

Arche Solar Project

Case No. 20-0979-EL-BGN



Exhibit E

**Socioeconomic Report
(Redacted Version)**

Socioeconomic Report

Arche Solar

Gorham Township,
Fulton County, Ohio

Prepared for:



Arche Energy Project, LLC
a wholly-owned subsidiary of 7X Energy, Inc.
3809 Juniper Trace, Suite 100
Austin, TX 78738
Contact: Cliff Scher, Director of Project Development
Tel: 866.298.1632

Prepared by:



Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P: 315.471.0688
F: 315.471.1061
www.edrdpc.com

June 2020

TABLE OF CONTENTS

EXECUTIVE SUMMARY	iv
Introduction.....	1
Part I: Socioeconomic Profile	1
1. Population Trends	1
2. Employment statistics.....	3
Part II: Regional Development Impacts	6
1. Housing	7
2. Commercial and Industrial Development.....	8
3. Transportation	8
4. Local and Regional Plans.....	9
5. Concurrent or Secondary Uses	10
Part III: Measuring Economic Impacts	11
1. Calculating Economic Benefits	11
2. Methodology.....	12
Part IV: Economic Impact on the Local Economy	16
1. New Jobs in the Local Economy	16
2. Local Economic Impact: Construction Phase	16
3. Local Economic Impact: Operations and Management Phase.....	17
4. Land Lease Payments.....	18
Part V: Local Tax Revenues.....	18
1. Legislative Context	18
2. Estimated Payments In Lieu Of Taxes	19
Part VI: Conclusion.....	19
References	20
Figures.....	21

LIST OF TABLES

Table 1: Countywide Population Trends	
Table 2: Local Population Trends	2
Table 3: Local Labor Force and Unemployment	3
Table 4a: Employment and Payroll by NAICS Sector in Fulton County	3
Table 4b: Employment and Payroll by NAICS Sector in Williams County	4
Table 4c: Employment and Payroll by NAICS Sector in Lenawee County	5
Table 4d: Employment and Payroll by NAICS Sector in Hillsdale County	5
Table 5: Study Area Housing Characteristics	7
Table 6: Adjustments Made to JEDI Model Cost Inputs	13
Table 7: Local Economic Impacts	16

LIST OF FIGURES

Figure 1: 5-Mile Study Area	
Figure 2: Regional Facility Location	

EXECUTIVE SUMMARY

On behalf of Arche Energy Project, LLC (the Applicant), Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) has prepared this socioeconomic report for the proposed Arche Solar project (the Facility), a 143 megawatt of direct current (MW_{DC}) (107 MW alternating current MW_{AC}) solar power generating facility located in Gorham Township, Fulton County, Ohio. The Facility is located just south of the Ohio-Michigan border, approximately 1 mile east of the Village of Fayette, Ohio, and approximately 4.5 miles southwest of the City of Morenci, Michigan (see Figure 1: 5-Mile Study Area). The closest metropolitan area in Ohio is the City of Defiance, located approximately 25 miles south of the Facility (see Figure 2: Regional Facility Location). The Facility will consist of photovoltaic (PV) panels, along with access roads, electric collection cables, a collection substation, a short generation interconnection (gen-tie) line (approximately 100 ft), a laydown area for construction staging, an operation and maintenance (O&M) building, and pyranometers. The energy generated at the Facility will deliver power to the existing East Fayette substation, located adjacent to the existing 138 kilovolt (kV) transmission line.

The focus of this report is to assess the potential socioeconomic impacts of the proposed Facility on the two local municipalities, nine townships, and four counties that are within a 5-mile radius from the Facility (the Study Area) (See Figure 1). It reviews relevant conditions throughout the area and interprets trends and patterns of change as represented by several demographic and economic indicators. Potential impacts including those to employment, earnings, and overall economic output resulting from the Facility are then assessed considering the current socioeconomic conditions within the Study Area.

The construction and operation of the Facility will have positive impacts throughout the local and statewide economy. Businesses involved in on-site Facility construction and operations, as well as those associated throughout the industrial supply chain, are expected to see a measurable increase in the demand for their services. In addition, the earnings by workers during construction and operation of the Facility are expected to generate additional spending, creating a “ripple effect” throughout the economy. Using the Jobs and Economic Impact (JEDI) Model, a model established by the National Renewable Energy Laboratory (NREL), with results shown in Table ES-1, it is estimated that Facility construction could increase on-site and off-site employment by 655 workers statewide with total earnings of approximately \$39.5 million. The operation and maintenance of the installed Facility is estimated to increase on-site and off-site employment demand by an additional 11 workers statewide annually, with total annual earnings of approximately \$0.6 million. The total value of on-site and off-site industrial production and induced benefits in the statewide economy associated with Facility construction is estimated at \$79.0 million, and at \$1.3 million annually during operation.

Table ES-1. Estimated Summary Results of Statewide Jobs and Economic Impact Analysis

	Jobs	Earnings (Millions)	Output (Millions)
Construction			
Project Development and On-site Labor Total	321	\$20.0	\$24.3
Construction & Interconnection Labor	166	\$10.7	-
Construction-Related Services	156	\$9.2	-
Module & Supply Chain Impacts	190	\$11.7	\$30.4
Induced Impacts	144	\$7.9	\$24.3
Total Impacts	655	\$39.5	\$79.0
Annual Operation			
On-site Labor Impacts	5	\$0.2	\$0.2
Module & Supply Chain Impacts	2	\$0.1	\$0.4
Induced Impacts	4	\$0.2	\$0.8
Total Impacts	11	\$0.6	\$1.3

Source: NREL JEDI Model (version PV12.23.16) (USDOE NREL, 2020). Cost values verified by the Applicant in June 2020

Notes: Earnings and Output values are millions of dollars in 2020 dollars. Construction and operating period jobs are full-time equivalent for one year (1 FTE = 2,080 hours). "During operating years" represent impacts that occur from system/ plant operations/ expenditures. Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

Furthermore, the Facility is anticipated to have a positive impact on local taxing jurisdictions through payments in lieu of taxes (PILOT) and other payments. Taxing jurisdictions located within the Study Area that would receive payments include Fulton County and Gorham Township. The PILOT amount will total \$802,500 in the first year of construction and continue annually for the lifespan of the Facility. The Facility will not impose significant additional burdens on municipal and school district services and thus will not increase the costs to the nearby communities.

These estimates suggest that the construction and operation of Arche Solar will have a positive economic impact on the communities within the Study Area. Through lease payments to private landowners, short- and long-term job creation, and tax payments to the taxing jurisdictions, the Facility will supply a revenue stream to each of these jurisdictions without requiring significant services or expenditures on their behalf.

Introduction

The focus of this report is to assess the potential socioeconomic impacts of the proposed Facility on the two local municipalities, nine townships, and four counties that are within a 5-mile radius from the Facility Area (See Figure 1). It reviews relevant conditions throughout the area and interprets trends and patterns of change as represented by several demographic and economic indicators. Potential impacts including those to employment, earnings, and overall economic output resulting from the Facility are then assessed considering the current socioeconomic conditions within the Study Area. When such comparison is informative, state and federal demographic and economic data also are included. Unless noted otherwise, the Study Area for this report includes the following 11 jurisdictions in Fulton, Williams, Hillsdale, and Lenawee counties, all of which are found wholly or partially within the Study Area.

- Chesterfield Township
- Gorham Township
- Village of Fayette
- Franklin Township
- German Township
- Dover Township
- Mill Creek Township
- Medina Township (MI)
- Seneca Township (MI)
- City of Morenci (MI)
- Wright Township (MI)

Part I of this report presents a socioeconomic profile of the Study Area and the State of Ohio, including a demographic profile with specific data on population trends, projected population growth, and civilian labor force data. Part II reviews the types of potential impacts that could be experienced throughout the region, including those regarding housing demand, commercial and industrial employment, and transportation networks. Part III describes the methods of analysis of potential economic benefits provided within this report, including an overview of the JEDI Model. The results of the JEDI Model are presented in Part IV, which describes the jobs created by the construction and operation of the Facility, as well as a summary of payments to landowners as a result of land leases. Part V reviews the potential impacts of the Facility from the perspective of local taxing jurisdictions. The findings of the report are summarized in Part VI, which is followed by a reference list.

