

APPENDIX D

ECONOMIC IMPACT STUDY



KINGWOOD SOLAR

ECONOMIC AND FISCAL IMPACT REPORT

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SILVERLODE
CONSULTING
A GBX Group Company



Table of Contents

Overview	1
About this Report.....	1
Project Profile.....	1
Data and Analysis	2
Report Definitions.....	3
Economic and Fiscal Impact Highlights	4
Job Creation	4
Fiscal Impacts	5
Construction Impacts in the State of Ohio	6
Permanent Operating Impacts in the State of Ohio	7
Construction Impacts in Greene County	8
Permanent Operating Impacts in Greene County.....	9
Study Methodology	10

Overview

About this Report

Silverlode Consulting was engaged by Haley & Aldrich, Inc., on behalf of Vesper Energy & Kingwood Solar I LLC, to estimate the economic and fiscal impacts of Kingwood Solar (the “Project”), the company’s proposed 175 megawatt (“MW”) utility-scale solar Project in Greene County, Ohio.

IMPLAN (IMpact Analysis for PLANning), one of the most widely used and accepted methodologies for estimating regional economic impacts, was used to complete the analysis. Vesper Energy provided the employment, payroll, construction, and other operational data necessary to prepare this analysis.

This analysis estimates the economic impact of the Kingwood Solar Project. Comparisons to the economic impacts of alternative uses of the Project site, including its current agricultural use, are outside the scope of this report.

Project Profile

Kingwood Solar is a 175 MW utility-scale solar project proposed to be located on approximately 1,500 acres in Xenia, Cedarville, and Miami Townships in Greene County, Ohio. The Project is being developed by Vesper Energy, an experienced team of professionals that has commercialized more than 680 MW of solar projects in the U.S.

The estimated cost to develop Kingwood Solar is \$196 million and the construction timeframe is anticipated to be 16 months, from June of 2022 through September of 2023. The operational lifespan of Kingwood Solar is expected to be 35 years.

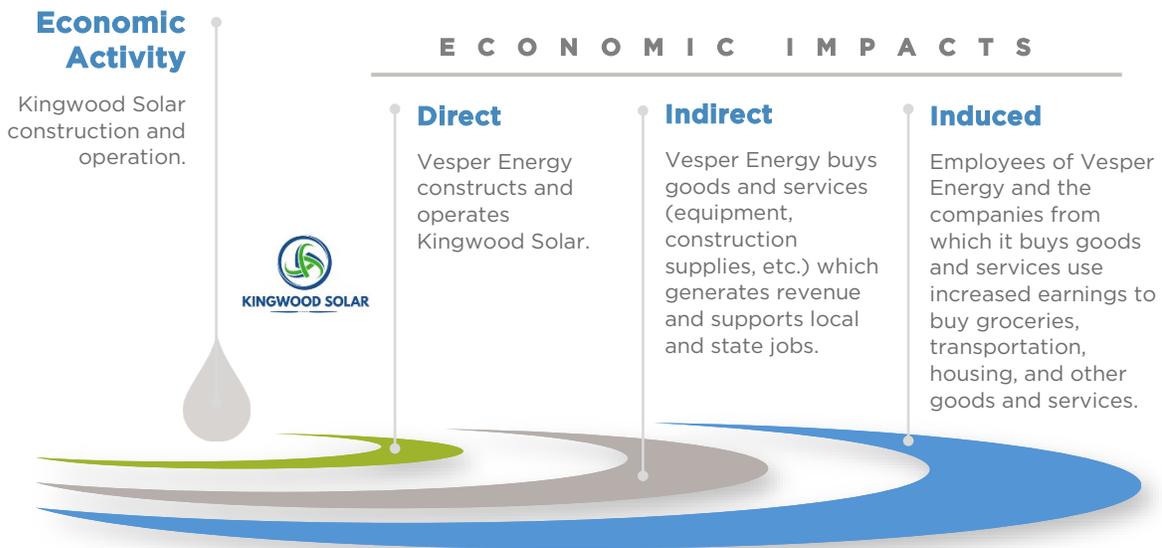
Data and Analysis

IMPLAN, one of the most well-respected and widely used methodologies for assessing regional economic impacts, was used to estimate the impact of the Project’s construction and ongoing operations. 2019 IMPLAN data, the most current data available at the time, was used for this study. Vesper Energy provided the employment, payroll, construction, and other operational data necessary to prepare this analysis.

