

**ASSESSING THE ECONOMIC IMPACTS OF
BUCKEYE II WIND FARM**

An Evaluation of Potential Impacts on the Local Economy

CHAMPAIGN COUNTY, OHIO

**PREPARED FOR
CHAMPAIGN WIND, LLC**

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ASSESSING THE ECONOMIC IMPACTS OF BUCKEYE II WIND FARM

An Evaluation of Potential Impacts on the Local Economy

As part of the application and approval process for this project, pursuant to Ohio Administrative Code Chapter 4906: Public Utilities, Champaign Wind, LLC engaged Camiros, Ltd. to evaluate the economic impacts of constructing and operating the proposed Buckeye II Wind Farm on the local economy. For the purposes of this study, the local economy includes Champaign, Logan, Union, Madison, Clark, Miami and Shelby Counties. Specifically, Camiros was asked to analyze and quantify impacts within four economic components: employment, total dollars injected into the local economy, land lease revenue to participating land owners, and payments in lieu of taxes made to local governments, resulting from the construction of the proposed 90 to 140 megawatt wind farm.

The analysis concludes that the project will result in a positive economic benefit to the local economy, including the creation of new jobs as well as an increase in local spending. The project will also provide taxes to local governments and confer land lease payments to participating land owners.

To research the economic impact of the proposed wind farm, Camiros employed a number of techniques. Data from the U.S Census Bureau was used to formulate population projections for communities within a five mile radius of the proposed wind farm. Camiros also reviewed data from the U.S. Bureau of Labor Statistics, the Renewable Energy Policy Project and comprehensive plans and zoning policy from communities in the seven-county region. Local economic impacts were estimated using an input-output model designed by the U.S. Department of Energy for wind energy facilities based on data from existing wind farm projects around the United States.

The economic analysis is based on reasonable assumptions of future expenditure patterns for constructing and operating the proposed wind farm. Findings from the analysis should not be taken as precise projections of future performance. Rather, the values included in this report provide insight into the likely economic impact of the project.

I. INTRODUCTION

There are several kinds of natural resources used for energy production. The major types of energy used today are derived from fossil fuels, and include coal, oil, and natural gas. Alternatives to this type of energy production are referred to as “clean energy” and include wind energy, solar power, geothermal energy and hydroelectric power. Wind energy is currently the second most prevalent pollution-free source of power in the United States behind hydroelectric power and does not create emissions associated with the production of energy from fossil-fuels. While China leads the world in total installed capacity of wind energy, the United States is a close second, followed by Germany, Spain, India and Italy.

Champaign Wind is currently developing plans and seeking approvals for the construction of the proposed Buckeye II Wind Farm to be located upon approximately 13,500 acres in east Champaign County, Ohio. If approved, the project will construct 56 wind turbines with a total nameplate capacity of approximately 90 to 140 megawatts. The project is expected to be constructed over a twelve month period beginning in late 2012 to early 2013 as a counterpart to the Buckeye I Wind Farm, which will also be located in Champaign County, Ohio.

Total investment in the wind farm project has been estimated at \$345 million through development, engineering and construction. During construction, the project will result in the employment of 86 workers, a substantial portion of which will be hired from within the seven-county region, herein referred to as the *local economy*¹. Total estimated construction labor costs are approximately \$4.9 million.

Total yearly costs for the operations and management phase of the project are estimated at \$3.6 million. Approximately seven new jobs are directly related to operating and managing the wind farm. Estimated annual labor costs for operations are \$400,000.

The Local Economy

This economic analysis focuses on the anticipated impact of the project on the local economy. The proposed wind farm is located in rural Champaign County, approximately 38 miles northeast of Dayton and approximately 45 miles west of Columbus. It is expected that economic activity created by the project will reach beyond Champaign County into the surrounding counties and nearby population centers. The project will draw new employees and derive its necessary goods and services primarily from the surrounding area.

Champaign County, the site of the proposed wind farm, is bounded by the Ohio counties of Logan to the north, Union and Madison to the east, Clark to the south and Miami and Shelby to the west. For the purposes of this analysis, these seven counties make up the *local economy*. See [Figure 1: Seven County Local Economy](#).

¹ For the purposes of this analysis, the “local economy” shall be the whole area of the Ohio counties of Champaign, Logan, Union, Madison, Clark, Miami and Shelby.



Figure 1: Seven County Local Economy

II. SOCIOECONOMIC PROFILE

Population Trends

The population of the local economy in 2010 was approximately 471,952. The majority of this population is located within Clark County and Miami County. Springfield, Ohio is the major population center within the seven-county area and has a population of 60,608. The remaining five counties each had a population of less than 53,000 in 2010. Since 1990, Union County has experienced a 64 percent growth in population, while Champaign, Logan, Madison, Miami and Shelby Counties have had population growth from eight to seventeen percent. Clark County lost six percent of its population over the last two decades and is the only county that has lost population within the local economy, See *Figure 2: Local Economy Population Trends*.

