installations vs. Contracted Pipeline



Source: Solar Energy Industries Association, Solar Market Insight Report Q4 2024

According to Figure 2.3, utility-scale PV installations jumped in the fourth quarter of 2024 to over 16,000 MWdc. Even with this large ramp-up of installations, there are an additional 60,000 MWdc of contracted utility-scale installations that have yet to be built.

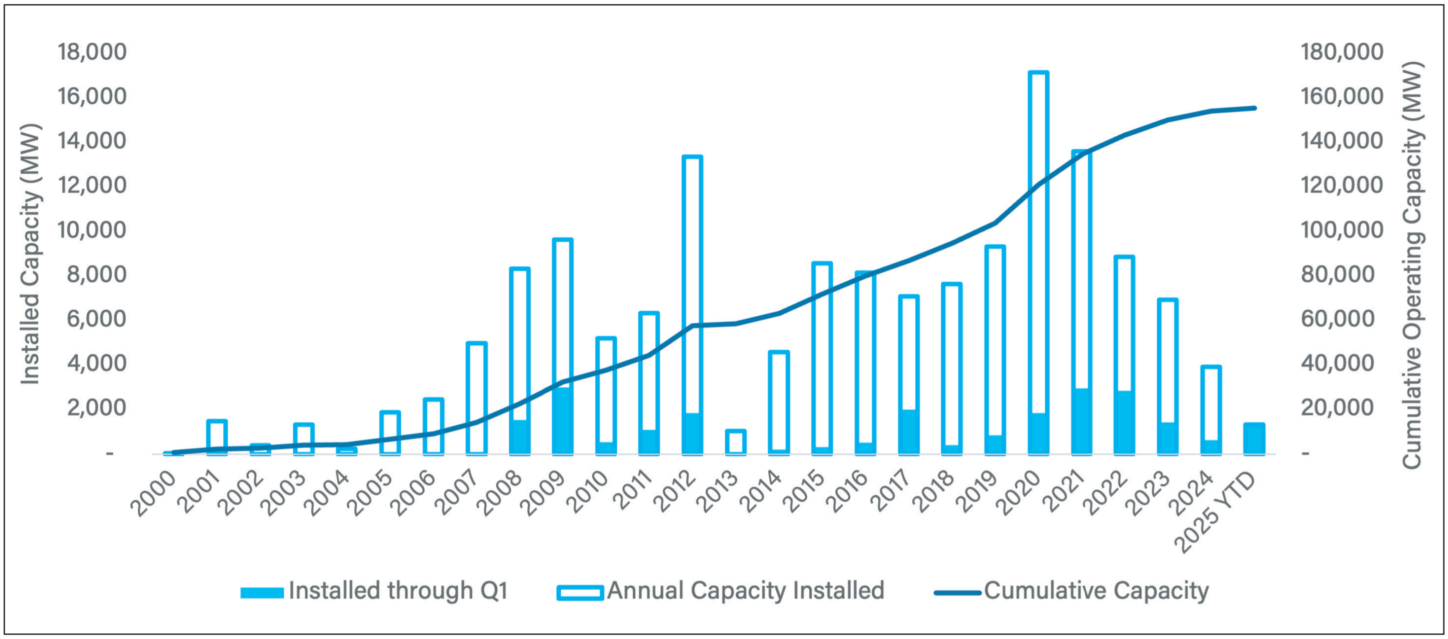
Wind Energy

The United States wind industry grew at a rapid pace from 2006-2020, pausing only in 2013 due to federal policy uncertainty. In 2020, the U.S. set an installment record of 16,913 MW, far surpassing the previous annual peak of 13,131 MW of wind power installed in 2012 (American Clean Power (ACP), 2025). In 2024, a total capacity of 3,926 MW was installed (ACP, 2025). New land-based wind installations in Q1 2025 totaled 1,327 MW, which is more than double the installed capacity additions in the same quarter in 2024 which totaled 635 MW (ACP, 2025).

By the end of March 2025, the total amount of wind capacity in the U.S. was 155,562 MW (ACP, 2025). According to 2024 figures, China is the global leader with 478,787 MW of installed capacity, and Germany is third behind the U.S. (in second place) with 63,719 MW of installed capacity (GWEC, 2025). Figure 2.4 shows the growth in installed annual capacity and cumulative capacity in the U.S., and Figure 2.5 shows the state-by-state breakdown of installed capacity by May 2025.

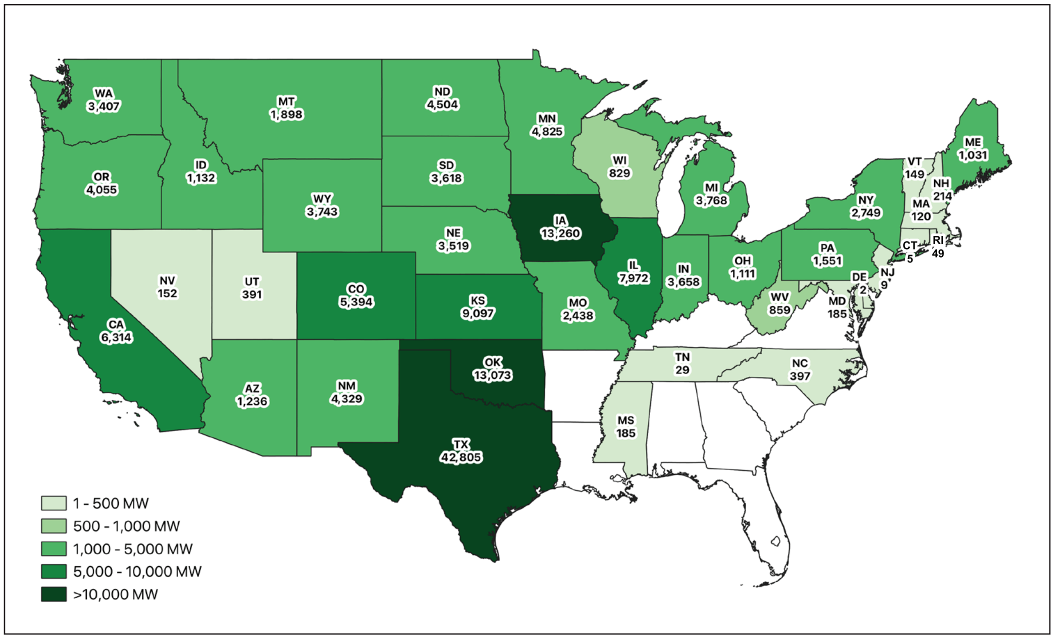
Several factors have spurred the continued wind energy growth in recent years. First, new technology and rigorous competition among turbine manufacturers has lowered the cost of wind turbines. Second, larger capacity wind turbines and higher hub heights have produced more output and lowered the cost of wind energy production. Finally, several large corporate buyers have increased the demand for wind energy beyond the traditional electric utility market.

Figure 2.4 – United States Annual and Cumulative Land-Based Wind Power Capacity Growth



Source: ACP, Clean Power Market Report, Q1 2025

Figure 2.5 – Total Wind Capacity by State

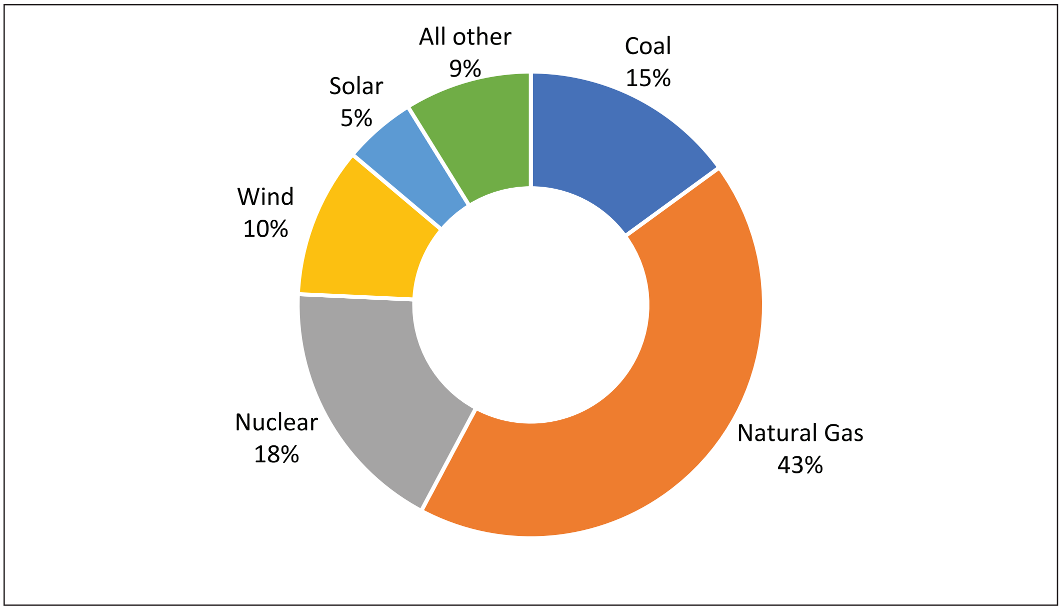


Source: American Clean Power Database, May 2025, Authors' Calculations

Natural Gas Generation

The United States gets its electricity from many different fuel sources. As shown in Figure 2.6, natural gas-fired generation accounts for 43% of the generation total in 2024, followed by nuclear at 18%, coal at 15%, wind at 10%, and solar at 5%. Natural gas recently overtook coal as largest source of fuel for electricity generation. Coal and nuclear generation have stayed constant or declined for the past several years, whereas new electricity plants being built in the United States have been natural gas, wind, and solar generation. In addition, natural gas plants provide reliability to the electric grid when solar or wind are not available (EIA, 2024).

Figure 2.6 – Sources of U.S. Electricity Generation, 2024

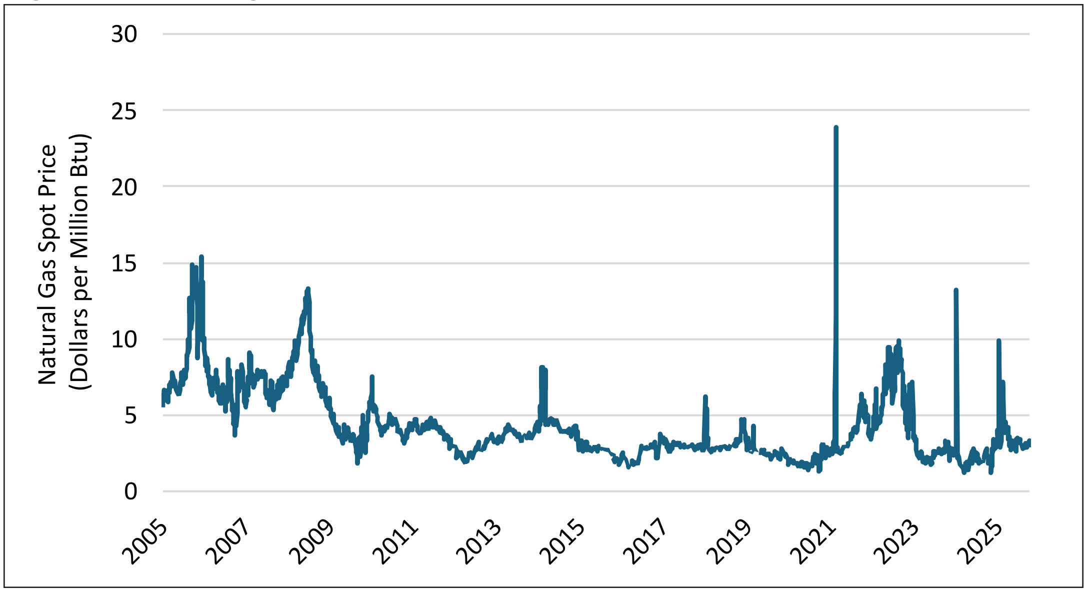


Source: U.S. Energy Information Administration, Electricity Data Browser, 2024

From 2008 to 2020, the steady decline in the price of natural gas led to increased popularity in the United States. The price reached a peak of about $13/MMBtu in 2008 and declined to less than $2/MMBtu in 2020. As shown in Figure 2.7, the price of natural gas had a significant increase from mid-2020 to mid-2023 but has recently declined back down to $3/MMBtu with a few brief periods of high prices. The short-term volatility over the past five years is partly due to natural gas exports to Europe caused by the Ukraine war.