Impacts arising from construction are shown separately from permanent operations in the summary tables throughout this report. Construction of the Project is estimated to take 16 months. Therefore, whereas permanent operating impacts reflect ongoing annual economic activity, construction impacts represent the one-time economic activity during the 16-month construction period. Construction jobs and households supported represent the number of jobs and households supported for the 16-month construction period.

Economic and fiscal impacts can be divided into component parts, which are referred to as Direct, Indirect, and Induced and can be described as follows:

- **Direct** — Activity attributable to Kingwood Solar’s construction and permanent operations (employees, associated payrolls, construction investments, etc.).
- **Indirect** — The economic activity of the entities that provide goods and services to Kingwood Solar (e.g., equipment manufacturers, construction material suppliers, and other suppliers and contractors).
- **Induced** — Activity arising from employee (both Direct and Indirect) spending.



Detailed definitions of the component parts, along with additional information about the IMPLAN methodology, appears in the Study Methodology section at the end of this report.

Report Definitions

The table below provides a reference of definitions for the items included in the summary tables and infographics of this report.

	Direct	Indirect and Induced
Economic Output	The total value of goods and services produced by the activity being modeled. Output is roughly equivalent to sales or revenue associated with the Direct activity.	IMPLAN estimate of the total value of goods and services produced by Indirect and Induced economic activity. Output is roughly equivalent to sales or revenue associated with this activity.
Jobs	Jobs directly engaged in the activity being analyzed.	IMPLAN estimate of the number of jobs supported by the purchase of goods and services by the activity being modeled (Indirect) as well as by changes in household spending (Induced).
Labor Income	Wages and benefits associated with Direct jobs.	IMPLAN estimate of the wages, benefits, and proprietor income associated with the Indirect and Induced economic activity.
Households Supported	IMPLAN estimate of the number of households supported by the economic activity being analyzed.	IMPLAN estimate of the number of households supported by Indirect and Induced economic activity.
State and Local Taxes	IMPLAN estimate of all taxes paid to state and local units of government as a direct result of the economic activity being analyzed.	IMPLAN estimate of all taxes paid to state and local units of government due to Indirect and Induced economic activity.

Economic and Fiscal Impact Highlights

Kingwood Solar will have a tremendous positive impact on the economies of Greene County and the State of Ohio. Some of the estimated economic benefits of Kingwood Solar to the State of Ohio are highlighted below:

\$112.12 million of economic activity during construction

\$7.76 million of annual economic activity from ongoing operations

180 Ohio construction jobs

Four high-paying, permanent Ohio full-time-equivalent jobs to operate the Project

\$7.44 million of visitor spending during construction

\$1.125 million of annual land lease payments to local property owners, with periodic escalation over time

\$4.32 million of state and local taxes generated during construction

Annual **state and local taxes of \$1.90 million** from operations, **including PILOT**

Job Creation

Construction will require an average of 225 construction workers working on-site for 16 months. 80% of the construction workers will be Ohio residents. Earnings associated with Ohio construction workers is estimated to be \$16 million.

Local construction workers will be utilized to the extent available, but a portion of the construction workers will travel to the site and will stay in local hotels on a long-term basis, resulting in significant food and lodging spending within the local economy during construction. Approximately \$7.44 million of food and lodging spending in Ohio is anticipated to result from construction of the Project.

The annual operations of the Project will create four high-paying permanent full-time-equivalent Ohio jobs. The annual payroll, including benefits, associated with the jobs is estimated to be \$443,000.

An estimated 440 direct, indirect, and induced jobs will be supported during the construction of the Project and 23 permanent direct, indirect, and induced jobs will be supported by ongoing operations.

In addition, Kingwood Solar will establish a relationship with an Ohio university or apprenticeship program for educational and training purposes. The relationship may include endowments, co-ops, internships, apprenticeships, R&D projects, and curriculum development. Impacts related to this relationship were not included in this report.

Fiscal Impacts

Kingwood Solar will generate \$4.32 million in state and local taxes in Ohio during the construction period. The Project will also generate an estimated \$1.90 million in state and local taxes (including the estimated annual Payment in Lieu of Tax of \$1.5 million) annually for the life of the Project, while requiring minimal municipal services.

