



# 2010 CanWEA Small Wind Market Survey

*An overview of Canada's Small Wind Manufacturing Sector*





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# 2010 CanWEA Small Wind Market Survey

## An overview of Canada's Small Wind Manufacturing Sector

A recent market survey conducted by eFormative Options<sup>1</sup> on behalf of the Canadian Wind Energy Association (CanWEA) found that Canada's domestic sales of small wind turbines – those rated 300 kW and less – grew 77% in 2008 and 32% in 2009, even though more than half of the survey respondents indicated that the economy negatively impacted their business. Over the two-year period, \$24 million in domestic sales resulted in 5.3 MW of new small wind capacity, for an average cost of \$4.40 per Watt. As of the end of 2009, nearly 11,000 small wind turbines were installed nationwide, for a total of 12.6 MW of cumulative installed capacity.

Consumer interest in this sector remains high, and the small wind industry is poised for significant global growth. Canada's small wind market is well on track with the 2025 mid-point estimates developed in CanWEA's 2007 study.<sup>2</sup> Canada's recent growth compares favorably to growth of the U.S. small wind industry (up to 100 kW) documented by the American Wind Energy Association (AWEA) of 78% in 2008 and 15% in 2009, which pushed the total installed U.S. small wind capacity to 100 MW. Canada's 2009 small wind market growth is also higher than the UK's 2009 growth of 19%, which according to RenewableUK (formerly the British Wind Energy Association) brings UK's total small wind capacity installed in 2005-2009 to 28.7 MW.

2009 Small Wind Sales		
Canada	U.S.	Global*
3.0 MW	21.5 MW	60.5 MW
32% growth from 2008	18% growth from 2008	40% growth from 2008
3,140 units sold	9,649 units sold*	19,455 units sold*
\$14 million in sales	\$111 million in sales	\$244 million in sales
1.0 kW average size	2.2 kW average size	3.1 kW average size

2008 Small Wind Sales		
Canada	U.S.	Global*
2.3 MW	18.2 MW	43.1 MW
77% growth from 2007	87% growth from 2007	110% growth from 2007
2,294 units sold	9,801 units sold*	18,006 units sold*
\$10 million in sales	\$87 million in sales	\$188 million in sales
1.0 kW average size	1.9 kW average size	2.4 kW average size

\* lower than reported by AWEA

1 eFormative Options LLC contacted an extensive global list of more than 300 small wind turbine manufacturers, distributors, dealers, installers, and other associated companies to assess the 2008 and 2009 Canadian small wind markets compared to U.S. and global markets. Ron Stimmel with AWEA contributed to eFormative's data collection efforts. Heather Rhoads-Weaver, Matt Gagne and Kurt Sahl of eFormative provided tabulated survey results and a detailed analysis to CanWEA.

2 Weis, Tim et al. Making the case for small wind and Federal Small Wind Incentives in Canada – The Benefits and Opportunities for Small Wind, July 2007.

## Summary of Key Findings

CanWEA's 2010 survey found that Canada has maintained a strong manufacturing niche serving the global small wind market, although imports are also increasing. Exports from Canadian manufacturers represented 87% of their 2008 sales, totaling \$19 million, and 86% of their 2009 sales, totaling \$31 million. Combined domestic and export sales from 14 Canadian manufacturers totaled 11.1 MW in 2008-2009, nearly \$59 million. Canada's share of the global small wind market grew from 12% in 2008 to 15% in 2009.

Domestic sales of residential grid-connected turbines (1-10 kW) were 57% in 2008 and 62% in 2009, a considerable improvement from the 2007 estimate that 90% of sales in this market segment were imports. However, imports for farm and business sales (11-300 kW) increased from 10% estimated in 2007 to 64% in 2008 and 73% in 2009. Overall, 63% of 2009 small wind sales in Canada were imports, up from 47% in 2008.

While the average small wind turbine size increased by 20% in the U.S. to 2.2 kW and by 30% globally to 3.1 kW in 2009, Canada's average unit size remained at 1.0 kW. AWEA notes that the upward size trend demonstrates a continued market shift toward larger, grid-tied systems, with the residential and commercial/light industrial market segments emerging as dominant in the U.S. Like in the U.S., Canada saw higher growth rates in the 11-50 kW market segments, however sales of off-grid turbines also continued to increase and no turbines in the 50-300 kW range were sold in 2009.

The top 10 manufacturers for 2009 small wind sales in Canada – 6 Canadian and 4 U.S. – held a 95% share of domestic sales, and the top 5 – 3 Canadian and 2 U.S. – held 78%. The top 10 manufacturers for 2009 global small wind sales – 2 Canadian, 5 U.S., and 3 EU – held an 88% share of the global market, and the top 5 – 3 U.S. and 2 EU – held 73%.

