

# CUMULATIVE COHOCTON AND DUTCH HILL WIND FARM

## Economic Impact Analysis

UPC Wind Management, LLC

November 13, 2006



**Cohocton Wind Farm Economic Impact Analysis**

Table of Contents

1.0 Methodology..... 1

2.0 Impacts on Employment and the Economy..... 1

2.1 Cumulative Economic Impact of the Construction..... 2

2.2 Cumulative Economic Impact of Operations ..... 2

Cover photo simulation provided by UPC Wind Management, LLC

## 1.0 Methodology

The RIMS II (Regional Input-Output Modeling System) was used to determine the economic impacts of the proposed wind farms to be located at the Town of Cohocton in Steuben County, New York. The RIMS II Modeling System was developed by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) as a method for estimating regional multipliers for impact analysis in output, earnings, and employment associated with a program or project under study.<sup>1</sup>

Using the RIMS II multipliers, an analysis of the economic impact of the proposed wind farms was conducted for both the Construction Phase of the project, as well as the Operation of the proposed wind farm. For better understanding of the economic impact analysis, definitions are as follows:

- > **Output:** refers to the sales receipt for the project. For the construction phase, this refers to the total construction cost of the wind farm construction. For the operation phase, this refers to the annual revenues derived from the operation of the wind farm.
- > **Earnings:** During construction, earnings refer to wages derived by workers. During the operation phase, wages come from two sources: 1) from wages of workers at the wind farm; and 2) from leases paid to landowners.
- > **Employment:** refers to the number of jobs created during construction, as well as the number of workers employed at the wind farm.
- > **Multipliers:** The use of regional economic multipliers is a standard way to identify the potential effects of a major change in a region's economy. These measures estimate the changes in output, income and employment resulting from an initial change in spending.<sup>2</sup>

## 2.0 Impacts on Employment and the Economy

The Cohocton and Dutch Hill Wind Farm projects are expected to create employment and income during the initial phase of construction, as well as throughout the life of the project. The economic impact study quantifies the effect of one dollar spent as it ripples through the local economy, creating additional expenditures and jobs. Wind power development can expand the local economy through ripple effects. Ripple effects stem from subsequent expenditures for goods and services made by first-round income from the development, and are expressed in terms of a *multiplier*. A *direct effect or impact* arises from the first round of buying and selling. Direct effects include the purchase of inputs from local sources, such as fuel; the spending of income earned by workers; annual labor revenues; and the income effect of taxes. These direct effects can be used to identify additional, subsequent rounds of buying and selling for other sectors and to identify the effect of spending by local households. The *indirect effect or impact* is the increase in sales of other industry sectors in the county, which include further round-by-round sales. The *induced effect or impact* is the expenditures generated by increased household income resulting from

---

<sup>1</sup> U.S. Department of Commerce, "Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)," Third Edition 1997.

<sup>2</sup> Definition of Multipliers from "A Consumer's Guide to Regional Economic Multipliers," by Coughlin & Mandelbaum. [http://research.stlouisfed.org/publications/review/91/01/Consumer\\_Jan\\_Feb1991.pdf](http://research.stlouisfed.org/publications/review/91/01/Consumer_Jan_Feb1991.pdf).

direct and indirect effects. The *total effect or impact* is the sum of the direct, indirect, and induced effects.<sup>3</sup>

Currently, UPC Management, LLC, is permitting up to 52 turbines for the Cohocton and Dutch Hill Wind Farms, with a proposed configuration of 36 turbines for Cohocton and 16 turbines for Dutch Hill. However, the construction for these two projects will only include 50 turbines for a maximum output of approximately 125 MW. The Regional Input-Output Modeling System (RIMS II) developed by the Bureau of Economic Analysis was used to determine economic impacts during the construction phase and the operations phase of the project as a whole. Construction creates a one-time surge in economic activity, while operation and maintenance makes an on-going economic contribution by creating long-term jobs and continuing income streams. Both phases were analyzed to offer a more comprehensive picture of the possible economic benefits of the project.

