The Difference Wind Makes

Wind power is a reality today. More than 5,200 megawatts of wind generation – enough to serve more than 1 million average American homes – was installed in 2007, and 2008 is expected to be at least as strong. With continued government encouragement to accelerate its development, this increasingly competitive source of energy will provide a steadily growing share of U.S. electricity and revitalize farms and rural communities – without consuming any natural resource or emitting any pollution or greenhouse gases. Wind energy works for our economy, environment, and energy security.

Worldwide wind power capacity has expanded at a rate of 25% annually from 2002 to 2006.

Globally, over 20,000 MW of new wind capacity was added in 2007. Current installed capacity worldwide at the end of 2006 was over 94,000 MW.

Denmark and some regions of Spain and Germany now have 10% to 25% of electricity generated from wind power.

President Bush has stated that wind energy can provide as much as 20% of the nation's electricity.

American Wind Energy Association

Wind energy makes a REAL CONTRIBUTION TO OUR ENERGY NEEDS

- 16,818 megawatts (MW) of wind power plants were in place in the U.S. at the end of 2007, serving the equivalent of 4.5 million average households. By the end of 2008, AWEA expects that number to jump to over 22,000 MW, which can serve the equivalent of over 5.5 million average households.
- Wind energy contributes to our energy security: an inexhaustible, domestic resource, it helps reduce our dependence on imports of natural gas (for electricity generation and residential use), oil and other fuels, often from unstable countries like Nigeria and Russia. The US currently burns about 13 billion cubic feet per day (Bcf/day) of natural gas for electricity generation. During 2007, wind power will be reducing natural gas use for power generation by approximately 5%.
- Although wind energy is variable, PacifiCorp, a major electric utility in the Northwest, assigned its wind projects a 20% capacity credit.[1] That means that the wind energy on PacifiCorp's system has the same value as 20% of an equivalent amount of traditional fossil-fuel generation in contributing to overall utility system reliability (i.e., adding 100 MW of wind is equivalent to adding 20 MW of fossil fuels in improving reliability).
- Modern wind turbines are equipped with high-tech computers and power electronics that process over 200 types of data, from wind speeds and oil temperature to voltage dips on the grid. "Smart" wind turbines can help make the electricity transmission system more reliable.
- Once approved, wind farms can be built relatively quickly to respond to electricity demand.
- Wind is "inflation-proof" – once a wind plant is built, the cost of energy is known, and is not affected by fuel market price volatility.

[1] *Integrated Resource Plan 2004,* PacifiCorp (Jan 2005)
http://www.pacificorp.com/File/File47422.pdf

February 2008

Wind energy delivers REAL ECONOMIC BENEFITS

- New wind turbine manufacturing facilities opened in 2006 in Iowa, Minnesota, Texas and Pennsylvania. Additional announcements are expected in 2007. Investment in manufacturing capability signals confidence in the market and lays the groundwork for expanded growth.
- Texas saw 1,000 MW of wind projects added to the state in 2001, providing $11.6 million in property tax payments to local schools, $2.5 million in landowner royalty income, and 2,500 wind-related jobs.
- One large (108-turbine, 162-MW) project in rural Prowers County, Colorado, increased the county's tax base by 29%, adding annual payments of about $917,000 to the general school fund, $203,000 to the school bond fund, $189,000 to a county medical center, and $764,000 in new county revenues, as well as 15-20 permanent and well-paying full-time jobs at the wind farm.[2]
- As many as 215,000 new jobs would be created by adding 50,000 MW of new wind installations in the U.S. – a $50 billion investment that could provide electricity for as many as 15 million homes with 39 million people. Many of these new positions would be in the manufacturing sector, bringing 150,000 new jobs back to a hard-hit sector of our economy.[3]
- An analysis from the Union of Concerned Scientists finds switching 10% of our electricity to clean energy sources by 2020 could save consumers as much as $13 million over 20 years, due to lower natural gas prices and higher renewable electricity consumption.[4]

Wind energy offers REAL ENVIRONMENTAL BENEFITS

Wind power offsets other, more polluting sources of energy. That is important because electricity generation is the largest industrial source of air pollution in the U.S. When wind power projects generate electricity, fuel at other power plants is not consumed.

- To generate the same amount of electricity as today's U.S. wind turbine fleet (11,603 MW) would require burning 16 million tons of coal (a line of 10-ton trucks over 6,000 miles long) or 50 million barrels of oil *each year*.
- Wind energy requires no mining, drilling, or transportation of fuel, and does not generate radioactive or other hazardous or polluting waste.
- A recent New York study found that if wind energy supplied 10% (3,300 MW) of the state's peak electricity demand, 65% of the energy it displaced would come from natural gas, 15% from coal, 10% from oil, and 10% from electricity imports.[5]
- Emissions from the manufacture and installation of wind turbines are negligible. The "energy payback time" (a measure of how long a power plant must operate to generate the amount of electricity required for its manufacture and construction) of a wind farm is 3 to 8 months, depending on the wind speed at the site – one of the shortest of any energy technology.

[2] *From Snack Bars to Rebar*, (Mar 2004) http://www.state.co.us/oemc/events/cwade/2004/presentations/cox.pdf
[3] *Wind Turbine Development: Location of Manufacturing Activity*, Renewable Energy Policy Project (Sep 2004) http://www.repp.org/articles/static/1/binaries/WindLocator.pdf
[4] *EIA Studies Show a National Renewable Electricity Standard Can Save Consumers and Businesses Money*, Union of Concerned Scientists (Jun 2003) http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=1222
[5] *The Effects Of Integrating Wind Power On Transmission System Planning, Reliability, And Operations: Report On Phase 2: System Performance Evaluation*, New York State Energy Research & Development Authority (Mar 2005) http://www.nyserda.org/publications/wind_integration_report.pdf