Part I: Socioeconomic Profile

1. Population Trends

As shown in Figure 1, the majority of the 5-Mile Study Area is located within Fulton County. However, a portion of the Study Area includes Lenawee County (Michigan) and the peripheries of Williams County (Ohio) and Hillsdale County (Michigan). At a local level (see Table 2), population is projected to decrease for jurisdictions other than German Township, Dover Township, and the City of Morenci. Study Area jurisdictions with declining populations are mostly rural communities with under 100 people per square mile (see Table 2).

Table 1: Countywide Population Trends

County	2000 Population	2018 Population	Annual Growth Rate (2000-2018)	Projected 2030 Population	Projected Total Growth (2018-2030)	2018 Population Density (people per square mile)
Fulton County (OH)	41,654	42,305	0.2%	42,748	1.0%	104
Hillsdale County (MI)	45,046	45,830	0.2%	46,365	1.2%	75
Lenawee County (MI)	93,744	98,474	0.6%	101,838	3.4%	129
Williams County (OH)	38,105	36,936	-0.4%	36,188	-2.0%	87

Source: U.S. Census Bureau, Decennial Census, ACS 5-Year Estimates (2014-2018), population projections based on respective 2000-2018 growth rates.

Table 2: Local Population Trends

Jurisdiction within a 5-Mile Radius of Facility	2000 Population	2018 Population	Annual Growth Rate (2000-2018)	Projected 2030 Population	Projected Total Growth (2018-2030)	2018 Population Density (people per square mile)
Chesterfield Township	1,050	988	-0.3%	950	-3.9%	34
Dover Township	1,468	1,743	1.0%	1,974	13.2%	81
Franklin Township	739	610	-1.0%	543	-11.0%	21
German Township	6,355	6,416	0.1%	6,457	0.6%	126
Gorham Township	2,372	2,221	-0.4%	2,129	-4.2%	51
Medina Township (MI)	1,215	978	-1.1%	858	-12.3%	21
Mill Creek Township	900	828	-0.4%	785	-5.2%	34
Seneca Township (MI)	1,303	1,054	-1.1%	927	-12.0%	26
Wright Township (MI)	1,785	1,757	-0.1%	1,739	-1.0%	40
City of Morenci (MI)	2,351	2,501	0.4%	2,609	4.3%	1,185
Village of Fayette	372	353	-0.3%	341	-3.4%	384

Source: U.S. Census Bureau Decennial Census (2000), ACS 5-Year Estimates (2014-2018), population projections based on respective 2000-2018 growth rates.

The population trends experienced by each community from 2000 to 2018 are expected to continue regardless of whether the proposed Facility is built. Regionally, as indicated in Table 1, the area grew in population from 2000-2018, except for Williams County. Projections of continued population growth into 2030 range from 1.0% and 1.2% in Fulton County and Hillsdale County, respectively, to 3.4% in Lenawee County.

Although employment related to the construction of the Facility will be substantial, this employment is relatively short-term and is not expected to result in the permanent relocation of construction workers to the area; therefore, the Facility is not anticipated to generate significant population growth within the Study Area. The number of potential short- and long-term employment opportunities associated with the construction and operation of the Facility is discussed in further detail below.

2. Employment statistics

Table 3 illustrates the size of the local labor force in counties within 5 miles of the proposed Facility, as well as the broader State of Ohio and the State of Michigan. The total annual unemployment rate for the counties has been relatively lower than the statewide totals over the past three years. Annual average unemployment rates have decreased both state-wide and county-wide from 2016 to 2018.

Table 3: Local Labor Force and Unemployment

Jurisdiction	Labor Force	Employed	Unemployed	2016 Annual Unemployment Rate	2017 Annual Unemployment Rate	2018 Annual Unemployment Rate
State of Ohio	5,901,307	5,549,577	343,232	7.2%	6.5%	5.8%
State of Michigan	4,923,316	4,589,487	321,008	8.5%	7.4%	6.5%
Fulton County	21,832	20,788	1,044	6.2%	5.9%	4.8%
Hillsdale County	20,405	19,370	1,023	7.6%	6.1%	5.0%
Lenawee County	46,810	44,374	2,365	7.4%	5.9%	5.1%
Williams County	18,568	17,734	809	5.8%	5.0%	4.4%

Note: Not Seasonally Adjusted, Source: U.S. Bureau of Labor Statistics, July 2019.

Tables 4a-d illustrate 2018 employment in Fulton, Williams, Lenawee, and Hillsdale counties, broken down by sector.

Table 4a: Employment and Payroll by NAICS Sector in Fulton County

NAICS code description	Number of full and part-time employees*	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Total for all sectors	(x)	(x)	(x)	(x)
Mining, quarrying, and oil and gas extraction	(x)	(x)	(x)	(x)
Utilities	(x)	(x)	(x)	(x)
Construction	(x)	(x)	(x)	(x)
Manufacturing	(x)	(x)	(x)	(x)
Wholesale trade	424	4,609	19,545	45
Retail trade	1,713	10,801	43,561	147
Transportation and warehousing	324	3,337	14,746	41
Information	105	1,120	4,564	16
Finance and insurance	370	5,198	18,914	57
Real estate and rental and leasing	85	604	2,650	19
Professional, scientific, and technical services	216	1,880	8,530	45
Administrative and support and waste management and remediation services	475	2,553	11,034	34
Educational services	46	44	221	5
Health care and social assistance	1,905	16,775	69,635	108

NAICS code description	Number of full and part-time employees*	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Arts, entertainment, and recreation	e	D	D	14
Accommodation and food services	975	2,616	11,638	77
Other services (except public administration)	266	1,703	7,045	75
Industries not classified	(x)	(x)	(x)	(x)

* Paid employment (Mid-March employment) consists of full- and part-time employees, including salaried officers and executives of corporations, who are on the payroll in the pay period including March 12. Included are employees on paid sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses.

e: 250-499 employees; D: Withheld to avoid disclosing data for individual companies; data included in higher level totals. While there are establishments engaged in industry sector, the number of establishments and receipts cannot be shown.; (x)=data unavailable

Source: U.S. Census Bureau, 2019

Table 4b: Employment and Payroll by NAICS Sector in Williams County

NAICS code description	Number of full and part-time employees*	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Total for all sectors	(x)	(x)	(x)	(x)
Agriculture, forestry, fishing and hunting	(x)	(x)	(x)	(x)
Mining, quarrying, and oil and gas extraction	(x)	(x)	(x)	(x)
Utilities	(x)	(x)	(x)	(x)
Construction	(x)	(x)	(x)	(x)
Manufacturing	(x)	(x)	(x)	(x)
Wholesale trade	587	5,902	24,004	42
Retail trade	1,373	7,436	30,411	129
Transportation and warehousing	1,109	10,169	43,706	32
Information	75	1,828	3,570	10
Finance and insurance	268	3,023	12,140	53
Real estate and rental and leasing	69	459	1,950	17
Professional, scientific, and technical services	203	1,991	8,032	32
Management of companies and enterprises	(x)	(x)	(x)	(x)
Administrative and support and waste management and remediation services	450	2,456	10,932	28
Educational services	34	171	719	5
Health care and social assistance	1,774	19,879	78,070	71
Arts, entertainment, and recreation	63	188	760	11
Accommodation and food services	978	2,877	12,451	71
Other services (except public administration)	356	2,101	8,929	63
Industries not classified	(x)	(x)	(x)	(x)

* Paid employment (Mid-March employment) consists of full- and part-time employees, including salaried officers and executives of corporations, who are on the payroll in the pay period including March 12. Included are employees on paid sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses. (x)=data unavailable. Source: U.S. Census Bureau, 2018.