Figure 2: Local Economy Population Trends

County	1990 Population	2000 Population	2010 Population	% Change 1990-2010
Champaign County	36,020	38,890	40,097	11.3%
Logan County	42,310	46,005	45,858	8.4%
Union County	31,969	40,909	52,300	63.6%
Madison County	37,068	40,213	43,435	17.2%
Clark County	147,548	144,742	138,333	-6.2%
Miami County	93,182	98,868	102,506	10.0%
Shelby County,	44,915	47,910	49,423	10.0%
Local Economy Total	433,011	457,537	471,952	9.0%

Source: U.S. Census Bureau, 2012.

The Ohio Administrative Code requires the preparation of ten year population change estimates for communities that are located within a five-mile radius of a proposed wind farm. *Communities* are defined as incorporated municipalities and/or townships. There are six incorporated municipalities and fourteen townships that are fully or partially within five miles of the proposed wind farm. Because local level population projections are not conducted for interim years at this geography, projections for these communities were created using the methodology prescribed by the U.S. Census Bureau. Straight line population projections were made based on the change in population between U.S. Census data from 2000 to 2010, for which an average annual rate of change was calculated and interpolated at five year intervals to the year 2022. Population projections were generated using this methodology for the years 2012, 2017 and 2022.

As *Figure 3: Population Projections* illustrates, five of the six municipalities within a five-mile radius of the wind farm are projected to experience a loss in population by 2022. These five municipalities are located in Champaign and Clark Counties. In contrast, the City of Urbana, the County Seat of Champaign County, is projected to experience modest population gains by 2022.

Figure 3: Population Projections

Municipalities Within Five Miles of Project Site	2000 Pop.	2010 Pop.	Est. 2012 Pop.	Est. 2017 Pop.	Est. 2022 Pop.	% Change 2012-2022
City of Urbana, Champaign Co.	11,613	11,793	11,830	11,922	12,014	1.6%
Village of Mutual, Champaign Co.	132	104	100	90	80	-19.3%
Village of Mechanicsburg, Champaign Co.	1,744	1,644	1,625	1,579	1,534	-5.6%
Village of North Lewisburg, Champaign Co.	1,588	1,490	1,472	1,427	1,383	-6.0%
Village of Woodstock, Champaign Co.	317	305	303	297	291	-3.7%
Village of Catawba, Clark Co.	312	272	265	249	233	-12.1%
Total Population	15,706	15,608	15,595	15,564	15,535	-0.4%
Townships Within Five Miles of Project Site	2000 Pop.	2010 Pop.	Est. 2012 Pop.	Est. 2017 Pop.	Est. 2022 Pop.	% Change 2012-2022
Salem Township, Champaign Co.	2,307	2,539	2,590	2,723	2,863	10.5%
Wayne Township, Champaign Co.	1,660	1,809	1,842	1,926	2,014	9.3%
Rush Township, Champaign Co.	2,779	2,613	2,582	2,506	2,432	-5.8%
Goshen Township, Champaign Co.	3,383	3,696	3,765	3,942	4,128	9.6%
Union Township, Champaign Co.	1,920	2,210	2,277	2,455	2,646	16.2%
Urbana Township, Champaign Co.	14,968	14,795	14,761	14,676	14,591	-1.1%
Mad River Township, Champaign Co.	2,650	2,821	2,858	2,951	3,047	6.6%
Union Township, Union Co.	1,565	1,763	1,808	1,925	2,050	13.4%
Pike Township, Madison Co.	531	580	591	619	648	9.6%
Monroe Township, Madison Co.	1,769	1,719	1,709	1,685	1,662	-2.8%
Somerford Township, Madison Co. *	6,975	2,898	2,883	2,846	2,809	-2.6%
German Township, Clark Co.	7,663	7,487	7,453	7,367	7,283	-2.3%
Moorefield Township, Clark Co.	11,402	12,436	12,663	13,247	13,859	9.4%
Pleasant Township, Clark Co.	3,134	3,238	3,260	3,314	3,369	3.4%
Total Population	62,706	60,604	61,042	62,182	63,401	3.9%

* Note: The 2000 Census included a population of approximately 4,000 prisoners as part of the 2000 Census for Somerford Township that was subsequently counted as part of adjacent Union Township in Madison County in the 2010 Census.

Source: U.S. Census Bureau, Camiros, Ltd., 2012.

