Wind Power Industry

Industry Snapshot

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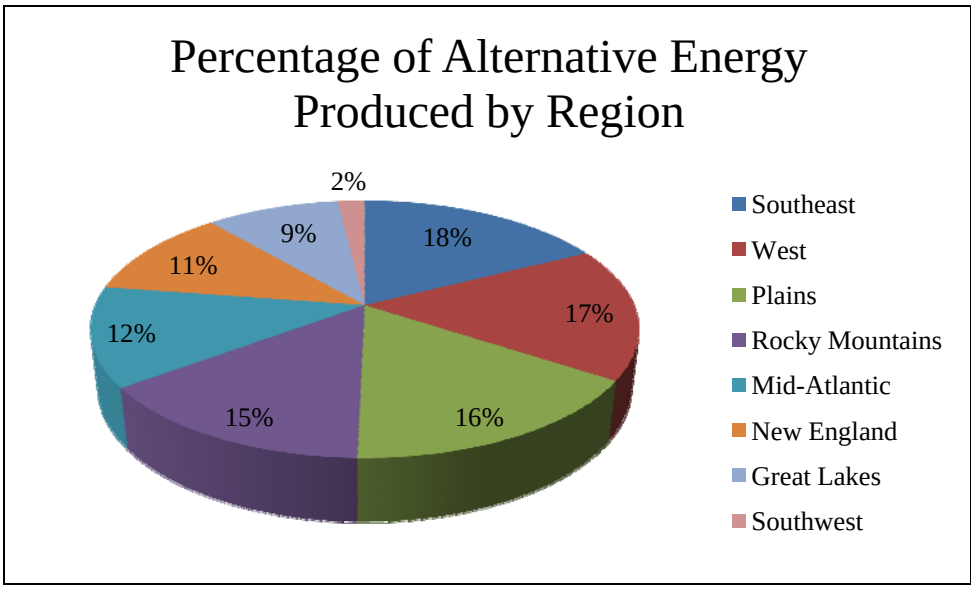
Industry Segments

The wind power industry is comprised of two primary segments[1]:

Wind Farms
Wind farms provide electrical utilities and power to major customers. The power for these customers is generated through wind turbines. Large wind farms can cover an extended area of hundreds of square miles, and can consist of a few dozen to several hundred wind turbines. Over 5,800 MW of capacity was added to The United States in 2009.[2]

Small Winds
Small winds are single, smaller turbines that give power to smaller, individual customers. Currently the United States has 408 small wind turbines. [3] Residential sales of wind turbines are up 15-20% for 2009 despite the current economic recession.[4] Currently, US manufacturers' sales make up 50 percent of the sales globally for this segment of the industry.

The following table breaks down the percentage of alternative energy produced by each region of the United States. Wind power accounts for 14% of entire industry output and is expanding rapidly. [5]



[1] *First Research Industry Profile:* Electric Power Generation. First Research. October 19, 2009.
[2] American Wind Energy Association. http://www.awea.org/ Accessed December 21, 2009.
[3] American Wind Energy Association. http://www.allsmallwindturbines.com/ Accessed December 21, 2009
[4] *AWEA Small Wind Turnbine Global Market Study 2009*. American Wind Energy Association. Accessed December 21, 2009.
[5] *Hydroelectric & Renewable Power Generation in the US: 22111c.* IBISWorld Reports. November 2, 2009.

Industry Data

Currently there are eight wind turbine manufacturers in the United States. With 45 percent of the market share, GE Energy is the largest with $4.5 billion in sales for 2007. Two other large companies in the industry include Vestas and Siemens. Xcel Energy is the utility company with the largest amount of wind power capacity, with 2,635 megawatts. The additional capacity of one megawatt wind turbine can serve 270 American homes. [6] Below is a table including all industry competitors, their capacity, and total US turbines. [6]

Company	MW Capacity	# of Turbines
GE Energy	3657	2438
Vestas	1120	569
Siemens	791.2	344
Suzlon	736.1	363
Gamesa	616	308
Clipper	595	238
Mitsubishi	516.4	515
Acciona WP	409.5	273
REpower	102	51
Fuhrlander	5	2
DeWind	4	2
AWE	1.8	2
Other	3.9	

The American Wind Energy Association (AWEA) is a national trade association representing all businesses involved in the Wind Energy field. It is estimated that the industry employs 116,000 individuals. According to the AWEA, 84 percent of the industry is privately owned by corporations, cooperatives, and developers who retain the rights to the wind farms that they build. [7]

Success Factors[8]

Ability to Pass on Cost Increases

Generators need to ensure coverage of all operating costs and capital charges. In most states, government policy strongly influences pricing.

