Wind Turbine Systems

US Industry Study with Forecasts for **2012 & 2017**

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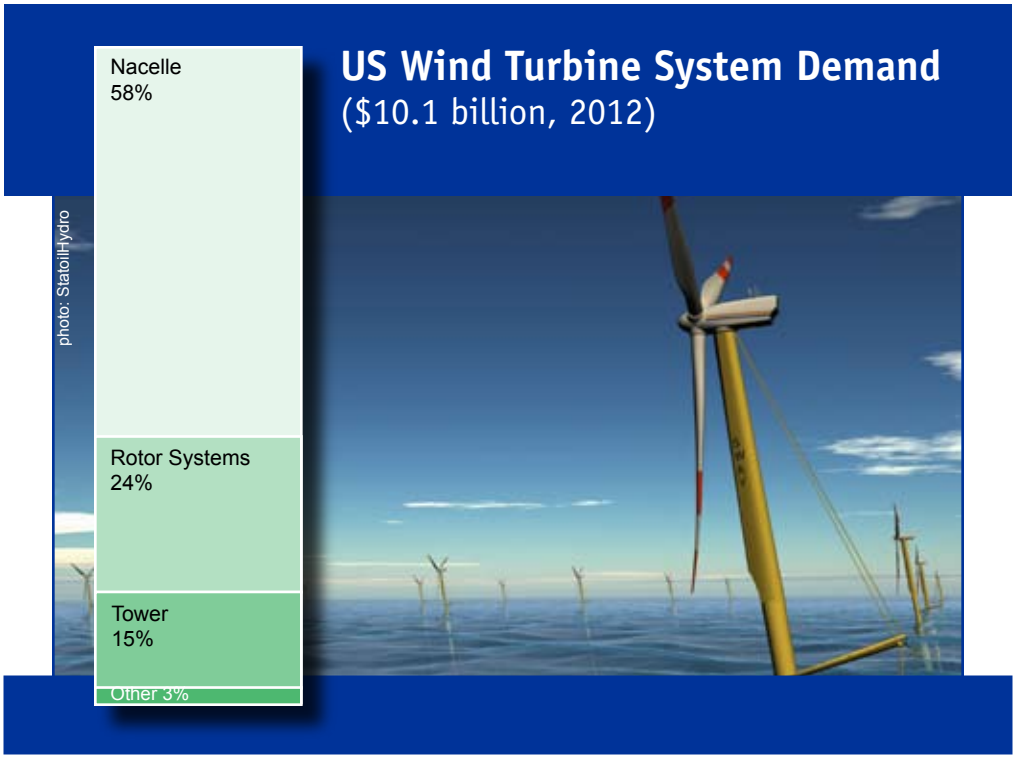
Advances will be driven by rising interest in developing domestic energy resources -- particularly renewable resources, such as wind, that are cleaner and are not subject to fuel price shocks.

US demand to grow 6.8% annually through 2012

Demand for wind turbine systems and components is expected to increase 6.8 percent per year to $10.1 billion in 2012. Advances will be driven by rising interest in developing domestic energy resources -- particularly renewable resources, such as wind, that are cleaner and are not subject to fuel price shocks. Additionally, gains will be driven by the increasing implementation of renewable portfolio standards at the state level, as well as continued political will to support incentives such as the federal production tax credits that help make wind energy more cost competitive. Furthermore, although continued technological development will make wind energy more competitive in a growing number of areas with lower wind speeds and in offshore installations, this industry benefits from a relatively established manufacturing process. Still, this rate is a sharp deceleration from the extremely rapid pace of the 2002 to 2007 period, during which demand increased nearly 16-fold. Following this explosive growth, some moderation is to be expected from the high base as the market begins to mature and problems such as inadequate electric grid capacity still need to be addressed.



Independent power producers to remain dominant market

Despite the continued development of vertical wind turbine systems and those designed for distributed power applications, horizontal turbines for utility-scale projects will continue to dominate the wind turbine system market through the forecast period. In 2007, independent power producers accounted for the largest share of wind turbine system demand at the utility-grade level with 83 percent. In many cases, these independent power producers have greater expertise in developing wind energy projects and efficiently operating wind farms, having achieved economies of scale. However, through 2012 public utilities are expected to post the strongest growth, albeit from a small base. Often, these utilities are responding to regulatory and public pressure to use more renewable resources.