Townships within five miles of the project site are projected to follow very different population trends. Of the seven townships in Champaign County, five of them are projected to have population gains that range from approximately six to sixteen percent. Of the seven townships in neighboring Union, Madison and Clark Counties, four are projected to have population gains. Overall, the population of the region is expected to remain relatively stable over the next ten years, with the townships in the area projected to increase by approximately four percent.

Employment

According to the U.S. Bureau of Labor Statistics, 235,061 people are currently in the labor force of the local economy. Of this total, there are approximately 215,245 employed and 19,814 unemployed persons as of October 2011. The average unemployment rate dropped from 9.6 percent in October 2010 to 8.4 percent in October 2011. Clark, Champaign and Logan Counties have the highest current unemployment rate, at 8.9 percent for Clark County and 8.8 percent for Champaign and Logan Counties, which are followed closely by Shelby County with an October 2011 unemployment rate of 8.6 percent. See *Figure 4: Civilian Labor Force Estimates*.

Figure 4: Civilian Labor Force Estimates

County	Labor Force October 2011	Employed October 2011	Unemployed October 2011	Unemployment Rate October 2010	Unemployment Rate October 2011
Champaign County	19,475	17,759	1,716	10.4%	8.8%
Logan County	23,198	21,147	2,051	10.4%	8.8%
Union County	25,535	23,713	1,822	7.7%	7.1%
Madison County	20,004	18,342	1,662	8.7%	8.3%
Clark County	69,272	63,123	6,147	9.7%	8.9%
Miami County	52,824	48,548	4,276	9.4%	8.1%
Shelby County	24,753	22,613	2,140	10.6%	8.6%
Local Economy	235,061	215,245	19,814	9.6%	8.4%
<i>State of Ohio</i>	<i>5,853,731</i>	<i>5,328,033</i>	<i>525,698</i>	<i>9.7%</i>	<i>9.0%</i>

Source: U.S. Bureau of Labor Statistics, January 2012.

The average unemployment rate within the local economy is currently 0.6 percent lower than the unemployment rate for the State of Ohio. Economic development and the creation of new jobs continue to be an important economic priority throughout the local economy and for Ohio as a whole.

III. REGIONAL DEVELOPMENT IMPACTS

The seven-county region which makes up the local economy is adjacent to the Dayton and Columbus metropolitan areas. According to the U.S. Department of Agriculture's Rural-Urban Continuum Code, the region is made up of three rural areas in non-metro counties (Champaign, Logan and Shelby Counties) and four urban areas in metro counties (Union, Madison, Clark and Miami Counties). As previously described, the population has grown nine percent since 1990. This growth has occurred throughout the area with large population growth in Union and Madison Counties, and more moderate growth in Champaign, Miami, Shelby and Logan Counties. Clark County is the only county in the region that has lost population over the last two decades, but the decrease in population has not been excessive. As is common throughout the country, the trend of migration toward urban areas is expected to continue. The regional impacts of the proposed wind farm on future development, including the anticipated impacts on housing demand, commercial and industrial development, regional transportation, and land use compatibility are described in further detail below.

Housing

As previously shown in *Figure 3: Population Projections*, the population of townships within five miles of the proposed wind farm is projected to increase from 61,042 in 2012 to approximately 63,401 by 2022. This modest growth is projected to create pockets of both population growth and population loss throughout the area within five miles of the project site. The fourteen Ohio townships in the area are projected to experience a net gain in population of approximately 2,359 people by 2022.

Given these population estimates, a local unemployment rate of approximately eight percent and an average housing vacancy rate of ten percent within the seven-county region according to the U.S. Census, it is unlikely that demand for housing will increase due to the construction or operation of the proposed wind farm. While the project will result in a substantial increase in temporary jobs during the construction phase of the project, these jobs are short term in nature and will not have an impact on demand for new housing development over the long term. Permanent jobs created as a result of the project are far more limited in number, and will have some appreciable effect on housing demand within the region.

Commercial and Industrial Development

The construction and operation of the proposed wind farm will have a significant positive impact on commercial and industrial development within the region. The positive impacts on commercial activity are described in detail in Section V of this report.

In terms of industrial development, wind power projects typically require a substantial number of inputs from outside the local area as is the case with the proposed wind farm. In Ohio, there is a substantial amount of growth potential in renewable energy production and the manufacturing sectors that support it according to a 2004 report by the Renewable Energy Policy Project (REPP) entitled "*Wind Turbine Development: Location of Manufacturing Activity.*" This benefit would include job creation in the manufacturing sector, particularly for those companies already involved in wind infrastructure production.