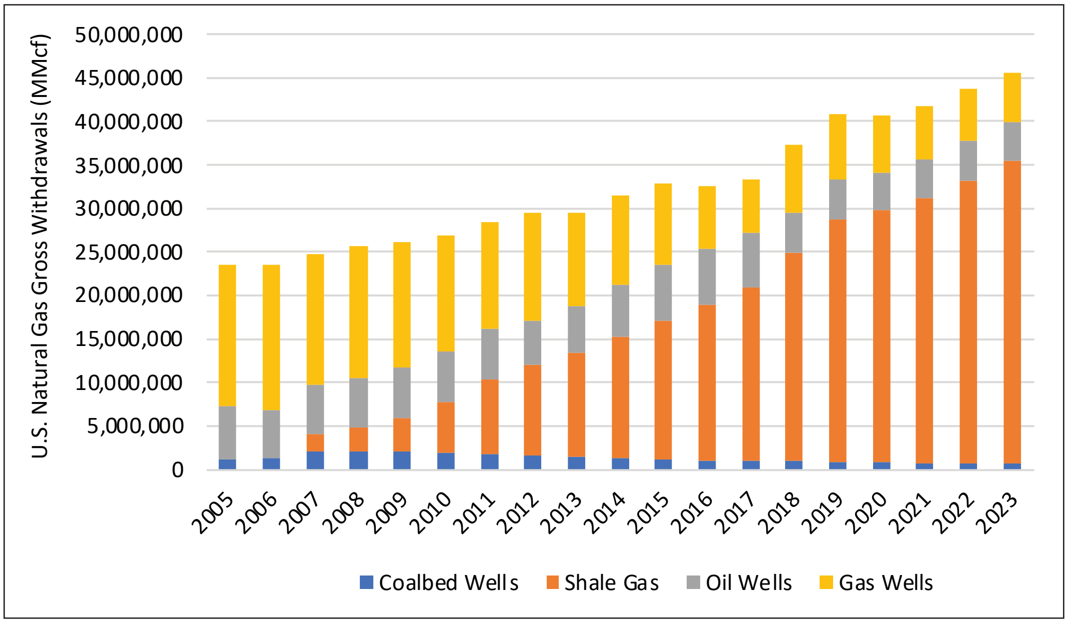
The primary cause of the price decline from 2008 to 2020 has been the hydraulic fracturing of natural gas trapped in shale rock. Shale gas has been produced in Pennsylvania, Texas, North and South Dakota, and elsewhere. Figure 2.8 illustrates the large impact that shale gas has had from 2005 to 2023. Because of this ample supply, the future price of natural gas is expected to stay low for many years to come. This expected low price of natural gas has made natural gas-fired generation one of the lowest-cost technologies for electricity generation.

Figure 2.7 – Average Cost of Natural Gas Used for Electricity Generation



Source: U.S. Energy Information Administration, Henry Hub Natural Gas Spot Price, 2005 to 2025

Figure 2.8 – U.S. Dry Natural Gas Production by Source



Source: U.S. Energy Information Administration, Natural Gas Gross Withdrawals and Production, 2005 to 2023

c. Economic Benefits of Transmission Lines

In addition to job creation, transmission projects typically generate significant payments to local governments. As such, they strengthen the local tax base and help improve county services and local infrastructure.

Several studies have examined the economic impact of transmission line construction.

- Loomis et al. (2022a; 2022b) studied the economic impact of the proposed Wolf Creek-Blackberry Transmission Project across Kansas and Missouri costing over $85.1 million. The line would result in 998 jobs, $55.6 million in labor income, and $145 million in output for Kansas as well as 203.5 jobs, $11.1 million in labor income, and $29.4 million in output for Missouri over a two-year construction period.
- The National Renewable Energy Laboratory (NREL) found that four high voltage transmission lines designed to export electricity from Wyoming would result in an average of 4,000-5,000 jobs per year for 10 years (Lantz & Tegen, 2011).
- Loomis et al. (2023) examined the economic impacts of the Southern Spirit Transmission Project, a 525-kilovolt transmission line totaling 323 miles across Louisiana and Mississippi. The transmission lines were expected to cost $2.68 billion. The impact of the project was estimated to be 7,940 new job-years during construction and the first 40 years of operation for the State of Mississippi, resulting in $424 million in labor income and $1.6 billion in output.
- The development of a Regional Transmission Organization (RTO) in 11 Western states was estimated to create between 2,800 to 13,700 jobs during construction and increase the annual Gross State Product (GSP) by between $19 billion and $79 billion (Energy Strategies, LLC and Peterson & Associates, 2022).
- Loomis et al. (2022c) studied the economic impact of the proposed 800-mile, $7 billion Grain Belt Express Transmission Line Project going across Kansas, Missouri, and Illinois. During construction the line would result in an estimated 8,628 jobs, over $936 million in labor income, and over $1.5 billion in output for Kansas; 5,747 jobs, over $586 million in labor income, and over $986 million in output for Missouri; and 4,999 jobs, over $565 million in labor income, and over $942 million in output for Illinois.
- London Economics International LLC (2021) estimated the economic benefits of the proposed $83 billion in transmission project investments across the United States in 2021, finding an estimated increase of $42 billion to the U.S. GDP and 442,000 jobs across the nation.
- MISO (2015) studied the economic impacts of in-service transmission projects from 2002 to 2015 totaling $9.4 billion and found that 16,700 to 25,800 total jobs were created or supported in peak year 2014 with $5 to $8 billion in labor income and $6.7 to $11.3 billion of value-added impacts.
- Loomis (2020a; 2020b) studied the economic impact of the proposed SOO Green HVDC Link Transmission Project that is to run underground from Mason City, Iowa to Plano, Illinois and is expected to cost almost $2.5 billion. This project is expected to support 6,799 jobs during construction in Iowa and an additional 5,614 jobs during construction in Illinois over a three-year period.
- Haynes et al. (2024) calculated the economic impacts of the proposed 180-mile Northland Reliability Project, estimating that the investment of at least $1.5 billion would lead to an average of 824 jobs per year from 2023 to 2030, a total of $705.3 million in additional labor income, and over $1.9 billion in new spending in Minnesota over the life of the project.

d. Economic Benefits of Energy Production

Solar Energy

Utility-scale solar-powered electric generation facilities provide 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.

Bessette et al. (2024) state that the potential economic benefits of a utility-scale solar project would include "increased property tax revenue, landowner payments, and increased employment" (Bessette et al., 2024, 7). They highlight the fact that the tax benefits are difficult for residents to understand – perhaps because they are not quantified clearly. They also mention both the direct and indirect (supply chain) economic impacts.

Numerous studies have quantified the economic benefits of United States solar PV projects and been published in peer-reviewed academic journals using the same methodology as this report. Some of these studies examine smaller-scale solar systems while some examine utility-scale solar energy. Croucher (2012) uses NREL's Jobs and Economic Development Impacts ("JEDI") modeling methodology to determine which states would receive the greatest economic impact from installing one hundred 2.5 kW residential systems. According to the report, 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.

More recently, Michaud et al. (2020) performed economic impact analyses of utility-scale solar energy projects in the State of Ohio. They detail three scenarios: low (2.5 GW), moderate (5 GW), and high (7.5 GW). Using the JEDI model, they conclude that between 18,039 and 54,113 jobs would be supported during construction and between 207 and 618 jobs would be supported annually during operations. In addition, these projects would generate between $22.5 million and $67.5 million annually in tax revenues.

Loomis et al. (2016) estimates the economic impact for the State of Illinois if it were to reach its maximum potential for solar PV. This study details three different scenarios — new solar project 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 concludes that employment impacts would vary from 26,753 to 131,779 job years during construction and from 1,223 to 6,010 job years during operations.

Finally, Jenniches (2018) performed a literature review 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.

Wind Energy

Wind farms also create numerous and significant economic benefits that last for decades, including local area job opportunities during both the short-term construction phase and the long-term operational phase. Short-term construction jobs include those needed at the wind farm site and the jobs created along the supply chain. Employees working long-term operational jobs include wind turbine technicians, supervisors, and the people working along the supply chain.

Wind developers typically lease the land for the turbines from local landowners without materially affecting the land's ongoing agricultural uses. Only a small portion of the total project footprint is used for the turbines, access roads, feeder lines and substations. For most wind projects, it is anticipated that approximately 1-2% of the total leased land will contain facilities. Each turbine and the associated access road will use approximately half an acre to one acre of farmland. Lease payments made to landowners provide a reliable source of long-term income, which helps offset the negative impacts of fluctuating crop prices or inclement weather events. Landowners then have additional funds to make purchases within the local economy and elsewhere.

Wind projects enhance the equalized assessed property value within the county. Typically, wind developers pay taxes based on that improved value unless preempted by law or mutual agreement. Wind farms strengthen the local tax base, which helps improve county services (ie. schools, police, and fire departments) and fund infrastructure improvements, such as public roads.

Numerous studies have quantified the economic benefits across the United States. The National Renewable Energy Laboratory has produced economic impact reports for the State of Arizona (NREL, 2008a), State of Idaho (NREL, 2008b), State of Indiana (NREL, 2014), State of Iowa (NREL, 2013), State of Maine (NREL, 2008c), State of Montana (NREL, 2008d), State of New Mexico (NREL, 2008e), State of Nevada (NREL, 2008f), State of North Carolina (NREL, 2009), State of Pennsylvania (NREL, 2008g), State of South Dakota (NREL, 2008h), State of Utah (NREL 2008i), State of West Virginia (NREL, 2008j), and the State of Wisconsin (NREL, 2008k).

The Center for Renewable Energy at Illinois State University released a report examining the economic impact of Illinois' wind farms and the economic impact of the related wind turbine supply chain in Illinois (see https://renewableenergy.illinoisstate.edu/wind/pubs.php). According to the Economic Impact: Wind Energy Development in Illinois (June 2016), the 25 largest Illinois wind farms:

- Created approximately 20,173 full-time equivalent jobs during construction periods
- Supported approximately 869 permanent jobs in rural Illinois areas
- Generated $30.4 million for local economies in annual property taxes
- Generated $13.8 million annually in extra income for Illinois landowners who leased their land to wind farm developers
- Are expected to generate a total of $6.4 billion over the life of the projects.

Loomis (2020) estimates the economic impact of wind and solar energy in Illinois resulting from the proposed Path to 100 legislation. The legislation is expected to result in the construction of over 15,000 MW of wind and solar over the next 15 years, yielding over 53,000 jobs during construction and over 3,200 jobs during operations. These predictions are supported by data from the 39 largest existing wind farms in Illinois, which together supported 29,295 jobs during construction and 1,307 jobs during operations for a total economic benefit of $10.2 billion over the life of the projects. In addition, a review of historical property tax records finds that existing utility-scale wind and solar projects paid over $305 million in property taxes statewide since 2003 and over $41.4 million in 2019 alone.

Jenniches (2018) performed a literature review to assess 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.

More recently, Brunner and Schwegman (2022) examined the economic impacts of wind installations across the United States from 1995 to 2018. They conclude that wind energy projects result in "economically meaningful increases in county GDP per-capita, income per-capita, median household income, and median home values" (p. 165).

Finally, Gilbert et al. (2024) used individual employment data to determine the local area employment impacts of wind energy projects, specifically within a 20-mile radius of each turbine. They discovered "economically and statistically significant employment and earnings gain[s] from wind development within 20 miles of a worker's residence" (p. 31). Furthermore, they postulate that county-level employment impacts like the ones in this report tend to be underestimated when examined using individual data.

Natural Gas Generation

The electric power industry as a whole is an $880 billion industry which is about five percent of U.S. Gross Domestic Product (GDP). Each year, the industry invests more than $100 billion to upgrade and maintain the grid and its generating sources. In total, the electric power industry supports more than seven million jobs (M.J. Bradley & Associates, 2017, p.6).

Natural gas power plants provide numerous economic benefits to the communities in which they are built. They create job opportunities in the local area during both the short-term construction phase and the long-term operational phase. Short-term construction jobs include both workers at the natural gas plant site and jobs created along the supply chain. Long-term operational jobs include technicians, supervisors, supply chain jobs, in addition to local operations office staff.

Numerous studies have quantified the economic benefits of natural gas extraction and electricity generation across the United States. Patriot Generating Station in Lycoming County, Pennsylvania is an 829 MW combined-cycle generating plant that started construction in December 2013 and started operations in 2016. During construction, the plant created or supported 500 jobs, and during operations, it created or supported 27 direct jobs and 45 indirect jobs (PowerTechnology, 2017). Caithness Energy's Moxie Freedom Generation Station estimated it would create 600 jobs and produce approximately $120 million in earnings during construction. It also reported that there would be about 25 permanent jobs supporting the facility during the operational phase, with annual maintenance totaling $20 million and half of it spent locally (Caithness Energy, LLC, 2017, p. 1).

Alliant Energy built the Marshalltown Generating Station in 2017 and said that the economic impact was "chart-busting," with $47.3 million spent in the Marshalltown area by contractors and workers. The plant was the biggest economic development project in Central Iowa ever (Des Moines Register, 2017).

Several studies have compared the economic impact of replacing coal with natural gas generating plants. For example, Knudsen (2011) estimated the economic impact of replacing coal with natural gas in Michigan. It found that replacing coal with natural gas would create nearly 19,000 jobs during construction and 1,200 direct and 6,300 indirect jobs during operations.

Hill & Associates, Inc. (2002) studied the economic impact of a coal-fired generating plant versus a 1,500 MW natural gas plant. The study assumed that most of the inputs would come from out-of-state yet showed that the natural gas-fired power plant still created 1,350 direct and 4,620 indirect jobs and induced jobs, for a total impact of 5,970 jobs during construction. Total earnings were estimated to be $271 million and total output was estimated to be $1.6 billion. During operations, the plant supported 78 direct jobs, as well as 790 indirect and induced jobs for a total of 868 jobs (definitions for direct, indirect, and induced impacts are contained in Section IV). Total earnings were $29.1 million annually and total output was $144.5 million annually.