## **2.1 Cumulative Economic Impact of the Construction**

Approximately \$245 million in investment would be needed to construct the 125 MW Cohocton and Dutch Hill Wind Farms. The construction phase of the project will generate approximately 101 full-time construction-related jobs over a 7.5-month period. It is anticipated that one-half to two-thirds of employment will be drawn from the Southern Tier and Finger Lakes labor markets. Local construction employment will be primarily equipment operators, truck drivers, laborers and electricians. The balance of construction employment will include workers with special necessarily skills imported from outside the region for the duration of construction.

The construction of the two wind farms will collectively have a spin-off of approximately 886 jobs, bringing the projected total economic impact of construction to 987 jobs. Earnings derived from construction wages will have a spin-off projected at approximately \$1.054 million, bringing the total estimated economic impact from household wages at \$3.958 million. The \$245 million in total construction investment will generate indirect and induced impacts of approximately \$345 million, bringing the total economic impact on output to over \$590 million for the two wind farm facilities.

Approximately 65% of the \$160 million total project budget is estimated as purchase and installation of the towers, turbines, and equipment. The remaining 35% represent expenditure on for business services, labor and materials.

## **2.2 Cumulative Economic Impact of Operations**

The Cohocton and Dutch Hill Wind Farms combined will generate approximately 125 megawatts of power. It is not necessary to employ separate staff for the two wind farms. Therefore, both wind farms will utilize the services of one Operations Manager, one Quality Control Engineer, one

---

<sup>3</sup> National Wind Coordinating Committee. *A Methodology for Assessing the Economic Development Impacts of Wind Power*. June 2004.

Bookkeeper/Secretary and four Wind Technicians.<sup>4</sup> Staff time utilization will be divided at 70% utilization for the Cohocton Wind Farm and 30% utilization for the Dutch Hill Wind Farm.

Total direct earnings comprising of direct wages and leases paid to landlords for both sites are estimated at \$0.768 million annually. Wages for the Cohocton and Dutch Hill Wind Farms are estimated at \$355,000 per year for a staff of seven. Leases are collectively projected at approximately \$625,000, comprising 2.5% of annual gross receipt (output) per year.

The seven full-time jobs will result to a spin-off of approximately 22 additional jobs, bringing the total impact of operations at 29 new jobs. These full-time jobs create other jobs in other sectors of the economy through expenditures derived from household wages. Earnings are projected to have an indirect and induced impact of approximately \$0.161 million, bringing the total economic impact on earnings at approximately \$0.928 million per year. Revenues are projected to generate an additional \$30.773 million in output, bringing the total economic impact on gross sales and receipts (output) at approximately \$55.773 million per year.

---

<sup>4</sup> Direct number of jobs information provided by UPC Wind Management, LLC.