REPP assessed the location of manufacturing activity related to wind turbine development. It measured the number of potential employees at existing companies capable of manufacturing turbine parts. Ohio ranked second in the nation behind California in the number of employees at companies with the potential for wind farm infrastructure manufacturing. This report estimates existing firms in Ohio with the technical potential to become involved in wind turbine development have approximately 80,500 employees and the potential for approximately 11,500 new jobs in the wind farm component industry. Currently, manufacturers in Ohio are already producing wind turbine components including blade extenders, brakes, cooling systems, gear boxes, pitch drives, power electronics, rotor blades, tower flange and bolts, and yaw drives.

Transportation

The seven-county region is served by a network of Interstate, U.S. and State routes, and local roads. This existing roadway network provides access to the Dayton, Columbus and Cincinnati metropolitan areas as well as smaller, nearby communities including Urbana, Springfield, Troy, Piqua, Sidney, Bellefontaine and Marysville.

The area is served by U.S. Interstate Highway 70, which connects Dayton to Columbus and U.S. Interstate 75, which connects Dayton to Toledo. See *Figure 1: Seven County Local Economy*. U.S. Highway 68 is located west of the proposed project, connecting Bellefontaine to Urbana, north to Kenton and South to Springfield. Northeast of the project site, U.S. Highway 33 connects Bellefontaine to Marysville and the Columbus metropolitan area where it meets U.S. Interstate Highway 270. U.S. Highway 36 runs east of the project site linking Urbana to Marysville and points east. The area is also served by State Routes 4, 29, 54, 55, 56, 161, 187, 287, 296, 507 and 559 and numerous local roads. Given the limited population and the existence of numerous alternate routes around the Buckeye II site, temporary road closures during the construction phase are not expected to create any significant adverse impacts on the vehicular transportation network.

Three CSX-operated rail lines are located in the vicinity of the proposed wind farm providing freight access to and from various regional centers. East of the site, one rail line runs north/south near U.S. Interstate Highway 75 through Shelby and Miami Counties. South of the project site, a second rail line runs east/west near U.S. Interstate 70 providing rail transportation between Columbus, Springfield and Dayton. The third rail line runs north/south through Bellefontaine, Urbana and Springfield. The area is also served by the American Rail Center near U.S. Highway 68 in Kenton, Ohio, which opened in December 2011. Neither the construction nor operation of the proposed wind farm is expected to create any significant adverse impacts on the railroad network.

There are five airports located within approximately forty miles of the proposed wind farm. Northeast of Columbus, Port Columbus International Airport is the largest of the primary airports in the region, and is also served by the secondary facilities at Rickenbacker International Airport, Bolton Field and Ohio State University Airport. The other major airport in the area is James M. Cox Dayton International Airport, located north of Dayton. Two small airports are located near Urbana: Grimes Field, two miles north of downtown, and Weller Airport, three miles east of downtown. There are also many smaller municipal or private airfields in close proximity to the project site, but many of these are used primarily for

recreational purposes. Neither the construction nor operation of the proposed facility is expected to have any significant impact on these airports or the existing air travel network.

Regional Plan Compatibility

Several comprehensive plans exist for the counties, townships, cities and villages that surround the proposed Buckeye II Wind Farm within the seven-county region. All of the counties in the region have updated their comprehensive plans since 1999, or are in the process of a comprehensive plan update. All of the townships within five miles of the proposed wind farm have zoning regulations in place, as do a majority of the townships in the seven-county area. See *Figure 5: Comprehensive Plans and Zoning Ordinances*.

Land use designations for the townships within five miles of the proposed wind farm are predominantly agriculture, open space and other types of low density development. The more dense development in and around the Cities of Urbana and Springfield and the Villages of Mechanicsburg, North Lewisburg, Woodstock, Mutual and Catawba do not make up a significant portion of the area. A common goal among the comprehensive plans that have been adopted throughout the region is utilizing agricultural land in order to encourage economic diversity and to promote the conservation of high quality farm land. Residential, commercial, industrial and mixed-use development should be directed to existing population centers and away from agricultural land. The proposed Buckeye II project aligns with these comprehensive planning goals, and the proposed facility will be compatible with the land uses and zoning policy within five miles of the project site.

Figure 5: Comprehensive Plans and Zoning Ordinances

County	Comprehensive Plan Adopted/Expected	Zoning Ordinance
Champaign County	2004	Eleven of twelve townships have zoning ordinances
Logan County	2012*	Sixteen of seventeen townships have zoning ordinances
Union County	1999	Thirteen of fourteen townships have zoning ordinances
Madison County	2005	County-wide zoning ordinance
Clark County	1999	All ten townships have zoning ordinances
Miami County	2006	Eight of twelve townships use the county zoning ordinance Four of twelve townships have their own zoning ordinances
Shelby County	2005	All ten townships have zoning ordinances

* Note: The Logan County Comprehensive Plan is currently being drafted and is expected to be adopted in 2012.

