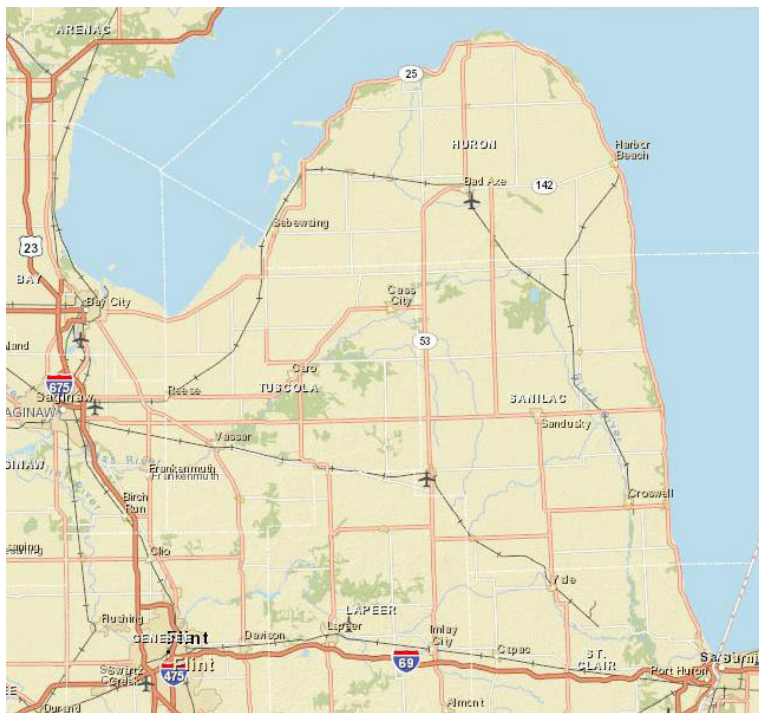


# The Economic and Fiscal Benefits of the Cross Winds™ Energy Park

Prepared For:



July 2013

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>i</b>
<b>INTRODUCTION .....</b>	<b>1</b>
RENEWABLE ENERGY IN MICHIGAN .....	1
ECONOMIC AND FISCAL BENEFITS DEFINED .....	1
<i>Economic Benefits</i> .....	1
<i>Fiscal Benefits</i> .....	2
METHODOLOGY .....	3
<i>Geographic Interpretation</i> .....	3
<i>Categories of Impacts</i> .....	3
<i>Project Parameters and Study Variables</i> .....	4
REPORT ORGANIZATION .....	4
<b>CONSTRUCTION BENEFITS.....</b>	<b>5</b>
DIRECT ECONOMIC AND FISCAL BENEFITS .....	5
<i>Construction Spending</i> .....	5
<i>Transitory Worker Spending</i> .....	6
<i>Fiscal Benefits</i> .....	8
<i>Total Direct Economic and Fiscal Benefits</i> .....	8
DIRECT, INDIRECT, AND INDUCED BENEFITS .....	9
<i>Michigan</i> .....	9
<i>Greater Thumb Region</i> .....	11
<i>Tuscola County</i> .....	12
<b>ON-GOING OPERATIONS BENEFITS.....</b>	<b>14</b>
DIRECT ECONOMIC AND FISCAL BENEFITS .....	14
<i>Economic Benefits</i> .....	14
<i>Fiscal Benefits</i> .....	15
DIRECT, INDIRECT, AND INDUCED BENEFITS .....	17
<i>Michigan</i> .....	17
<i>Greater Thumb Region</i> .....	18
<i>Tuscola County</i> .....	19
<b>SUMMARY .....</b>	<b>20</b>
<b>REFERENCES .....</b>	<b>23</b>
<b>ABOUT DEVELOPMENT RESEARCH PARTNERS .....</b>	<b>24</b>

# EXECUTIVE SUMMARY

The Cross Winds™ Energy Park is Consumers Energy's latest wind energy investment. The 62-turbine wind park will be located in the Akron and Columbia Townships of Tuscola County in the Thumb Area of Michigan. Construction of the Cross Winds™ Energy Park is expected to commence in 2013 with completion of the project in 2014. Operations are expected to begin in late 2014 with 2015 being the first full year of operations.

Renewable energy investments in Michigan provide a way for the state to diversify its energy supply, reduce pollution, decrease reliance on other states for electricity, and contribute to a more reliable energy system. In addition, the construction and operations of the wind park will generate significant economic and fiscal benefits for the townships, regional economy, and the state. The intent of this study is to analyze the economic and fiscal benefits associated with the proposed construction and operations of the Cross Winds™ Energy Park.

This analysis estimates the Cross Winds™ Energy Park's benefits on three geographic levels: the state of Michigan, the Greater Thumb region, and Tuscola County. The Greater Thumb region is defined in this study as a seven-county region consisting of Bay, Genesee, Huron, Lapeer, Saginaw, Sanilac, and Tuscola Counties. The economic benefits in the three geographic areas described in this report are individual, non-additive impacts. Thus, the economic benefits estimated from this study should specify the particular geography when reported.

## Construction Benefits

The Cross Winds™ Energy Park will cost an estimated \$265.3 million. This estimate consists of \$229.5 million for major equipment, engineering, and construction materials, and \$35.8 million for construction management and labor.

In addition to construction spending, each study area will benefit from workers that will be required to travel to the site from outside of the Greater Thumb region and Michigan. These workers are referred to as transitory workers. These employees are expected to benefit each of the study regions during the course of the project through their lodging, food, entertainment, and other goods and services expenditures.

Construction benefits are temporary benefits, occurring only during the construction period. The following values reflect the total benefits over the 14-month construction period.

### Michigan

- ◆ The direct economic benefit during the construction of the Cross Winds™ Energy Park and transitory construction worker spending in Michigan will be an estimated \$70.3 million produced by 70 workers (in worker years) earning \$7.4 million. This activity will support an additional \$89.9 million in output in all industries in Michigan. The production of the \$89.9 million in additional output will require about 73 indirect worker years. These workers will have associated earnings of \$7.1 million. All earnings values are included in the total value of output; earnings are not in addition to the value of output.
- ◆ ***Combined, the construction of the Cross Winds™ Energy Park will generate direct and indirect output in Michigan over the construction period valued at \$160.2 million produced by 143 workers earning a total of \$14.5 million.***
- ◆ ***In addition, the direct fiscal benefit in Michigan over the construction period will be \$179,000 in sales, use, and lodging tax from transitory worker spending and site certification and permitting revenue.***

# EXECUTIVE SUMMARY

## Greater Thumb Region

- ◆ The direct economic benefit during the construction of the Cross Winds™ Energy Park and transitory construction worker spending in the Greater Thumb region will be an estimated \$37.1 million produced by 54 workers (in worker years) earning \$5 million. This activity will support an additional \$26.6 million in output in all industries in the region. The production of the \$26.6 million in additional output will require about 34 indirect worker years. These workers will have associated earnings of \$2.7 million. All earnings values are included in the total value of output; earnings are not in addition to the value of output.
- ◆ ***Combined, the construction of the Cross Winds™ Energy Park will generate direct and indirect output in the Greater Thumb region over the construction period valued at \$63.7 million produced by 88 worker years earning a total of \$7.7 million.***

## Tuscola County

- ◆ The direct economic benefit during the construction of the Cross Winds™ Energy Park and transitory construction worker spending in Tuscola County will be an estimated \$17.2 million produced by 4 workers (in worker years) earning \$361,000. This activity will support an additional \$5.3 million in output in all industries in the county. The production of the \$5.3 million in additional output will require about one indirect worker year. These workers will have associated earnings of \$74,000. All earnings values are included in the total value of output; earnings are not in addition to the value of output.
- ◆ ***Combined, the construction of the Cross Winds™ Energy Park will generate direct and indirect output in Tuscola County over the construction period valued at \$22.5 million produced by 5 worker years earning a total of \$436,000.***
- ◆ ***In addition, the direct fiscal benefit in Tuscola County over the construction period will be \$476,000 in site certification and permitting revenue.***

## On-Going Operations Benefits

The Cross Winds™ Energy Park is projected to commence operations in late 2014. The economic and fiscal benefits of the energy park's operations are estimated based on average annual expenditures for the first 20 years of operations. Operational expenditures for the Cross Winds™ Energy Park will average an estimated \$7.2 million each year. The expenditures include \$2 million for materials, maintenance, and services; \$1.6 million of land owner payments tied to production of the turbines, the location of the substation, and the presence of meteorological towers in the area; about \$1.9 million for administration and compensation for employees; \$234,000 for fees, permits, and licenses; and \$1.4 million in property taxes.