Ability to Negotiate Successfully with Regulators

All firms operating in this industry need to be up-to date and competent at dealing with a range of regulatory issues.

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[6] *American Wind Energy Association Annual Wind Industry Report 2008.* Accessed December 21, 2009.
[7] *First Research Industry Profile:* Electric Power Generation. First Research. October 19, 2009.
[8] *Hydroelectric & Renewable Power Generation in the US: 22111c.* IBISWorld Reports. November 2, 2009.

Optimum Capacity Utilization
Lower unit costs are achieved by higher capacity utilization. Firms with lower costs in this industry remain the most competitive.

Superior Financial Management and Debt Management
Profitability of an operation is largely determined by the level of borrowing and interest rates. Knowledgeable staff will ensure that financial costs remain low.

Risks and Challenges[9]

Barriers to Entry
While barriers to entry into this market are decreasing, they remain high.

Capital and Expertise Requirements
Prospective entrants to the Hydroelectric and Renewable Electric Power Generation industry must have large amounts of capital and considerable expertise to enter the industry.

Transmission Infrastructure
With only 6 percent of the United States suitable for generating wind electricity, the wind industry currently has limited growth potential. Foreseeable challenges include transmitting electricity from wind turbines to areas where electricity is most needed, such as low income areas.

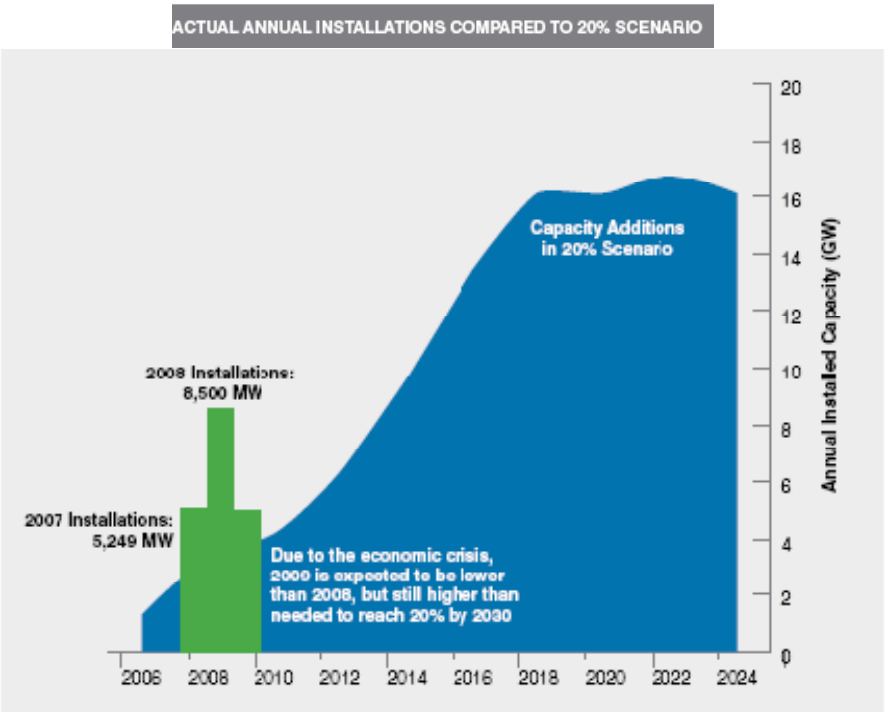
Rising Cost of Wind Power
As competition in the electric energy arena rises, installation costs for winds farm projects are rising. From 2003 to 2007, costs rose 27 percent. Wind turbines are the generators use to actually make electricity. The demand for wind power has created a shortage of wind turbines and increased prices. In 2007, it was estimated that cost of wind power was $45 per megawatt hour. [10]

Sensitivity to Government Regulation
The industry is extremely sensitive to government regulation. Without government programs and incentives wind projects would not happen. The industry is primarily supported by federal production tax credits. However, state and local financing and policies are extremely important as well.