Table 4c: Employment and Payroll by NAICS Sector in Lenawee County

NAICS code description	Number of full and part-time employees*	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Total for all sectors	22,800	213,720	882,888	1,827
Agriculture, forestry, fishing and hunting	a	S	S	4
Mining, quarrying, and oil and gas extraction	(x)	(x)	(x)	(x)
Utilities	c	S	S	3
Construction	743	7,833	42,994	172
Manufacturing	5,496	76,908	300,204	119
Wholesale trade	557	6,950	30,278	70
Retail trade	3,520	22,851	93,084	285
Transportation and warehousing	718	6,906	31,607	61
Information	394	2,971	12,001	27
Finance and insurance	833	13,537	55,539	105
Real estate and rental and leasing	173	1,086	5,654	62
Professional, scientific, and technical services	465	4,029	17,467	118
Management of companies and enterprises	102	4,234	13,303	8
Administrative and support and waste management and remediation services	686	4,495	21,621	83
Educational services	1,250	8,024	34,463	15
Health care and social assistance	3,067	30,490	125,858	247
Arts, entertainment, and recreation	302	1,730	9,117	35
Accommodation and food services	2,697	9,114	39,357	181
Other services (except public administration)	1,664	9,754	39,525	228
Industries not classified	5	36	151	4

* Paid employment (Mid-March employment) consists of full- and part-time employees, including salaried officers and executives of corporations, who are on the payroll in the pay period including March 12. Included are employees on paid sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses.

(x): data unavailable; a: 0-19 employees; c: 100-249 employees; S: withheld because estimate did not meet publication standards.

Source: U.S. Census Bureau, 2018.

Table 4d: Employment and Payroll by NAICS Sector in Hillsdale County

NAICS code description	Number of full and part-time employees*	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Total for all sectors	10,870	102,281	417,353	743
Agriculture, forestry, fishing and hunting	16	235	1,079	3
Mining, quarrying, and oil and gas extraction	358	2,506	11,972	69
Utilities	(x)	(x)	(x)	(x)
Construction	(x)	(x)	(x)	(x)

NAICS code description	Number of full and part-time employees*	First-quarter payroll (\$1,000)	Annual payroll (\$1,000)	Total establishments
Manufacturing	4,095	50,216	199,425	73
Wholesale trade	290	2,904	13,513	37
Retail trade	1,376	9,257	37,161	125
Transportation and warehousing	144	1,389	5,830	27
Information	105	739	3,053	10
Finance and insurance	278	3,816	14,557	45
Real estate and rental and leasing	30	145	951	15
Professional, scientific, and technical services	226	1,867	8,020	51
Management of companies and enterprises	(x)	(x)	(x)	(x)
Administrative and support and waste management and remediation services	430	2,881	13,180	25
Educational services	f	S	S	6
Health care and social assistance	1,376	12,562	49,492	95
Arts, entertainment, and recreation	43	177	862	12
Accommodation and food services	87	2,651	11,689	65
Other services (except public administration)	525	2,541	10,488	91
Industries not classified	(x)	(x)	(x)	(x)

* Paid employment (Mid-March employment) consists of full- and part-time employees, including salaried officers and executives of corporations, who are on the payroll in the pay period including March 12. Included are employees on paid sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses.

f: 500-999 employees; (x): data unavailable; S: Withheld because estimate did not meet publication standards.

Source: U.S. Census Bureau, 2018

While not captured in the 2018 US Census data demonstrated in Tables 4a through 4d, the agricultural sector plays a substantial role within the Study Area. USDA National Agricultural Statistics Service (NASS) indicates that Fulton County had 1,210 agricultural producers and 425 agricultural operations, and Williams County had 1,340 agricultural producers and 594 agricultural operations (USDA NASS, 2017). Michigan counties have an even higher amount of agricultural operations and producers, with Lenawee County having 1,988 producers and 831 operations and Hillsdale County having 2,212 producers and 843 operations (USDA NASS, 2017).

Part II: Regional Development Impacts

The regional economy surrounding the Study Area is shaped in large part by both the agricultural economy of Fulton, Hillsdale, Lenawee, and Williams counties and the manufacturing economy of the greater Toledo metropolitan region. As a primarily agricultural economy in proximity to a manufacturing hub, this area has made substantial progress toward stabilization and growth as it emerges from the recent recession. The regional context for the development of this Facility is discussed in further detail below in terms of three primary components: housing, commercial and industrial

development, and transportation. In addition, the compatibility of the proposed Facility with regional developmental goals and plans is reviewed.

1. Housing

Table 5: Study Area Housing Characteristics

Municipality/ County/ State	Total housing units	Occupied units	Vacant units	Vacancy rate (%)		Median housing value of owner- occupied units	Median gross rent	households with gross rent > 35% of household income
				Home- owner	Rental			
State of Michigan	4,580,939	3,909,509	671,430	1.6	5.2	\$146,200	\$850	39.4%
State of Ohio	5,188,270	4,654,075	534,195	1.6	5.6	\$140,000	\$788	36.2%
Fulton County	17,520	16,425	1,095	0.5	3.9	\$137,000	\$707	31.0%
Hillsdale County (MI)	21,943	17,904	4,039	1.3	3.2	\$112,000	\$699	33.9%
Lenawee County (MI)	43,751	38,222	5,529	1.0	3.7	\$133,300	\$763	38.4%
Williams County	16,660	15,246	1,414	0.7	5.8	\$98,300	\$684	33.3%
Chesterfield Township	450	392	58	0.0	0.0	\$131,100	\$930	16.7%
Dover Township	693	616	77	0.0	0.0	\$113,600	\$927	62.0%
Franklin Township	250	234	16	0.0	0.0	\$136,300	\$ (x)	0.0%
German Township	2,602	2,418	184	1.1	3.2	\$145,100	\$657	34.0%
Gorham Township	995	921	74	0.0	4.7	\$87,800	\$614	30.8%
Medina Township (MI)	454	410	44	0.0	0.0	\$102,500	\$977	45.7%
Mill Creek Township	325	313	12	0.0	0.0	\$105,300	\$658	37.0%
Seneca Township (MI)	493	462	31	0.0	5.9	\$106,000	\$885	55.0%
Wright Township (MI)	789	624	165	0.0	8.8	\$70,700	\$775	21.7%
City of Morenci (MI)	1,028	949	79	0.0	0.0	\$75,300	\$776	50.5%
Village of Fayette	623	583	40	0.0	5.3	\$71,200	\$597	21.8%

(x) = data unavailable. Source: U.S. Census Bureau, American Community Survey 5-Year Estimates 2014-2018.

Within the region, housing is relatively affordable and there are low vacancy rates relative to the statewide housing markets in Michigan and Ohio. Rental prices vary across the localities, ranging greatly between townships and providing a diversity of housing options in the region. Within this stable housing market, more than 12,000 housing units within the quad-county area are estimated to be currently vacant, 780 of which occur within the Study Area localities. Given these figures, in addition to the declining population projections discussed in Part II of this report, it is not expected that the development of the Facility will have a significant impact on the regional housing market. While the Facility development may not represent a widespread boom for rental property owners, it is worth noting that the availability of vacant rental housing also indicates that the Facility should not have a destabilizing effect on current renters.

2. Commercial and Industrial Development

The diversification of Ohio's energy generation portfolio will have significant positive economic impacts. At both regional and national levels, the state has a relatively high capacity as a solar energy producer. In a recent report, the Environmental Law & Policy Center found that Ohio has the second-highest solar capacity within the Midwest region, at 119 MW of installed capacity at the time of the report (ELPC, 2016). At a national level, the Solar Foundation ranked Ohio 30th in the U.S. for installed solar capacity (The Solar Foundation, 2019). Furthermore, there is tremendous capacity for growth in Ohio due to an established manufacturing base and trained workforce, its central location and reliable transportation infrastructure, and a diverse array of research centers and technical advisory services in the region (ELPC, 2016).