Top 2009 Canadian Small Wind Suppliers			
Exports from Canadian Manufacturers and Domestic Sales			
Manufacturer	Headquarters	Portion of Canada's 2009 Sales (kW)	Total Global 2009 sales (kW)
Southwest Windpower	U.S. (Arizona)	47%	11,700 kW
Ventura	U.S. (Oregon)	20%	1,200 kW
ReDriven Power	Canada (Ontario)	9%	2,800 kW
Endurance Wind Power	Canada (B.C.)	6%	1,200 kW
WES Canada	Canada (Ontario)	0%	1,000 kW

## Other Key Statistics:

- Survey documented an average of 50 jobs per MW in small wind manufacturing, sales and installation resulting in a national workforce of at least 420 positions
- Canada is home to more than half of small wind manufacturers worldwide with models in 30-50 kW range and to three-fourths with models in the 50-100 kW range
- 89% of all small wind systems sold in Canada in 2009 were smaller than 1 kW, compared to 73% in the U.S.
- Installed costs for off-grid turbines (<1 kW) averaged \$2.30/Watt in Canada during 2008-2009, compared to grid-connected systems (1-100 kW) average costs of \$5.60/Watt (Table on page 4 provides breakdown and Global figures)

## Canada's Small Wind Market by Province

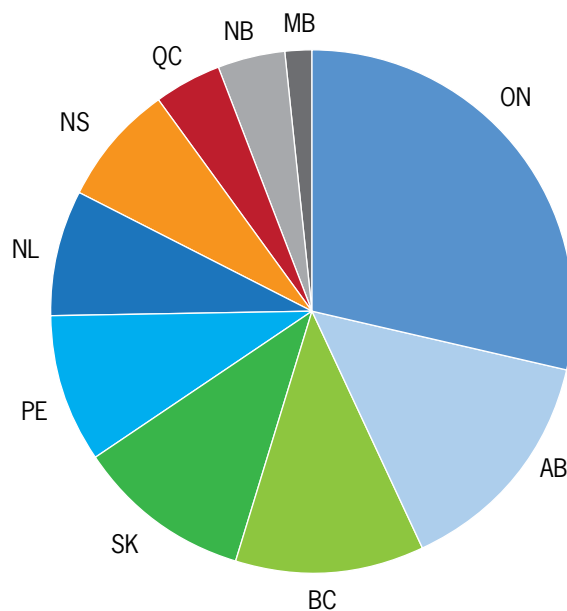
CanWEA's 2010 survey asked small wind industry members in which Canadian Provinces they expect to do the most business in the next five years, and why. Ontario and Alberta were the two top responses, with British Columbia, Saskatchewan, Prince Edward Island, Newfoundland and Nova Scotia close behind.

- 56% selected Ontario due to incentives, a “small wind friendly” government, wind resources, and an environmentally aware population.
- 28% selected Alberta due to wind resources, potential subsidies and rebates, and a “green thinking” population and businesses.
- 23% selected British Columbia due to the location of their headquarters, wind resources, and environmental awareness of the population.
- 21% selected Saskatchewan due to incentives and government subsidies for small wind and wind resources.
- 18% selected Prince Edward Island due to wind resources, the high price of electricity, and government representation.
- 15% selected Newfoundland due to wind resources, opportunities for wind diesel installations, and project economics.
- 15% selected Nova Scotia due to wind resources and incentives.
- 8% selected Quebec due to government policies and wind resources.
- 8% selected New Brunswick due to the high price of electricity.
- 3% (1 respondent) selected Manitoba.

## Small Wind Workforce Dependent on Incentive Levels

Jobs in small wind manufacturing, domestic and export sales, installation, and R&D require a unique blend of skills and participation across trades such as excavation, civil engineering geotechnical and electrical, thereby contributing a significant range of skilled green job creation. Based on recent sales, experience with similar incentives in the U.S. and EU, and CanWEA's 2007 study, feed-in-tariffs (FITs) adopted at recommended levels can sustain annual growth rates averaging 40% over the next 15 years, resulting in 1,800 MW of installed small wind capacity nationwide. Small wind FITs would lead to the creation of an estimated 17,900 more jobs in Canada – 5,300 more jobs in Ontario, holding 30% of the national small wind market – than under current policy environments.

Without FITs sufficient for small wind, particularly due to competition with strong incentives for solar, CanWEA predicts a best case scenario of a 15% annual growth rate between now and 2025, for a total of only 57 MW installed nationwide.



## Other Survey Response Highlights

**Economic Downturn:** 53% responded that the economy has negatively affected their business, due in part to a reduced ability to invest in capital for projects and R&D. The slowdown has made suppliers more competitive, and product development has taken place during the recession.