III. Project Description and Location

a. PowerOn Midwest

Great River Energy, ITC Midwest, and Xcel Energy are developing PowerOn Midwest. The Project consists of a 765 kV (kilovolt) transmission line that will deliver energy to Minnesota, South Dakota, Wisconsin, and Iowa markets. Approximately 340 miles of the transmission line will be constructed in Minnesota. The total Project represents an investment of $3.3-$4.3 billion in Minnesota.

b. Minnesota Economic and Demographic Statistics

Minnesota has a total area of 86,935 square miles, and the U.S. Census estimates that the population was 5,793,151 with 2,597,286 housing units in 2024. The state has a population density of 72.7 (persons per square mile) compared to 89.5 for the United States (2024). Median household income in the state was $87,556 in 2023 (U.S. Census Bureau, 2024).

Figure 3.1 – Location of the State of Minnesota

Source: Wikipedia, 2024. Data from nationalatlas.gov

Table 3.1 – Employment by Industry in Minnesota

Industry	Number	Percent
Health Care and Social Assistance	533,412	13.6%
Administrative Government	371,537	9.5%
Manufacturing	331,119	8.4%
Retail Trade	316,640	8.1%
Professional, Scientific, and Technical Services	289,667	7.4%
Accommodation and Food Services	263,121	6.7%
Finance and Insurance	241,229	6.2%
Other Services (except Public Administration)	228,814	5.8%
Construction	207,643	5.3%
Transportation and Warehousing	181,382	4.6%
Real Estate and Rental and Leasing	180,760	4.6%
Administrative and Support and Waste Management and Remediation Services	166,681	4.3%
Wholesale Trade	143,936	3.7%
Management of Companies and Enterprises	93,296	2.4%
Agriculture, Forestry, Fishing and Hunting	90,521	2.3%
Arts, Entertainment, and Recreation	81,295	2.1%
Educational Services	76,285	1.9%
Information	65,853	1.7%
Government Enterprises	34,183	0.9%
Utilities	13,916	0.4%
Mining, Quarrying, and Oil and Gas Extraction	8,627	0.2%

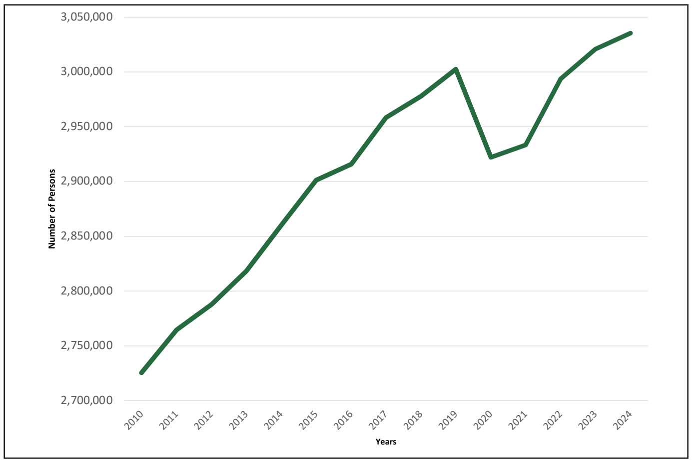
Source: Impact Analysis for Planning (IMPLAN), County Employment by Industry, 2023

As shown in Table 3.1, the largest industries in the state are "Health Care and Social Assistance" followed by "Administrative Government," "Manufacturing," and "Retail Trade." These data for Table 3.1 come from IMPLAN covering the year 2023 (the latest year available).

Table 3.1 provides the most recent snapshot of total employment but does not examine the historical trends within the state.

Figure 3.2 shows the number of employed persons in Minnesota from 2010 to 2024. The total number of employed persons was at its lowest at 2,725,505 in 2010 and its highest at 3,035,505 in 2024 (FRED, 2025).

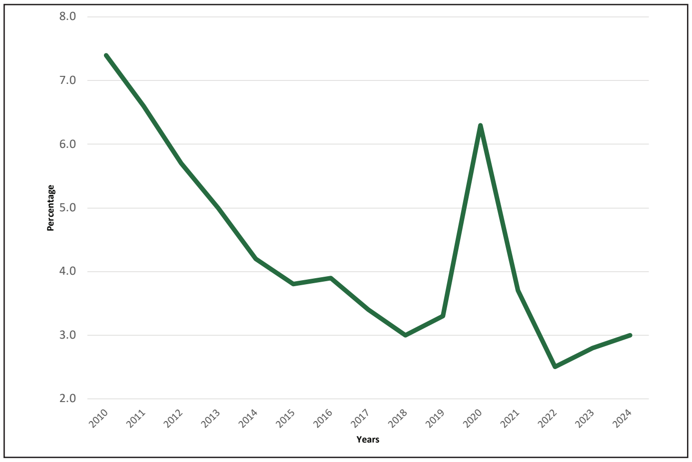
Figure 3.2 – Total Employed Persons in Minnesota from 2010 to 2024



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Employed Persons, 2010-2024

The unemployment rate signifies the percentage of the labor force without employment in the state. Figure 3.3 shows the unemployment rates from 2010 to 2024. Unemployment in Minnesota was at its highest at 7.4% in 2010 and its lowest at 2.5% in 2022 (FRED, 2025). The unemployment rate spiked to 6.3% in 2020 then normalized.

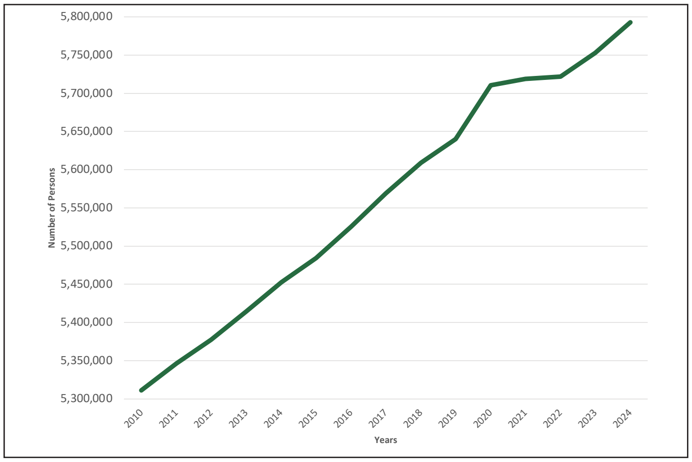
Figure 3.3 – Unemployment Rate in Minnesota from 2010 to 2024



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Unemployment Rates, 2010-2024

The overall population in the state has increased, as shown in Figure 3.4. Minnesota's population was over 5.31 million in 2010 and over 5.79 million in 2024, a gain of 482,217 people (FRED, 2025). The average annual population increase over this time period was 34,444 people.

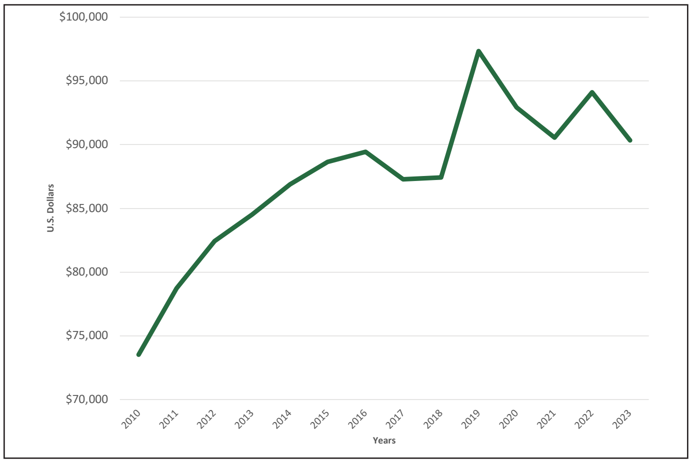
Figure 3.4 – Population in Minnesota from 2010 to 2024



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Population Estimates, 2010-2024

Household income has trended upward in the state. Figure 3.5 shows the real median household income in Minnesota from 2010 to 2023. Using the national Consumer Price Index (CPI), the nominal median household income for each year was adjusted to 2023 dollars. Household income was at its lowest at $73,506 in 2010 and its highest at $97,356 in 2019 (FRED, 2024).

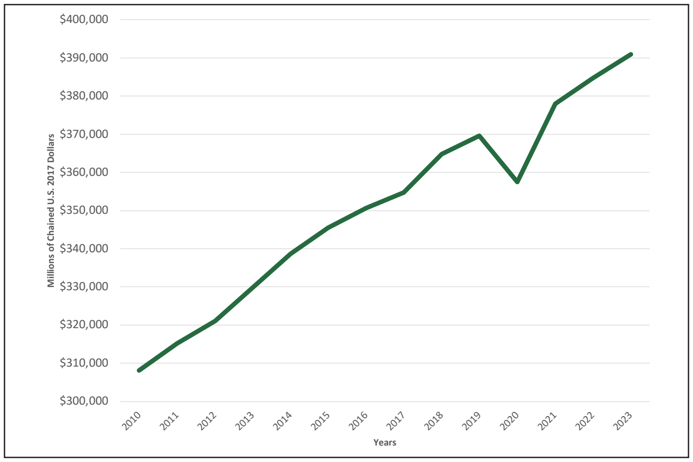
Figure 3.5 – Real Median Household Income in Minnesota from 2010 to 2023



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income, 2010-2023

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 Minnesota has increased since hitting a low in 2010, as shown in Figure 3.6 (FRED, 2024).

Figure 3.6 – Real Gross Domestic Product (GDP) in Minnesota from 2010 to 2023



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Real Gross Domestic Product, 2010-2023

IV. Economic Impact Methodology

a. Transmission

The economic impact analysis of the Project was created using IMPLAN (IMpact analysis for PLANning). IMPLAN software and parameters are based on government data collected at federal, state, and local levels. IMPLAN is a leading provider of economic development software that is widely used by economists and economic development professionals. More information about IMPLAN can be found at implan.com.

IMPLAN 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. In other words, IMPLAN demonstrates how one industry's output can be used as an input for another. For example, when a transmission line is installed, there are both soft costs — consisting of permitting, installation, and customer acquisition costs — and hardware costs, like steel poles and electrical wire. The purchase of steel not only increases demand for manufactured components and raw materials, but it also supports the labor required to build and install the steel structures. When steel is purchased from a manufacturing facility, the manufacturer uses some of that money to pay its employees. Then, the employees spend that money on goods and services within their community. Likewise, when a developer pays workers to install the systems, those workers spend money in the local economy which boosts economic activity and supports employment in other sectors. The goal of an economic impact analysis is to quantify all reverberations throughout the county and state economies.

IMPLAN modeling uses construction cost data, operations cost data, and data relating to the percentage of goods and services acquired in the county and state to calculate the jobs, earnings, and economic output associated with this information.

The results are split into the construction period and the annual operations period of the Project. Within each period, impacts are further divided into direct, indirect, and induced impacts.

Direct impacts during the construction period refer to the changes that occur in the on-site construction industries in which the direct final demand (i.e., spending on construction labor and services) change is made. On-site construction-related services include installation labor, engineering, design, and other professional services. **Direct impacts during operating years** refer to the final demand changes in on-site spending required for operations and maintenance workers, their managers, and administrative/clerical staff. Direct jobs created during the operational phase last the life of the Project, typically 20-30 years. Direct construction jobs and operations and maintenance jobs both require highly skilled workers in the fields of construction, management, and engineering. These well-paid professionals can boost economic development in communities where new employment opportunities are welcome due to economic downturns.

The initial spending for a project's construction and operation 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. These impacts stem from construction spending on transmission line materials (steel, electrical wire, insulators, etc.) as well as purchases of offsite services like materials transportation, road repair, accounting/payroll, legal guidance, etc. **Indirect impacts during the operations period** also consist of changes in inter-industry purchases resulting from the direct final demand changes, but these impacts result from spending on equipment/materials pertaining to a transmission line's annual operations and maintenance (vehicles, gasoline, tools, etc.) and other services (i.e. repair work, vegetation management, structural integrity inspections, etc.). Property tax payments during annual operations create indirect impacts in the county and state that show up in the operations portion of the results.

These payments do not support the day-to-day operations and maintenance of the transmission line; they are more of a latent effect resulting from the transmission line's presence.

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 during construction. Local employees (working directly or indirectly on the project), who receive their paychecks and then spend money in the community, are supporting additional local jobs and economic activity. For example, in-county and in-state construction workers constructing the transmission line will spend a portion of their wages in the local economy at restaurants, grocery stores, retail establishments, hospitals, medical offices, etc. **Induced impacts during operating years** refer to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects from final demand changes during annual operations and maintenance work. For example, when on-site technicians and contracted landscapers residing in-county and in-state are paid for their work on the transmission line, they can then spend their wages at local establishments which spurs more local economic activity.

To estimate the economic impacts of the Project, SER uses two separate Multi-Regional Input-Output (MRIO) IMPLAN models with 2023 economic data, the most recent data year available at the time of analysis. The first IMPLAN model calculates construction period impacts using the Project counties' economic data in conjunction with aggregated economic data that is combined from every other county in the state. Costs are then assigned to either region according to client-provided expected spending patterns, SER industry knowledge honed from over 500 previous analyses, and IMPLAN data related to the availability of relevant goods and services within the county and state economies. When results for the two regions are combined, they create the state's total construction period impacts. This method allows for more precise assignment of construction spending within the Project's county and/or state.