Less established markets to see fastest regional gains

As of 2007, the West South Central subregion accounted for the largest share of sales, aided by the well established markets in Texas and Oklahoma. Sales in this subregion benefit from large tracts of relatively inexpensive land where winds are strong and steady. However, subregions with less established wind energy markets -- particularly New England and Middle Atlantic -- are expected to post the strongest gains through 2012. Gains in these subregions will be driven by increasing government incentives in several states, as well as relatively high local energy prices and growing interest in wind farming.

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Sample Text, Table & Chart

TABLE VI-11

MIDWEST WIND TURBINE SYSTEM DEMAND
(million dollars)

Item	2002	2007	2012	2017
Midwest Installed Wind Energy Capacity (watts capacity/person				
Midwest Population (millions) $ systems/person				
Net Midwest New Wind Energy Capacity $ systems/watt				
Midwest Wind Turbine System Demand East North Central West North Central				
% Midwest Wind Turbine System Demand				

SAMPLE TABLE

APPLICATIONS

Off-Grid

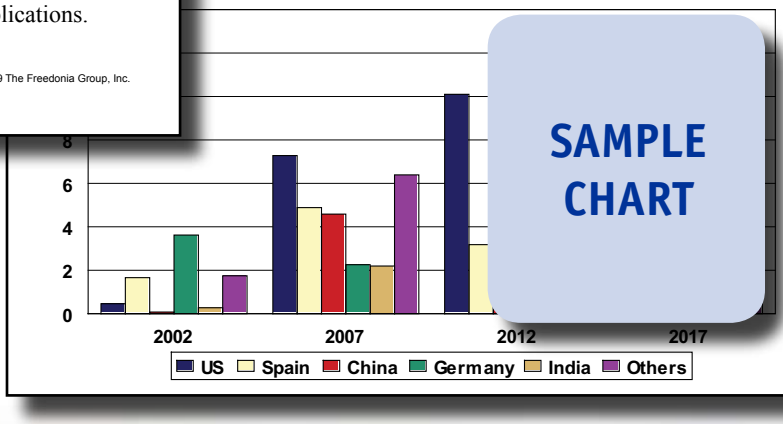
Demand for wind turbine systems in the off-grid, o
uted power generation segment is projected to increase
2. Advances will be driven by
as where power for the grid
an alternative to connecting
mer concerns grew following
hortages in California in 200
eastern US in August 2003 t
eas, with additional regional
strong hurricane storm seasons or extended ice storms.
like building owners with on-grid wind turbine systems,
off the grid are able to continue to generate electricity fr
turbines even when the electrical grid is down because t
of harm to utility linemen working on repairs.

SAMPLE TEXT

In remote, off-grid installations, wind turbine systems often prove to be cost effective when compared to the common alternative -- generators which are powered by diesel fuel, gasoline or propane -- because the cost of transporting fuel to remote regions can be high. Additionally, off-grid wind turbine systems have a cost advantage over on-grid versions on a per watt basis in that off-grid building owners do not have to pay the taxes, delivery fees and surcharges that utilities often charge on top of the cost for the electricity itself. However, that cost advantage is weighed against the fact that the balance of system components of an off-grid system, including storage batteries and often an alternate back-up power source, are more complicated and more expensive than those on an on-grid system. In general, however, consumers who purchase these systems for off-grid applications benefit from many of the same tax incentives and rebates from state and federal governments that are given to those who purchase wind turbine systems for on-grid applications.