Source: Champaign County, Logan County, Union County, Madison County, Clark County, Miami County, Shelby County, Logan-Union-Champaign Regional Planning Commission, 2012.

IV. MEASURING ECONOMIC IMPACT

Wind farms across the country have had a positive economic impact on the communities where they are located. They represent large capital investments that drive various sectors of the local economy and have a positive impact on local employment and local government revenues. Wind farms also provide significant benefits to property owners who lease land for the turbines.

This analysis addresses the anticipated economic impact that the proposed Buckeye II project will have on the *local economy*, as defined in Section I of this report. The projected economic impact was analyzed separately for the construction phase and the operations and management phase of the project. The economic impacts measured are new jobs and wages, new dollars injected into the local economy through total local spending on goods and services, and land lease payments to participating land owners.

Calculating Economic Benefits

Wind farms and other economic investments that bring new dollars and jobs to a community are typically measured using three components of economic impact: *direct*, *indirect* and *induced impacts*. Variables that determine the extent of these impacts include project size and duration, construction and operating costs, and the availability of local goods and services. Direct, indirect, and induced impacts are defined as follows:

Direct impacts are immediate impacts created by expenditures that are directly applied to the project. In constructing a wind farm, a *direct impact* refers to such things as the money spent on labor, including site crews, contractors, maintenance workers, consultants and engineers. It also includes the money spent to pay those working at the turbine and blade manufacturing plants, the purchase and delivery of construction materials, property taxes, other direct purchases and lease payments. Of course, not all of these direct impacts will occur in the local economy but those that do become the *local share*, which is made up of the impacts that originate in the local economy.

Indirect impacts refer to the secondary benefits that result from the increase in economic activity when businesses other than those directly working on the project support businesses that are. When a vendor receives payment for goods or services related to the project, the vendor is then able to pay others who support his/her own business. Examples of *indirect impacts* include bank financing, accountants, equipment and fuel suppliers. In this case, the indirect impacts are comprised of purchases from vendors who provide supplies and secondary services to businesses who are working directly on the project either building the wind farm or operating it after it is online.

Induced impacts reflect increases in household spending as household income increases due to the additional economic activity created by the project. Induced impacts result when people and firms spend money for their personal needs, as opposed to project needs, which is the case with direct and indirect spending. *Induced impacts* result from the additional income accruing to households that in turn leads to greater spending on such things as food, clothing, housing, day care, medical services, and insurance. Those who benefit from this type of spending have more money to spend on their own needs as dollars cycle through the economy.

Together, the interrelationship among the direct impacts, indirect impacts and induced impacts gives the local economy a significant boost. The three measures reflect the total economic impact that a capital investment can be expected to have on the local economy. New jobs will be created and suppliers will see higher sales. The local economy will benefit and these new workers and suppliers will spend newly earned dollars on daily necessities and major purchases.

Methodology

The purpose of the economic analysis is to identify the direct, indirect, and induced economic impacts associated with construction and operation of the proposed Buckeye II Wind Farm. Typically, input-output models are used to track the various economic benefits that will accrue to a local economy. The approximation of these benefits is based upon project-specific data, including estimated capital costs, project location and the size of the project, among others.

Members of the Camiros, Ltd. staff interviewed representatives of Champaign Wind, LLC to determine the amount of spending and employment expected for the proposed Buckeye II Wind Farm. Research studies and contacts with the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) helped determine how economic projections anticipated from the proposed wind farm compared to completed wind farm projects around the country. Using this information, an input-output model with data specific to the local economy was developed to estimate the economic impacts of the proposed project. The model looks at both the construction phase of the project and its ongoing operations and management phase.

The model used for this analysis is called the *Job and Economic Development Impact (JEDI) Wind Model*. The JEDI Wind Model is specifically designed for wind power generation projects. The model was developed for NREL under the auspices of the U.S. Department of Energy's *Wind Powering America* project and is regularly updated to provide current industry data and facilitate a more accurate description of local impacts. Originally developed with state-specific parameters, subsequent refinements make it possible to analyze impacts on regional and county level economies. The input values come from past experience constructing wind farms and the budget values that Everpower Wind Holdings, Inc. has established for the proposed wind farm. Output values result from a combination of factors, including the amount of direct and indirect impacts, the population of the local economy which sets the local share, state specific multipliers, and expenditure patterns taken from the JEDI Wind Model database.

