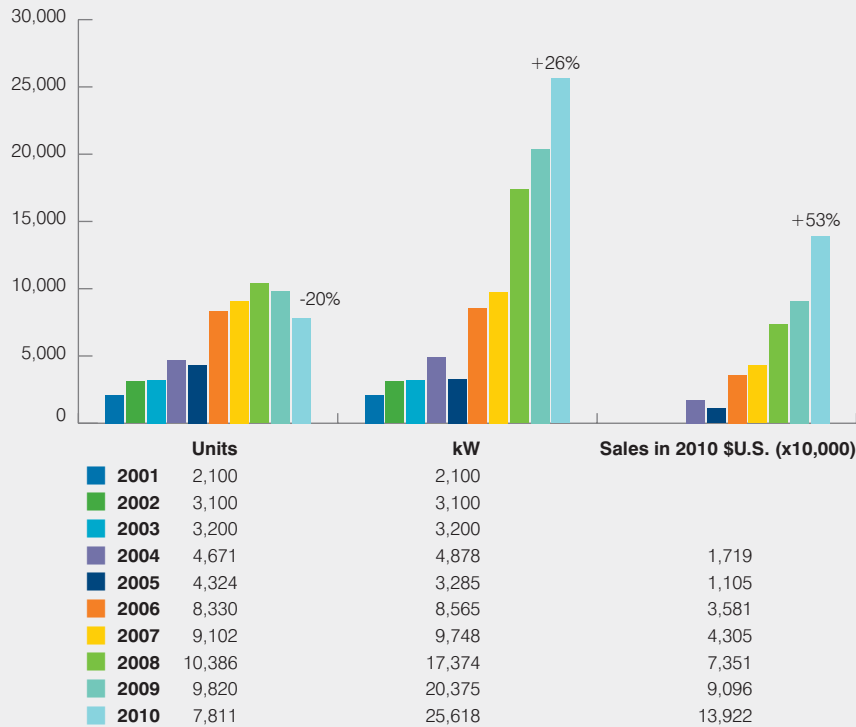


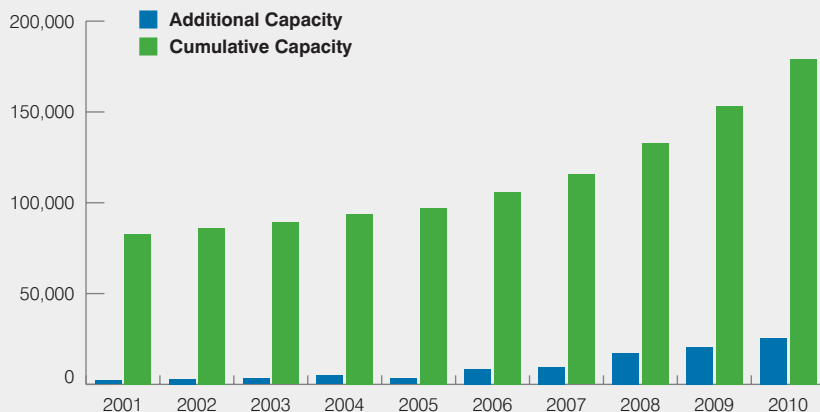
# 2010 U.S. Small Wind Turbine Market Report

Year Ending 2010

**Figure 1 U.S. Small Wind Turbine Market Growth**



**Figure 2 New and Cumulative Capacity (kW, U.S.)**



## Market Highlights

**In 2010**, the market for small wind systems grew 26% with 25.6 megawatts (MW) of new sales capacity, nearly 8,000 units, and \$139 million in sales. Sales revenue grew sharply by 53%, while the number of units sold continued to decline.

**Growth in 2010** pushed cumulative sales in the U.S. to an estimated 179 MW of capacity and 144,000 units.

**Seven U.S. manufacturers** reported sales over 1 MW; 13 international (including U.S.-based) manufacturers reported sales exceeding 1 MW.

**The U.S. market** experienced a pronounced shift away from "micro-scale," off-grid turbines to larger, grid-connected systems. On-grid units comprised more than 90% of small wind capacity for the first time. Nine of the 10 leading small wind turbine models sold in the United States were grid-connected.

**Twenty-two manufacturers** with a U.S. sales presence, including imports from Europe and Canada, reported sales of 51 wind turbine models; three-fourths are rated 10 kilowatts (kW) or less, and one-fifth are rated 11 to 50 kW.

**Domestic sales** by U.S. manufacturers accounted for an 83% share of the U.S. market; on a unit basis, U.S. manufacturers claimed 94% of domestic sales.