CHART III-2

IND TURBINE DEMAND BY COUNTRY, 2002-2017
(billion dollars)



SAMPLE CHART

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Sample Profile, Table & Forecast

TABLE IV-11

WIND TURBINE ROTOR SYSTEM DEMAND BY COMPONENT
(million dollars)

Item	2002	2007	2012	2017
New Wind Energy Capacity (MW)				
000$ rotor/MW new capacity				
Rotor System Demand				
Blades				
Hub Assemblies				
Pitch Mechanisms & Bearings				
Nose Cones				
% rotor system				
Wind Turbine System Demand				

SAMPLE TABLE

COMPANY PROFILES

American Superconductor Corporation
64 Jackson Road
Devens, MA
978-842-300
http://www.a

Revenues: $
US Revenues
Employment

Key products

SAMPLE PROFILE

American Superconductor Corporation (AMSC) develops and manufactures products using superconducting materials and power electronic devices for electric transmission and distribution applications. The Company operates in two segments: AMSC Power Systems and AMSC Superconductors.

The Company competes in the US wind turbine component industry through the AMSC Power Systems segment, which generated revenues of $97 million in FY 2008. Among a broad range of other products for the power generation market, AMSC Power Systems makes POWERMODULE power electronic converters that can be installed in the nacelle of wind turbines and other equipment. These converters, which feature power ratings from 60 to 1,000 kilowatts, are designed to regulate voltage and control power flows due to wind fluctuations, as well as the pitch and variable speed of the wind turbine blades. In the second half of FY 2008, the segment introduced POWERMODULE PM3000 power electronic converters for use in wind turbine electrical systems and core components.

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"Sales of blades for wind turbine systems are projected to increase 7.5 percent per year to $1.6 billion in 2012. In general, advances will be closely linked to demand growth for wind turbine systems. Gains will also be spurred by the ongoing shift to higher value blade materials that make the blades stronger and lighter. Additionally, growth will be aided by a trend toward the installation of increasingly larger blades to accompany the development of higher capacity wind turbine systems. Further advances..."

--Section IV, pg. 74

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Other Studies

World Diesel Engines

This study analyzes the global diesel engine industry. It presents historical demand data for 1997, 2002 and 2007 and forecasts for 2012 and 2017 by diesel engine application (e.g., motor vehicles, off-highway, stationary), world regional market (e.g., North America, Western Europe, Asia/Pacific) and major national market. The study also considers market environment factors, reviews emission control technology, details industry composition, evaluates company market share and profiles industry competitors.

#2441 ..... 03/2009..... $5700

Diesel Engines

The US market for diesel engines is analyzed in this study. It presents historical demand data (1998, 2003, 2008) and forecasts to 2013 and 2018 by type (e.g., motor vehicle, non-motor vehicle), material and market (e.g., trucks, buses, recreational vehicles, passenger cars, construction equipment, agricultural equipment, marine equipment, electric power generation, mining machinery, lawn and garden equipment). The study also considers market environment factors, evaluates market share and profiles industry players.

#2464 ..... 02/2009..... $4700

World Batteries

Global battery demand will increase 4.8% annually through 2012. China will record the largest gains and surpass the US as the largest market. Consumer battery demand will outperform the market as a whole. Non-lead-acid secondary battery market gains will outpace demand for primary and lead-acid secondary batteries. This study analyzes the $71 billion world battery industry, with forecasts for 2012 and 2017 by product, market, world region and for 32 countries. It also evaluates market share and profiles industry players.

#2375 ..... 10/2008..... $6100

Turbines in China

Demand for turbines in China will grow 8.4% yearly through 2011, driven mainly gains in electric utilities construction and air-carrier services. The large steam turbine segment will decline with the completion of large scale power plant projects, but wind turbines, gas turbines, microturbines and turbine engines will all see double-digit annual growth. This study analyzes the ¥71 billion turbine industry in China, with forecasts for 2011 and 2016 by product, market and region. It also details market share and profiles industry players.

#2324 ..... 06/2008..... $5100

World Turbines

Global turbine demand will rise 4.9% yearly through 2012. Gains in the large Chinese market will slow yet remain well above the average rate, with smaller developing markets growing even faster. Developed regions will also offer good opportunities. Aircraft engines will outpace the larger electric power generation market. This study analyzes the $83.6 billion world turbine industry, with forecasts for 2012 and 2017 by product, application, world region and for 22 countries. It also evaluates market share and profiles industry players.

#2315 ..... 06/2008..... $5500

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