Camiros staff received data from Everpower Wind Holdings, Inc. to confirm the size of the project, turbine locations, and costs related to the construction and operation of the proposed wind farm. The JEDI model cannot calculate economic impact based on a range of values, therefore rather than analyzing the total project size of 90 to 140 megawatts, an average of 115 megawatts was used instead. In cases where input data was not available locally, values were taken from the JEDI model's database for the State of Ohio, which are based on averages of existing wind farms as measured by NREL.

V. ECONOMIC IMPACT ON THE LOCAL ECONOMY

New Jobs in the Local Economy

Jobs created by the proposed Buckeye II Wind Farm will include workers who will be directly employed to construct and subsequently operate and maintain the wind farm. Other jobs will also be created that play a supportive role in the local economy. The increased wealth from jobs and spending will have a ripple effect in the local economy thereby creating the need for additional jobs in the area as the wages of local workers support households and businesses in the community.

According to Everpower Wind Holdings, the construction and operation of a wind farm requires a portion of workers to have highly specialized skills, which creates the opportunity for high-paying jobs. Generally, two to three managers are required for every ten crew members on a wind farm project, but this can vary based on the stage of development. Managers are expected to earn a base wage of approximately \$30 per hour, or \$62,000 per year. Field crews, or technicians, are expected to earn approximately \$18 per hour, or \$37,000 per year. These figures are estimates and may be subject to change based on benefits, number of hours worked and overtime. It is the policy of Everpower Wind Holdings to maximize the number of local workers, subject to the nature and stage of the construction process.

The proposed wind farm will take approximately twelve months to construct, beginning in 2013. The size of the construction crew is variable based on the stage of construction, hours worked per week and weather conditions. Generally, the construction period can be divided into three phases. The first phase of the project is startup, which typically calls for smaller construction crews. The second phase of the project, the peak phase of construction, includes the full complement of employees working at the site. The third phase of the project is the completion of the Buckeye II Wind Farm and again calls for a reduced number of construction workers. Following this phase, workers at the site are employed as part of the operations and management of the wind farm.

Local Economic Impact: Construction Phase

Jobs, wages, and salaries. It is estimated that during the construction phase of the project, a total of 598 full-time equivalent jobs will be created within the local economy, generating \$29.8 million in wages and salaries. Approximately 86 of these new jobs will be in those industries that directly support the project. Earnings from those jobs are expected to total \$4.9 million. Another 391 jobs and \$19.8 million in earnings are expected to be generated by indirect impacts, which result from the inter-industry economic activity created by the project. The induced impacts, which result from changes in local household spending, are projected to bring another 121 jobs and approximately \$5.1 million in wages and salaries to the local economy.

Local expenditures. During the construction phase of the project, the proposed wind farm is expected to generate a total of \$48.8 million in local expenditures. Approximately \$9.6 million of this will be in direct local expenditures. Based on the availability of local goods and services, the indirect impacts on supportive businesses are expected to generate another \$28.8 million. Induced impacts will generate approximately \$10.4 million in local spending. This includes money expended by employees and others connected to the project for normal cost of living, including spending on groceries, clothing and the like.

The total estimated impact of wages and salaries, combined with local expenditures, is anticipated to have a *total local benefit* of approximately \$78.6 million during the twelve month construction phase of the project. *Total local benefit* refers to the sum of economic activity, or the overall value of production, including new jobs, total wages and salaries for those new jobs, new dollars injected into the local economy through local spending on goods and services, and payments to participating land owners. Figure 6: Benefits to the Local Economy during Construction Phase, shows the estimates of the total benefits to the local economy during the construction phase of the project.

Figure 6: Benefits to the Local Economy during Construction Phase

Impact Type	Jobs	Wages and Salaries	Local Expenditures	Total Local Benefit
Direct Impacts	86	\$4,900,000	\$9,600,000	\$14,500,000
Indirect Impacts	391	\$19,800,000	\$28,800,000	\$48,600,000
Induced Impacts	121	\$5,100,000	\$10,400,000	\$15,500,000
Total Impacts	598	\$29,800,000	\$48,800,000	\$78,600,000

Source: JEDI Wind, Everpower Wind and Camiros, Ltd., January 2012.

Note: Amounts rounded to the nearest hundred thousand dollars.

Local Economic Impact: Operations and Management Phase

The proposed wind farm is expected to have a twenty to thirty year life expectancy, and during that time will be producing positive economic impacts from wages and salaries, material purchases, local property taxes and payments to cooperating property owners. A proportion of that spending and employment will come from the local area and will provide continuing benefits to the local economy.