## Michigan

- ◆ The direct economic benefit of average annual operations of the Cross Winds™ Energy Park in Michigan will be an estimated \$4 million produced by 11 workers earning \$1.4 million. The operating activity will support an additional \$2.3 million of output in all industries in Michigan. The production of the \$2.3 million in additional output will require about 26 indirect workers. These workers will have associated earnings of \$1.1 million. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

# EXECUTIVE SUMMARY

- ◆ ***Combined, average annual operations of the Cross Winds™ Energy Park will generate direct and indirect output in Michigan each year valued at \$6.3 million produced by 37 workers earning a total of \$2.5 million.***

## **Greater Thumb Region**

- ◆ The direct economic benefit of average annual operations of the Cross Winds™ Energy Park in the Greater Thumb region will be an estimated \$3.3 million produced by 11 workers earning \$1.4 million. The operating activity will support an additional \$1.1 million of output in all industries in the region. The production of the \$1.1 million in additional output will require about 17 indirect workers. These workers will have associated earnings of \$646,000. All earnings values are included in the total value of output; earnings are not in addition to the value of output.
- ◆ ***Combined, average annual operations of the Cross Winds™ Energy Park will generate direct and indirect output in the Greater Thumb region each year valued at \$4.4 million produced by 28 workers earning a total of \$2 million.***

## **Tuscola County**

- ◆ The direct economic benefit of average annual operations of the Cross Winds™ Energy Park in Tuscola County will be an estimated \$2.6 million produced by seven workers earning \$947,000. The operating activity will support an additional \$438,000 of output in all industries in the county. The production of the \$438,000 in additional output will require about five indirect workers. These workers will have associated earnings of \$210,000. All earnings values are included in the total value of output; earnings are not in addition to the value of output.
- ◆ ***Combined, average annual operations of the Cross Winds™ Energy Park will generate direct and indirect output in Tuscola County each year valued at \$3 million produced by 12 workers earning a total of \$1.1 million.***

## **Fiscal Benefit**

- ◆ ***Consumers Energy projects Cross Winds™ will generate a total of \$27.2 million in property tax revenue over 20 years from 2015 to 2034, representing average property tax revenue of \$1.4 million per year. This \$1.4 million in revenue will benefit several tax districts that serve Tuscola County residents and businesses, including an average of \$462,000 for the county, \$247,000 for the Akron Township, \$109,000 for the Columbia Township, \$231,000 for the Tuscola Intermediate School District, \$289,000 for the local school districts, and \$21,000 for a local library district.***
- ◆ ***Tuscola County and the state will also receive fees for inspection, licenses, and permits associated with Cross Winds™. The revenue from these fees, licenses, and permits will average \$234,000 per year. This is comprised of a benefit to the state of an estimated \$222,000 and a benefit to Tuscola County of \$12,000.***

# INTRODUCTION

The Cross Winds™ Energy Park is Consumers Energy's latest wind energy investment. The 62-turbine wind park will be located in the Akron and Columbia Townships of Tuscola County in the Thumb Area of Michigan. Based on the amount of dollars invested in each township for the turbines, meteorological towers, substation, and operations facilities, about 71 percent of the project will be in Akron Township and 29 percent in Columbia. Construction of the Cross Winds™ Energy Park is expected to commence in 2013 with completion of the project in 2014. Operations are expected to begin in late 2014 with 2015 being the first full year of operations.

Michigan's Thumb Area will be the location of two major Consumers Energy wind facilities, including the 105-megawatt (MW) Cross Winds™ Energy Park and a 100 MW wind farm slated for construction in 2022. Consumers Energy has secured 51,000 acres of easements in Tuscola County and placed five meteorological towers in the county to measure wind patterns. Tuscola County also offers an ideal location for transmission lines that are critical to the success of a wind farm. Consumers Energy's investments will add to the already robust wind investments in the Thumb Area including the Echo Wind farm, the Michigan Wind 1 & 2 wind farms, and the Harvest I & II wind farms, among others.

Renewable energy investments in Michigan provide a way for the state to diversify its energy supply, reduce pollution, decrease reliance on other states for electricity, and contribute to a more reliable energy system. In addition, the construction and operations of the wind park will generate significant economic and fiscal benefits for the townships, regional economy, and the state.

The intent of this study is to analyze the economic and fiscal benefits associated with the proposed construction and operations of the Cross Winds™ Energy Park.

## Renewable Energy in Michigan

Installed wind energy capacity in Michigan has more than tripled since 2008, increasing from 129 MW of installed capacity in 2008 to 487 MW in 2012. As of 2012, Michigan ranks 20th among the states for total installed capacity. Wind energy comprises an increasing share of Michigan's renewable energy production. In 2008, wind energy comprised just 3.6 percent of the state's renewable electricity. The percentage increased to 8.8 percent in 2010.

When all sources of renewable energy are included, Michigan ranked 35th among the states for the percent of net electricity generated from renewable sources in 2010 with 3.7 percent. While Michigan continues to rank in the bottom half of the nation for the percent of electricity generated from renewables, its share increased to 3.7 percent from 3.4 percent in 2008. Hydroelectricity (30.6 percent) and biomass (60.6 percent including wood/wood waste, biogases, and other sources) continue to comprise the largest shares of the state's renewable electricity generation. The latest monthly data from the U.S. Energy Information Administration indicate that the share of electricity generated from renewables in Michigan has accelerated and was about 7.6 percent in April 2013.

Michigan's renewable energy standard, introduced into law in October 2008, requires 10 percent of the state's electricity meets the renewable standard by 2015. Consumers Energy estimates that with 8 percent of its generation meeting the requirements today, it is well on its way to reaching 10 percent by 2015 through its own renewable energy projects and through purchases from third-party suppliers.

## Economic and Fiscal Benefits Defined

### Economic Benefits

Economic impact analysis is the analytical approach used to assess the measurable direct and indirect benefits resulting from a project over a specific period. Only those benefits that can be measured or quantified are

# INTRODUCTION

included. Intangible benefits, such as enhancement of community character or diversification of the job base, are not included. Further, economic impact analysis highlights that activity which occurs within a specified geographic area. This analysis estimates the Cross Winds™ Energy Park's impacts on three geographic levels: the state of Michigan, the Greater Thumb region, and Tuscola County.

The economic and fiscal benefits estimated in this analysis highlight two categories of impacts and activities, consisting of the construction of the Cross Winds™ Energy Park and the on-going business operations once completed. The spending patterns associated with the construction and operations of Cross Winds™ have spin-off effects or multiplicative impacts in the county and state. Therefore, multiplier analysis is used to trace the impacts on businesses, organizations, and individuals affected by the construction activity and on-going operations.

The multiplicative impacts are discussed in terms of “indirect” and “induced” economic benefits (often collectively referred to as simply indirect benefits). For example, when Consumers Energy purchases supplies from a local vendor, that local vendor provides payroll to its employees and makes purchases from other vendors. These other vendors in turn provide payroll to their employees, and so on, providing the indirect benefit of the initial dollar spent. On a separate but similar spending track, when Consumers Energy employees working at Cross Winds™ spend their paychecks at local businesses, these local businesses provide payroll to their employees, make purchases from other vendors, and so on, creating the induced benefit.

As a result, the initial dollars spent by Consumers Energy for construction, business purchases, and employee compensation will be circulated throughout the local economy a number of times. The number of times that the initial dollars will be circulated throughout the local economy may be estimated using economic multipliers. An economic multiplier summarizes the total impact that can be expected within a specific geographic area due to a given industry's level of business activity. Generally, larger multipliers are associated with industries that (1) spend more dollars locally, (2) pay high salaries, and/or (3) sell their goods and services outside of the local area.

The indirect and induced jobs and income flows generated by the direct local spending patterns are estimated using the Regional Input-Output Modeling System II (RIMS II) multipliers developed by the Bureau of Economic Analysis of the U.S. Department of Commerce. The RIMS II multipliers are the most widely used and respected for economic impact analysis. These multipliers are geographic and industry specific, and are used to estimate the total benefits of a project.

Three types of economic benefits derived from the RIMS II multipliers are discussed for each study region. First, the direct and indirect impact of the construction and operations on the gross output of the region is estimated. This is the total value produced by local firms and residents resulting from the value of the output produced by an industry directly. Gross output consists of the value of both intermediate goods and final products, so this is a larger value than gross domestic product (GDP) for each region. Second, the total direct and indirect employment needed in the region to produce this level of output is determined. These employees may be full-time or part-time, local or non-local workers. It should be noted that the indirect employment supported might represent fractions of jobs, added to reflect whole positions. Third, the analysis presents an estimate for the typical direct and indirect earnings associated with this level of production.