The Environmental Law & Policy Center estimated that the State of Ohio is currently home to 207 solar power supply chain businesses, including many component and equipment manufacturers. Many of the state's plastic and glass manufacturers have taken advantage of the growing demand for solar by becoming suppliers for these components and equipment. The 2019 Solar Jobs Census reports that Ohio ranks in the top seven states for solar jobs, with 7,282 workers in the solar industry (a 1.7% increase over 2018). Most these jobs (57%) were for installation, while the remainder were for manufacturing (28%), wholesale trade distribution (10%), operation and maintenance (3%), and other fields (3%). Since 2018, jobs in the field of installation and operations have increased, while jobs in the manufacturing and distribution fields have decreased slightly (The Solar Foundation, 2019). Although the rate of job growth in Ohio's solar industry is beginning to plateau (solar jobs increased by 21.2% in 2016, 11.8% in 2017, 10.5% in 2018, and 1.7% in 2019), the steady and continued solar industry growth reflects the industry's stable foothold in the state. Given the economic disruption currently underway at the time of submission of this report, due to COVID-19, additional employment in the solar industry sector may be especially welcome.

While the state's current energy generation portfolio aims for a 8.5% overall renewable energy component by 2026, Environment Ohio estimated that if Ohio solar increased to 10% of the state's total energy generation portfolio by 2025, the state would have the potential to produce 25 times as much electricity from solar power as it consumes annually. To meet this target, solar installations would have to continue increasing at 52% annually (Environment Ohio, 2014). With the recent increases in its PV capacity (68% between 2013 and 2014), Ohio is on a path to achieving this target.

3. Transportation

The region surrounding the Facility features U.S. and Ohio highways, a network of county and local roads, rail lines, and small airports. These facilities are described in more detail below.

The primary transportation routes to the Facility are U.S. Route 20, which runs east-west through the northern part of the Facility, and county roads 21-2, 22, and 23, which intersect the Facility. Though a transportation route has not been finalized for the Facility, the anticipated route of component delivery and travel will be along Interstate 80/90 to State

Route 66 to U.S. Route 20. The proposed Facility is not expected to cause any substantial disruption to major transportation corridors serving the Study Area, as most solar photovoltaic components and equipment are relatively small and require only relatively low impact means of transport.

One freight rail line operated by Norfolk Southern Corporation runs through the Study Area. The rail line runs southwest-northeast and bisects the northwest part of the Study Area. Norfolk Southern has significant operations, serving nearly all metropolitan areas east of the Mississippi River, and the portion of rail extending through the Study Area is part of the statewide primary corridor. The rail system is not anticipated be used for the transportation of any Facility components.

The Facility is also located approximately 4 miles southeast of a private airport that is no longer operating. Operation of the Facility is not expected to result in any adverse impacts to the regional air transportation network.

4. Local and Regional Plans

The proposed site for the Facility is in Gorham Township, Fulton County, Ohio. The surrounding 5-mile Study Area is comprised of land in both Michigan and Ohio, including four counties, nine townships, one city, and one village. Within Ohio, the 1998 Fulton County Comprehensive Plan stands as the guiding planning document for Gorham, Chesterfield, Franklin, German, and Dover townships, as well as the Village of Fayette. The other Ohio county in the Study Area, Williams County, does not have a comprehensive plan, nor does Mill Creek Township. In Michigan, the 2002 Lenawee County Comprehensive Land Use Plan acts as the principle planning document for the county, including Medina and Seneca townships. The City of Morenci (MI) is guided by a 2016 City of Morenci Master Land Use Plan. Neither Hillsdale County nor Wright Township have land use plans. Descriptions of plans from Study Area jurisdictions and their compatibility with the Facility are described as follows.

- a. 1998 Fulton County Comprehensive Plan - The 1998 Fulton County Comprehensive Plan is complimented by a Natural Resource Amendment which was prepared in 2004 and updated in 2011. Fulton County is in the process of creating an updated comprehensive plan with a 20-year horizon; however, the 1998 plan and its amendments act as the document of reference until the updated plan is adopted. The 1998 Comprehensive Plan is primarily concerned with land use strategies that will promote economic stability and conserve resources to serve future residents. Sprawl mitigation and appropriate land use is a theme throughout the plan. As stated in the plan, "Fulton County seeks to preserve its heritage and character as it grows. This means establishing a plan that keeps the cities and villages from growing together into a single mass" (p. 13). The Facility is aligned with the goal of this plan to prevent inappropriate suburban development from encroaching on the county's open space. Furthermore, the Facility would not significantly disturb or damage agricultural viability of the land in a manner which would prevent future farming activities. Economic development goals include providing adequate land for a full range of economic opportunities in commercial,

service, and industrial segments and increasing local employment within the county. The Facility is compatible with these goals, as it represents a diversification of the economic landscape, as well as new job creation through the construction and operational phases. The 2004 Natural Resource Amendment includes a summary of Ohio and Fulton County's solar resource, mapped solar energy projects, a list of incentives for solar projects, and a general endorsement of solar and other renewables for Fulton County.

- b. 2002 Lenawee County Comprehensive Land Use Plan - This plan describes the county as rural and agricultural, dotted with small towns and rural residential development. Like the Fulton County Plan, sprawl prevention and preservation of farmland are prioritized. The generalized goals in this plan include coordinated land use planning and zoning with communities working together to solve common problems, reduction of land use conflicts, efficient and well maintained transportation system, coordinated and planned infrastructure improvements, reduction of urban sprawl, preservation of farmland and open space, protection of the natural environment, and a proper balance between the need for community rights and individual property rights. The document reviews and provides strategies related to Lenawee County's population, housing, economy, land use trends, natural features, parks and recreation, public facilities, and transportation. While solar and other renewable energy facilities are not specifically addressed in this plan, the Facility is compatible with the overall agricultural use of the area by providing supplemental income for existing landowners to continue existing agricultural practices. The Facility does not adversely affect other goals and initiatives in the plan surrounding housing, transportation, or land use.
- c. The City of Morenci is partially included within the 5-mile Study Area. The city's Master Land Use Plan was adopted in 2016 and updated in 2017 to establish a set of development and redevelopment policies. Goals within this plan relate to improving housing stock, safety, and economic opportunities for residents while maintaining the city's small-town atmosphere. The Facility does not adversely affect these housing, safety, and economic goals and initiatives in the plan.

5. Concurrent or Secondary Uses

The Applicant has no plans for concurrent or secondary use of the Facility. The public will be prohibited from entering the Facility, which will be enclosed by perimeter fencing. On occasion, guided tours of the Facility by qualified personnel may allow designated members of the public to enter one or more of the solar fields for limited periods of time. These prohibitions against entry, as well as warnings regarding the dangers of high-voltage equipment, will be displayed on appropriate signage throughout the Facility.

Part III: Measuring Economic Impacts

1. Calculating Economic Benefits

Quantifying the economic impacts of the proposed Project is essential to understanding the potential benefits that the Facility could have on the local economy. Solar power development, like other commercial development projects, can expand the local economy through both direct and indirect means. Income generated from direct employment during the construction and operation phases of the Facility will subsequently be used to purchase local goods and services, creating a ripple effect throughout the local economy. This report analyzes three levels of impact that the proposed Facility is expected to have on the economy:

- **On-site labor impacts:** These are the direct impacts experienced by the companies engaged in the construction and operation of the Facility. This value estimates the dollars spent on labor and professional services by project developers, consultants, and construction contractors, as well as on O&M personnel. On-site labor impacts do not reflect material expenditures.
- **Local revenue and supply chain impacts:** These impacts measure the estimated increase in demand for goods and services in industry sectors that supply or otherwise support the companies engaged in construction and operation (also known as “backward-linked” industries). Indirect measures account for the demand for goods and services such as project components, project analysis, legal services, financing, and insurance.
- **Induced impacts:** Induced impacts measure the estimated effect of increased household income resulting from the Facility. Induced impacts reflect the reinvestment of earned wages, as measured throughout the first two levels of economic impact. This reinvestment can occur anywhere within the economy, such as on household goods, entertainment, food, clothing, and transportation.