Jobs, wages, and salaries. Wages and salaries from new jobs will continue to add to the local economy during the operation of the proposed Buckeye II Wind Farm once it is completed and online. Operations and maintenance of the proposed wind farm will create approximately 38 new full-time equivalent jobs in the local economy, generating approximately \$1.8 million in annual wages and salaries. Of these 38 new full-time jobs, approximately seven employees will *directly* support the operations of the wind farm, and earnings from those jobs will total \$400,000 annually. Fifteen jobs and \$700,000 in earnings are expected to be generated by the *indirect* impacts of the operations of the wind farm, which result from the inter-industry economic activity created by the project. The *induced* impacts, which result in changes in household spending, will bring another sixteen jobs and \$700,000 in earnings to the local economy.

Local expenditures. During the operations and management phase of the project, the proposed wind farm is expected to generate approximately \$5.5 million in total local expenditures. This includes approximately \$600,000 generated annually in *direct* expenditures. The *indirect* impacts of spending on supportive businesses are expected to include \$3.2 million. *Induced* impacts will include \$1.7 million in local spending annually within the local economy. As shown in *Figure 7: Annual Benefits to the Local Economy during Operations Phase*, the *total local benefit* will be approximately \$7.3 million each year the wind farm is in operation.

Figure 7: Annual Benefits to the Local Economy during Operations Phase

Impact Type	Jobs	Wages and Salaries	Local Expenditures	Total Local Benefit
Direct Impacts	7	\$400,000	\$600,000	\$1,000,000
Indirect Impacts	15	\$700,000	\$3,200,000	\$3,900,000
Induced Impacts	16	\$700,000	\$1,700,000	\$2,400,000
Total Impacts	38	\$1,800,000	\$5,500,000	\$7,300,000

Source: JEDI Wind, Everpower Wind and Camiros, Ltd., January 2012.

Note: Amounts rounded to the nearest hundred thousand dollars.

Land Lease Payments

Each of the turbines in the wind farm will be leased from individual property owners who will have turbine sites and access drives to those sites on their land. Total lease payments to property owners will be approximately \$950,000 per year. Like other expenditures, a portion of these lease payments will cycle through the local economy at relatively the same rate as wages and the purchase of materials in the course of property owners making choices on what and where to spend this extra money. These dollars will cycle through the local economy just as other dollar inputs and are reflected in the total local benefit.

VI. Local Tax Revenues

Legislative Context

Section 5727.75 of the Ohio Revised Code exempts qualified energy projects, including wind farms, from real and personal property taxation if certain conditions are met. Instead, owners and lessees of such projects are required to make annual payments in lieu of taxes (PILOT) of up to \$9,000 per megawatt of installed nameplate capacity. To be certified by the Ohio Department of Development as a qualified energy project, at least fifty percent of the full-time equivalent employees employed in the construction or installation of the project must be Ohio-domiciled workers. The owner or a lessee must submit its application to the Ohio Power Siting Board for a certificate under Section 4906.20 of the Code on or before December 31, 2013. Construction or installation of the energy facility must begin on or after January 1, 2009, and before January 1, 2014. *Construction* is defined as beginning on the earlier of the date of application for a certificate, or the date the contract or installation of the energy facility is entered into.

The board of county commissioners of the host county must also adopt a resolution approving the wind energy project. As an alternative to individual project consideration, the board of county commissioners may adopt a resolution declaring the county to be an alternative energy zone and declaring all applications submitted to the Director of the Ohio Department of Development to be approved by the board. Champaign County has not yet adopted a resolution designating the County as an alternative energy zone. If a project is located in multiple counties the board's adoption of a resolution rejecting an application or its failure to adopt a resolution approving the application does not affect the tax-exempt status of the qualified energy project's property that is located in another county.

Qualified energy projects are exempt from real estate property tax, sales tax on the purchase of energy conservation equipment, and annual public utilities excise tax. If tangible personal property of a qualified energy project using renewable energy resources was exempt from taxation under Section 5727.75 beginning in tax years 2011, 2012, 2013 or 2014, and its certification has not been revoked, the qualified energy project will be exempt from taxation for tax year 2015 and all subsequent tax years as long as the property was placed into service before January 1, 2015. No portion of the project's facility may have been used to supply electricity before December 31, 2009.

If exempted, the qualified energy project must make an annual payment in lieu of taxes (PILOT) of between \$6,000 and \$8,000 per megawatt of installed nameplate capacity. The amount of the annual service payment depends on the ratio of Ohio-domiciled full-time equivalent employees to total full-time equivalent employees during construction or installation as of December 31 of the preceding tax year as shown in *Figure 8: Service Payment per Megawatt Schedule*.

In addition to the annual service payments determined on the basis of the percentage of construction or installation workforce, the board of county commissioners may also specify that additional tax exemption payments be made to the county treasurer for deposit into the county's general fund. Champaign County does not currently require an additional annual service fee payment. The county treasurer is responsible for allocating the payment on the basis of the

project's physical location to the applicable taxing districts. However, the total of the PILOT and any additional service fee payment levied by the county may not exceed \$9,000 per megawatt.