Trends

The American Wind Energy Association is working hard to meet the goal of having 20% of the energy market in wind energy by 2030. The economic recession has decreased the amount of installations in 2009; however, they still exceed the target amount needed to achieve the 2030 goal. The following table outlines the installation requirements for the 2030 scenario.[11]

[9] *Hydroelectric & Renewable Power Generation in the US: 22111c.* IBISWorld Reports. November 2, 2009.
[10] *First Research Industry Profile:* Electric Power Generation. First Research. October 19, 2009.
[11] *American Wind Energy Association Annual Wind Industry Report 2008.* Accessed December 21, 2009.



Several private enterprises and federal lawmakers are working to finance massive projects related to transmission; the Edison Electric Institute (EEI) anticipates a 55 percent increase in industry spending on transmission from 2007 to 2010 compared to the previous three years.[12]

Off-the grid users would be described as individuals who do not rely on public water, gas, sewer, or electric. On-grid users are those taking advantage of public utilities. The below table segments small wind customers that are both on and off-the-grid in The United States. [13] While commercial growth has decreased in 2009, the residential segment has continued to grow.

Growth by Market Segment (Small Winds)

US: Unit 2008	0-0.9kW	1-10kW	11-20kW	21-100kW	Totals
Off-Grid	6,706	696	0	0	7,402
On-Grid	0	2,825	72	87	2,984
Totals	6,706	3,521	72	87	10,386

Financial Information

Industry revenue has experienced constant growth in the last 5 years. Domestic output has continued to rise, and global wind capacity has increased to over 120,000 MW. The following table breaks down the financial impacts on the industry through 2009.

[12] *First Research Industry Profile:* Electric Power Generation. First Research. October 19, 2009.
[13] *AWEA Small Wind Turnbine Global Market Study 2009*. American Wind Energy Association. Accessed December 21, 2009.

Financials for the Hydroelectric & Renewable Power Generation in the US

	2005	2006	2007	2008	2009	Units
Industry Revenue	15,182.10	17,102.40	17,656.10	19,748.10	20,024	$Mil
Industry Gross Product	8,985.50	10,127.10	10,469.20	11,860	12,041	$Mil
Number of Establishments	677	677	673	673	670	Units
Exports	103.7	106.8	88.4	129.2	98	$Mil
Imports	1,712.60	1,388.90	1,852.90	2,223.10	1,821	$Mil
Domestic Demand	16,791.10	18,384.50	19,420.60	21,841.90	21,747	$Mil
Electricity Output	363,913	392,187	358,083	375,777	377,191	Mil KW Hrs

Looking into the future, more moderate electricity prices are expected to prevail. The estimates in the following table reflect the expectation that oil and gas prices will drift lower during the outlook period. Through 2014, industry revenue is expected to expand at an annual average rate of about 6.9%.

Industry Outlook

	Revenue ($ Million)	% Growth
2010	21,334	6.5
2011	22,875	7.2
2012	24,527	7.2
2013	26,238	7.0
2014	27,989	6.7
2015	29,890	6.8

Possible Funding

Government funding and legislation heavily impacts the funding available for wind energy projects. For a list and information of top legislative priorities visit: http://www.awea.org/legislative/. The following websites have additional information on funding wind energy programs.

US Department of Agriculture, Rural Development, High Energy Cost Grant Program
http://www.usda.gov/rus/electric/hecgp/index.htm

US Department of Energy, Energy Efficiency and Renewable Energy Program Financing Opportunities
http://www1.eere.energy.gov/financing/

US Department of Energy, Energy Efficiency and Renewable Energy Financing Opportunities for Businesses
http://www1.eere.energy.gov/financing/business.html

US Department of Energy, Energy Efficiency and Renewable Energy Program: Energy Efficiency and Conservation Block Grant Program
http://www.eecbg.energy.gov/

US Department of Energy, Wind & Hydropower Technologies Program
http://www1.eere.energy.gov/windandhydro/financial.html

Windustry
http://www.windustry.com/news/grant-oppurtunities

Washington State Community, Trade and Economic Development (CTED)
http://www.cted.wa.gov/site/526/default.aspx.

Oregon Department of Energy
http://www.oregon.gov/ENERGY/.

Idaho's Office of Energy Resources
http://energy.idaho.gov/wind/wind_financing.htm.

Residential Renewable Energy Tax Credit
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US37F&State=federal&currentpageid=1&ee=0&re=1

Business Energy Investment Tax Credit (ITC)
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F&State=federal&currentpageid=1&ee=0&re=1