## Fiscal Benefits

Fiscal impact analysis estimates the direct public revenues and public costs resulting from a project over a specific time period. A project may generate a broad array of public revenues ranging from sales tax, use tax, property tax, franchise fees, licenses and permits, and other charges for services. In turn, local governments provide a variety of public services such as police protection, public works, community social and recreational programs, and community development services, to name a few.

# INTRODUCTION

This report includes a limited fiscal impact analysis, including direct public revenue estimated only from sales tax, lodging tax, property tax, fees, permits, and licenses. In other words, the analysis includes the governmental taxes and fees paid by Consumers Energy due to Cross Winds™ Energy Park's construction activity, business spending, and operations. The sales tax revenue and lodging tax revenue estimates are based on current sales and use tax rates and tax policies for the state of Michigan. Property tax estimates are based on the value of real and personal property of the Cross Winds™ Energy Park. Fee revenue for permits, inspections, and licenses are estimated at the state and county levels.

## Methodology

### Geographic Interpretation

This analysis estimates the Cross Winds™ Energy Park's benefits on three geographic levels: the state of Michigan, the Greater Thumb region, and Tuscola County. The Greater Thumb region is defined in this study as a seven-county region consisting of Bay, Genesee, Huron, Lapeer, Saginaw, Sanilac, and Tuscola Counties. The economic benefits in the three geographic areas described in this report are individual, non-additive impacts. For example, the economic benefits reported for the Greater Thumb region are not in addition to the state of Michigan benefits, but are a component of the economic benefits in the state of Michigan. Similarly, the economic benefits reported for Tuscola County are not in addition to the Greater Thumb region benefits, but are a component of the benefits in the Greater Thumb region. Thus, the economic benefits estimated from this study should specify the particular geography when reported.

The fiscal benefits reported in this study are narrower in concept. The three geographic areas analyzed in this study either represent a single governmental entity or consist of several governmental entities. The fiscal benefits are discrete to each level of government. For example, Consumers Energy will be paying property tax for the Cross Winds™ Energy Park. The property tax revenues will benefit several different taxing entities providing governmental services to the facility. While any property tax received by Tuscola County for county services benefits its residents, who are also residents of the state, Tuscola County property tax revenue is only counted as a direct fiscal benefit to the county, not the state of Michigan as a whole. Thus, the fiscal benefits estimated in this study should specify the particular governmental entity when reported.

The total output, employment, and earnings from the construction and operations of the Cross Winds™ Energy Park are estimated using the RIMS II multipliers at a state, regional, and county level. As a result, this analysis only includes multiplier impacts for the state of Michigan, the Greater Thumb region, and Tuscola County. Multiplier effects also occur at the local level such as township or municipality. These effects are a part of the multiplier effects estimated for the larger areas, however the specific amount of these effects cannot be separated from the county numbers and are not included for this reason.

### Categories of Impacts

The economic and fiscal benefits for this analysis were calculated within the framework of two categories of impacts and activities, construction activity and on-going business operations.

Construction impacts focus on the benefits of spending on materials, labor, and other costs for the project, and the benefits of transitory workers who will travel to the site from outside of the region and will spend money locally. Construction impacts are one-time impacts, meaning that the benefit of construction activity accrues only in the years in which construction activity occurs. If there is no construction activity in a given year, there are no associated economic and fiscal benefits.



# INTRODUCTION

The impacts of on-going operations for this analysis were based on average annual operational costs of the Cross Winds™ Energy Park. For this study, Consumers Energy supplied projections of its average annual operations for the first 20 years of the energy park. It should be noted that operating expenses are likely to vary from year to year.

## Project Parameters and Study Variables

Development Research Partners estimated the economic and fiscal benefits described in this report based on primary data supplied by Consumers Energy. When necessary, data from a variety of standard secondary sources was used, including the U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, U.S. Census Bureau, state of Michigan, and others. Development Research Partners made every attempt to collect necessary additional or missing information and believe the information used in this report is from sources deemed reliable but is not guaranteed.

It should be noted that suppliers and contractors for the construction of the facility have yet to be finalized. In addition, while Consumers Energy has provided projections and estimated the operations of the Cross Winds™ Energy Park, the facility has yet to be constructed and plans for its operations have yet to be finalized. Changes in suppliers and other variables for the construction and operation of Cross Winds™ may change the benefits reported in this study. The parameters used in this impact analysis were carefully considered and selected to accurately report and avoid overstating potential economic and fiscal benefits. However, the economic and fiscal benefits estimated in this report are entirely dependent on the project assumptions and are not guaranteed.

Some numbers in the study may not add exactly due to rounding. In general, numbers reported in the text of the report are rounded to the nearest hundred thousand if over \$1 million. Figures that are less than \$1 million are rounded to the nearest thousand. This analysis considers the economic and fiscal benefits in nominal dollars, meaning the cost of escalation is included in the values for construction and operations. That is, the cost of the project is stated as the actual dollar cost during the future year. However, employment benefits were estimated in 2013 dollars so as not to overstate employment.

## **Report Organization**

Following the Introduction, the next two sections of the report describe the economic and fiscal benefits of the construction of the Cross Winds™ Energy Park and the on-going average annual operations of the facility once construction is completed.

Each section is further divided into the direct economic and fiscal benefits of the project, followed by the total economic benefits once multiplier effects are considered. Multiplier effects include the indirect and induced impacts on output, employment, and earnings supported by the direct spending from the construction activity and operations for Michigan, the Greater Thumb region, and Tuscola County.

The construction and operations of Cross Winds™ will have significant benefits on the various local suppliers in the region. These categories of direct and indirect benefits are combined to establish the overall economic and fiscal benefits of Cross Winds™. These final total values are included in the Summary section of the report.

# CONSTRUCTION BENEFITS

Construction of the Cross Winds™ Energy Park is expected to begin in the fall of 2013. Construction activity will peak in 2014 and will be completed in the same year. At buildout, Cross Winds™ will have 62 wind turbines and a productive capacity of about 105 MW. This section of the report details the benefits from construction of the Cross Winds™ Energy Park.

## Direct Economic and Fiscal Benefits

The Cross Winds™ Energy Park will cost an estimated \$265.3 million. This estimate consists of \$229.5 million for major equipment, engineering, and construction materials, and \$35.8 million for construction management and labor.

### Construction Spending

- ◆ Major equipment purchases of turbines, substation equipment, and construction materials including concrete, rebar, aggregate for roads, equipment, and other materials, comprise over 71 percent of the total construction cost, or about \$188.9 million. In June 2013, Consumers Energy selected GE as its wind turbine supplier. As most of the turbine equipment and parts will be purchased outside of the state, most of the local benefits from the \$188.9 million in equipment and material purchases will be for construction materials. Based on expected spending patterns, Michigan suppliers will capture an estimated \$10.1 million of the construction materials purchases. Based on an analysis of the distribution of likely supplier industries within Michigan from Hoover's business data, about 9.5 percent, or \$966,000 in spending, will likely be transacted in the Greater Thumb region. Of the \$966,000 spent in the Greater Thumb region, suppliers located in Tuscola County may capture an estimated \$43,000.
- ◆ Spending on the development, engineering, planning, legal services, environmental studies, and other soft costs associated with Cross Winds™ will total about \$24 million. The majority of these costs will be transacted with Michigan-based suppliers and will total an estimated \$20.7 million. Based on the distribution of likely supplier industries in Michigan, about \$7.1 million will be spent in the Greater Thumb region with \$5.9 million benefiting Tuscola County. Most of the county benefit (\$4.8 million) represents dollars spent to acquire land for the project.
- ◆ Initial landowner payments for easements and any potential crop loss or damages from the wind farm's operations will total an estimated \$3.7 million. All of these payments benefit the residents and landowners of the Greater Thumb region and Tuscola County.
- ◆ Estimated overhead for the construction management and labor contracts is about \$24 million. Assuming this cost is distributed among the study regions similar to labor costs described below, about \$19.2 million will benefit individuals and businesses of Michigan, including \$13.9 million benefiting the Greater Thumb region. Of this amount, about \$1 million will benefit Tuscola County.
- ◆ Contingency for the Cross Winds™ Energy Park is about 4.8 percent of the total project costs, or \$12.2 million. The contingency will benefit the study regions inasmuch as it is needed for additional materials, planning and other costs, labor, or other expenses. While the nature of this spending is unknown, Consumers Energy estimates that 75 percent, or about \$9.2 million, will be spent in Michigan. Included in this amount is an estimated \$6.1 million in spending in Tuscola County that is also a benefit to the Greater Thumb region.
- ◆ Construction of the Cross Winds™ Energy Park will require nearly 282,500 hours of work. Based on the 14-month construction period, the project will require an average of 84 full-time equivalent (FTE) workers per month. Employment is expected to peak in summer 2014 at about 156 workers. While the location of the

# CONSTRUCTION BENEFITS

subcontracted labor is yet to be determined, it is estimated that about 80 percent of the workers, or about 67 FTEs, will be filled by Michigan residents. According to data from the U.S. Census Bureau's Local Employment Dynamics, 72.5 percent of employees working in the Greater Thumb region also live within the region. Based on these commuting patterns, an estimated 49 of the FTE positions will be filled by residents of the Greater Thumb region. The Greater Thumb region is also where many of the local craft labor unions are located with whom Consumers Energy will negotiate for the project. Based on the occupations of employed persons in the Greater Thumb region from U.S. Census Bureau data, construction workers from Tuscola County will fill an estimated four of the FTE positions on the project.



