A similar analysis by the US Department of Energy's Lawrence Berkeley National Laboratory found that proximity to wind energy facilities does not have a pervasive or widespread adverse effect on the value of nearby homes. Researchers examined 7,500 single-family property sales between 1996 and 2007, covering a time span from before the wind farms were announced to well after construction and operation. <sup>2</sup>

A 2010 study looking at property values near the 396 MW Twin Groves Wind Farm in Illinois found prices were negatively affected **before** the wind farm was built, but rebounded **after** it was in place.<sup>3</sup>



"In the study area, where wind farms were clearly visible, there was no empirical evidence to indicate that rural residential properties realized lower sales prices than similar residential properties within the same area that were outside the viewshed of a wind turbine."

Wind Energy Study – Effect on Real Estate Values in the Municipality of Chatham-Kent

"Based on the data sample and analysis presented here, no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities."

The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonistic Analysis

"During the operational stage of the wind farm project, when property owners living close to the wind turbines actually had a chance to see if any of their concerns materialized, property values rebounded."

Wind Farm Proximity and Property Values: A Pooled Hedonistic Regression Analysis of Property Values in Central Illinois

### Sources:

1. Wind Energy Study - Effect on Real Estate Values in the Municipality of Chatham-Kent (Canning Consultants Inc. and John Simmons Realty Services Ltd., February 2010)

- 2. The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonistic Analysis (Ben Hoen, Ryan Wiser, Peter Cappers, Mark Thayer, and Gautam Sethi, December 2009)
- 3. Wind Farm Proximity and Property Values: A Pooled Hedonistic Regression Analysis of Property Values in Central Illinois (Jennifer L. Hinman, May 2010)







# The Economic Impacts of the Wind Energy Sector in Ontario 2011-2018

May 27, 2011

Prepared by ClearSky Advisors Inc.

©ClearSky Advisors Inc. 2011



### **Disclaimer**

The materials ClearSky Advisors Inc. (ClearSky Advisors) provides will reflect ClearSky Advisors' judgment based upon the information available to ClearSky Advisors. ClearSky Advisors disclaims any other representations or warranties, express or implied, including without limitation any implied warranties of merchantability, fitness for a particular purpose or non-infringement. This report is based on sources believed to be reliable, but no independent verification has been made nor is its accuracy or completeness guaranteed. ClearSky Advisors is an independent research firm that does and seeks to do business with all stakeholders within the industries covered in ClearSky Advisors research. Investors and decision-makers should consider ClearSky Advisors research as only a single factor in making their key decisions.

# **Table of Contents**

1	Exe	cutive Summary	3
	1.1	Key Highlights	3
	1.2	Methodology for Data Collection and Analysis	6
2	Introduction		7
	2.1	Background	7
	2.2	Scope	7
3	Market Forecast		9
	3.1	Market Overview	9
	3.1.3	Ontario Electricity Market Forecast	9
	3.1.2	Implications of Long Term Energy Plan for Renewable Energy Capacity and Generation	n . 10
	3.1.3	Wind Energy Capacity in Ontario: Existing, Contracted, and Targeted	11
	3.2	Supply of Wind Energy Equipment	13
	3.2.	ı Nacelle	13
	3.2.	2 Blades	14
	3.2.	3 Towers	14
	3.2.	4 Transportation	14
	3.2.	5 Balance of Plant	14
	3.3	Pricing	15
	3.4	Wind Energy Sector Installed Capacity Forecast Scenarios	16
	3.4.	ı High Scenario Overview:	18
	3.4.	2 Expected Scenario Overview:	19
	3.4.	3 Low Scenario Overview:	20
4	Economic Impacts		21
	4.1	Overview of Economic Impacts	21
	4.2	Job Creation	23
	4.2.	Jobs Multipliers for Construction & Operation Phases of Wind Energy in Ontario	29
	4.3	Economic Benefits& Market Value	31
	4.3.	Market Size & Value for Ontario	31
	4.3.	Economic Benefits for Landowners	33
	4.3.	3 Economic Benefits for Communities	35
	4.4	100 MW Project Sample	36
Α	ppendi	<	38

# 1 Executive Summary

## 1.1 Key Highlights

The wind energy sector in Ontario will generate a significant amount of both electricity and economic activity over the course of 2011 through 2018. Specifically, during this timeframe, the sector is expected to:

- Install over 5.6 GW of wind energy capacity, bringing Ontario's total wind energy capacity to 7.1 GW by 2018;
- Create 80,328 job years (Person-Years of Employment or PYE);
- Attract \$16.4billion of private investments of which \$8.5billion will be invested locally in Ontario; this investment is entirely private investment, and is only to be paid back upon the production of power over the lifespan of the turbines; and
- Contribute more than \$1.1billion of revenue to local Ontario municipalities and landowners in the form of taxes and lease payments over the 20-year lifespan of projects installed in 2011 2018.

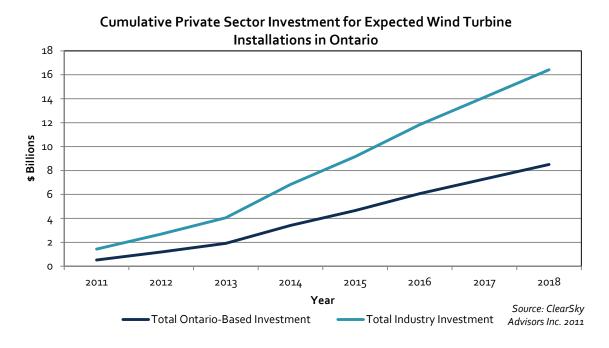


Figure 1.1: Cumulative Private Sector Investment for Wind Turbine Installations in Ontario, Expected Scenario 2011-2018

© ClearSky Advisors Inc. 2011 Page 3

Of the over 5.6 GW of wind energy capacity installed from 2011 to 2018:

- On average 709 MW will be installed per year; and
- The market will have a capacity for up to 900 1,000 MW of installations per year.

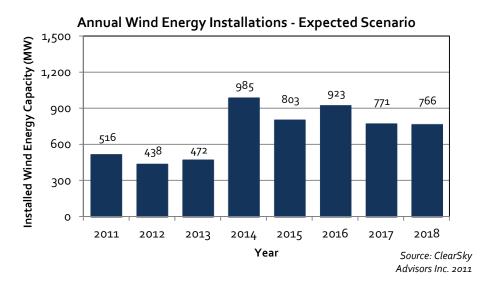


Figure 1.2: Annual Wind Energy Installations in Ontario (in MW), Expected Scenario (2011-2018)

The \$1.1billion of revenue to local Ontario municipalities will be paid out over the 20-year lifespan of projects and will consist of:

- Over \$1billion in lease payments paid to landowners
- Over \$145million in taxation paid to local municipalities

The 80,328 PYE corresponds to 14.1 PYE per MW of nameplate capacity, split between:

- 10.5 PYE per MW in the construction phase; and
- 3.6 PYE per MW for ongoing operations and maintenance.

Note: These figures are ONLY for the projects forecast for installation in 2011 through 2018. The actual number of jobs is likely to be higher because no jobs are included for export, pre-contract development, or any ongoing installations after 2018. Furthermore, we have only considered direct and indirect jobs and not induced jobs. Therefore, these numbers are conservative for all years. The drop-off in employment after 2017 would only occur if exports and continued project awards beyond 2018 did not materialize.

© ClearSky Advisors Inc. 2011 Page 4