# Cumulative Cohocton and Dutch Hill Wind Farm Economic Impact Analysis

**Cohocton & Dutch Hill Wind Farms, Steuben County, NY**  
Cumulative Economic Impact Analysis

NAICS Code		Direct Impact (\$000)	Multiplier	Indirect & Induced Impacts (\$000)	Total Impact (\$000)	Notes
<b>Construction</b>						
230000	Total Construction Cost (\$000)	\$ 245,000				
	<b>Output (\$000)</b>	<b>\$ 245,000</b>	<b>1.4085</b>	<b>\$ 345,083</b>	<b>\$ 590,083</b>	Total gross output during construction is estimated at \$245M for 50 wind turbines
	Cohocton	\$ 160,000	1.4085	\$ 225,360	\$ 385,360	
	Dutch Hill	\$ 85,000	1.4085	\$ 119,723	\$ 204,723	
	<b>Earnings (\$000)</b>	<b>\$ 2,904</b>	<b>0.3631</b>	<b>\$ 1,054.35</b>	<b>\$ 3,958.10</b>	Median annual wage for construction jobs is \$45,520 (Southern Tier EO 2005)
	Cohocton	\$ 1,811	0.3631	\$ 657.66	\$ 2,468.91	
	Dutch Hill	\$ 1,093	0.3631	\$ 396.69	\$ 1,489.19	
	<b>Employment (jobs)</b>	<b>101</b>	<b>8.7702</b>	<b>886</b>	<b>987</b>	Approximately 80 - 120 construction jobs are estimated for a period of 6 - 9 months. An average of both were used as to not inflate the economic benefit
	Cohocton	63	8.7702	553	616	
	Dutch Hill	38	8.7702	333	371	
<b>Operations</b>						
2211A0	Power generation & supply					
	<b>Output (\$000)</b>	<b>\$ 25,000</b>	<b>1.2309</b>	<b>\$ 30,773</b>	<b>\$ 55,773</b>	Annual gross revenue for the 2 wind farms is estimated at \$25.0M for 125MW
	Cohocton	\$ 16,500	1.2309	\$ 20,310	\$ 36,810	
	Dutch Hill	\$ 8,500	1.2309	\$ 10,463	\$ 18,963	
	<b>Earnings (\$000)</b>	<b>\$ 768</b>		<b>\$ 160.71</b>	<b>\$ 928.21</b>	
	<b>Wages</b>	<b>\$ 355</b>	<b>0.2094</b>	<b>\$ 74.34</b>	<b>\$ 429.34</b>	Wages are estimated to range from \$50,000 - \$100,000/person/year
	Operations Manager	\$ 75				Operations Manager @ \$70,000 - \$80,000 (an average was used as to not inflate the economic benefit); 70% of time used for Cohocton & 30% for Dutch Hill.
	Quality Control	\$ 65				Quality/Control Engineer @ \$60,000 - \$70,000 (an average was used as to not inflate the economic benefit); 70% of time used for Cohocton & 30% for Dutch Hill.
	Bookkeeper/Secretary	\$ 35				Bookkeeper/Secretary @ \$30,000 - \$40,000 (an average was used as to not inflate the economic benefit); 70% of time used for Cohocton & 30% for Dutch Hill.
	4 Wind Technicians	\$ 180				4 Wind Technicians @ \$40,000 - \$50,000 (an average was used as to not inflate the economic benefit); 70% of time used for Cohocton & 30% for Dutch Hill.
	<b>Leases</b>	<b>\$ 625</b>	<b>0.2094</b>	<b>\$ 130.88</b>	<b>\$ 755.88</b>	Leases are estimated at 2.5% of gross revenue
	Cohocton	\$ 413	0.2094	\$ 86.38	\$ 498.88	
	Dutch Hill	\$ 213	0.2094	\$ 44.50	\$ 257.00	
	<b>Employment (jobs)</b>	<b>7</b>	<b>3.1867</b>	<b>22</b>	<b>29</b>	Around 7 full-time jobs are projected during operation of the windfarms.

**Assumptions:**

- Construction jobs are estimated at 63 construction jobs for Cohocton & 38 construction jobs for Dutch Hill, each over a period of 7.5 months
- Cohocton Wind Farm is planned to have approximately 34 wind turbines; Dutch Hill Wind Farm is planned to have 16 turbines
- Gross revenue is estimated @ \$16.5 M for 82.5 MW of power for Cohocton & \$8.5 M for 42.5 MW of power for Dutch Hill.
- Leases estimated at 2.5% of gross revenues.
- Number of jobs estimated at 7 FTE maximum, with apportioned staff time between the two farms
- Staff includes 1 Operations Manager; 1 Quality Control Engineer; 1 Bookkeeper/Secretary & 4 Wind Technicians; 70% of time used for Cohocton & 30% for Dutch Hill.
- Earnings comprise of wages for wind farm employees & leases for landowners

**Sources:**

RIMS II Multipliers, Bureau of Economic Analysis  
UPC Wind Management, LLC  
NYS Department of Labor, Occupational Wage Survey 2005 (Southern Tier)

Prepared by Saratoga Associates, November 2006