- ◆ The cost of labor for the 84 FTE workers required for the project including all wages, salaries, and employee benefits is an estimated \$11.9 million. Narrowing compensation to just the benefit of earnings likely to be spent in Michigan or locally, the earnings impact in the state is an estimated \$7.3 million.<sup>1</sup> An estimated \$4.9 million will be paid to workers residing in the Greater Thumb region including \$350,000 benefiting Tuscola County residents.

## Transitory Worker Spending

The Cross Winds™ project will require workers to travel to the site from outside of the Greater Thumb region and Michigan. These workers are referred to as transitory workers. These employees are expected to spend a significant amount of money in the area during the course of the project for lodging, food, entertainment, and other goods and services.

- ◆ Cross Winds™ construction will require 84 full-time equivalent workers for the project. The economic benefit in Michigan of 80 percent of these workers (67 workers) is included in the benefits of the labor costs described in the Construction Spending section. The remaining 17 workers will travel to the site from outside

<sup>1</sup> Earnings impacts are based on the portion of total compensation (including wages, salaries, and benefits) that is likely to be spent locally and includes wages and salaries, paid leave, and supplemental pay. Health insurance benefits are also included for the state. Earnings were estimated based on data from the U.S. Bureau of Labor Statistics, National Compensation Survey.

# CONSTRUCTION BENEFITS

of Michigan and are transitory workers during the construction period. While the earnings of the transitory workers do not count as a direct benefit to the study regions, the lodging and retail spending of these workers do represent additional benefits to the state. Based on the reimbursement rates set by the U.S. General Services Administration for the area, the transitory workers will spend an average of \$46 per day for meals and incidental expenses (excluding lodging). The additional benefit in Michigan of transitory worker spending will be an estimated \$201,000 for food, entertainment, and other expenditures. Adjusting this spending to reflect only the retailer margin of 27 percent (retail spending less cost of goods sold), yields an estimated retailer benefit of \$55,000.

- ◆ Michigan will also benefit from the out-of-state worker spending on lodging. Transitory workers will often use a variety of lodging options, including hotels/motels, RV parks, and apartments. This analysis assumes that 50 percent of the worker days will be captured in apartments and 50 percent will be captured in hotels/motels in the area. Michigan will capture an estimated 1,460 room nights of demand in hotels/motels based on an average of 1.5 persons per room and will capture about 67 rental months in area apartments based on 1.5 persons per apartment. Based on an average room rate for hotels/motels of \$88.11 per night in cities in proximity to the site (such as Bay City, Caro, and Cass City) and average rent for apartments of \$520 per month, the additional benefits to Michigan from transitory worker spending on lodging is an estimated \$163,000.

Note that the same assumptions for hotel versus apartment lodging, persons per room, and lodging and rental rates were also used for the analysis of transitory worker spending in the Greater Thumb region and Tuscola County below.

- ◆ Transitory worker spending will also benefit the Greater Thumb region. Transitory workers benefiting the Greater Thumb region are defined as Michigan workers that do not reside in the region or within the Detroit-Warren-Livonia metropolitan statistical area, which is considered a commutable distance for this analysis. In addition to the 17 out-of-state workers, another 11 workers will travel to the site from various parts of Michigan. While the earnings benefit of these workers is included in the labor benefits to the state, they are not included in the labor benefits to the region. Instead, the additional benefit to the region of spending from transitory workers is included, totaling about \$333,000 for meals and incidentals. Adjusting this spending to reflect only the retail margin yields an estimated retailer benefit of \$91,000.
- ◆ Based on the same assumptions outlined for the state, businesses within the Greater Thumb region will benefit from about 2,410 room nights of demand from transitory workers in area hotels/motels and about 111 rental months in area apartments. The benefit of transitory worker spending on lodging is an estimated \$270,000.
- ◆ Based on the availability of hotels and motels in Bay and Tuscola Counties from Hoover's business data, an estimated 15 percent or four transitory workers traveling to the Greater Thumb region from either out-of-state or other areas of Michigan are assumed to stay in Tuscola County and represent additional benefits to the county. The additional benefit to Tuscola County of spending from transitory workers will total about \$48,000 for meals and incidentals. Adjusting this spending to reflect only the retail margin yields an estimated retailer benefit of \$13,000.
- ◆ Businesses within Tuscola County will benefit from about 350 room nights of demand from transitory workers at area hotels/motels and about 16 rental months in area apartments. The benefit of transitory worker spending on lodging is an estimated \$39,000.

# CONSTRUCTION BENEFITS

## Fiscal Benefits

Fiscal benefits from the construction of the Cross Winds™ Energy Park include the generation of state sales and use taxes and county-level revenues. The estimated fiscal benefits are as follows:

- ◆ Sales and use taxes are imposed at a state level in Michigan. However, purchases of materials and equipment for Cross Winds™ will be exempt from sales and use taxes.
- ◆ Transitory worker spending will generate sales and use tax revenues for the state. Based on the 6 percent sales and use tax rate and 6 percent lodging use tax rate in the state, sales and use tax revenue from transitory worker spending will generate about \$20,000 in revenue during the construction period.
- ◆ A portion of the site certification and permitting costs for the project are expected to be transacted with the state. The benefit to Michigan is an estimated \$159,000.
- ◆ Tuscola County will collect revenues for various special use permits, zoning and land use permits, and fees. The estimated site certification and permit revenue for the Cross Winds™ project in Tuscola County is about \$476,000.

## Total Direct Economic and Fiscal Benefits

The total direct economic and fiscal benefits of constructing the Cross Winds™ Energy Park in Michigan will be an estimated \$70.5 million over the construction period, including all materials and services, planning, landowner payments, construction management overhead, labor, contingency, and transitory worker spending benefits. Also included is a direct fiscal benefit of \$20,000 in sales and use tax revenue from transitory worker purchases and \$159,000 for site certification and permitting costs.

The direct economic benefit in the Greater Thumb region will be about \$37 million. The direct economic and fiscal benefit to Tuscola County is an estimated \$17.6 million including \$476,000 in site certification and permitting revenue.

The economic and fiscal benefits of the construction activity are temporary impacts, occurring only during the construction period.

# CONSTRUCTION BENEFITS

<b>Table 1: Direct Economic and Fiscal Benefits of Construction Activity of the Cross Winds™ Energy Park</b>				
	Total Project	Tuscola County	Greater Thumb Region	Michigan
<b>Direct Economic Benefits</b>				
<b>Construction Benefits</b>				
Wind Farm Major Equipment/Construction Materials	\$188,897,000	\$43,000	\$966,000	\$10,127,000
Design, Engineering, Planning, Other Costs	\$24,014,000	\$5,857,000	\$7,078,000	\$20,674,000
Land Owner Payments (Easements, Loss Compensation)	\$3,700,000	\$3,700,000	\$3,700,000	\$3,700,000
Overhead	\$23,989,000	\$1,002,000	\$13,914,000	\$19,191,000
Payroll	\$7,111,000	\$297,000	\$4,125,000	\$5,689,000
Employee Benefits (Earnings Portion)	\$4,741,000	\$55,000	\$770,000	\$1,611,000
Contingency	\$12,200,000	\$6,100,000	\$6,100,000	\$9,150,000
<b>Total Construction Benefits</b>	<b>\$264,652,000</b>	<b>\$17,054,000</b>	<b>\$36,653,000</b>	<b>\$70,142,000</b>
Construction Employees (Work-Years)	84	4	49	67
<b>Transitory Worker Spending</b>				
Lodging and Apartments		\$39,000	\$270,000	\$163,000
Retailer Impacts*		\$13,000	\$91,000	\$55,000
<b>Total Transitory Worker Spending Benefits</b>		<b>\$52,000</b>	<b>\$361,000</b>	<b>\$218,000</b>
Transitory Workers From Out of Local Government (Work-Years)		4	28	17
<b>Total Direct Economic Benefits of Construction</b>	<b>\$264,652,000</b>	<b>\$17,106,000</b>	<b>\$37,014,000</b>	<b>\$70,360,000</b>
<b>Direct Fiscal Benefits</b>				
Sales and Use Tax on Cross Winds™ Purchases		--	--	<i>Exempt</i>
Sales Tax on Transitory Worker Retail Purchases		--	--	\$12,000
Lodging Use Tax		--	--	\$8,000
Fees and Permits	\$635,000	\$476,000	--	\$159,000
<b>Total Fiscal Benefits</b>	<b>\$635,000</b>	<b>\$476,000</b>	<b>\$0</b>	<b>\$179,000</b>
<b>Total Direct Economic and Fiscal Benefits</b>	<b>\$265,287,000</b>	<b>\$17,582,000</b>	<b>\$37,014,000</b>	<b>\$70,539,000</b>
<i>*Retail margin after subtracting the cost of goods sold and freight. Based on total retail spending of \$48,000 in Tuscola County, \$333,000 in the Greater Thumb region, and \$201,000 in Michigan.</i>				

## Direct, Indirect, and Induced Benefits

The construction activity will have temporary multiplicative impacts on the county, regional, and state economies during the construction period. Multiplicative impacts are based on the value of output, or revenues received in various affected industries from the construction expenditures and the transitory worker spending. These industries include the construction industry, the retail trade industry, the hotels and motels industry, and the real estate industry.