Each of these three categories can be measured in terms of three indicators: jobs (as expressed through the increase in employment demand), the amount of money earned through those jobs, and the overall economic output associated with each level of economic impact. These indicators are described in further detail as follows:

- **Jobs:** Jobs refer to the increase in employment demand as a result of the development of the Facility. These positions are measured across each level of impact, such that they capture the estimated number of jobs on site, in supporting industries, and in the businesses that benefit from household spending. For the purposes of this analysis, this term refers to the total number of year-long full-time equivalent (FTE) positions created by the development. Persons employed for less than full time or less than a full year are included in this total, each representing a fraction of an FTE position (e.g., a half-time, year-round position is 0.5 FTE).

- **Earnings:** This measures the wages earned by the employees described above, including the employer payroll overhead. Employer payroll overhead refers to the additional percentage of wages employers spend to pay for employee health benefits, workers compensation, disability insurance, social security, etc.
- **Output:** Output refers to the value of industry production in the state or local economy, across all appropriate sectors, associated with each level of impact. For the manufacturing sector, output is calculated by total sales plus or minus changes in inventory. For the retail sector, output is equal to gross profit margin. For the service sector, it is equal to sales volume. As an example, output would include the profits incurred by those businesses that sell electrical transmission cable or motor vehicle fuel for use in the Facility.

2. Methodology

The employment and economic impacts of the Facility were assessed using the Jobs and Economic Development Impact (JEDI) photovoltaics model (version PV12.23.16). The JEDI model was created by the National Renewable Energy Laboratory (NREL)—a government-owned, contractor-operated laboratory funded by the U.S. Department of Energy (USDOE) to assess the economic impacts of proposed solar energy generating facilities during both the construction and operation phases (USDOE NREL, 2020). This model allows users to estimate jobs, earnings, and economic output by impact level (described below) using facility-specific data provided by the Applicant (such as year of construction, size of project, module type, and location) and geographically defined multipliers. These multipliers are produced by IMPLAN Group, LLC using a software/database system called IMPLAN (IMpact analysis for PLANning), a widely-used and widely-accepted general input-output modeling software and data system that tracks each unique industry group in every level of the regional data (IMPLAN Group, 2019). The most currently available IMPLAN multipliers (2018) for the State of Ohio were used during the time of analysis (March 2020).

Using the JEDI model to calculate the number of jobs and economic output from a proposed facility is a two-step process. The first step requires facility-specific data inputs. For purposes of the JEDI model, the Applicant has assumed the following facility-specific inputs:

- Project Location: State of Ohio
- Year of Construction: 2021
- System Application: Utility-Scale
- Nameplate Capacity: 143 MW_{DC}
- Module Material: Crystalline Silicone
- System Tracking: Single Axis
- Base Installed System Cost: <BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>
- Annual Operations and Maintenance Cost: <BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>
- Money Value (Dollar Year): 2020

Using this facility-specific data, the JEDI model then creates a list of default values, which include default project cost values, default tax values, default lease payment values, and default local share of spending values. These default values are derived from 10 years of research by NREL, and stem from various sources, including interviews and surveys of leading project owners, developers, engineering and design firms, and construction firms active in the solar energy sector.

The second step of the JEDI model methodology requires the review, and, if warranted, the customization of default project cost values to more reasonable estimates. The Applicant reviewed the default project cost values and statewide shares. As a result of that review, adjustments were made to specific default values, which are subtotaled by each of the following categories in the JEDI model (see Table 6): Materials and Equipment during Installation (i.e., Construction), Labor during Installation (i.e., Construction), Other Costs during Installation (e.g., permitting and overhead during Construction), Labor during Operation & Maintenance (O&M), Materials and Services during Operation & Maintenance, Debt Financing, Tax Parameters, Payroll Parameters.

<BEGIN CONFIDENTIAL INFORMATION>

Table 6: Adjustments Made to JEDI Model Cost Inputs

Facility Expenditure Categories	JEDI Default Value	Adjusted Value	Change
Construction Materials & Equipment Costs	\$55,876,792	████████	████████
Construction Labor Total Costs	\$9,426,836	████████	████████
Construction - Other Costs	\$56,246,373	████████	████████
Construction Materials and Equipment Sales Tax	\$0	████████	████████
Operating/Maintenance Labor Costs	\$557,700	████████	████████
Operating/Maintenance Materials and Services	\$371,800	████████	████████
Operating/Maintenance Materials/Equip. Sales Tax	\$0	████████	████████
Local Property Tax Payments	\$0	████████	████████
Payroll Parameters Construction Worker Hourly Wage	████████	████████	████████
Payroll Parameters O&M Technician Hourly Wage	████████	████████	████████
Payroll Parameters O&M Technician Employer Overhead	45.6%	████████	████████

Source: Jobs and Economic Development Impact Model (USDOE NREL, 2017); Cost values verified by the Applicant in June 2020.

<END CONFIDENTIAL INFORMATION>

a. Capital and Intangible Costs

In addition to the aforementioned construction costs specified as inputs for the JEDI analysis, the Applicant is presenting additional capital and intangible cost details for the purposes of responding to the Certificate Application requirements.

i. Estimated Capital and Intangible Costs by Alternative

The total estimated capital and intangible costs of the Facility are **<BEGIN CONFIDENTIAL INFORMATION>** [REDACTED] **<END CONFIDENTIAL INFORMATION>**. As described in Section 4906-4-04 of the Application, the Applicant has not proposed alternative project areas. Therefore, no cost comparison between alternatives is available.

ii. Cost Comparison with Similar Facilities

Installed project costs compiled by the U.S. Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Laboratory) in December 2019 indicate that the capital costs of the Facility are in line with recent industry trends. The Berkeley Laboratory compilation shows that capacity-weighted average installed costs in 2018 averaged roughly \$1,640/kW_{AC} (Bolinger, Seel, & Robson, 2019). By way of further comparison, installed solar project costs in the midwestern region in 2018 had a median of around \$1,600/kW_{AC} (Bolinger, Seel, & Robson, 2019). These costs are slightly higher than the average cost estimated for the Facility, which could be attributed to locational and system size differences. However, the estimated cost of the Facility is not substantially different from other Facilities completed the Applicant.

iii. Present Worth and Annualized Capital Costs

Capital costs will include development costs, construction design and planning, equipment costs, and construction costs. The costs will be incurred within a year or two of start of construction. Therefore, a present worth analysis is essentially the same as the costs presented above **<BEGIN CONFIDENTIAL INFORMATION>** [REDACTED] **<END CONFIDENTIAL INFORMATION>**. As alternative project areas and facilities were not considered in this Application, the capital cost information in this section is limited to the proposed Facility.

b. Operation and Maintenance Expenses

In addition to the aforementioned O&M costs specified as inputs for the JEDI analysis, the Applicant is presenting additional O&M cost details for the purposes of responding to the Certificate Application requirements.

i. Estimated Annual Operation and Maintenance Expenses

For the first two years of commercial operation, staffing is estimated to be **<BEGIN CONFIDENTIAL INFORMATION>** [REDACTED] **<END CONFIDENTIAL INFORMATION>**. O&M costs are estimated at **<BEGIN CONFIDENTIAL INFORMATION>** [REDACTED] **<END CONFIDENTIAL INFORMATION>**, including staffing costs.