**The average installed cost** of small wind turbines installed in the U.S. in 2010 was \$5,430/kW.

**Small wind turbines** manufactured in North America typically incorporated 80% domestic content.

**Twenty-seven percent** of U.S. manufacturers' sales capacity went to foreign markets, reflecting a decline from 2009; in terms of units, 34% of U.S. manufacturers' sales were to foreign countries.



## Federal and State Incentives

**Federal, state, utility and local agencies** provided more than \$30 million in rebates, tax credits, grants, low-interest loans and other forms of funding assistance in 2010, supporting nearly 900 small wind turbines totaling 12.4 MW, or approximately half of U.S. turbine sales by capacity.

**Grants and loans** from the U.S. Department of Agriculture's (USDA's) Rural Energy for America Program (REAP) and U.S. Treasury 1603 payments together funded 250 small wind installations totaling 6.8 MW in 30 states. Projects in Iowa, Ohio, Wisconsin, Massachusetts and Nebraska collected more than three-fourths of this \$13.7 million.

**California and Wyoming** led the states in funding the most small wind turbine installations, followed by Ohio, Arizona, Colorado and New York.

**More than 30 states** offered small wind incentives and grants, with at least one-third using American Recovery & Reinvestment Act funds.

## Significant Institutional Developments

**2010 saw the formation** and implementation of the Small Wind Certification Council (SWCC), four regional small wind test centers, the North American Board of Certified Energy Practitioners (NABCEP) Small Wind Installer Certification Program and the Distributed Wind Energy Association (DWEA).

## Benefits

**The U.S. small wind industry** represents an estimated 1,500 full-time equivalent jobs.

**U.S. small wind** installations annually displace 161,000 metric tons of carbon dioxide (equivalent to removing 28,000 cars from service).

## Small Wind Industry Leaders' Perspectives

**New York and California** were judged the leading state markets. Ohio, Wisconsin and Pennsylvania offered attractive incentive programs, favorable political climates and good local advocacy and dealer networks.

**The industry supports** state policies, including incentive programs with rigorous turbine qualification and reliability requirements, annualized net-metering (for all utilities), renewable portfolio standards (with expansion to include wind in the cases of solar-specific set-asides) and improved zoning.

**Off-grid and grid-connected** homes dominate the demand for the <20-kW turbine systems. There has been a noticeable shift to somewhat larger turbines for the residential market.

**Schools and university** applications experienced significant growth in a variety of turbine sizes.

**Small wind turbine sales** to municipalities increased as a result of favorable financing terms and incentives available to public entities.

**Wind turbine sales** to offset electrical loads for small businesses, commercial enterprises and hospitals experienced growth as well, in >5-kW sizes.

**The farm market**, long considered a potentially large opportunity for the wind industry, experienced modest growth, especially in the wind-rich Midwest, primarily deploying the 50- to 100-kW turbines.

**Direct sales** of small turbines to utilities are rare (utilities in Alaska being an exception).

**Selling via local dealers** has been the preferred business model for residential turbines, but big-box retailers now market and sell small turbines as well. A number of business models were employed to serve the non-residential, small wind markets.

**Europe's feed-in tariff** markets and telecommunications dominated offshore sales for North American manufacturers.

**The most significant** barriers to small turbine installations are permitting and zoning, utility resistance, competitive economics, fragile incentive programs, financing and burdensome regulations.

**Long-term, stable federal policy** is critical for the continued growth of the U.S. small wind industry. The 30% investment tax credit has been a critical piece of federal policy. The USDA's REAP and Community Facilities (Title 9009) programs (currently threatened) have been important for advancing rural applications.

**The U.S. Fish & Wildlife Service's** guidelines for wind-wildlife interactions do not distinguish between small and single-turbine applications and large-scale wind farm installations, which is scientifically inappropriate and cost prohibitive.

**The industry appreciates** the U.S. Department of Energy's (DOE's) continuing support of international standards and certification efforts, the SWCC, NABCEP's Small Wind Installer Certification and the development and nurturing of four regional test centers.

**The industry is concerned** with the DOE's continuing shift of wind program resources away from distributed wind and related outreach and educational activities.

**The North American market** is experiencing increased imports, primarily from Asia. The primary short-term concern of the North American-based industry is the quality and reliability of these products.

**The industry** has mixed perspectives on the 2011 small wind market climate. The residential market is softer than in 2010 because of the uncertain economy and the current public loss of focus on energy and the environment. The temporary curtailment and re-development of some key state incentive programs have also hurt 2011 sales. Some state programs remain strong, and overseas sales are helping the overall 2011 picture. The agricultural market is growing, partly due to strong commodity prices, which farmers are re-investing into capital items on the farm.