



# **Economic Impacts of Hecate Energy Highland 2, LLCs Proposed 35 MW Solar Development in Highland County, Ohio**

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## **Final Report**

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Prepared for  
Hecate Energy Highland 2, LLC

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# ECONOMIC IMPACTS OF HECATE ENERGY HIGHLAND 2, LLCs PROPOSED 35 MW SOLAR DEVELOPMENT IN HIGHLAND COUNTY, OHIO

## Background

This report describes the projected employment, labor income, and other economic impacts that would result from the installation, operations, and maintenance of a 35 megawatt (MW) solar installation in Highland County, Ohio. Hecate Energy Highland 2, LLC (Hecate), a developer, owner, and operator of solar projects, is proposing to construct and operate the 35 MW solar installation in Highland County. The company plans on using local labor and purchasing goods and services from local businesses whenever possible. BBC Research & Consulting (BBC) calculated the direct and secondary employment, output, and labor income impacts that would be created by Hecate's proposed solar project. This report presents the findings from BBC's economic impact analysis of the potential impacts on the economy of Highland County. This IMPLAN-based analysis quantifies the direct and secondary economic impacts that would occur as a result of Hecate's activities.

## Summary of Findings

The economic impacts of the installation, operation, and maintenance of Hecate's 35 MW project will occur in Highland County. The installation of this facility will directly create an average of 53 jobs over a 9-month period. Employees would receive approximately \$3.3 million in income during the 9-month installation phase of the project. An additional 3 permanent jobs will be created to operate and maintain the facility on an ongoing basis. The 3 employees would receive a combined annual income of \$150,000 for the 35-year life of the project. In total, the company's activities would create 207 job-years of employment, including both direct and secondary positions. Direct and secondary employees in Highland County would receive a cumulative total of \$9.5 million in labor income during the 35-year operational life of the project, generating \$68.9 million of economic output in the County during that time.

## Project Description

Figure 1 shows the direct employment and expenditure projections for Hecate's proposed 35 MW solar project in Highland County. As part of the proposed project, Hecate would employ an average of 53 people during the 9-month installation of the 35 MW facility. During this time, employees would receive a total income of \$3.3 million. Once the 35 MW facility is operational, Hecate would employ an average of 3 full-time employees to operate and maintain the facility on an ongoing basis. These employees would receive a combined annual income of \$150,000 for the 35-year operational life of the project.

**Figure 1.**  
**Direct employment and expenditures for Hecate's proposed solar facility in Highland County**

	Total	Duration
<b>Employment</b>		
Installation of 35 MW solar array	53 <sup>(1)</sup>	9 months
Operations and maintenance	3	35 years
<b>Expenditures</b>		
Installation of 35 MW solar array (income)	\$3.3 million	9 months
Annual operations and maintenance income	\$0.150 million	35 years

Note: 1) The direct employment effect is a monthly average over the 9-month installation phase of the project.

2) All financial figures are given in 2020 dollars.

Source: Hecate Energy Highland 2, LLCs.

### Methods for Analysis

BBC used the IMPLAN regional economic modeling system to estimate the direct and secondary regional economic effects from Hecate's proposed project as described in Figure 1. IMPLAN is an input-output model originally developed by the U.S. Forest Service that is now widely used for impact analysis by public and private sector economists throughout the United States. Input-output analysis is a means of representing an economy by examining relationships between types of businesses as well as between businesses and final consumers. The analysis captures all monetary market transactions for consumption in a given period. The resulting mathematical representation allows examination of the effect of a change in one or more economic activities on an entire economy, with all other factors held constant. Input-output analysis also provides multipliers, which are used to estimate secondary effects.

In an input-output analysis, direct effects refer to the initial round of spending from the activity being studied (e.g., the payroll and supplies, materials, and services purchased for the project). Secondary effects refer to the economic activity which results from the purchase of goods and services by the other local businesses that receive payments from the directly-affected operation (in this case, Hecate's solar energy project). Secondary effects also include the economic activity which results from the purchase of household goods and services by employees of the project and the indirectly-affected businesses. Output represents the value of industry production, measured in 2020 dollars. IMPLAN measures output as annual production estimates reported in producer prices.

**Study Area.** BBC constructed an IMPLAN model to estimate the total economic effects of both the installation and operation of Hecate's 35 MW facility in Highland County. Hecate plans on purchasing many of the goods and services required for the project from firms in the state of Ohio. While some of these firms may be located in Highland County, some may not. When goods and services are purchased outside of the County, it is considered leakage from the local economy; those outside effects do not produce economic impacts in the model. Hecate's business model is designed to reduce leakage, although some of the materials required for the project may need to be purchased from outside the County and potentially from outside the state. The IMPLAN model accounts for such leakages.

## Impacts in Highland County

BBC analyzed the economic impacts of installing, operating, and maintaining Hecate's 35 MW solar facility in Highland County. The impacts that each activity would have on the County's economy are discussed below.

**Installation.** During installation of Hecate's 35 MW solar facility, the company would directly employ 53 people, on average, during the 9-month installation phase of the project (Figure 2). Monthly employment during this phase would vary from a low of 13 employees to a high of 90 employees. Over the entire installation phase of the project, Hecate's employees would receive labor income of \$3.3 million.