The second model calculates impacts stemming from the annual operations and maintenance of the Project. Like the construction period model, the operations period model also utilizes economic data from both the Project's counties and a region comprised of every other county in the state combined. Results from these two regions create the respective state's total annual operations period economic impacts.

The majority of project employees needed during the construction phase are construction workers, but there are other occupations involved as well. Likewise, there are more occupations than maintenance technicians involved during the Project's operations phase.

SER analyzes the gross number of jobs a new project development supports. Impacts are determined by the robustness and applicability of the county and state economies, the client's intended spending in the project's county and state, and the labor levels within the county and state.

b. New Energy Generation

PowerOn Midwest could enable 12,842 MW of new wind, solar, and gas generation, as well as battery storage, across Minnesota and South Dakota. The potential construction and operations of these new power plants are a significant component of the Project's economic impacts in Minnesota and South Dakota.

SER estimated construction period economic impacts by using industry standards costs for hypothetical wind, solar, and gas plants and battery storage facilities. Using client estimated expected generation data, SER created and modeled costs for new wind, solar, and gas generation, as well as new battery storage throughout Minnesota and South Dakota. New power plants in Wisconsin, Iowa, and North Dakota were also expected to be enabled by the Project but were excluded from the Minnesota and South Dakota specific analysis to create a more conservative economic impact estimate.

Cost data and estimates of goods, services, and labor purchased in the Project counties and Project states during construction were created by SER.

SER assumed new generation would be constructed over a ten-year period following the assumed completion of the Project's construction in 2034. Annual average costs were input into IMPLAN MRIO models to determine each year's economic impacts within the Project counties, the State of Minnesota, and the State of South Dakota. After creating ten years' worth of IMPLAN MRIO models, results were summed together to create the total economic impacts of new enabled generation in the Project counties, Minnesota, and South Dakota from 2035-2045.

In addition to estimating construction model parameters, SER also created estimated costs for annual operations of all new power plants. Using industry standard costs, SER created conservative operations and maintenance cost estimates. Due to the varying construction period lengths between energy technologies, annual operations costs were input into one IMPLAN MRIO model with the study year of 2050, the year in which all hypothetical power plants would cumulatively be online based on the construction period modeling assumptions. The operations period of various power plants would actually begin prior to 2050, but only beginning in 2050 would the total cumulative economic impact of all power plants' operations and maintenance be fully realized. These impacts are expected to continue annually so long as the power plants remain operational.

The total economic impacts for the State of Minnesota and the State of South Dakota includes the total county results for all Project counties in each respective state.

V. Economic Impact Results

a. Transmission Line

The economic impact results[5] were derived from detailed project cost estimates supplied by Great River Energy, ITC Midwest, and Xcel Energy. In addition, Great River Energy, ITC Midwest, Xcel Energy and SER estimated the percentages of project materials and labor that will be coming from within Cottonwood County, Dakota County, Dodge County, Faribault County, Freeborn County, Goodhue County, Jackson County, Lincoln County, Lyon County, Martin County, Mower County, Murray County, Nobles County, Olmstead County, Pipestone County, Redwood County, Rock County, Steele County, Waseca County (Minnesota Project Counties), and the State of Minnesota.

The results from these models are shown in Tables 5.1 to 5.3. Table 5.1 lists the Project's total employment impacts for the counties mentioned above and the State of Minnesota. Table 5.2 shows the total earnings impacts, and Table 5.3 contains the total output impacts. The results are divided into one-time construction impacts and ongoing annually recurring operations impacts that are expected to last the Project's lifetime. Project Development and On-site Labor Impacts correspond to direct impacts as defined in the methodology section. Supply Chain Impacts are the indirect impacts during construction, and Local Revenue and Supply Chain Impacts are indirect impacts during operations.

The State of Minnesota economic impacts are inclusive of the Minnesota Project Counties economic impacts.

Table 5.1 – Total Employment Impacts from Transmission

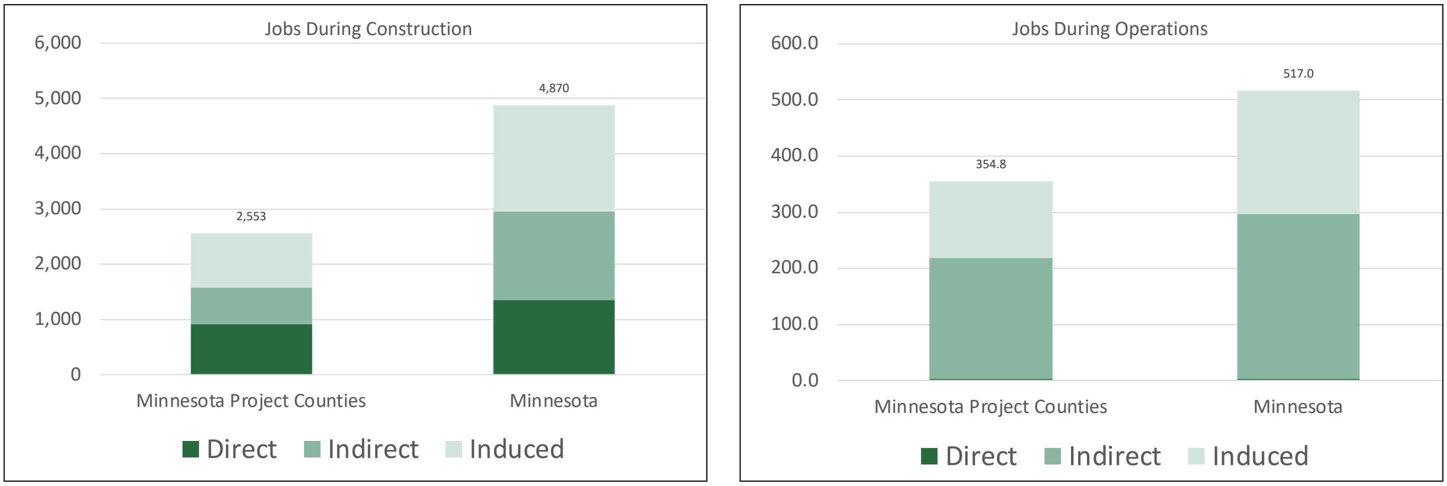
	Minnesota Project Counties (Jobs)	State of Minnesota (Jobs)
Construction		
Project Development and On-site Labor Impacts	921	1,359
Supply Chain Impacts	662	1,599
Induced Impacts	970	1,912
Local Jobs during Construction	2,553	4,870
Operations (Annual/Ongoing)		
On-site Direct Impacts	2.6	2.6
Local Revenue and Supply Chain Impacts	215.6	293.9
Induced Impacts	136.6	220.5
Local Long-Term Jobs	354.8	517.0

[5] Results are not intended to be a precise forecast; they are an estimate of potential activity resulting from a specific set of intended costs and assumed spending in-county and in-state.

The results from the IMPLAN model show significant employment impacts from the PowerOn Midwest Project. Direct jobs created during the construction phase typically last anywhere from three to four years depending on the size of the project; however, the direct job numbers present in Table 5.1 from the IMPLAN 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 model. Since the construction period lasts four years, the annual direct jobs at any given time would be a fourth of the reported number in Table 5.1. It is important to keep this fact in mind when viewing or reporting the numbers.

Table 5.1 shows the employment impacts from the transmission line in Minnesota during construction and operations. The new local jobs created or retained during construction total 2,553 for the Minnesota Project Counties and 4,870 for the State of Minnesota. New local long-term jobs created from the PowerOn Midwest Project total 354.8 for the Minnesota Project Counties and 517.0 for the State of Minnesota.

Figure 5.1 – Total Employment Impacts from Transmission



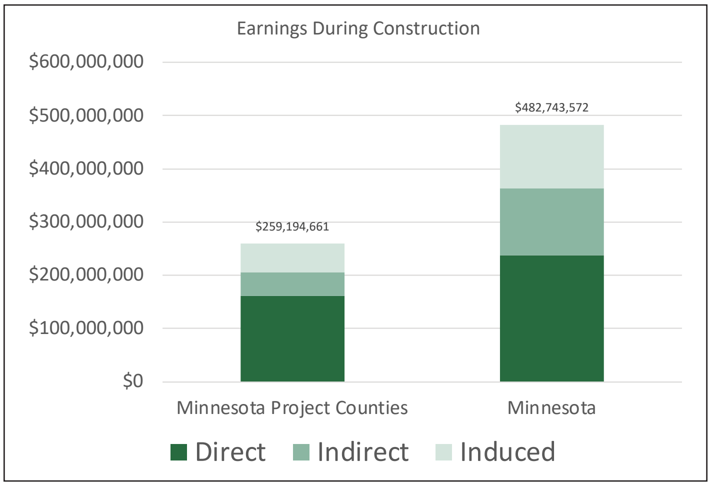
Direct jobs created during the operational phase last the life of the project, typically 30-40 years. Direct construction jobs and operations and maintenance jobs both require highly skilled workers in the fields of construction, management, and engineering. These well-paid professionals can boost economic development in communities where new employment opportunities are welcome due to economic downturns. For a list of occupations expected to be employed, their wages, benefits, total compensation, and hours worked, please see Tables 7.1 to 7.3 in the Appendix.

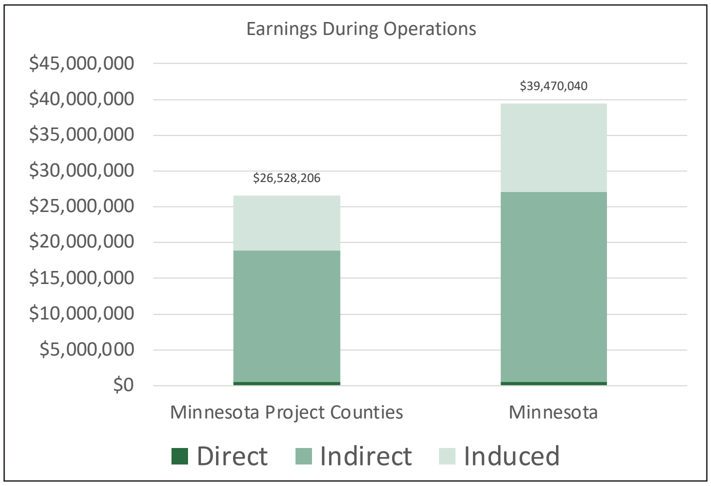
Accordingly, it is important to look at both the number of jobs and the earnings they produce. Table 5.2 shows the transmission earnings impacts from the PowerOn Midwest Project in Minnesota, which are categorized by construction impacts and annual operations impacts. The new local earnings during construction total over $259 million for the Minnesota Project Counties and over $482 million for the State of Minnesota. The new local long-term earnings total over $26.5 million for the Minnesota Project Counties and over $39.4 million for the State of Minnesota.

Table 5.2 – Total Earnings Impacts from Transmission

	Minnesota Project Counties	State of Minnesota
Construction		
Project Development and On-site Labor Earnings Impacts	$161,249,084	$237,184,537
Supply Chain Impacts	$43,795,011	$126,859,732
Induced Impacts	$54,150,566	$118,699,303
Local Earnings during Construction	$259,194,661	$482,743,572
Operations (Annual/Ongoing)		
On-site Labor Earnings Impacts	$535,024	$535,024
Local Revenue and Supply Chain Impacts	$18,339,197	$26,503,673
Induced Impacts	$7,653,985	$12,431,343
Local Long-Term Earnings	$26,528,206	$39,470,040

Figure 5.2 – Total Earnings Impacts from Transmission





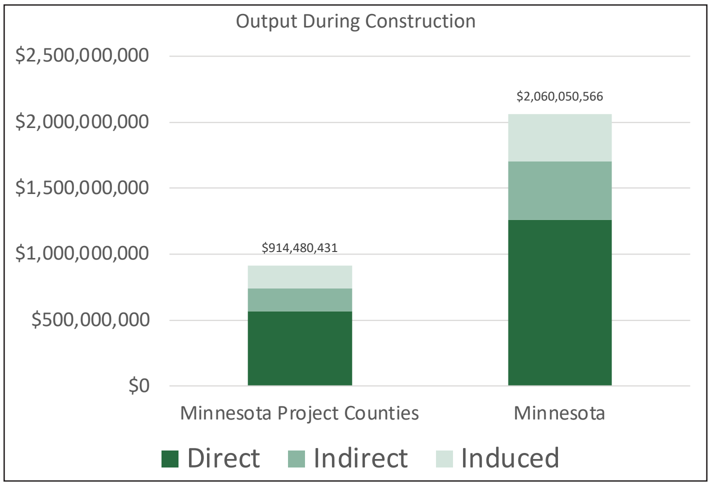
Output is akin to Gross Domestic Product (GDP) and refers to economic activity in the state or county economy as a result of spending and employment related to the project's construction and operations. Economic output includes the earnings reported in Table 5.2 but also measures other factors such as landowner payments, property taxes, and other economic activity that is neither earnings nor benefits from employment.