### Michigan

- ◆ **Value of Output:** The total direct value of output associated with the Cross Winds™ Energy Park includes \$70.1 million in construction spending and \$364,000 in transitory worker spending in Michigan. Note that the entire \$364,000 in transitory worker spending (\$163,000 lodging + \$201,000 retail) does not have multiplier impacts in Michigan. Based on an analysis of the retail margins associated with worker spending on retail categories, only about 27 percent of the retail spending actually goes towards local wages and indirect business purchases. The remaining 73 percent received by the retailers represents the cost of goods sold,

# CONSTRUCTION BENEFITS

dollars that generally exit the region as retailers pay for their inventory. Combining the retail spending with 100 percent of the lodging spending yields a total direct benefit of transitory worker spending of \$218,000.

Based on the RIMS II multipliers, \$70.3 million of construction and transitory worker spending will likely support \$89.9 million in additional output in all industries throughout the state. This consists of the value of local spending of the construction workers (the induced benefit) and the local supplier companies and their employees (the indirect benefit). Therefore, the total direct and indirect benefit of construction of the Cross Winds™ Energy Park is \$160.2 million in total output (\$70.3 million direct output + \$89.9 million indirect and induced output), as shown in Table 2.

- ◆ **Employment:** During the buildout period, construction of Cross Winds™ will directly employ about 67 FTE positions filled by residents of Michigan. Transitory worker spending will result in the direct employment of three workers in the state. The production of the \$89.9 million in indirect and induced output in all industries throughout the state will require about 73 worker years, defined as one employee working full time for one year. Therefore, the construction of the Cross Winds™ Energy Park will support the employment of 143 workers in Michigan (70 direct employees + 73 indirect employees), as shown in Table 2.
- ◆ **Earnings:** The direct benefit of construction worker earnings (wages plus a portion of employee benefits) in the state will total about \$7.3 million. Employees directly supported by transitory worker spending will have associated earnings of about \$64,000. The 73 indirect employees that produce the \$89.9 million in indirect and induced output have associated earnings of about \$7.1 million. As a result, the 143 direct and indirect employees have estimated earnings of \$14.5 million (\$7.4 million direct earnings + \$7.1 million indirect earnings), as shown in Table 2. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Construction Activity</b>				
Value of Output (\$M)	\$70.1	2.2786	\$89.7	\$159.8
Earnings (\$M)	\$7.3	1.9622	\$7.0	\$14.3
Employment	67	2.0613	71	138
<b>Transitory Worker Spending</b>				
Value of Output (\$M)	\$0.2	1.8536	\$0.2	\$0.4
Earnings (\$M)	\$0.1	1.8655	\$0.1	\$0.2
Employment	3	1.5194	2	5
<b>Total Economic Benefit</b>				
Value of Output (\$M)	\$70.3		\$89.9	\$160.2
Earnings (\$M)	\$7.4		\$7.1	\$14.5
Employment	70		73	143
<i>Calculation Note: Direct x Multiplier = Total Impact</i>				
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>				

# CONSTRUCTION BENEFITS

## Greater Thumb Region

- ◆ **Value of Output:** The total direct value of output associated with the Cross Winds™ Energy Park includes \$36.7 million in construction spending and \$603,000 in transitory worker spending in the Greater Thumb region. Note that the entire \$603,000 in transitory worker spending (\$270,000 lodging + \$333,000 retail) does not have multiplier impacts in the region. Accounting for the retail margin associated with the transitory worker spending (27 percent) and the full value of the lodging spending yields a total direct benefit of \$361,000.

Based on the RIMS II multipliers, \$37.1 million of construction and transitory worker spending will likely support \$26.6 million in additional output in all industries throughout the region. Therefore, the total direct and indirect benefit of construction of the Cross Winds™ Energy Park is \$63.7 million in total output (\$37.1 million direct output + \$26.6 million indirect and induced output), as shown in Table 3.

- ◆ **Employment:** During the buildout period, construction of Cross Winds™ will directly employ about 49 FTE positions filled by residents of the Greater Thumb region. Transitory worker spending will result in the direct employment of five workers in the region. The production of the \$26.6 million in indirect and induced output in all industries throughout the region will require about 34 worker years. Therefore, the construction of the Cross Winds™ Energy Park will support the employment of 88 workers in the Greater Thumb region (54 direct employees + 34 indirect employees), as shown in Table 3.
- ◆ **Earnings:** The direct benefit of construction worker earnings (wages plus a portion of employee benefits) in the Greater Thumb region will total about \$4.9 million. Employees directly supported by transitory worker spending will have associated earnings of about \$101,000. The 34 indirect employees that produce the \$26.6 million in indirect and induced output have associated earnings of about \$2.7 million. As a result, the 88 direct and indirect employees have estimated earnings of \$7.7 million (\$5 million direct earnings + \$2.7 million indirect earnings), as shown in Table 3. All earnings values are included in the total value of output; earnings are not in addition to the value of output.



# CONSTRUCTION BENEFITS

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Construction Activity</b>				
Value of Output (\$M)	\$36.7	1.7202	\$26.4	\$63.1
Earnings (\$M)	\$4.9	1.5524	\$2.7	\$7.6
Employment	49	1.6533	32	81
<b>Transitory Worker Spending</b>				
Value of Output (\$M)	\$0.4	1.5046	\$0.2	\$0.6
Earnings (\$M)	\$0.1	1.4859	\$0.0	\$0.1
Employment	5	1.3191	2	7
<b>Total Economic Benefit</b>				
Value of Output (\$M)	\$37.1		\$26.6	\$63.7
Earnings (\$M)	\$5.0		\$2.7	\$7.7
Employment	54		34	88
<i>Calculation Note: Direct x Multiplier = Total Impact</i>				
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>				

## Tuscola County

- ◆ **Value of Output:** The total direct value of output associated with the Cross Winds™ Energy Park includes \$17.1 million in construction spending and \$87,000 in transitory worker spending in Tuscola County. Note that the entire \$87,000 in transitory worker spending (\$39,000 lodging + \$48,000 retail) does not have multiplier impacts in the county. Accounting for the retail margin associated with the transitory worker spending (27 percent) and the full value of the lodging spending yields a total direct benefit of \$52,000.

Based on the RIMS II multipliers, \$17.2 million of construction and transitory worker spending will likely support \$5.3 million in additional output in all industries throughout the county. Therefore, the total direct and indirect benefit of construction of the Cross Winds™ Energy Park is \$22.5 million in total output (\$17.2 million direct output + \$5.3 million indirect and induced output), as shown in Table 4.