As a result of Ohio's Payment in Lieu of Tax ("PILOT") program, which applies to solar energy projects, the Project is expected to generate approximately \$1.5 million in annual PILOT payments to the local community for the 35-year lifespan of the Project. These payments will largely support school districts and municipalities.

Construction Impacts in the State of Ohio



During construction, approximately \$58.80 million is estimated to be spent on Ohio-sourced goods and services. This construction activity will directly and indirectly support \$112.12 million of economic activity in the State of Ohio.

The Project will create 180 full-time construction jobs¹, as well as 152 indirect and 108 induced jobs, for a total of 440 Ohio jobs during the 16-month construction period.

An estimated \$32.77 million of labor income, including benefits, would be associated with the total jobs. These jobs and associated earnings will sustain an estimated 296 Ohio households during the 16-month construction period.

The Project’s construction activities will result in the generation of \$4.32 million of state and local annual taxes, which represents taxes generated from economic activity occurring within Ohio. This amount will largely support local municipalities and schools.

State of Ohio Construction Impacts



\$112.12 million
of economic output



440
jobs



\$32.77 million
of labor income



296
households supported



\$4.32 million
of state and local taxes

State of Ohio Construction Impact Detail

Construction Impacts	Direct	Indirect	Induced	Total
Economic Output	\$ 58,800,000	\$ 30,684,000	\$ 22,639,000	\$ 112,123,000
Jobs	180	152	108	440
Labor Income	\$ 16,000,000	\$ 9,677,000	\$ 7,093,000	\$ 32,770,000
Households Supported	121	102	73	296
State and Local Taxes				\$ 4,317,000

¹ Construction of the Project is estimated to take 16 months. Therefore, whereas permanent impacts reflect ongoing annual economic activity, construction impacts represent the total economic activity during the 16-month construction period.

Permanent Operating Impacts in the State of Ohio



Kingwood Solar will directly and indirectly support \$7.76 million of annual economic activity in the State of Ohio through its ongoing operations.

The Project will create four permanent, full-time-equivalent jobs in Ohio, as well as 13 indirect and six induced jobs, for a total of 23 jobs in Ohio.

An estimated \$1.31 million of annual labor income, including benefits, will be associated with the total jobs. These jobs and associated earnings will sustain approximately 16 Ohio households.

The Project will also result in approximately \$1.125 million in annual land lease payments, subject to periodic escalation, to landowners.

The Project's operating activities will result in the generation of \$1.90 million of state and local annual taxes annually, which represents state and local taxes generated from economic activity occurring within Ohio. This amount includes approximately \$1.5 million of annual PILOT payments, which will largely support local municipalities and schools during the life of the Project.

State of Ohio Permanent Operating Impacts



\$7.76 million
of economic output



23
jobs



\$1.31 million
of labor income



16
households supported



\$1.90 million
of state and local taxes

State of Ohio Permanent Operating Impact Detail

Permanent Impacts	Direct	Indirect	Induced	Total
Economic Output	\$ 4,003,000	\$ 2,902,000	\$ 851,000	\$ 7,756,000
Jobs	4	13	6	23
Labor Income	\$ 443,000	\$ 603,000	\$ 265,000	\$ 1,311,000
Households Supported	3	9	4	16
State and Local Taxes				\$ 1,897,000

Construction Impacts in Greene County



Kingwood Solar will directly and indirectly support \$22.20 million of economic activity in Greene County through its construction.

The Project will create 27 full-time construction jobs², as well as 85 indirect and 11 induced jobs, for a total of 123 jobs in Greene County during the 16-month construction period.

An estimated \$6.68 million of labor income, including benefits, will be associated with the total jobs. These jobs and associated earnings will sustain 82 Greene County households during the 16-month construction period.

The Project's construction activities will result in the generation of \$514,000 of county and local taxes annually, which represents taxes generated from economic activity occurring within Greene County. This amount will largely support local municipalities and schools.

Greene County Construction Impacts



\$22.20 million
of economic output



123
jobs



\$6.68 million
of labor income



82
households supported



\$514,000
of county and local taxes

Greene County Construction Impact Detail

Construction Impacts	Direct	Indirect	Induced	Total
Economic Output	\$ 8,820,000	\$ 11,479,000	\$ 1,900,000	\$ 22,199,000
Jobs	27	85	11	123
Labor Income	\$ 2,400,000	\$ 3,694,000	\$ 583,000	\$ 6,677,000
Households Supported	18	57	7	82
County and Local Taxes				\$ 514,281

² Construction of the Project is estimated to take 16 months. Therefore, whereas permanent impacts reflect ongoing annual economic activity, construction impacts represent the total economic activity during the 16-month construction period.