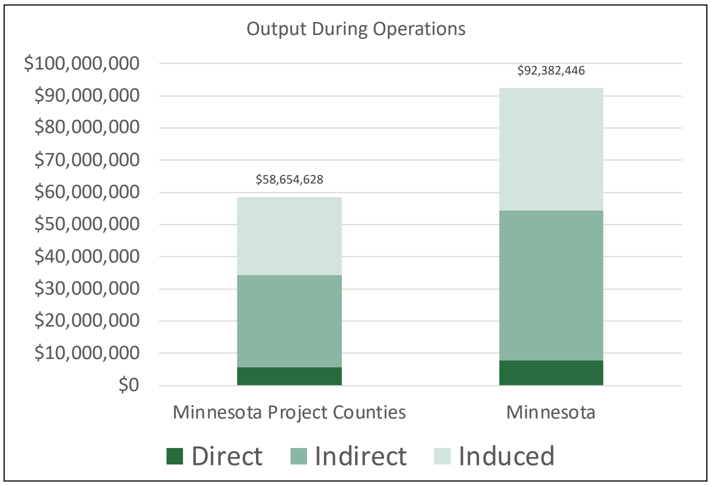
Table 5.3 shows the output impacts from the transmission line for the Project in Minnesota during construction and operations. The new local output during construction totals over $914 million for the Minnesota Project Counties and over $2.0 billion for the State of Minnesota. The new local long-term output totals over $58.6 million for the Minnesota Project Counties and over $92.3 million for the State of Minnesota.

Table 5.3 – Total Output Impacts from Transmission

	Minnesota Project Counties	State of Minnesota
Construction		
Project Development and On-site Labor Impacts on Output	$570,292,940	$1,260,243,036
Supply Chain Impacts	$171,780,005	$442,804,684
Induced Impacts	$172,407,486	$357,002,846
Local Output during Construction	$914,480,431	$2,060,050,566
Operations (Annual/Ongoing)		
On-site Labor Impacts on Output	$5,782,013	$7,871,345
Local Revenue and Supply Chain Impacts	$28,519,169	$46,476,168
Induced Impacts	$24,353,446	$38,034,933
Local Long-Term Output	$58,654,628	$92,382,446

Figure 5.3 – Total Output Impacts from Transmission





b. New Energy Generation

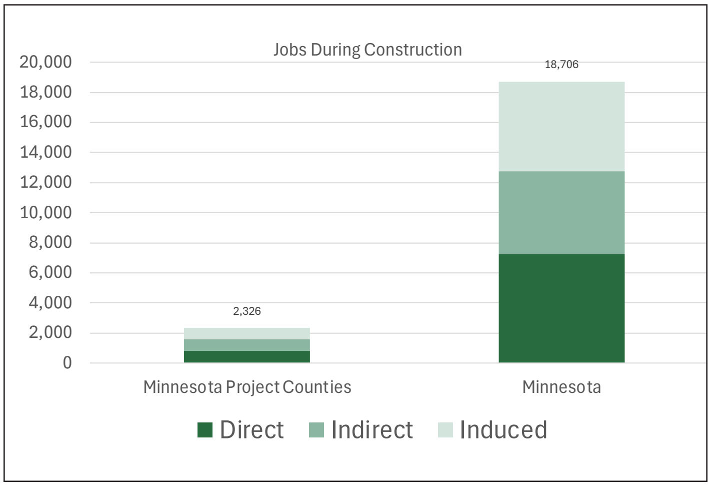
Tables 5.4 to 5.6 show the economic impact results for new enabled energy generation. Table 5.4 lists the new energy generation total employment impacts, Table 5.5 shows the total earnings impacts, and Table 5.6 contains the total output impacts.

Table 5.4 – Total Employment Impacts from New Energy Generation

	Minnesota Project Counties (Jobs)	State of Minnesota (Jobs)
Construction		
Project Development and On-site Labor Impacts	835	7,278
Supply Chain Impacts	748	5,494
Induced Impacts	743	5,934
Local Jobs during Construction	2,326	18,706
Operations (Annual/Ongoing)		
On-site Direct Impacts	57.6	250.9
Local Revenue and Supply Chain Impacts	9.8	116.9
Induced Impacts	34.2	179.5
Local Long-Term Jobs	101.6	547.3

Table 5.4 shows the employment impacts from new enabled power generation in Minnesota during construction and operations. The new local jobs created or retained during construction total 2,326 for Minnesota Project Counties and 18,706 for the State of Minnesota. New local long-term jobs created from the PowerOn Midwest Project total 101.6 for Minnesota Project Counties and 547.3 for the State of Minnesota.

Figure 5.4 – Total Employment Impacts from New Energy Generation



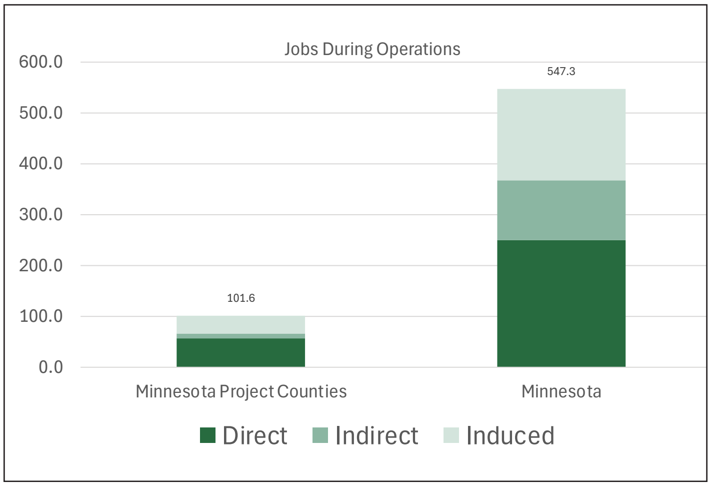
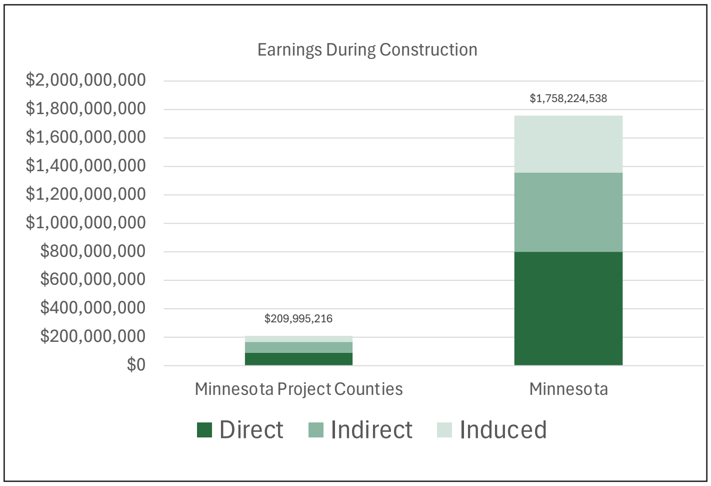


Table 5.5 shows the earnings impacts from new energy generation in Minnesota during construction and operations. The new local earnings during construction total over $209 million for Minnesota Project Counties and over $1.7 billion for the State of Minnesota. The new local long-term earnings total over $11.7 million for Minnesota Project Counties and over $59.4 million for the State of Minnesota.

Table 5.5 – Total Earnings Impacts from New Energy Generation

	Minnesota Project Counties	State of Minnesota
Construction		
Project Development and On-site Labor Earnings Impacts	$90,769,350	$797,333,082
Supply Chain Impacts	$74,630,593	$557,012,210
Induced Impacts	$44,595,273	$403,879,246
Local Earnings during Construction	$209,995,216	$1,758,224,538
Operations (Annual/Ongoing)		
On-site Labor Earnings Impacts	$9,105,579	$39,669,428
Local Revenue and Supply Chain Impacts	$620,480	$7,858,901
Induced Impacts	$2,020,973	$11,930,063
Local Long-Term Earnings	$11,747,032	$59,458,392

Figure 5.5 – Total Earnings Impacts from New Energy Generation



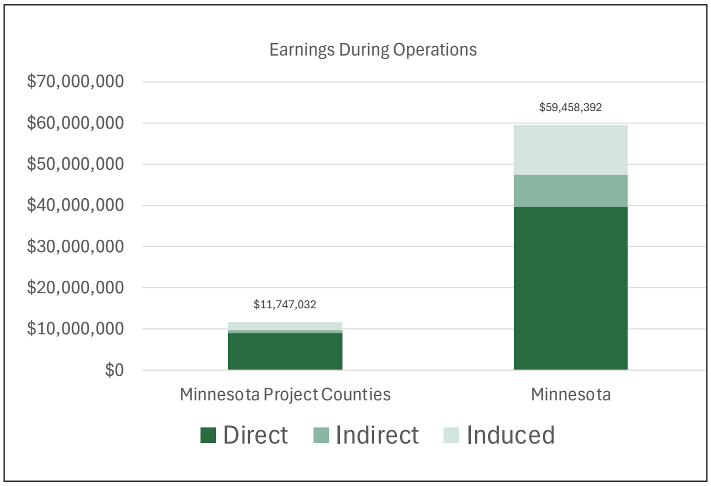
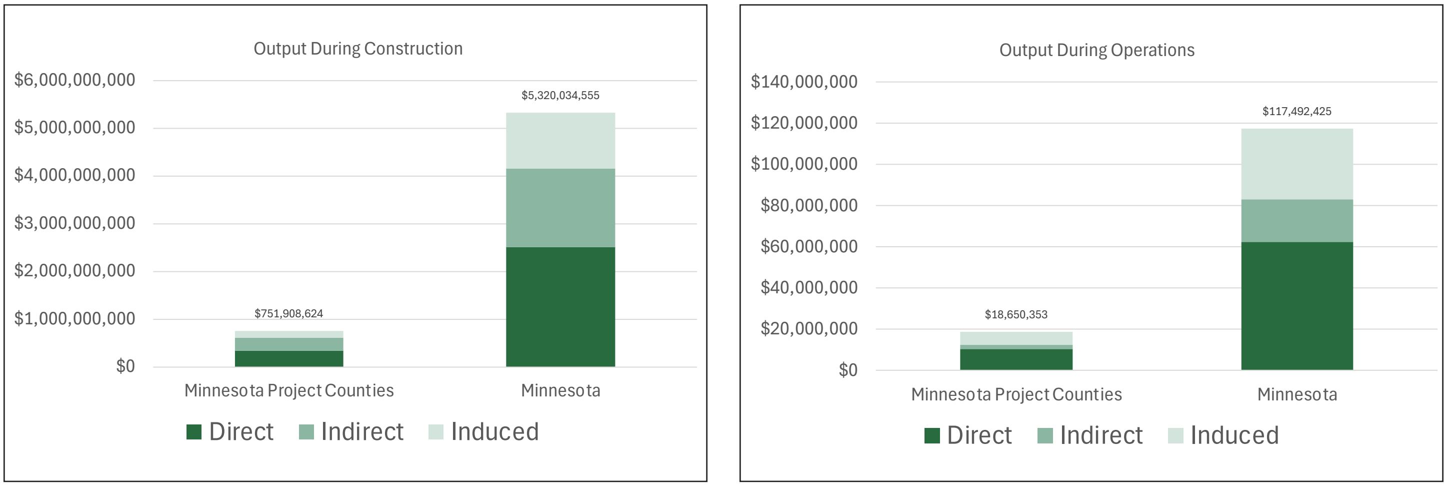


Table 5.6 shows the output impacts from new energy generation in Minnesota during construction and operations. The new local output during construction totals over $751 million for Minnesota Project Counties and over $5.3 billion for the State of Minnesota. The new local long-term output totals over $18.6 million for Minnesota Project Counties and over $117 million for the State of Minnesota.

Table 5.6 – Total Output Impacts from New Energy Generation

	Minnesota Project Counties	State of Minnesota
Construction		
Project Development and On-site Labor Impacts on Output	$334,216,662	$2,509,969,456
Supply Chain Impacts	$279,710,856	$1,645,685,103
Induced Impacts	$137,981,106	$1,164,379,996
Local Output during Construction	$751,908,624	$5,320,034,555
Operations (Annual/Ongoing)		
On-site Labor Impacts on Output	$10,505,181	$62,452,737
Local Revenue and Supply Chain Impacts	$1,894,930	$20,502,235
Induced Impacts	$6,250,242	$34,537,453
Local Long-Term Output	$18,650,353	$117,492,425

Figure 5.6 – Total Output Impacts from New Energy Generation



VI. Tax Benefits

Transmission projects increase the property tax base of a county, creating a new revenue source for education and other local government services, such as fire protection, parks, health, and safety. Estimates of the taxable value of each type of property were obtained from the client. This analysis is designed to be conservative, utilizing a cost-based valuation methodology with straight-line depreciation. Final assessment practices applied by the relevant taxing authority may differ upon operation, and actual results may vary accordingly.