Average Reported Installed Cost (\$CDN)		
Turbine kW Range	2008-2009 Canada \$/Watt	2008-2009 Global \$/Watt
<1	\$2.3	\$2.57
1-10	\$7.17	\$6.40
11-50	\$4.89	\$4.99
51-100	\$4.34	\$4.90
101-300	-	\$1.55
<b>Total</b>	<b>\$4.40</b>	<b>\$4.16</b>

**Need for Better Policies:** Several respondents noted that improved incentives and zoning are needed for Canada to spur small wind sales, retain its manufacturing base, and level the playing field. Many EU countries treat small wind at par with solar PV; one respondent explained if Canadian policies supporting small wind are not forthcoming, then “as a business I face a tough decision – shut it down or move to the US.”

**Certification:** 21% of manufacturers who responded indicated they are seeking certification by the Small Wind Certification Council (SWCC). Several respondents and a few additional manufacturers now have applications pending, listed at [www.smallwind-certification.org](http://www.smallwind-certification.org). 15% indicated they are certified, compliant or are seeking IEC certification. 13% indicated they use Underwriters Laboratory certified components or are seeking UL certification. 5% use CSA certified components.

**Expanding Operations:** 74% of manufacturers who responded expected to expand their operations with added jobs in 2010; 15% in Canada and 23% in the U.S. or North America. 56% expect to bring new manufacturing facilities online in the next few years, 5% in Canada, 18% in the U.S. or North America.

**Factors Driving Growth:** Most respondents cited government intervention through subsidies, rebates, feed-in tariffs and initiatives as elements that will drive their growth, however a few indicated that the lack of effective Canadian policies is stifling the small wind industry. Several cited increasing energy costs, including electricity and oil, as forces that will drive the small wind market; others cited environmentally-focused consumers and increased public awareness. From a business standpoint, other factors identified were investments in marketing, small wind certification, product development and releases of new product lines, reduced installation costs, and decreased interconnection “red tape.”

*“We expect our 2010 sales to increase at least 5-fold over last year – we’re having a hard time producing the E Series fast enough! We’re ramping up the supply chain to keep up with production, have expanded our facility (now 22,000 sq ft) and hiring new staff weekly (approaching 60 employees). The Feed-in-Tariffs in the EU and US incentives have greatly expanded our export sales.”*

– Dave Rankin, Endurance Windpower

*“We have an untapped market and world class wind. All we need now is for the price of electricity to increase substantially or incentives to come online.”*

– 2010 Survey Respondent

## Manufacturer Respondents to CanWEA 2010 Small Wind Market Survey Location and Turbine Sizes Manufactured (kW)

Manufacturer	Country	Size (kW)
Cleanfield Energy	Canada – Ontario	3.5
ELECTROVENT	Canada – Quebec	0.25, 0.5
Endurance Wind Power Inc.	Canada – British Columbia	5, 35, 50
Entegrity Wind Systems*	Canada – Prince Edward Island	50
Green & Clean (Ropatec)	Canada – Ontario	0.3, 1, 3, 6, 20
Seaforth Energy (MaManna)	Canada – Nova Scotia	50
Raum Energy	Canada – Saskatchewan	1.3, 3.5
ReDriven Power Inc.	Canada – Ontario	2, 3, 5, 10, 20, 50
Solacity Inc. (Eoltec)	Canada – Ontario	6
WES Canada (Wind Energy Solutions)	Canada – Ontario	80, 250
Wind Simplicity	Canada – Ontario	7, 23
Windterra	Canada – Alberta	1.2
VERGNET SA	France	275
UNITRON ENERGY SYSTEMS	India	0.65, 1.5, 1.8, 3.3, 4.2, 5.1
NIKKO Company	Japan	0.2, 1, 4, 10
Zytech Aerodyne Wind Technology	Spain	0.9, 1
Hannevind Vindkraft AB	Sweden	2, 5.5, 11, 15, 22, 30, 45
Ampair	UK	0.1, 0.3, 0.6, 3.5, 6
Evance	UK	5
Gaia-Wind	UK	11
Gazelle Wind Turbines Ltd.	UK	20
Proven	UK	0.6, 2.5, 3.2, 6, 15
Bergey Windpower Co.	US – Oklahoma	1, 7.5, 10
Xzenergy (ARE)	US – Oregon	2.5, 10
Electric Pinwheels LLC	US – New York	0.3
Fortis Wind Energy	US – New York	1.4, 5, 10
Northern Power Systems	US – Vermont	100
Southwest Windpower	US – Arizona	0.4, 0.9, 1, 1.8, 2.4, 3
Urban Green Energy	US – New York	0.6, 1, 4
Ventera Energy Corp.	US – Oregon	12
Viryd Technology	US – Texas	6
Wind Eagle Corporation	US – Texas	30
Wind Turbine Industries Corp.	US – Minnesota	20

\* Acquired by Seaforth Energy



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