- ◆ **Employment:** During the buildout period, construction of Cross Winds™ will directly employ about four worker years filled by residents of Tuscola County. Transitory worker spending will result in the direct employment of less than one worker. The production of the \$5.3 million in indirect and induced output in all industries throughout the county will require about one worker year. Therefore, the construction of the Cross Winds™ Energy Park will support the employment of five workers in Tuscola County (four direct employees + one indirect employee), as shown in Table 4.
- ◆ **Earnings:** The direct benefit of construction worker earnings (wages plus a portion of employee benefits) in Tuscola County will total about \$352,000. The employment directly supported by transitory worker spending will have associated earnings of about \$9,000. The one indirect employee that produces the \$5.3 million in indirect and induced output will have associated earnings of about \$74,000. As a result, the five direct and indirect employees have estimated earnings of \$435,000 (\$361,000 direct earnings + \$74,000 indirect

# CONSTRUCTION BENEFITS

earnings), as shown in Table 4. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

<b>Table 4: Total Economic Benefit of the Cross Winds™ Energy Park Construction Activity in Tuscola County</b>				
	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Construction Activity</b>				
Value of Output (\$M)	\$17.1	1.3119	\$5.3	\$22.4
Earnings (\$M)	\$0.4	1.2050	\$0.1	\$0.5
Employment	4	1.2427	1	5
<b>Transitory Worker Spending</b>				
Value of Output (\$M)	\$0.1	1.1967	\$0.0	\$0.1
Earnings (\$M)	\$0.0	1.2504	\$0.0	\$0.0
Employment	0	1.1366	0	0
<b>Total Economic Benefit</b>				
Value of Output (\$M)	\$17.2		\$5.3	\$22.5
Earnings (\$M)	\$0.4		\$0.1	\$0.5
Employment	4		1	5
<i>Calculation Note: Direct x Multiplier = Total Impact</i>				
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>				

# ON-GOING OPERATIONS BENEFITS

## Direct Economic and Fiscal Benefits

The Cross Winds™ Energy Park is projected to commence operations in late 2014. The impacts of on-going operations for this analysis were based on average annual operational costs of the Cross Winds™ Energy Park. For this study, Consumers Energy supplied projections of its average annual operations for the first 20 years of the energy park. It should be noted that operating expenses are likely to vary from year to year. Further analysis for these shifting variables is discussed in this study where applicable to recognize the benefits that can be expected on average over 20 years of operations.

### Economic Benefits

Average annual operational expenditures for the Cross Winds™ Energy Park will total an estimated \$7.2 million each year. The expenditures include \$2 million for materials, maintenance, and services; \$1.6 million of land owner payments tied to production of the turbines, the location of the substation, and the presence of meteorological towers in the area; about \$1.9 million for administration and compensation for employees; \$234,000 for fees, permits, and licenses; and \$1.4 million in property taxes.

- ◆ Annual operations of Cross Winds™ require materials and services including vehicles, vehicle fuel, insurance, tools, supplies, and other contract services. Of the \$1.5 million for materials and services, Consumers Energy estimates that Michigan-based suppliers will capture an estimated \$712,000 each year. Based on an analysis of the distribution of likely supplier industries within Michigan from Hoover's business data, about 17 percent, or \$120,000 in spending, will likely be transacted in the Greater Thumb region. Of the \$120,000 spent in the Greater Thumb region, suppliers located in Tuscola County may capture an estimated \$6,000.
- ◆ A large portion of the local economic benefits of operations of Cross Winds™ will be from rent payments and compensation to the wind farm's landowners. While Consumers Energy will own the turbines, substation, transmission lines, and other assets, it will not own most of the land on which the wind farm will be located. Landowners with wind turbine units will receive compensation tied to the production of the wind farm. Those with permanent meteorological towers on their property will receive a fixed rent. Many other surrounding landowners without wind turbines or meteorological towers on their property will also receive compensation. The total value of these landowner payments will vary each year based on the actual Cross Winds™ operations and the value of the energy produced. Based on current Consumers Energy price forecasts, the value of landowner payments to Tuscola County residents could average over \$1.6 million per year over the first 20 years of operations.
- ◆ Consumer Energy will initially reserve about \$65,000 annually for major maintenance activities including major component repairs and replacements, cranes for loading and assembling towers, road improvements, and substation maintenance. This cost is expected to increase to about \$500,000 each year after the long-term services agreement with the turbine manufacturer ends and Consumers Energy assumes responsibility for turbine maintenance and repair. Based on expected spending patterns, about \$133,000 will be spent in Michigan each year including \$69,000 in the Greater Thumb region. An estimated \$32,000 may be spent in Tuscola County.
- ◆ The cost of labor for Cross Winds™ will average about \$1.9 million each year including \$50,000 for administrative costs, \$1.1 million for wages and salaries, and \$740,000 for employee benefits.

# ON-GOING OPERATIONS BENEFITS

- ◆ Administrative costs for Cross Winds™ represent a benefit to the state of Michigan of \$50,000. These costs will likely be transacted outside of Tuscola County and the Greater Thumb region and do not represent a benefit to these areas directly.
- ◆ Consumers Energy will employ an estimated 11 full-time equivalent, permanent workers at the Cross Winds™ Energy Park. All of these workers will be Michigan residents and are expected to be residents of the Greater Thumb region with associated wages of \$1.1 million. Based on commuting patterns for employees within Tuscola County from the U.S. Census Bureau’s Local Employment Dynamics program, about 64 percent or seven of the workers are likely to be residents of Tuscola County. Payroll for these seven employees will total an estimated \$738,000.
- ◆ Total benefit spending for the 11 employees will be about \$740,000, based on estimates provided by Consumers Energy indicating that the value of benefits will comprise about 40 percent of total compensation. Employee benefits include such items as paid leave and supplemental pay, health and dental insurance, retirement programs, and various legally required benefits (Social Security, Medicare, federal and state unemployment insurance, and workers compensation). Narrowing compensation to just the value of employee benefits likely to be spent in Michigan, the earnings impact to the state is an estimated \$314,000.<sup>2</sup> An estimated \$314,000 will benefit the Greater Thumb region, including a local benefit of \$209,000 in Tuscola County.

**Table 5: Direct Economic Benefits of Average Annual Operations of the Cross Winds™ Energy Park**

	Total Operations	Tuscola County	Greater Thumb Region	Michigan
<b>Direct Economic Benefits</b>				
<b>Operations Benefits</b>				
Materials and Services	\$1,532,000	\$6,000	\$120,000	\$712,000
Land Owner Payments	\$1,640,000	\$1,640,000	\$1,640,000	\$1,640,000
Major Maintenance Reserve	\$500,000	\$32,000	\$69,000	\$133,000
Administrative Overhead	\$50,000	\$0	\$0	\$50,000
Payroll	\$1,110,000	\$738,000	\$1,110,000	\$1,110,000
Employee Benefits	\$740,000	\$209,000	\$314,000	\$314,000
<b>Total Operations Benefits</b>	<b>\$5,572,000</b>	<b>\$2,625,000</b>	<b>\$3,253,000</b>	<b>\$3,959,000</b>
Employees (FTE)	11	7	11	11

## Fiscal Benefits

The operations of Cross Winds™ will generate property taxes and state and county fees, permits, and licenses revenues. The estimated fiscal benefits are as follows:

- ◆ Total property tax revenue from Cross Winds™ will average an estimated \$1.4 million annually based on the most recent estimates from Consumers Energy. Consumers Energy will pay property tax for all of its personal property on the wind farm. The personal property employed at Cross Winds™ will be classified as industrial personal property, meaning that it will be exempt from the six-mill state education tax levy

<sup>2</sup> Earnings impacts are based on the portion of total compensation (including wages, salaries, and benefits) that is likely to be spent locally and includes wages and salaries, paid leave, and supplemental pay. Health insurance benefits are also included. Earnings were estimated based on data from the U.S. Bureau of Labor Statistics, National Compensation Survey.

# ON-GOING OPERATIONS BENEFITS

**Table 6: Average Annual Property Tax Revenue by District for the Cross Winds™ Energy Park**

District	Revenue
State Education	<i>Exempt</i>
County	
General	\$213,000
Other County (Bridge, Senior Citizens, Medical Care, Roads Patrol, Roads, Mosquito, Recycling, MCF Debt)	\$249,000
Local	
Akron Township	\$247,000
Columbia Township	\$109,000
School and Other Local Districts	
Tuscola Intermediate School District	\$231,000
Local Schools (USA, Akron-Fairgrove, Cass City)	\$289,000
Other Local Library	\$21,000
<b>Total</b>	<b>\$1,359,000</b>

*Note: Property tax revenue will be subject to changes in tax districts, mill levies, property valuations, and state laws. The numbers reported are not final.*

and the school district's operating levies. However, Cross Winds™ will still generate property tax revenue for the county, townships, and other local tax districts.

The value of the property at Cross Winds™ will depreciate about 10 percent each year to a floor of 30 percent of the original valuation. As a result, property tax revenue will decrease from about \$2.7 million in 2015 to about \$1 million in year seven of operations, assuming no change in the mill levies or tax structure.

◆ Consumers Energy projects Cross Winds™ will generate a total of \$27.2 million in property tax revenue over 20 years from 2015 to 2034, representing average property tax revenue of \$1.4 million per year. This \$1.4 million in revenue will benefit several tax districts that serve Tuscola County residents and businesses, including an average of \$462,000 for the county, \$247,000 for the Akron Township including the county administration fee, \$109,000 for the Columbia Township including the county administration fee, \$231,000 for the Tuscola Intermediate

School District, \$289,000 for the local school districts,<sup>3</sup> and \$21,000 for a local library district. As of 2011, Consumers Energy is the fourth largest property tax payer in Tuscola County.<sup>4</sup>

- ◆ Table 6 details the average annual property tax revenue whereas Table 7 estimates the revenue by district in 10-year increments.
- ◆ Tuscola County and the state will also receive fees for inspection, licenses, and permits associated with Cross Winds™. The revenue from these fees, licenses, and permits will average \$234,000 per year. This is comprised of a benefit to the state of an estimated \$222,000 and a benefit to Tuscola County of \$12,000.