ii. Operation and Maintenance Cost Comparisons

O&M costs are a significant component of the overall cost of solar projects but can vary widely between facilities. The Berkeley Laboratory has compiled O&M cost data for 48 installed utility-scale solar power projects in the United States, totaling 900 MW_{AC} of capacity, with commercial operation dates of 2011 through 2018. In general, facilities installed more recently have incurred lower O&M costs than those installed in 2011. Specifically, capacity-weighted average O&M costs for projects constructed in 2011 equal \$32/kW_{AC}-year. The O&M costs dropped to around \$16/kW_{AC}-year for projects installed in 2015, and to \$19/kW_{AC}-year for projects installed in the 2018 (Bolinger, Seel, & Robson, 2019). According to the Berkeley Laboratory, this decrease could be the result of utility companies capturing economies of scale as their solar operations grow over time. The O&M costs for the Facility are estimated to be approximately **<BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>**, depending on the maturity of the project each year of its life cycle. These estimated O&M costs exclude any other ongoing expenses related to environmental monitoring, property taxes, land royalties, reverse power, and insurance. These costs will be consistent with the average costs compiled by the Berkeley Laboratory, as described above. The O&M costs for the Facility are not anticipated to be significantly different from other facilities the Applicant operates, which averaged approximately **<BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>**

iii. Present Worth and Annualized Operation and Maintenance

The annual O&M costs will be subject to real and inflationary increases. Therefore, these costs are expected to increase with inflation after the first two years. The net present value of the O&M costs per kW, assuming a 30-year Facility life, and inflation rate of 2% and a 6% discount rate, is estimated at **<BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>**. As alternative project areas and facilities were not considered in this Application, the O&M cost information in this section is limited to the Facility.

c. Cost of Delays

Monthly delay costs would depend on various factors. If the delay were to occur in the permitting stage, the losses would be associated with the time value of money resulting from a delay in the timing of revenue payments. This is estimated to be approximately **<BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>** per month on average for the first year. If the delay were to occur during construction, costs would include lost construction days and those associated with idle crews and equipment. This is estimated to be approximately **<BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION>**. There could also be penalties associated with failing to meet a

delivery deadline under a potential Power Purchase Agreement. In addition, significant losses would be incurred if the delays prevented the Facility from meeting deadlines to qualify for the existing federal Investment Tax Credit. Prorating these one-time delay costs monthly would not be meaningful, as the lost opportunity is triggered at a single deadline and does not accrue over time.

Part IV: Economic Impact on the Local Economy

The results of the socioeconomic analysis are illustrated in Table 7 below and summarized in the narrative that follows. The results shown in Table 7 describe the potential impact of the Facility on industries throughout the state, including the direct labor impacts that occur specifically within the local economy.

Table 7: Local Economic Impacts

During Construction Period	Jobs	Earnings (Millions)	Output (Millions)
On-site Labor and Project Development	321	\$20.0	\$24.3
Construction and Installation Labor	166	\$10.7	-
Construction Related Services	156	\$9.2	-
Module and Supply Chain Impacts	190	\$11.7	\$30.4
Induced Impacts	144	\$7.9	\$24.3
Total Construction Impacts	655	\$39.5	\$79.0
During Operating Years (Annual)	Jobs	Earnings (Millions)	Output (Millions)
On-site Labor Impacts	5	\$0.2	\$0.2
Local Revenue and Supply Chain Impacts	2	\$0.1	\$0.4
Induced Impacts	4	\$0.2	\$0.8
Total Annual Operational Impacts	11	\$0.6	\$1.3

Notes: Earnings and Output values are millions of dollars in 2020 dollars. Construction and operating period jobs are full-time equivalent for one year (1 FTE = 2,080 hours). Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table. Source: NREL JEDI Model (version PV12.23.16) (USDOE NREL, 2017)

1. New Jobs in the Local Economy

Demand for new jobs associated with the Project will be created during both the initial construction period and the years in which the Facility is in operation. The money injected into the statewide economy through the creation of these jobs will have long-term, positive impacts on individuals and businesses in Ohio as it ripples through the economy.

2. Local Economic Impact: Construction Phase

Based upon JEDI model computations, it is anticipated that construction of the proposed Facility will directly generate employment of an estimated 321 on-site construction and project development personnel FTE positions with a projected wage rate of <BEGIN CONFIDENTIAL INFORMATION> ██████████ <END CONFIDENTIAL INFORMATION> per hour and 45.6% employer payroll overhead. Module trade and supply chain industries could in turn generate an

additional 190 jobs over the course of Facility construction. In addition, Facility construction could induce demand for 144 jobs through the spending of additional household income. The total impact of 655 new jobs could result in up to approximately \$39.5 million of earnings, assuming a 2021 construction start and wage rates consistent with statewide and nationwide averages. The estimated national wage rate for solar photovoltaic installers is \$22.12 per hour (U.S. Bureau of Labor Statistics, 2018). Furthermore, project construction labor wages for similar construction positions within Ohio range from approximately \$22 per hour for all installation, maintenance and repair operations, and around \$50 per hour for construction management occupations (U.S. Bureau of Labor Statistics, 2019). Local employment will primarily benefit those in the construction trades, including laborers and electricians. Facility construction will also require workers with specialized skills, such as panel assemblers, specialized excavators, and high voltage electrical workers. It is anticipated that many of the highly specialized workers may come from outside of the area and remain only for the duration of construction.

In addition to jobs and earnings, the construction of the Facility is expected to have a positive impact on economic output, a measurement of the value of goods and services produced and sold by backward-linked industries. As described in the definition above, output provides a general measurement of the amount of profit earned by manufacturers, retailers, and service providers connected to a given project. The value of economic output associated with construction of the Facility is estimated to be \$24.3 million. Between workers' additional household income and industries' increased production, the impacts associated with the Facility are likely to be experienced throughout many different sectors of the statewide economy. Pursuant to Section 5727.75 of the Ohio Revised Code (ORC), the Facility may qualify for tax incentives based on the degree to which it employs in-state construction labor (see Part V).

3. Local Economic Impact: Operations and Management Phase

Based upon JEDI model computations, the operation and maintenance of the proposed Facility is estimated to generate five direct FTE jobs with estimated annual earnings of approximately \$0.2 million. Wage rates for the direct operational employees are projected to be <BEGIN CONFIDENTIAL INFORMATION>■■■■<END CONFIDENTIAL INFORMATION> per hour with 45.6% employer payroll overhead, consistent with Ohio state averages estimated to be approximately \$22 per hour for installation, maintenance, and repair occupations (U.S. Bureau of Labor Statistics, 2019).

Operations and maintenance of the Facility also should generate new jobs in other sectors of the economy through supply chain impacts and the expenditure of new and/or increased household earnings. These impacts may include restaurant, hospitality, and other tourism-derived local spending from employees and visitors to the Facility. Increased employment demand throughout the supply chain is estimated to result in approximately two jobs with annual earnings of approximately \$0.1 million. In addition, it is estimated that four jobs with associated annual earnings of \$0.2 million will be induced through the increased household spending associated with Facility operations. In total, while in

operation, the Facility is estimated to generate demand for 11 jobs with annual earnings of approximately \$0.6 million. Total economic output is estimated to increase by \$1.3 million as a result of Facility operation and maintenance.

4. Land Lease Payments

Construction and operation of the Facility will result in payment to local landowners in association with the lease agreements executed to host Facility components. These annual lease and easement payments will offer direct benefits to participating landowners, which will be in addition to any income generated from the surrounding land use (e.g., agricultural production). The development of the Facility will result in payments prior to construction of an estimated <BEGIN CONFIDENTIAL INFORMATION> [REDACTED] <END CONFIDENTIAL INFORMATION> to the current owners of a portion of the Project Area. Annual lease payments to the remaining landowners are estimated at approximately <BEGIN CONFIDENTIAL INFORMATION> [REDACTED] [REDACTED] <END CONFIDENTIAL INFORMATION>.