**Figure 2.**  
**Impacts from installation activities of Hecate's 35 MW solar facility in Highland County**

	Employment	Labor Income	Total Output
Direct Effect <sup>(1)</sup>	53	\$3,311,736	\$3,311,736
Secondary Effect	14	\$374,724	\$1,522,434
<b>Total</b>	<b>67</b>	<b>\$3,686,461</b>	<b>\$4,834,171</b>

- Note:
- 1) The direct employment effect is a monthly average over the 9-month installation phase of the project.
  - 2) All financial figures are given in 2020 dollars.
  - 3) Labor income is a component of total output.
  - 4) Employment numbers include both full and part-time positions.

Source: IMPLAN; BBC Research & Consulting.

The secondary effects of spending by the workers employed during the installation phase are shown in Figure 2. Hecate's employees would spend some of their income on goods and services in the County during the 9-month installation phase. The effects of this spending would create an additional 14 jobs in Highland County. The secondary employment would create an additional \$374,724 in labor income and an additional \$1.5 million of economic output. In total, the 9-month installation phase would create 67 jobs, \$3.7 million of labor income, and \$4.8 million of economic output in Highland County.

**Operations and Maintenance.** Once Hecate's 35 MW solar facility is operational, it will require ongoing employment to support its operations and maintenance. Hecate will directly employ 3 full-time staff to support these activities, including equipment operators, electricians, and mechanics (Figure 3). Hecate's direct operations and maintenance staff will receive combined incomes of \$150,000 in labor income each year during the operational life of the project. On average, facility employees will earn \$50,000 annually. The company will produce approximately \$1.8 million in direct output, annually.

**Figure 3.**  
**Annual impacts of operations and maintenance activities at Hecate's proposed 35 MW solar facility in Highland County**

	Employment	Labor Income	Total Output
Direct Effect	3	\$150,000	\$1,755,000
Secondary Effect	<u>1</u>	<u>\$16,800</u>	<u>\$74,412</u>
<b>Total</b>	<b>4</b>	<b>\$166,800</b>	<b>\$1,829,412</b>

- Note: 1) All financial figures are given in 2020 dollars.  
 2) Labor income is a component of total output.  
 3) Employment numbers include both full and part-time positions.

Source: IMPLAN; BBC Research & Consulting.

The secondary effects of spending by the operations and maintenance employees are shown in Figure 3. Hecate's employees would spend some of their income on goods and services in the County during each year of the project's operational life. The effects of this spending would create an additional job in Highland County. The secondary employment would create an additional \$16,800 in labor income and an additional \$74,412 of economic output each year. In total, the annual operation and maintenance of the project would create and sustain 4 jobs, \$166,800 of labor income, and \$1.8 million of economic output in Highland County.

**Cumulative Impacts.** BBC estimated the cumulative economic impact of Hecate's activities in Highland County over the 35-year operational life of the project (Figure 4). The cumulative effects include the impacts of the 9-month installation phase and 35 years of operations and maintenance. Employment figures are described in job-years, which measures the number of jobs created as well as their duration. As an example, creating one job for four years would have the same economic impact as creating four jobs for one year. For simplicity, the jobs created during the 9-month installation phase are counted over a full calendar year.

**Figure 4.**  
**Cumulative impacts from Hecate's activities in Highland County**

	Employment	Labor Income	Total Output
Direct Effect	158	\$8,561,736	\$64,736,736
Secondary Effect	<u>49</u>	<u>\$962,724</u>	<u>\$4,126,854</u>
<b>Total</b>	<b>207</b>	<b>\$9,524,461</b>	<b>\$68,863,591</b>

- Note: 1) All financial figures are given in 2020 dollars.  
 2) Labor income is a component of total output.  
 3) Employment numbers include both full and part-time positions.  
 4) Employment reported in job-years.

Source: IMPLAN; BBC Research & Consulting.

The installation, operations, and maintenance of Hecate's 35 MW solar project would create 158 direct job-years of employment and 49 secondary job-years of employment in Highland County. In total, the activities would create 207 job-years of employment. The employees would receive a cumulative total of \$9.5 million in labor income during the 35-year operational life of the solar facility, generating \$68.8 million of economic output in Highland County during that time.

**Fiscal Impacts.** In addition to the positive economic impacts created by Hecate's project, Hecate's activities would also create positive fiscal impacts for county and state governments through payroll taxes, property taxes, and sales taxes. BBC used the IMPLAN tool to estimate the fiscal impacts of Hecate's activities in Highland County and the State of Ohio. Hecate's proposed activities in Highland County would create approximately \$118,000 in fiscal impacts for the County and the State during the installation phase of the project. Once the 35 MW solar facility is operational, it would generate approximately \$123,000 of fiscal impacts over the lifespan of the project due to project payrolls. The project will likely also generate property taxes for Highland County subject to exemptions allowed by Ohio state law and discussions between Hecate and the County.

**This foregoing document was electronically filed with the Public Utilities**

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Summary: Exhibit Application Exhibit C (Part 2) electronically filed by Ms. Karen A. Winters on behalf of Hecate Energy Highland 4 LLC