<sup>3</sup>The local school districts are the Unionville-Sebewaing Area School District, the Akron-Fairgrove School District, and the Cass City School District.

<sup>4</sup> Tuscola County, Comprehensive Annual Financial Report of Tuscola County, Michigan for the Year Ended December 31, 2011, Tuscola County Principle Property Tax Payers, December 2011. <http://www.tuscolacounty.org/finreports>.

# ON-GOING OPERATIONS BENEFITS

## Direct, Indirect, and Induced Benefits

The annual operations of Cross Winds™ will have multiplicative impacts on the state, regional, and county economies. Multiplicative impacts are based on the value of output in the electric power generation, transmission, and distribution industry. This analysis assumes that the company’s total value of output is equal to its total expenditures. These benefits will occur annually assuming similar business operations and tax structures.

### Michigan

- Value of Output:** Based on the industry relationships revealed through the RIMS II multipliers, \$4 million in direct output at the Cross Winds™ Energy Park will support \$2.3 million in additional output in all industries throughout the state. This includes the value of output supported by the spending of the employees (the induced benefit) and the local supplier companies and their employees (the indirect benefit). Therefore, the total direct and indirect benefit of average annual operations of the Cross Winds™ Energy Park is \$6.3 million in total state output (\$4 million direct output + \$2.3 million indirect and induced output), as shown in Table 8.
- Employment:** Consumers Energy will directly employ about 11 workers for its operations at the Cross Winds™ Energy Park. Based on the RIMS II multipliers, the production of the \$2.3 million in indirect and induced output in all industries throughout the state will require about 26 employees. Therefore, the annual operations of the Cross Winds™ Energy Park will support employment of 37 workers (11 direct employees + 26 indirect employees), as shown in Table 8.
- Earnings:** The employees at the Cross Winds™ Energy Park will have associated earnings (wages plus a portion of employee benefits) of \$1.4 million directly benefiting the Michigan economy. Based on the relationships revealed through the RIMS II multipliers, the 26 employees that produce the \$2.3 million in indirect and induced output have associated earnings of about \$1.1 million. As a result, the 37 direct and indirect employees have estimated earnings of \$2.5 million (\$1.4 million direct earnings + \$1.1 million indirect earnings), as shown in Table 8. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

District	2015-2024	2025-2034	20-Year Total
State Education	<i>Exempt</i>	<i>Exempt</i>	<i>Exempt</i>
County			
General	\$2.6	\$1.6	\$4.3
Other County	\$3.1	\$1.9	\$5.0
Local			
Akron Township	\$3.1	\$1.9	\$5.0
Columbia Township	\$1.3	\$0.8	\$2.1
Other			
Tuscola ISD	\$2.9	\$1.8	\$4.6
Local Schools	\$3.6	\$2.2	\$5.8
Other Local Library	\$0.3	\$0.2	\$0.4
Total	\$16.8	\$10.4	\$27.2
Average	\$1.7	\$1.0	\$1.4

*Note: Property tax revenue will be subject to changes in tax districts, mill levies, property valuations, and state laws. The numbers reported are not final.*

# ON-GOING OPERATIONS BENEFITS

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
Value of Output (\$M)	\$4.0	1.5710	\$2.3	\$6.3
Earnings (\$M)	\$1.4	1.7447	\$1.1	\$2.5
Employment	11	3.3423	26	37
<i>Calculation Note: Direct x Multiplier = Total Impact</i>				
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>				

## Greater Thumb Region

- ◆ **Value of Output:** Based on the industry relationships revealed through the RIMS II multipliers, \$3.3 million in direct output at the Cross Winds™ Energy Park will support \$1.1 million in additional output in all industries throughout the Greater Thumb region. This includes the value of output supported by the spending of the employees (the induced benefit) and the local supplier companies and their employees (the indirect benefit). Therefore, the total direct and indirect benefit of average annual operations of the Cross Winds™ Energy Park is \$4.4 million in total regional output (\$3.3 million direct output + \$1.1 million indirect and induced output), as shown in Table 9.
- ◆ **Employment:** Consumers Energy will directly employ about 11 workers for its operations at the Cross Winds™ Energy Park. Based on the RIMS II multipliers, the production of the \$1.1 million in indirect and induced output in all industries throughout the region will require about 17 employees. Therefore, the annual operations of the Cross Winds™ Energy Park will support employment of 28 regional workers (11 direct employees + 17 indirect employees), as shown in Table 9.
- ◆ **Earnings:** The employees at the Cross Winds™ Energy Park will have associated earnings (wages plus a portion of employee benefits) of \$1.4 million directly benefiting the regional economy. Based on the relationships revealed through the RIMS II multipliers, the 17 employees that produce the \$1.1 million in indirect and induced output have associated earnings of about \$646,000. As a result, the 28 direct and indirect employees have estimated earnings of \$2 million (\$1.4 million direct earnings + \$646,000 indirect earnings), as shown in Table 9. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
Value of Output (\$M)	\$3.3	1.3348	\$1.1	\$4.4
Earnings (\$M)	\$1.4	1.4537	\$0.6	\$2.0
Employment	11	2.5399	17	28
<i>Calculation Note: Direct x Multiplier = Total Impact</i>				
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>				

# ON-GOING OPERATIONS BENEFITS

## Tuscola County

- ◆ **Value of Output:** Based on the industry relationships revealed through the RIMS II multipliers, \$2.6 million in direct output at the Cross Winds™ Energy Park will support \$438,000 in additional output in all industries throughout Tuscola County. This includes the value of output supported by the spending of the employees (the induced benefit) and the local supplier companies and their employees (the indirect benefit). Therefore, the total direct and indirect benefit of average annual operations of the Cross Winds™ Energy Park is \$3 million in total county output (\$2.6 million direct output + \$438,000 indirect and induced output), as shown in Table 10.
- ◆ **Employment:** Consumers Energy will directly employ about seven workers who live and work in Tuscola County for its operations at the Cross Winds™ Energy Park. Based on the RIMS II multipliers, the production of the \$438,000 in indirect and induced output in all industries throughout the county will require about five employees. Therefore, the annual operations of the Cross Winds™ Energy Park will support employment of 12 county workers (seven direct employees + five indirect employees), as shown in Table 10.
- ◆ **Earnings:** The employees at the Cross Winds™ Energy Park will have associated earnings (wages plus a portion of employee benefits) of \$947,000. Based on the relationships revealed through the RIMS II multipliers, the five employees that produce the \$438,000 in indirect and induced output have associated earnings of about \$210,000. As a result, the 12 direct and indirect employees have estimated earnings of \$1.1 million (\$947,000 direct earnings + \$210,000 indirect earnings), as shown in Table 10. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
Value of Output (\$M)	\$2.6	1.1670	\$0.4	\$3.0
Earnings (\$M)	\$0.9	1.2219	\$0.2	\$1.1
Employment	7	1.6907	5	12
<i>Calculation Note: Direct x Multiplier = Total Impact</i>				
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>				



# SUMMARY

## Construction Activity

- ◆ **Michigan:** The direct economic benefit during the construction of the Cross Winds™ Energy Park and transitory construction worker spending in Michigan will be an estimated \$70.3 million produced by 70 workers (in worker years) earning \$7.4 million. This activity will support an additional \$89.9 million in output in all industries in Michigan. The production of the \$89.9 million in additional output will require about 73 indirect worker years. These workers will have associated earnings of \$7.1 million. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

***Combined, the construction of the Cross Winds™ Energy Park will generate direct and indirect output in Michigan over the construction period valued at \$160.2 million produced by 143 workers earning a total of \$14.5 million.***

***In addition, the direct fiscal benefit in Michigan over the construction period will be \$179,000 in sales, use, and lodging tax from transitory worker spending and site certification and permitting revenue.***

- ◆ **Greater Thumb Region:** The direct economic benefit during the construction of the Cross Winds™ Energy Park and transitory construction worker spending in the Greater Thumb region will be an estimated \$37.1 million produced by 54 workers (in worker years) earning \$5 million. This activity will support an additional \$26.6 million in output in all industries in the region. The production of the \$26.6 million in additional output will require about 34 indirect worker years. These workers will have associated earnings of \$2.7 million. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

***Combined, the construction of the Cross Winds™ Energy Park will generate direct and indirect output in the Greater Thumb region over the construction period valued at \$63.7 million produced by 88 worker years earning a total of \$7.7 million.***