Part V: Local Tax Revenues

1. Legislative Context

Solar energy projects in the State of Ohio can be exempted from tangible personal property and real property tax payments if they meet certain conditions. These conditions are enumerated in Section 5727.75 of the ORC. Operators of these exempted projects, known as qualified energy projects (QEP), are instead required to make annual payments in lieu of taxes (PILOT). In order to be certified as a QEP by the State, a project must meet all of the following criteria:

- an application for certification of the energy project as a QEP that complies with the requirements under Section 5727.75 of the ORC and Chapter 122:23-1 of the OAC must be submitted to the director of the Ohio Development Services Agency (ODSA) on or before December 31, 2022;
- an application under Section 4906.20 of the ORC must be submitted to the Ohio Power Siting Board (OPSB) on or before December 31, 2022;
- the county commissioners of the county in which property of the project is located must have adopted a resolution approving the application submitted to ODSA or the county commissioners must pass a resolution declaring the county an alternative energy zone (AEZ);
- construction (defined as either the date the application for a certificate is filed with OPSB or the date the contract for construction or installation is entered into, whichever is earlier) must begin by January 1, 2023.

If an applicant is granted exemption from taxation for any of the tax years 2011 through 2023, the QEP will be exempt from taxation for tax year 2024 and all ensuing years, as long as the property was placed into service before January 1, 2024. The amount of PILOT to be paid annually to the county treasurer is assessed per megawatt (MW) of nameplate

capacity, with the rate of \$7,000/MW. County commissioners may require an additional service payment, as long as the total of the additional payment and the PILOT do not exceed \$9,000 per MW.

2. Estimated Payments In Lieu Of Taxes

The model assumed that the Applicant would execute a PILOT agreement, which would require annual PILOT payments to Fulton County. These funds would then be apportioned to Gorham Township and Fayette Local School District within the Facility. All components of the Facility will be located in Gorham Township in Fulton County. As an estimate for JEDI analysis, a \$7,500/MW PILOT rate was assumed by the Applicant. Based on a maximum Facility capacity of 107 MW_{AC}, the PILOT amount will total approximately \$802,500 annually for the lifespan of the Facility. The Facility is expected to achieve commercial operations as early as 2022 and have a lifespan of approximately 30 years.

Part VI: Conclusion

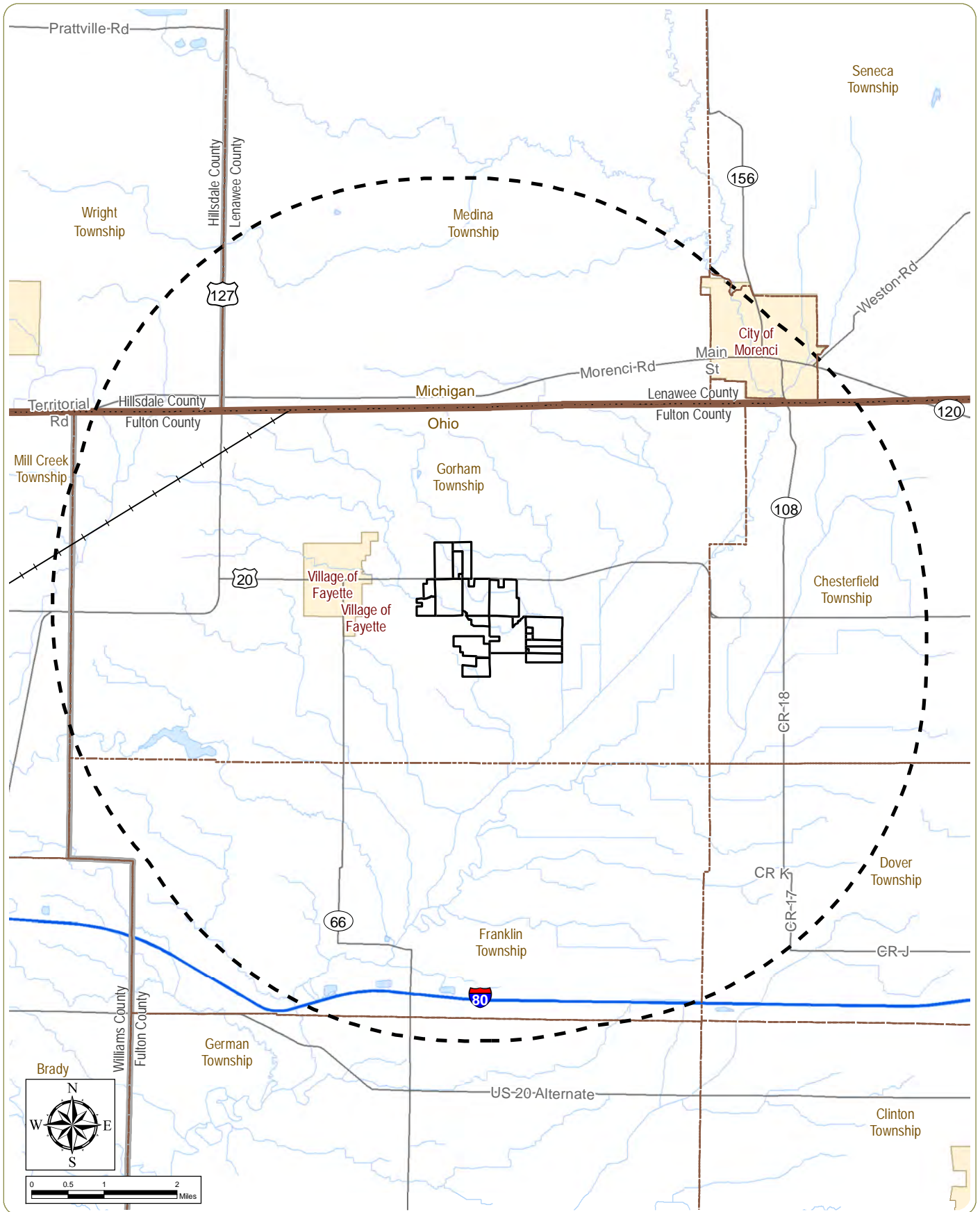
The socioeconomic effects of the Facility, when assessed considering state economic trends, will have a positive impact on the communities within the Study Area. Lease payments, short- and long-term job creation, and PILOT revenues will benefit private landowners, businesses, and taxing jurisdictions. The Facility is not expected to generate significant expenditures on behalf of these beneficiaries; therefore, it will have a positive impact on the social and economic conditions of these communities.

1. Total Local Economic Benefit: The construction of the Facility is projected to produce an estimated \$39.5 million in employment earnings and \$79.0 million in total economic output. Subsequently, each year the Facility is operational it is projected to generate approximately \$0.6 million in earnings and \$1.3 million in total economic output.
2. Local Employment Benefits: During the construction period, the Facility is projected to support demand for a total estimate of 655 on-site, supply chain, and induced employment positions. It is projected to support an estimated total of 11 positions during each year of its operation.
3. Land Lease Revenues: The development of the Facility will result in payments prior to construction of an estimated **<BEGIN CONFIDENTIAL INFORMATION>** **<END CONFIDENTIAL INFORMATION>** to the current owners of a portion of the Project Area. Annual lease payments to the remaining landowners are estimated at approximately **<BEGIN CONFIDENTIAL INFORMATION>** **<END CONFIDENTIAL INFORMATION>**.
4. Property Tax Revenues: Construction of the proposed Facility will increase local government revenues through payments in lieu of taxes (PILOTs). It is estimated that annual PILOT revenues could amount to approximately \$802,500 per year to be distributed to local taxing jurisdictions.