Tables 6.1 to 6.3 detail the tax implications of the PowerOn Midwest Project. There are several important assumptions built into the analysis, as follows:

- The analysis assumes a total taxable value of $4.1 billion.
- The analysis assumes a Class 3A Assessment Rate of 2% based on Minnesota Statutes § 273.13.
- The analysis assumes straight-line depreciation at 2.5% per year, with a maximum depreciation cap of 75%, in accordance with Minnesota Department of Revenue Utility & Pipeline Property Administration guidelines and Minnesota Rule 8100.

- The analysis assumes that the Project is placed in service on January 1st, 2034.
- This analysis was conducted for a 35-year timeframe.
- The names of the taxing bodies used in this section come from the county and state tax websites.
- All tax rates are assumed to stay constant at their 2025 (2024 tax year) rates. Tax rates used were 28.857% for Minnesota State, 88.21% for Dakota County, 63.95% for Faribault County, 89.97% for Freeborn County, 98.57% for Goodhue County, 51.59% for Jackson County, 46.59% for Lincoln County, 78.2% for Martin County, 77.39% for Mower County, 39.29% for Murray County, 108.19% for Olmstead County, 56.69% for Cottonwood County, 81.06% for Dodge County, 75.05% for Lyon County, 62.24% for Nobles County, 59.66% for Pipestone County, 58.71% for Redwood County, and 47.17% for Rock County.
- The comprehensiveness and accuracy of the analysis below is dependent upon the assumptions listed above and used to calculate the property tax results. The analysis is to serve as a projection of property tax benefits to the local community and is not a guarantee of property tax revenue.
- If the inputs received from Great River Energy, ITC Midwest, and Xcel Energy, the laws surrounding renewable energy taxation in Minnesota, or the tax rates in any of the Minnesota Project Counties change in a material way after the completion of this report, this analysis may no longer accurately reflect the property taxes to be paid by the PowerOn Midwest Project.
- No comprehensive tax payment was calculated, and these calculations are only to be used to illustrate the economic impact of the Project.

Table 6.1 – Total Property Taxes Paid by the PowerOn Midwest Project in Minnesota

Year	Total Paid
2034	$83,783,264
2035	$81,688,682
2036	$79,594,100
2037	$77,499,519
2038	$75,404,937
2039	$73,310,356
2040	$71,215,774
2041	$69,121,192
2042	$67,026,611
2043	$64,932,029
2044	$62,837,448
2045	$60,742,866
2046	$58,648,285
2047	$56,553,703
2048	$54,459,121
2049	$52,364,540
2050	$50,269,958
2051	$48,175,377
2052	$46,080,795
2053	$43,986,213
2054	$41,891,632
2055	$39,797,050
2056	$37,702,469
2057	$35,607,887
2058	$33,513,305
2059	$31,418,724
2060	$29,324,142
2061	$27,229,561
2062	$25,134,979
2063	$23,040,397
2064	$20,945,816
2065	$20,945,816
2066	$20,945,816
2067	$20,945,816
2068	$20,945,816
TOTAL	$1,707,083,995
AVG ANNUAL	$48,773,828

As shown in Table 6.1, a conservative estimate of the total property taxes paid by the Project starts out at over $83.7 million and declines due to depreciation until it reaches the maximum depreciation in 2064. The expected total property taxes paid over 35 years are over $1.7 billion, and the average annual property taxes paid will be over $48.7 million.

Table 6.2 shows an estimate of the transmission line taxes paid to the State of Minnesota and the Minnesota Project Counties. According to Table 6.2, the total amounts paid over 35 years are over $327 million for the State of Minnesota and over $776 million for the Minnesota Project Counties.

Table 6.2 – Tax Benefits from the PowerOn Midwest Project for the State and Project Counties - Transmission Line

Year	Minnesota	Minnesota Project Counties
2034	$16,060,049	$38,132,475
2035	$15,658,547	$37,179,163
2036	$15,257,046	$36,225,851
2037	$14,855,545	$35,272,539
2038	$14,454,044	$34,319,227
2039	$14,052,543	$33,365,916
2040	$13,651,041	$32,412,604
2041	$13,249,540	$31,459,292
2042	$12,848,039	$30,505,980
2043	$12,446,538	$29,552,668
2044	$12,045,036	$28,599,356
2045	$11,643,535	$27,646,044
2046	$11,242,034	$26,692,732
2047	$10,840,533	$25,739,421
2048	$10,439,032	$24,786,109
2049	$10,037,530	$23,832,797
2050	$9,636,029	$22,879,485
2051	$9,234,528	$21,926,173
2052	$8,833,027	$20,972,861
2053	$8,431,526	$20,019,549
2054	$8,030,024	$19,066,237
2055	$7,628,523	$18,112,926
2056	$7,227,022	$17,159,614
2057	$6,825,521	$16,206,302
2058	$6,424,019	$15,252,990
2059	$6,022,518	$14,299,678
2060	$5,621,017	$13,346,366
2061	$5,219,516	$12,393,054
2062	$4,818,015	$11,439,742
2063	$4,416,513	$10,486,431
2064	$4,015,012	$9,533,119
2065	$4,015,012	$9,533,119
2066	$4,015,012	$9,533,119
2067	$4,015,012	$9,533,119
2068	$4,015,012	$9,533,119
TOTAL	$327,223,490	$776,949,177
AVG ANNUAL	$9,349,243	$22,198,548

Table 6.3 – Tax Benefits from the PowerOn Midwest Project for the State and Project Counties - Substations

Year	Minnesota	Minnesota Project Counties
2034	$8,005,143	$21,585,597
2035	$7,805,014	$21,045,957
2036	$7,604,886	$20,506,318
2037	$7,404,757	$19,966,678
2038	$7,204,628	$19,427,038
2039	$7,004,500	$18,887,398
2040	$6,804,371	$18,347,758
2041	$6,604,243	$17,808,118
2042	$6,404,114	$17,268,478
2043	$6,203,986	$16,728,838
2044	$6,003,857	$16,189,198
2045	$5,803,728	$15,649,558
2046	$5,603,600	$15,109,918
2047	$5,403,471	$14,570,278
2048	$5,203,343	$14,030,638
2049	$5,003,214	$13,490,998
2050	$4,803,086	$12,951,358
2051	$4,602,957	$12,411,719
2052	$4,402,828	$11,872,079
2053	$4,202,700	$11,332,439
2054	$4,002,571	$10,792,799
2055	$3,802,443	$10,253,159
2056	$3,602,314	$9,713,519
2057	$3,402,186	$9,173,879
2058	$3,202,057	$8,634,239
2059	$3,001,929	$8,094,599
2060	$2,801,800	$7,554,959
2061	$2,601,671	$7,015,319
2062	$2,401,543	$6,475,679
2063	$2,201,414	$5,936,039
2064	$2,001,286	$5,396,399
2065	$2,001,286	$5,396,399
2066	$2,001,286	$5,396,399
2067	$2,001,286	$5,396,399
2068	$2,001,286	$5,396,399
TOTAL	$163,104,782	$439,806,547
AVG ANNUAL	$4,660,137	$12,565,901

Table 6.3 shows an estimate of the substation taxes paid to the State of Minnesota and the Minnesota Project Counties. According to Table 6.3, the total amounts paid over 35 years are over $163 million for the State of Minnesota and over $439 million for the Minnesota Project Counties.

Table 7.1 – Occupational Output from IMPLAN Construction Model, Direct Jobs, Employment Greater than 1.0

This table is directly modeled for this project.

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
47-2000	Construction Trades Workers	276.43	$32,415,392.88	$5,582,910.05	$37,998,302.93	534,700.95
49-9000	Other Installation, Maintenance, and Repair Occupations	220.29	$30,395,645.38	$5,235,048.51	$35,630,693.87	465,946.95
47-1000	Supervisors of Construction and Extraction Workers	73.36	$12,515,089.76	$2,155,476.58	$14,670,566.34	158,668.58
49-1000	Supervisors of Installation, Maintenance, and Repair Workers	52.99	$9,819,009.04	$1,691,130.02	$11,510,139.05	115,224.97
13-1000	Business Operations Specialists	45.15	$7,972,155.86	$1,373,046.10	$9,345,201.96	90,623.82
11-9000	Other Management Occupations	35.35	$8,672,894.34	$1,493,734.46	$10,166,628.80	75,915.00
11-1000	Top Executives	26.11	$8,038,990.73	$1,384,557.09	$9,423,547.82	57,516.97
43-9000	Other Office and Administrative Support Workers	18.69	$1,616,069.60	$278,336.01	$1,894,405.62	30,287.11
43-3000	Financial Clerks	15.75	$1,688,197.41	$290,758.60	$1,978,956.01	28,205.59
49-2000	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	14.42	$1,897,263.49	$326,766.10	$2,224,029.59	29,943.06
43-6000	Secretaries and Administrative Assistants	13.65	$1,349,354.77	$232,399.65	$1,581,754.44	23,925.09
53-3000	Motor Vehicle Operators	13.30	$1,499,472.45	$258,254.46	$1,757,726.92	27,227.90
53-7000	Material Moving Workers	12.88	$1,268,739.84	$218,515.34	$1,487,255.17	22,984.22
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	12.32	$1,601,631.95	$275,849.40	$1,877,481.37	26,305.23
47-4000	Other Construction and Related Workers	9.73	$1,622,290.65	$279,407.46	$1,901,698.11	19,077.10
17-2000	Engineers	9.66	$1,857,528.88	$319,922.61	$2,177,451.47	19,441.24
17-3000	Drafters, Engineering Technicians, and Mapping Technicians	8.47	$1,029,578.90	$177,324.60	$1,206,903.49	16,394.49
13-2000	Financial Specialists	7.84	$1,400,999.83	$241,294.50	$1,642,294.32	15,635.97
11-3000	Operations Specialties Managers	7.84	$2,138,730.33	$368,353.97	$2,507,084.32	16,194.22
51-4000	Metal Workers and Plastic Workers	7.49	$1,003,878.89	$172,898.28	$1,176,777.16	15,107.96
15-1200	Computer Occupations	6.93	$1,238,355.18	$213,282.17	$1,451,637.35	13,685.28

Table 7.1 – Occupational Output from IMPLAN Construction Model, Direct Jobs, Employment Greater than 1.0 (Cont.)

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
19-5000	Occupational Health and Safety Specialists and Technicians	6.09	$1,059,442.40	$182,467.99	$1,241,910.39	12,227.81
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	5.88	$723,501.39	$124,608.81	$848,110.19	11,540.34
47-5000	Extraction Workers	5.88	$681,839.73	$117,433.40	$799,273.11	13,326.39
43-1000	Supervisors of Office and Administrative Support Workers	5.32	$771,593.84	$132,891.79	$904,485.61	10,376.80
47-3000	Helpers, Construction Trades	3.71	$329,043.30	$56,671.20	$385,714.48	6,524.98
41-3000	Sales Representatives, Services	3.36	$657,993.87	$113,326.43	$771,320.29	6,813.66
33-9000	Other Protective Service Workers	2.73	$197,263.07	$33,974.67	$231,237.73	3,143.14
43-4000	Information and Record Clerks	2.38	$247,165.03	$42,569.28	$289,734.30	4,028.01
53-1000	Supervisors of Transportation and Material Moving Workers	1.75	$261,785.01	$45,087.29	$306,872.29	3,710.56
37-3000	Grounds Maintenance Workers	1.68	$190,054.99	$32,733.21	$222,788.19	3,148.81
51-1000	Supervisors of Production Workers	1.68	$320,113.52	$55,133.21	$375,246.73	3,657.15
11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	1.68	$518,832.32	$89,358.59	$608,190.91	3,538.78
51-9000	Other Production Occupations	1.47	$153,191.37	$26,384.18	$179,575.54	2,520.21
17-1000	Architects, Surveyors, and Cartographers	1.05	$171,896.08	$29,605.69	$201,501.79	2,152.85

Table 7.2 – Occupational Output from IMPLAN Construction Model, Indirect Jobs, Employment Greater than 1.0

This table is directly modeled for this project.