- ◆ **Tuscola County:** The direct economic benefit during the construction of the Cross Winds™ Energy Park and transitory construction worker spending in Tuscola County will be an estimated \$17.2 million produced by 4 workers (in worker years) earning \$361,000. This activity will support an additional \$5.3 million in output in all industries in the county. The production of the \$5.3 million in additional output will require about one indirect worker year. These workers will have associated earnings of \$74,000. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

***Combined, the construction of the Cross Winds™ Energy Park will generate direct and indirect output in Tuscola County over the construction period valued at \$22.5 million produced by 5 worker years earning a total of \$436,000.***

***In addition, the direct fiscal benefit in Tuscola County over the construction period will be \$476,000 in site certification and permitting revenue.***

# SUMMARY

**Table 11: Total Economic Benefit of Construction of the Cross Winds™ Energy Park**

	Direct Impact	Indirect & Induced Impact	Total Impact
<b>Michigan</b>			
Value of Output (\$M)	\$70.3	\$89.9	\$160.2
Earnings (\$M)	\$7.4	\$7.1	\$14.5
Employment	70	73	143
<b>Greater Thumb Region</b>			
Value of Output (\$M)	\$37.1	\$26.6	\$63.7
Earnings (\$M)	\$5.0	\$2.7	\$7.7
Employment	54	34	88
<b>Tuscola County</b>			
Value of Output (\$M)	\$17.2	\$5.3	\$22.5
Earnings (\$M)	\$0.4	\$0.1	\$0.5
Employment	4	1	5
<i>Calculation Note: Direct x Multiplier = Total Impact</i>			
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>			

## On-Going Operations

- ◆ **Michigan:** The direct economic benefit of average annual operations of the Cross Winds™ Energy Park in Michigan will be an estimated \$4 million produced by 11 workers earning \$1.4 million. The operating activity will support an additional \$2.3 million of output in all industries in Michigan. The production of the \$2.3 million in additional output will require about 26 indirect workers. These workers will have associated earnings of \$1.1 million. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

***Combined, average annual operations of the Cross Winds™ Energy Park will generate direct and indirect output in Michigan each year valued at \$6.3 million produced by 37 workers earning a total of \$2.5 million.***

- ◆ **Greater Thumb Region:** The direct economic benefit of average annual operations of the Cross Winds™ Energy Park in the Greater Thumb region will be an estimated \$3.3 million produced by 11 workers earning \$1.4 million. The operating activity will support an additional \$1.1 million of output in all industries in the region. The production of the \$1.1 million in additional output will require about 17 indirect workers. These workers will have associated earnings of \$646,000. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

***Combined, average annual operations of the Cross Winds™ Energy Park will generate direct and indirect output in the Greater Thumb region each year valued at \$4.4 million produced by 28 workers earning a total of \$2 million.***

- ◆ **Tuscola County:** The direct economic benefit of average annual operations of the Cross Winds™ Energy Park in Tuscola County will be an estimated \$2.6 million produced by seven workers earning \$947,000. The

# SUMMARY

operating activity will support an additional \$438,000 of output in all industries in the county. The production of the \$438,000 in additional output will require about five indirect workers. These workers will have associated earnings of \$210,000. All earnings values are included in the total value of output; earnings are not in addition to the value of output.

***Combined, average annual operations of the Cross Winds™ Energy Park will generate direct and indirect output in Tuscola County each year valued at \$3 million produced by 12 workers earning a total of \$1.1 million.***

<b>Table 12: Total Economic Benefit of Average Annual Operations of the Cross Winds™ Energy Park</b>			
	Direct Impact	Indirect & Induced Impact	Total Impact
<b>Michigan</b>			
Value of Output (\$M)	\$4.0	\$2.3	\$6.3
Earnings (\$M)	\$1.4	\$1.1	\$2.5
Employment	11	26	37
<b>Greater Thumb Region</b>			
Value of Output (\$M)	\$3.3	\$1.1	\$4.4
Earnings (\$M)	\$1.4	\$0.6	\$2.0
Employment	11	17	28
<b>Tuscola County</b>			
Value of Output (\$M)	\$2.6	\$0.4	\$3.0
Earnings (\$M)	\$0.9	\$0.2	\$1.1
Employment	7	5	12
<i>Calculation Note: Direct x Multiplier = Total Impact</i>			
<i>Total Impact - Direct Impact = Indirect &amp; Induced Impact</i>			

# REFERENCES

Consumers Energy. [www.consumersenergy.com](http://www.consumersenergy.com)

Google Maps. <http://www.maps.google.com>

Hoovers. Market Analysis Profile. <http://www.hoovers.com/>

Michigan Department of Treasury. <http://www.michigan.gov/treasury>

Michigan Department of Licensing and Regulatory Affairs, Michigan Public Service Commission. “Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards,” February 2013.  
[http://www.michigan.gov/mpsc/0,4639,7-159-16400\\_17280-295134--,00.html](http://www.michigan.gov/mpsc/0,4639,7-159-16400_17280-295134--,00.html)

RentLinx.com. Michigan State Housing Development Authority, Michigan Housing Locator.  
<http://michiganhousinglocator.rentlinx.com> (Accessed June 2013).

Tripadvisor.com, Hotels/motels near Caro, Cass City, and Bay City, MI. <http://www.tripadvisor.com> (Accessed June 213).

Tuscola County. [www.tuscolacounty.org](http://www.tuscolacounty.org).

U.S. Department of Commerce, Bureau of the Census. Local Employment Dynamics, 2011.  
<http://lehd.ces.census.gov>

U.S. Department of Commerce, Bureau of Economic Analysis. Regional Input-Output Modeling System II Multipliers, 2002 Annual Input-Output Table for the Nation and 2010 regional data.

U.S. Department of Energy, Energy Information Administration. State Energy Data System (SEDS).  
<http://www.eia.gov/state/seds/> (Accessed May 2013).

U.S. Bureau of Labor Statistics. National Compensation Survey, “Employer Costs for Employee Compensation,” March 2013. <http://www.bls.gov/ncs/>

U.S. General Services Administration. FY 2013 Per Diem Rates for Michigan, October 2012 – September 2013.  
<http://www.gsa.gov/portal/category/100120>

# DEVELOPMENT RESEARCH PARTNERS

Development Research Partners specializes in economic research and analysis for local and state government and private-sector businesses. Founded in 1994, Development Research Partners combines extensive experience in real estate economics and economic development to provide clients with reliable consulting services in four areas of expertise:

- ◆ **Economic and Demographic Research**  
Research in support of business and community activities, ranging from community profiles to evaluating and forecasting economic and market conditions.
- ◆ **Industry Studies**  
Specialized research projects including industry cluster research, industry trends analysis, and strategic competitive analysis.
- ◆ **Fiscal and Economic Impact Analysis**  
Comprehensive analysis and analytical tools to evaluate and forecast site-specific activities and model public-private sector relationships.
- ◆ **Real Estate Economics**  
Preparation of strategic market data and analysis for prospective real estate development and public-private partnerships.

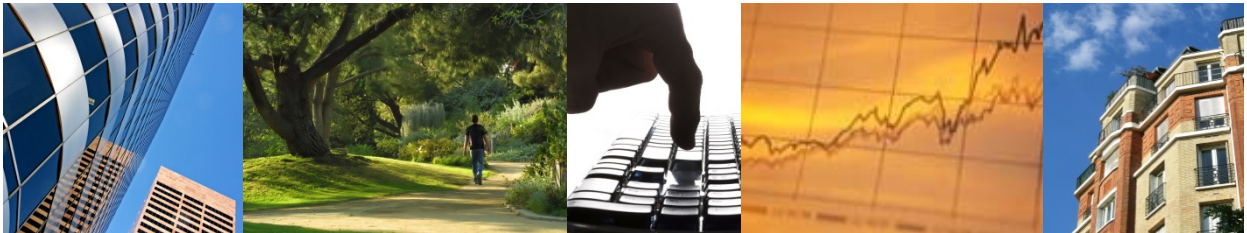
**Development Research Partners**  
**Patricia Silverstein, President**  
**David Hansen, Research Economist**  
10184 West Belleview Avenue  
Suite 100  
Littleton, Colorado 80127  
[www.DevelopmentResearch.net](http://www.DevelopmentResearch.net)  
303.991.0070





Development  
Research Partners

---



*Economic and Demographic Research*

*Industry Studies*

*Fiscal and Economic Impact Analysis*

*Real Estate Economics*

---

10184 West Belleview Avenue  
Suite 100  
Littleton, Colorado 80127  
[www.DevelopmentResearch.net](http://www.DevelopmentResearch.net)  
303.991.0070