References

- Bolinger, M., Seel, J., & Robson, D. (2019, December). Utility Scale Solar: Empirical Trends in Project Technology, Cost, Performance, and PPA Pricing in the United States - 2019 Edition. Retrieved June 2020, from Berkeley Lab: https://eta-publications.lbl.gov/sites/default/files/lbnl_utility_scale_solar_2019_edition_final.pdf
- City of Morenci, MI Master Land Use Plan. 2016. Available at: <http://www.cityofmorenci.org/Government/CityCouncil/MasterPlan.aspx>. (Accessed May 2020).
- Environmental Law & Policy Center (ELPC). 2016. Ohio Solar and Wind Power Supply Chain Businesses. Available at: <http://elpc.org/newsroom/publications/> (Accessed May, 2020).
- Environment Ohio Research & Policy Center (Environment Ohio). 20014. Star Power: the Growing Role of Solar Energy in Ohio. Available at http://www.environmentohio.org/sites/environment/files/reports/OH_Star_Power_v5_screen.pdf (Accessed May 2020).
- Fulton County Comprehensive Plan. 1998. Available at <https://www.fultoncountyoh.com/338/Documents>. (Accessed May 2020).
- Lenawee County Comprehensive Land Use Plan. 2002. Available at <http://mirisingtide.org/wp-content/uploads/Lenawee-County-Comprehensive-Plan.pdf>. (Accessed May 2020).
- Natural Resource Amendment to the Fulton County Comprehensive Plan of 1998. 2011. Available at <https://www.fultoncountyoh.com/DocumentCenter/View/58/Natural-Resource-Amendment-2011> (Accessed May 2020).
- The Solar Foundation. 2019. Ohio Solar Jobs Census 2019. Available <https://www.solarstates.org/#state/ohio/counties/solar-jobs/2019> (Accessed May 2020).
- U.S. Census Bureau, 2000. Decennial Census, General Population Data. Available at: <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> (Accessed June 2020).
- U.S. Census Bureau. 2014-2018. American Community Survey County – Household, Population and NAICS Characteristics (web database portal). Available at: <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> (Accessed June 2020).
- U.S. Department of Agriculture National Agricultural Statistics Service (USDA NASS). 2017 QuickStats Query Tool. Available at: <https://quickstats.nass.usda.gov/results/8712CFDE-1304-35C8-A1B0-6307B3C137B7> (Accessed July 2020).
- U.S. Department of Energy (USDOE) National Renewable Energy Laboratory (NREL). 2017. Jobs and Economic Development Impact (JEDI) model release PV12.23.16. (Accessed from NREL in November 2017).
- U.S. Department of Energy (USDOE) National Renewable Energy Laboratory (NREL). 2020. About JEDI. Available at: <https://www.nrel.gov/analysis/jedi/about.html> (Accessed June 2020).
- U.S. Department of Labor (USDOL) Bureau of Labor Statistics. 2017, 2018, and 2019. Local Area Unemployment Statistics. Available at: <http://www.bls.gov/lau/data.html> (Accessed June 2020).
- U.S. Department of Labor (USDOL) Bureau of Labor Statistics. 2019. May 2019 State Occupational Employment and Wage Estimates Ohio. Available at https://www.bls.gov/oes/current/oes_oh.htm#47-0000 (Accessed May, 2020).

Figures



Arche Solar Energy Project

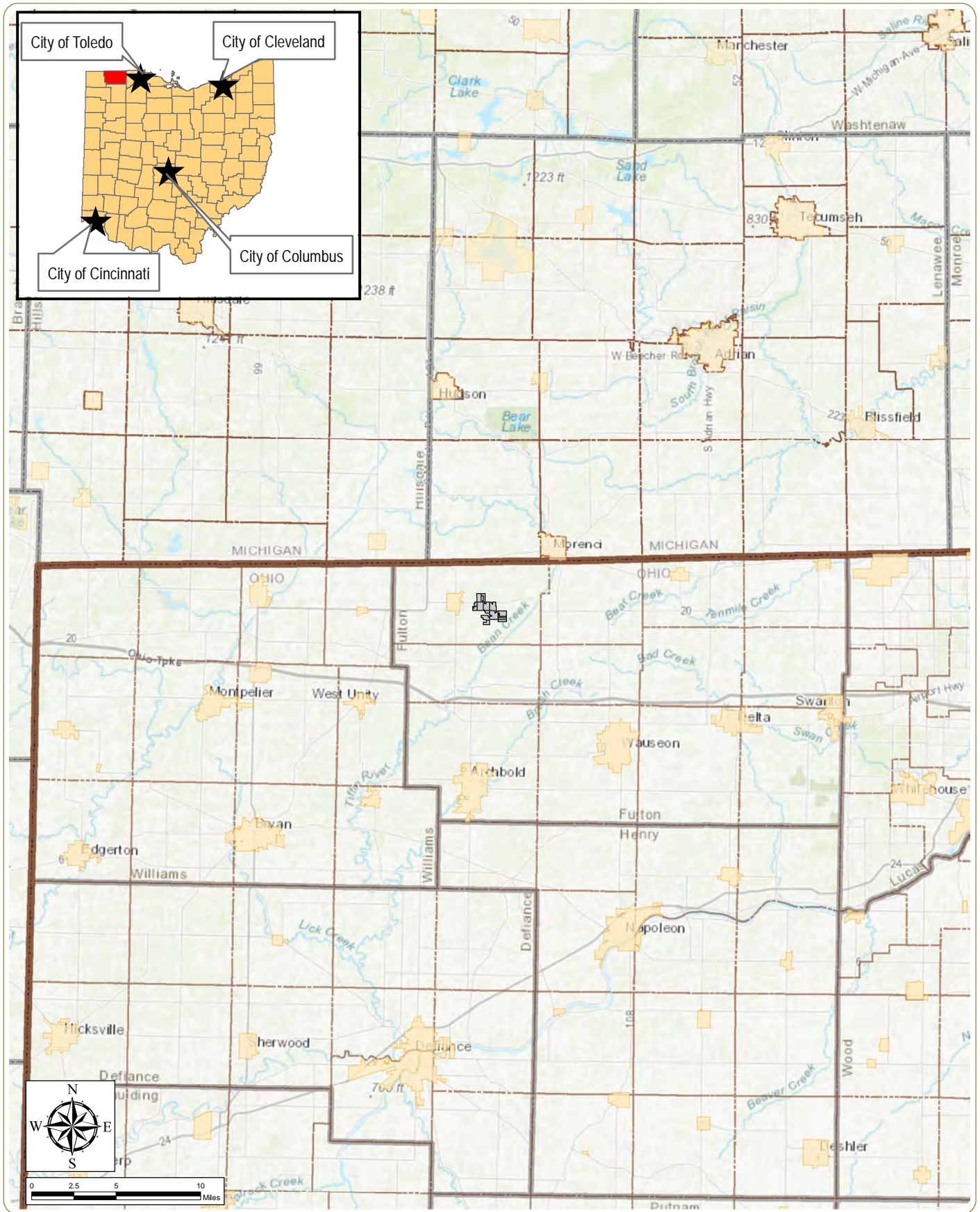
Gorham Township, Fulton County, Ohio

Figure 1: 5-Mile Study Area

Notes: 1. Basemap: ESRI StreetMap North America, 2008. 2. This map was generated in ArcMap on March 25, 2020. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Major Highways
- Highways
- Railroad
- Rivers
- Lakes
- Project Area
- 5-mile Study Area
- City/ Village Boundary
- Township Boundary
- County Boundary
- State Boundary





Arche Solar Energy Project

Gorham Township, Fulton County, Ohio

Figure 2: Regional Facility Location

Notes: 1. Basemap: ESRI StreetMap North America, 2008. 2. This map was generated in ArcMap on April 14, 2020. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Area of Intensive Land Use
- Project Area
- Township Boundary
- County Boundary
- State Boundary