Figure 8: Service Payment per Megawatt Schedule

Annual Service Payment per Megawatt of Nameplate Capacity	Ratio of Ohio-Domiciled Full-Time Equivalent Employees
\$6,000	75% or More
\$7,000	60% to 74%
\$8,000	50% to 59%

Source: Ohio Revised Code, Section 5727.75, January 2012.

The qualified energy project must also fulfill certain other obligations to the local area and the State of Ohio. Section 5727.75(F) of the Revised Code requires that prior to a sale and leaseback transaction of a qualified energy project with a nameplate capacity of five megawatts or greater, the owner or lessee must repair all roads, bridges, and culverts to their preconstruction condition. In addition, the owner or lessee must provide or facilitate training for fire and emergency responders for response to emergency situations related to the energy project and equip the fire and emergency responders with proper equipment, as reasonably required, to enable them to respond to such emergency situations, and also establish a relationship with a member of Ohio's university system or with other authorized entity providing employment and training programs to educate and train individuals for careers in the wind or energy industry.

Estimated Payments in Lieu of Taxes

The turbines within the Buckeye II Wind Farm are located in five Champaign County townships and four school districts. *Figure 9: Estimated Payment in Lieu of Taxes Revenue* identifies the estimated PILOT revenues that will accrue to each combination of tax districts based on a total of 56 turbines at an average size of 2.075 megawatts.

Figure 9: Estimated Payment in Lieu of Taxes (PILOT) Revenue

School District	Township	Turbines	PILOT at \$6,000/MW	PILOT at \$7,000/MW	PILOT at \$8,000/MW
Mechanicsburg	Goshen	13	\$161,850	\$188,825	\$215,800
	Union	14	\$174,300	\$203,350	\$232,400
Triad	Rush	4	\$49,800	\$58,100	\$66,400
	Union	7	\$87,150	\$101,675	\$116,200
	Wayne	14	\$174,300	\$203,350	\$232,400
Urbana	Urbana	3	\$37,350	\$43,575	\$49,800
West Liberty Salem	Union	1	\$12,450	\$14,525	\$16,600
Project Totals		56	\$697,200	\$813,400	\$929,600

Source: Camiros, Ltd., January 2012.

Based on a review of the 2010 tax rates for the applicable jurisdictions where turbines will be located, the estimated average percentage distribution of PILOT payments would include 25.9% for Champaign County, 10.3% for the affected townships and 63.8% for local schools.

VII. CONCLUSION

This analysis concludes that the proposed Buckeye II Wind Farm will have a significant positive effect on economic development within the local economy. This project will result in the creation of temporary and permanent jobs in the local economy during the construction and operation of the project, helping meet the goal of providing employment opportunities for residents of the seven-county region. Local governments will see net gains in revenue for a period of twenty to thirty years due to the wind farm and participating land owners will receive revenue from land lease payments. In addition, local businesses will have a new basic industry generating demand for goods and services.

Summary of Findings

- **Total Economic Benefit to the Local Economy.** During the construction phase of the project, the proposed Buckeye II Wind Farm will generate approximately \$78.6 million in total local benefit. Once complete, the project will continue to generate approximately \$7.3 million annually in total local benefit.
- **Employment Benefits to the Local Economy.** During the construction phase of the project, the proposed wind farm will add an estimated 598 new full-time jobs to the local economy. These new jobs will generate approximately \$29.8 million in wages and salaries. The Buckeye II Wind Farm together with the Buckeye I Wind Farm could create a combined range of 1,300 to 3,200 new full-time jobs to the economy during the projects' construction phases.

It is estimated that of these 598 new jobs, approximately 86 will directly support the construction of the wind farm. In addition, 391 jobs are expected to be added to the local economy through the indirect impacts associated with the project, and 121 jobs are expected to be added to the local economy through induced impacts created by the project.

During the operations and management phase of the project, approximately 38 new jobs will be added to the local economy. It is estimated that of these 38 new jobs, approximately seven jobs will directly support the operation of the wind farm. These seven new jobs will generate approximately \$400,000 in earnings. Fifteen additional new jobs are expected to be added to the local economy through indirect impacts associated with the project, and sixteen additional jobs are expected to be created through induced impacts of the project.

- **Land Lease Revenues.** Land lease revenue associated with the project will generate approximately \$950,000 annually in increased income for participating property owners.
- **Property Tax Revenues.** The construction of the proposed Buckeye II Wind Farm will increase revenues to local governments in accordance with the State of Ohio formula for establishing payments in lieu of taxes (PILOT) within five miles of the project site.

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