Permanent Operating Impacts in Greene County



Kingwood Solar will directly and indirectly support \$6.12 million of economic activity in Greene County, Ohio through its permanent ongoing operations.

The Project will create four permanent, full-time-equivalent jobs, as well as 9 indirect and two induced jobs, for a total of 15 jobs in Greene County.

An estimated \$870,000 of annual labor income, including benefits, will be associated with the total jobs. These jobs and associated earnings will sustain 10 Greene County households.

The Project will also result in approximately \$1.125 million in annual land lease payments, subject to periodic escalation, to landowners.

The Project’s operating activities will result in the generation of \$1.54 million of county and local taxes annually, which represents state county and local taxes generated from economic activity occurring within Greene County. This amount includes approximately \$1.5 million of annual PILOT payments, which will largely support local municipalities and schools during the life of the Project.

Greene County Permanent Operating Impacts



\$6.12 million
of economic output



15
jobs



\$870,000
of labor income



10
households supported



\$1.54 million
of county and local taxes

Greene County Permanent Operating Impact Detail

Permanent Impacts	Direct	Indirect	Induced	Total
Economic Output	\$ 4,003,000	\$ 1,865,000	\$ 250,000	\$ 6,118,000
Jobs	4	9	2	15
Labor Income	\$ 443,000	\$ 350,000	\$ 77,000	\$ 870,000
Households Supported	3	6	1	10
County and Local Taxes				\$ 1,537,077

Study Methodology

About IMPLAN

Portions of this analysis were completed using the IMPLAN (IMPact Analysis for PLANning) economic impact modeling system. IMPLAN is an input-output model that was originally developed by the U.S. Forest Service in the 1970s and is one of the most respected and widely used approaches to regional economic impact analysis. IMPLAN is used by more than 1,000 universities, government agencies, and consultants to estimate the economic and fiscal impacts of investments and/or changes in one or more industries. Data underlying the IMPLAN model is partially derived from industry surveys conducted periodically by the U.S. Bureau of Economic Analysis (BEA), as well as other sources.

Terminology

A **Direct** effect describes an initial, or first-round change in the economy and is the starting point for economic impact analysis. Changes in an economy create “ripples” of economic activity throughout the region being analyzed. These ripples are described as Indirect and Induced effects. A positive Direct effect causes increased purchases within the economy being modeled, as well as “leakage” of economic activity out of the economy being studied in the form of imports into the economy from other areas outside the economy. Generally speaking, Direct describes activity attributable to the economic activity being modeled.

Indirect effects represent changes in the industries that provide goods and services to the economic activity being modeled (e.g., suppliers, service providers, etc.). Indirect effects occur in a repeating cycle but diminish in each round as economic activity “leaks” from the region being modeled. Indirect effects cease when the last dollar of economic activity leaks from the economy being studied. Indirect effects are estimated using IMPLAN.

Induced effects represent the impact of changes in household spending resulting from the Direct and Indirect effects. Like Indirect effects, Induced effects occur in repeating cycles, but diminish in each round as economic activity “leaks” from the region being modeled. Induced effects cease when the last dollar of economic activity leaks from the economy being studied. Induced effects are estimated using IMPLAN.

Total Impact refers to the final cumulative result of all rounds of Direct, Indirect, and Induced economic activity.

About Silverlode Consulting

Silverlode Consulting was founded in 2002 by two leaders of EY's and PwC's consulting practices. As a national leader in the field of economic impact analysis, we have helped hundreds of organizations, ranging from non-profit arts groups to multi-national corporations, to measure their impacts on their communities and communicate those impacts to their stakeholders. By meticulously estimating and effectively communicating the direct, indirect, and induced jobs, earnings, taxes and other impacts of projects, the presence of an organization, or an investment in a community, our work has helped clients to gain approvals, secure funding, and positively shift public opinion. More information about our firm and our work in economic impact analysis can be found on our website at www.silverlodeconsulting.com.

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