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
53-3000	Motor Vehicle Operators	48.28	$3,776,839.11	$828,289.44	$4,605,128.57	103,980.48
51-9000	Other Production Occupations	45.12	$3,349,456.01	$708,557.82	$4,058,013.83	92,731.66
53-7000	Material Moving Workers	26.56	$1,590,083.55	$315,466.43	$1,905,549.97	48,956.15
35-3000	Food and Beverage Serving Workers	22.41	$484,793.08	$63,439.01	$548,232.10	24,844.69
47-2000	Construction Trades Workers	20.67	$1,488,989.48	$304,802.45	$1,793,791.93	41,777.45
13-2000	Financial Specialists	19.12	$1,623,944.86	$265,167.11	$1,889,111.97	37,472.47
13-1000	Business Operations Specialists	18.71	$1,916,411.61	$343,478.28	$2,259,889.89	37,737.81
49-9000	Other Installation, Maintenance, and Repair Occupations	17.50	$1,332,142.28	$263,068.74	$1,595,211.03	36,832.92
11-1000	Top Executives	14.49	$2,454,971.57	$456,142.14	$2,911,113.71	32,849.99
37-2000	Building Cleaning and Pest Control Workers	13.62	$454,952.48	$77,094.29	$532,046.76	21,746.28
51-4000	Metal Workers and Plastic Workers	13.56	$917,999.57	$181,016.90	$1,099,016.47	28,756.60
43-4000	Information and Record Clerks	12.54	$658,379.88	$118,945.75	$777,325.62	21,945.39
43-3000	Financial Clerks	12.14	$666,641.13	$118,883.36	$785,524.47	22,006.17
43-9000	Other Office and Administrative Support Workers	11.58	$562,499.68	$104,367.05	$666,866.77	19,430.28
35-2000	Cooks and Food Preparation Workers	10.58	$270,161.09	$35,494.88	$305,655.97	14,508.75
11-3000	Operations Specialties Managers	10.56	$1,919,822.24	$356,503.33	$2,276,325.58	22,955.76
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	9.93	$736,186.40	$190,977.32	$927,163.73	20,066.58
51-2000	Assemblers and Fabricators	9.04	$586,347.49	$121,488.52	$707,836.02	18,366.49
11-9000	Other Management Occupations	8.88	$1,000,912.88	$170,501.94	$1,171,414.80	18,259.99
15-1200	Computer Occupations	8.20	$992,023.21	$164,724.24	$1,156,747.44	16,282.27
41-4000	Sales Representatives, Wholesale and Manufacturing	7.78	$831,177.34	$158,134.67	$989,312.02	16,910.57
43-6000	Secretaries and Administrative Assistants	7.78	$438,648.64	$78,289.78	$516,938.43	14,022.04

Table 7.2 – Occupational Output from IMPLAN Construction Model, Indirect Jobs, Employment Greater than 1.0, (Cont.)

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
51-1000	Supervisors of Production Workers	7.37	$840,081.13	$178,158.87	$1,018,239.99	17,002.61
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	6.89	$563,539.45	$115,892.11	$679,431.60	14,795.65
41-2000	Retail Sales Workers	6.83	$229,630.88	$39,660.28	$269,291.16	10,067.78
37-3000	Grounds Maintenance Workers	6.36	$278,032.50	$45,958.80	$323,991.29	10,926.74
35-9000	Other Food Preparation and Serving Related Workers	5.26	$97,691.59	$13,015.51	$110,707.08	5,232.78
41-3000	Sales Representatives, Services	5.02	$422,003.19	$72,623.41	$494,626.60	10,186.98
17-2000	Engineers	4.98	$694,016.89	$138,986.26	$833,003.14	10,620.56
43-1000	Supervisors of Office and Administrative Support Workers	4.68	$407,570.56	$77,251.79	$484,822.35	9,391.31
35-1000	Supervisors of Food Preparation and Serving Workers	4.29	$183,590.16	$24,315.23	$207,905.38	7,215.72
41-9000	Other Sales and Related Workers	3.89	$243,578.60	$35,611.33	$279,189.92	7,029.04
47-1000	Supervisors of Construction and Extraction Workers	3.62	$332,668.95	$66,022.05	$398,691.01	8,135.77
47-5000	Extraction Workers	3.37	$247,371.87	$55,986.70	$303,358.59	8,286.80
53-1000	Supervisors of Transportation and Material Moving Workers	2.89	$290,199.14	$61,338.18	$351,537.33	6,360.43
23-1000	Lawyers, Judges, and Related Workers	2.76	$395,818.11	$67,620.71	$463,438.82	5,875.21
49-1000	Supervisors of Installation, Maintenance, and Repair Workers	2.76	$287,450.23	$57,777.33	$345,227.56	6,189.34
11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	2.68	$525,748.64	$92,696.17	$618,444.79	5,845.01
33-9000	Other Protective Service Workers	2.49	$118,882.75	$21,342.71	$140,225.46	4,151.68
51-1000	Supervisors of Production Workers	7.37	$840,081.13	$178,158.87	$1,018,239.99	17,002.61
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	6.89	$563,539.45	$115,892.11	$679,431.60	14,795.65
41-2000	Retail Sales Workers	6.83	$229,630.88	$39,660.28	$269,291.16	10,067.78
37-3000	Grounds Maintenance Workers	6.36	$278,032.50	$45,958.80	$323,991.29	10,926.74
35-9000	Other Food Preparation and Serving Related Workers	5.26	$97,691.59	$13,015.51	$110,707.08	5,232.78
41-3000	Sales Representatives, Services	5.02	$422,003.19	$72,623.41	$494,626.60	10,186.98
17-2000	Engineers	4.98	$694,016.89	$138,986.26	$833,003.14	10,620.56

Table 7.3 – Occupational Output from IMPLAN Construction Model, Induced Jobs, Employment Greater than 1.0

This table is directly modeled for this project.

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
41-2000	Retail Sales Workers	80.61	$2,111,934.40	$446,534.29	$2,558,468.68	108,940.37
35-3000	Food and Beverage Serving Workers	73.43	$1,519,842.52	$213,198.97	$1,733,041.48	80,421.31
31-1100	Home Health and Personal Care Aides; and Nursing Assistants, Orderlies, and Psychiatric Aides	63.25	$1,795,958.35	$359,706.88	$2,155,665.24	100,826.45
29-1000	Healthcare Diagnosing or Treating Practitioners	54.00	$7,211,372.09	$1,427,440.67	$8,638,812.75	99,710.37
35-2000	Cooks and Food Preparation Workers	35.00	$860,474.39	$128,063.42	$988,537.81	47,736.37
53-7000	Material Moving Workers	30.06	$1,109,639.33	$221,423.56	$1,331,062.88	47,519.45
43-4000	Information and Record Clerks	29.08	$1,187,457.69	$217,996.55	$1,405,454.24	47,751.81
29-2000	Health Technologists and Technicians	26.48	$1,529,559.02	$307,885.15	$1,837,444.16	47,359.20
13-1000	Business Operations Specialists	26.14	$2,056,099.00	$357,329.98	$2,413,428.99	50,064.25
53-3000	Motor Vehicle Operators	22.41	$1,067,199.37	$216,996.61	$1,284,195.99	42,193.50
11-1000	Top Executives	21.94	$2,517,907.11	$444,256.57	$2,962,163.68	46,745.31
43-6000	Secretaries and Administrative Assistants	19.44	$867,793.11	$157,035.94	$1,024,829.04	34,721.10
37-2000	Building Cleaning and Pest Control Workers	19.35	$490,912.17	$87,978.29	$578,890.45	31,023.21
31-9000	Other Healthcare Support Occupations	17.34	$763,626.59	$145,274.09	$908,900.68	28,599.94
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	16.36	$975,981.85	$169,356.15	$1,145,337.98	32,024.65
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	15.85	$778,783.59	$149,254.87	$928,038.47	28,067.94
43-9000	Other Office and Administrative Support Workers	15.10	$575,237.23	$102,130.39	$677,367.64	24,634.10
11-9000	Other Management Occupations	15.07	$1,516,480.61	$277,141.57	$1,793,622.19	30,166.39
39-9000	Other Personal Care and Service Workers	14.97	$299,774.93	$54,217.47	$353,992.39	18,396.79
35-1000	Supervisors of Food Preparation and Serving Workers	14.15	$587,803.02	$83,519.58	$671,322.58	23,722.08
13-2000	Financial Specialists	13.91	$1,336,651.65	$223,791.32	$1,560,442.96	27,931.56
43-3000	Financial Clerks	13.46	$650,209.23	$116,361.42	$766,570.64	23,965.14
35-9000	Other Food Preparation and Serving Related Workers	12.76	$231,174.91	$31,621.60	$262,796.49	12,761.05
41-1000	Supervisors of Sales Workers	12.56	$670,631.81	$141,683.60	$812,315.41	24,294.52

Table 7.3 – Occupational Output from IMPLAN Construction Model, Induced Jobs, Employment Greater than 1.0, (Cont.)

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
15-1200	Computer Occupations	12.26	$1,383,988.79	$231,334.12	$1,615,322.93	24,149.70
21-2000	Religious Workers	11.85	$570,583.14	$82,895.03	$653,478.17	23,712.98
49-9000	Other Installation, Maintenance, and Repair Occupations	11.12	$581,954.63	$113,949.14	$695,903.77	22,070.67
25-2000	Preschool, Elementary, Middle, Secondary, and Special Education Teachers	9.88	$398,769.46	$74,811.93	$473,581.38	17,210.89
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	9.45	$498,667.22	$164,294.07	$662,961.28	17,845.72
41-3000	Sales Representatives, Services	8.65	$689,185.70	$118,795.97	$807,981.66	17,245.02
11-3000	Operations Specialties Managers	8.56	$1,397,982.92	$242,473.73	$1,640,456.66	17,747.82
43-1000	Supervisors of Office and Administrative Support Workers	7.80	$526,966.04	$100,129.78	$627,095.81	14,981.85
33-9000	Other Protective Service Workers	6.00	$239,008.82	$42,585.91	$281,594.72	9,441.71
39-5000	Personal Appearance Workers	5.86	$195,169.96	$28,625.12	$223,795.09	8,174.49
25-3000	Other Teachers and Instructors	5.22	$174,262.13	$33,137.23	$207,399.37	6,915.75
27-2000	Entertainers and Performers, Sports and Related Workers	4.69	$466,322.20	$73,815.27	$540,137.48	6,100.15
11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	4.69	$733,688.19	$128,302.14	$861,990.35	9,726.92
25-9000	Other Educational Instruction and Library Occupations	4.62	$149,957.25	$28,007.70	$177,964.95	6,794.55
47-2000	Construction Trades Workers	4.48	$252,041.07	$46,875.66	$298,916.74	8,545.88
37-3000	Grounds Maintenance Workers	4.39	$157,576.71	$26,462.28	$184,039.02	7,255.30
41-4000	Sales Representatives, Wholesale and Manufacturing	4.09	$428,624.30	$68,010.59	$496,634.90	8,483.20
51-3000	Food Processing Workers	3.73	$120,907.74	$27,458.04	$148,365.78	6,397.86
39-3000	Entertainment Attendants and Related Workers	3.49	$71,405.66	$14,200.07	$85,605.72	3,522.70
51-9000	Other Production Occupations	3.35	$180,893.05	$32,555.77	$213,448.82	6,318.68
27-3000	Media and Communication Workers	3.27	$211,630.62	$35,999.73	$247,630.36	6,010.77
49-1000	Supervisors of Installation, Maintenance, and Repair Workers	3.05	$246,218.84	$46,702.37	$292,921.21	6,607.22
53-6000	Other Transportation Workers	2.65	$92,580.01	$15,945.11	$108,525.11	4,130.98
53-1000	Supervisors of Transportation and Material Moving Workers	2.61	$166,934.80	$32,881.44	$199,816.27	5,357.09

Table 7.3 – Occupational Output from IMPLAN Construction Model, Induced Jobs, Employment Greater than 1.0, (Cont.)

Occ Code	Occupation	Wage and Salary Employment	Wage and Salary Income	Supplements to Wages and Salaries	Employee Compensation	Hours Worked
39-2000	Animal Care and Service Workers	2.38	$68,795.63	$10,333.20	$79,128.83	3,259.93
51-6000	Textile, Apparel, and Furnishings Workers	2.08	$73,806.75	$12,288.62	$86,095.38	3,416.65
27-1000	Art and Design Workers	2.06	$127,172.68	$22,188.37	$149,361.07	3,497.88
41-9000	Other Sales and Related Workers	2.02	$107,546.03	$18,610.60	$126,156.61	3,432.37
31-2000	Occupational Therapy and Physical Therapist Assistants and Aides	1.88	$85,436.81	$17,182.00	$102,618.81	2,865.96
49-2000	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	1.75	$107,269.57	$21,291.20	$128,560.77	3,486.99
17-2000	Engineers	1.74	$216,092.24	$40,978.98	$257,071.22	3,545.01
39-1000	Supervisors of Personal Care and Service Workers	1.71	$77,903.08	$14,520.26	$92,423.34	3,064.11
23-1000	Lawyers, Judges, and Related Workers	1.54	$241,114.96	$40,892.58	$282,007.54	3,251.20
51-2000	Assemblers and Fabricators	1.45	$62,934.53	$11,226.39	$74,160.92	2,716.70
25-1000	Postsecondary Teachers	1.33	$62,474.61	$13,446.97	$75,921.60	2,087.62
15-2000	Mathematical Science Occupations	1.27	$150,924.44	$25,550.60	$176,475.06	2,511.49
27-4000	Media and Communication Equipment Workers	1.20	$52,347.70	$8,705.64	$61,053.34	2,085.91
37-1000	Supervisors of Building and Grounds Cleaning and Maintenance Workers	1.20	$60,084.15	$10,652.15	$70,736.30	2,393.26
19-1000	Life Scientists	1.14	$112,083.32	$19,580.59	$131,663.92	2,257.13
23-2000	Legal Support Workers	1.06	$64,271.79	$10,855.69	$75,127.48	1,931.08
51-1000	Supervisors of Production Workers	1.04	$75,459.57	$17,227.06	$92,686.64	2,205.95

VIII. References

American Clean Power (ACP). (2025). *Clean Power Quarterly Market Report Q1, 2025.*

American Clean Power (ACP). (2024). *State Fact Sheets*. https://cleanpower.org/facts/state-fact-sheets/

Associated Press. (2017, April 1). Alliant's new $700 million natural-gas fired Iowa plant set to go online. *Des Moines Register*. https://www.desmoinesregister.com/story/money/business/development/2017/04/01/alliant-new-natural-gas-plant-marshalltown-iowa/99905084/

Bessette, D., Hoen, B., Rand, J., Hoesch, K., White, J., Mills, S., and Nilson, R. (2024). Good Fences Make Good Neighbors: Stakeholder Perspective on the Local Benefits and Burdens of Large-scale Solar Energy Development in the United States. *Energy Research & Social Science*, 108 (103375). https://www.sciencedirect.com/science/article/pii/S2214629623004358

Brunner, E. & Schwegman, D. J. (2022, June). Commercial wind energy installations and local economic development: Evidence from U.S. counties. *Energy Policy* 165.

Caithness Energy, LLC. (2017). *Caithness Moxie Freedom Generating Station: Economic Benefits/Community*. https://caithnessmoxiefreedom.com/economic-benefits-community/

Center for Renewable Energy. (2016, June). *Economic Impact: Illinois Wind Energy Development. Illinois State University*. https://edauniversitycenter.uic.edu/wp-content/uploads/sites/16/2018/09/Wind_Energy_Economic-Impact-Report_2016.pdf

Croucher, M. (2012). Which state is Yoda? *Energy Policy*, 42(C), 613-615

Energy Strategies, LLC and Peterson & Associates. (2022, July). *Western RTO Economic Impact Study: Region-wide Analysis.*

Federal Reserve Bank of St. Louis Economic Data (FRED). (2024). *Median Household Income*. https://fred.stlouisfed.org/searchresults/?st=Median%20household%20income

Federal Reserve Bank of St. Louis Economic Data (FRED). (2024). *Real Gross Domestic Product*. https://fred.stlouisfed.org/searchresults?st=real+gross+domestic+product

Federal Reserve Bank of St. Louis Economic Data (FRED). (2025). *Employed Persons*. https://fred.stlouisfed.org/searchresults?st=employment

Federal Reserve Bank of St. Louis Economic Data (FRED). (2025). *Population Estimates*. https://fred.stlouisfed.org/searchresults/?st=population

Federal Reserve Bank of St. Louis Economic Data (FRED). (2025). *Unemployment Rate*. https://fred.stlouisfed.org/searchresults/?st=unemployment&t=il&rt=il&ob=sr

Gilbert, B., Hoen, B., and Gargarin, H. (2024, November). Distributional Equity in the Employment and Wage Impacts of Energy Transitions. *Journal of the Association of Environmental and Resource Economists*. https://www.journals.uchicago.edu/doi/full/10.1086/732186

Global Wind Energy Council (GWEC). (2025). Global Wind Report 2025. https://gwec.net/globalwindreport

Haynes, M., Chiodi Grensing, G., Bakken, M., & Wendinger, A. (2024, March). *Northland Reliability Project Economic Impact Analysis*. Bureau of Business and Economic Research, University of Minnesota Duluth. Accessed at https://conservancy.umn.edu/items/bdba98d1-6511-4c67-8e8d-fd64af24ab71

Hill & Associates, Inc. (2002). *Economic Benefits of a Coal-Fueled Power Plant Compared to Natural Gas. Prepared for Peabody Energy*. https://www.nrc.gov/docs/ML0911/ML091120541.pdf

IMPLAN Group LLC. (2024). Huntersville, NC. implan.com

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

Knudsen, W.A. (2011). *The Economic Impact of Replacing Coal with Natural Gas for Electricity Production*. Michigan State University, Product Center [for Agriculture and Natural Resources].

Lantz, E. and S. Tegen. (2011). *Jobs and Economic Development from New Transmission and Generation in Wyoming*. National Renewable Energy Laboratories. https://www.nrel.gov/docs/fy11osti/50577.pdf

London Economics International LLC. (2021, May). *REPOWERING AMERICA: Transmission investment for economic stimulus and climate change*.

Lawrence Berkeley National Laboratory. (2024). Utility-Scale Solar, 2024 Edition. *Empirical trends in deployment, technology, cost, performance, PPA pricing, and value in the United States*. https://eta-publications.lbl.gov/sites/default/files/2024-10/utility_scale_solar_2024_edition_slides.pdf

Loomis, D., Loomis, B., & Thankan, C. (2022a, February). *Economic Impact Analysis of the Wolf-Creek-Blackberry Transmission Project on the State of Kansas*. Strategic Economic Research, LLC.

Loomis, D., Loomis, B., & Thankan, C. (2022b, February). *Economic Impact Analysis of the Wolf-Creek-Blackberry Transmission Project on the State of Missouri*. Strategic Economic Research, LLC.

Loomis, D., Loomis, B., & Thankan, C. (2022c, December). *Economic Impact Analysis of the Grain Belt Express Transmission Project on the States of Kansas, Missouri, and Illinois*. Strategic Economic Research, LLC.

Loomis, D., Loomis, B., & Thankan, C. (2023). *Economic Impact Analysis of the Southern Spirit Transmission Project on the State of Mississippi*. Strategic Economic Research, LLC.

Loomis, D.G. (2020, February). *Economic Impact of the SOO Green HVDC Link Transmission Project on the State of Illinois*. Strategic Economic Research, LLC.

Loomis, D.G., Jo, J.H., & Aldeman, M.R. (2016). Economic impact potential of solar photovoltiacs in Illinois. *Renewable Energy*, 87(1), 253-258. https://doi.org/10.1016/j.renene.2015.10.021

Loomis, D., Carlson, J.L., & Payne, J. (2010). An Assessment of the Economic Impact of the Wind Turbine Supply Chain in Illinois. *The Electricity Journal*. 23(7). 75-93.

Loomis, D.G. (2020, December). *Economic Impact of Wind and Solar Energy in Illinois and the Potential Impacts of Path to 100 Legislation*. Strategic Economic Research, LLC.

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). https://www.ohio.edu/voinovich-school/news-resources/reports-publications/utility-scale-solar

Midcontinent Independent System Operator (MISO). (2015). *Economic Impact of MTEP In-service Projects from 2002-2015*. Accessed at https://cdn.misoenergy.org/Economic%20Impact%20of%20MTEP%20In-Service%20Projects271136.pdf

M.J. Bradley & Associates, LLC. (2017). *Powering America: The Economic and Workforce Contribution of the U.S. Electric Power Industry*. https://www.electric.coop/wp-content/uploads/2017/08/PoweringAmerica.pdf

National Renewable Energy Laboratory & Marshall Goldberg of MRG & Associates. (2010). *Jobs and Economic Development Impacts Wind Energy Model*. Release number W1.09.03e. http://www.nrel.gov/analysis/jedi/download.html

National Renewable Energy Laboratory (NREL). (2008a). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Arizona*. Technical Report DOE/GO-102008-2670, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44144.pdf

National Renewable Energy Laboratory (NREL). (2008b). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Idaho*. Technical Report DOE/GO-102008-2671, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44145.pdf

National Renewable Energy Laboratory (NREL). (2008c). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Maine*. Technical Report DOE/GO-102008-2672, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44146.pdf

National Renewable Energy Laboratory (NREL). (2008d). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Montana*. Technical Report DOE/GO-102008-2673, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44147.pdf

National Renewable Energy Laboratory (NREL). (2008e). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in New Mexico. Technical Report DOE/GO-102008-2679, October 2008. NREL, Golden, CO*. http://www.nrel.gov/docs/fy09osti/44273.pdf

National Renewable Energy Laboratory (NREL). (2008f). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Nevada*. Technical Report DOE/GO- 102008-2678, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44271.pdf

National Renewable Energy Laboratory (NREL). (2008g). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Pennsylvania*. Technical Report DOE/GO-102008-2680, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44274.pdf

National Renewable Energy Laboratory (NREL). (2008h). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in South Dakota*. Technical Report DOE/GO-102008-2681, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44275.pdf

National Renewable Energy Laboratory (NREL). (2008i). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Utah*. Technical Report DOE/GO-102008-2677, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44268.pdf

National Renewable Energy Laboratory (NREL). (2008j). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in West Virginia*. Technical Report DOE/GO-102008-2682, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44276.pdf

National Renewable Energy Laboratory (NREL). (2008k). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Wisconsin*. Technical Report DOE/GO-102008-2683, October 2008. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44277.pdf

National Renewable Energy Laboratory (NREL). (2009). *Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in North Carolina*. Technical Report DOE/GO-102009-2755, March 2009. NREL, Golden, CO. http://www.nrel.gov/docs/fy09osti/44916.pdf

National Renewable Energy Laboratory (NREL). (2013). *Estimated Economic Impacts of Utility Scale Wind Power in Iowa*. Technical Report NREL/TP-6A20-53187, November 2013. NREL, Golden, CO. http://www.nrel.gov/docs/fy14osti/53187.pdf

PowerTechnology. (2017, January). *Patriot Generating Station, Pennsylvania*. https://www.power-technology.com/projects/patriot-generating-station-pennsylvania/?cf-view

Solar Energy Industries Association (SEIA). (2020). *Solar Market Insight Report 2020 Q4*. https://www.seia.org/research-resources/solar-market-insight-report-2020-q4

Solar Energy Industries Association (SEIA). (2025). *Solar Market Insight Report Q1, 2025*. https://www.seia.org/us-solar-market-insight

Solar Energy Industries Association (SEIA). (2025). *Solar State by State* [Interactive Map]. https://seia.org/solar-state-by-state/

U.S. Energy Information Administration (EIA). (2023). *Monthly Generation Data by State, Producer Sector and Energy Source* [Data set]. Form EIA-923. https://www.eia.gov/electricity/data/eia923/

U.S. Energy Information Administration (EIA). (2024). *Henry Hub natural gas spot price fell to record lows in February*. https://www.eia.gov/todayinenergy/detail.php?id=61484

U.S. Energy Information Administration (EIA). (2024, February 22). *Use of natural gas-fired generation differs in the United States by technology and region.* https://www.eia.gov/todayinenergy/detail.php?id=61444

United States Census Bureau. (2024). *QuickFacts*. https://www.census.gov/

IX. Curriculum Vitae (Abbreviated)

David G. Loomis
Strategic Economic Research, LLC
President

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

2011-present Strategic Economic Research, LLC

- Performed over 400 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 over 90 times in formal proceedings before state legislative bodies, state public utility commissions, and county boards regarding wind, solar and transmission projects
- Grew the company from a single employee to a twenty-member staff team.

1996-2023 Illinois State University, Normal, IL

Professor Emeritus – Department of Economics (2023-present)

Full Professor – Department of Economics (2010-2023)

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

1997-2023 Institute for Regulatory Policy Studies, Normal, IL

Executive Director (2005-2023)

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

2007-2018 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
- Published 40 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
- 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.), Belmont University, Nashville, Tennessee, 2017.

Experience

2019-present Strategic Economic Research, LLC, Bloomington, IL

- Serve as lead analyst on economic impact reports, overseeing all aspects of analysis and report creation.
- Communicate with developers about economic impact, property tax, and land use analyses
- Provide third-party expert testimony on behalf of developers for special use permitting hearings
- Conduct non-standard analyses and memos for unique energy-related projects, such as statewide legislation, property tax impacts on school district state aid, and analyzing eligibility for energy community bonus adders to tax credits
- Oversee improvements to both reports and team processes

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

Expert Testimony

- Harper County (Kansas) Planning Board and Board of Zoning Appeals, on behalf of Flat Ridge Wind Farm (Invenergy), Direct Oral Testimony, October 18, 2022.
- Kingman County (Kansas) Planning Board and Board of Zoning Appeals, on behalf of Flat Ridge Wind Farm (Invenergy), Direct Oral Testimony, October 24, 2022.
- Logan County (Illinois) Board of Zoning Appeals, on behalf of Top Hat Wind Farm (Invenergy), Direct Oral Testimony, October 25, 2022.
- Knox County (Indiana) Board of Zoning Appeals, on behalf of Wheatland Solar Farm (Origis Energy), Direct Oral Testimony, November 1, 2022.
- Howard County (Indiana) Board of Zoning Appeals, on behalf of Emerald Green Solar Farm (Origis Energy), Direct Oral Testimony, February 28, 2023.
- Fulton County (Illinois) Board of Zoning Appeals, on behalf of South Fulton Solar Farm (Leeward), Direct Oral Testimony, March 1, 2023.

- Sedgwick County (Colorado) Board of Zoning Appeals, on behalf of Overland Pass East Solar Farm (National Renewable Solutions), Direct Oral Testimony, August 8, 2023.
- Dickinson and Emmet Counties (Kansas) Open House, on behalf of Red Rock Wind Farm (Invenergy), Subject Matter Expert, August 28-29, 2023.
- Vermilion County (Illinois) Board of Zoning Appeals, on behalf of Mural Solar Farm (Liberty Power), Direct Oral Testimony, January 10, 2024.

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

Christopher Thankan
Strategic Economic Research, LLC
Director of Economic Impact Analysis

Education

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

Experience

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

- 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

Strategic Economic Research, LLC

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

Strategic Economic Research, LLC

1604 Visa Drive Suite #1
Normal, IL 61761

strategiceconomic.com

815-905-2750