



## The Benefits of Wind Energy

*Wind energy  
is cost competitive*

A continued interest in wind energy development in the United States and worldwide has produced steady improvements in technology and performance of wind power plants. New wind power projects have proven that wind energy not only is cost competitive, but offers additional benefits to the economy and the environment.

Wind energy development carries the economic benefits of job and business creation while supporting the local economy and reducing reliance on imported energy. Wind energy also protects utilities and energy consumers from the economic risks associated with changing fuel prices, new environmental regulations, uncertain load growth and other cost uncertainties. The environmental benefits are substantial -- wind energy reduces a utility's pollutant emissions which eases regulatory pressures. Wind energy also meets the American public's desire for clean power sources. As the utility industry is restructured to foster competition, the challenge is to ensure that wind energy develops during these uncertain times and emerges as a viable industry and resource.

A closer look at wind energy reveals important economic benefits. Several studies have established that wind energy produces more jobs per dollar invested or per kilowatt-hour (kWh) generated than most conventional resource options. The fuel source is tapped and developed locally, supporting jobs and reducing dependence on fuel imports. In addition, wind power plants pay substantial property taxes to local communities and can boost cropland rents and prices for local land owners by as much as 50 percent to 100 percent.

One advantage of wind energy production is that it allows energy producers and consumers to reduce risk. In particular, wind energy acts an effective insurance policy against three kinds of risk that threaten energy markets: environmental regulation, fuel price volatility and load-growth uncertainty.

*Wind energy creates no air pollution.*

Air quality standards dictate strict limitations for certain emissions, while others -- such as toxic metals (including mercury and cadmium) and greenhouse gases (carbon monoxide, methane) -- are likely candidates for future regulation. Cost estimates to control these emissions range widely, but could be substantial for coal- and oil-fired power plants.

Consider a hypothetical situation where a utility faces an investment choice between a coal-fired plant and a wind power plant. Assuming no change in environmental regulation, if the projected cost of electricity from the coal plant is 4 cents per kilowatt hour (kWh) and the projected cost from a wind plant is 4.5 cents per kWh, an investment decision based on economics would favor the coal plant. Now, suppose steadily increasing international concern about the impacts of greenhouse gas emissions upon the global climate encourages the United States to impose a fee of \$15 for every ton of carbon dioxide emitted. This would lead to an increase of 1.5 cents per kWh for the coal plant to produce electricity. Under these circumstances, costs would not increase at the wind plant, making it the better investment.

*Utilities can invest in low cost, non-polluting resources like wind power.*

In the past, cost increases due to stricter regulatory standards were passed directly on to consumers, who were captive customers with no choice of supplier. With utility restructuring and increased competition, however, utilities may choose to manage this type of future risk by reducing their reliance on greenhouse-gas emitting sources and investing in low cost, nonpolluting resources like wind power.

Similar to environmental regulations, fuel prices have the potential to upset electricity markets. The oil shocks of the 1970s and early 1980s left lasting memories of utilities' and energy users' dependence on fossil fuels. Unfortunately, it is difficult to predict future oil and gas prices. This reality makes it wise for utilities to manage fuel-price risks by taking steps to ensure a suitably diverse resource mix. Wind energy is a viable option under such a strategy.

Electric utilities faced serious financial problems in the 1970s and 1980s when the industry failed to anticipate a drop in demand (due to higher prices) and built too many power plants. Today, customers in some parts of the country pay rates higher than the national average because of the unneeded generating capacity. Power suppliers continue to face the risk of uncertain future demand. Utility restructuring will likely highlight this risk for producers. The ability to respond quickly to changing market circumstances, including adding or delaying production capacity, will be crucial for effective management.

Wind power meets the need for flexible energy production capacity, as do other options such as gas-fired combustion turbines. Though they require significant early capital commitments, wind power plants typically can be built in less than a year, once the site is selected and licenses and permits are approved. Construction of conventional large power plants may take three to four years and require significant early capital commitments. These plants represent serious risks if an increase in demand is not realized. Finally, wind power plants can be built in phases timed according to demand and at lower interest costs.

In addition to its economic benefits, wind power has the benefit of public support. Because it produces no pollution or hazardous waste, it has far-reaching benefits for public health and the economy. Air pollutants have been shown to reduce lifespans, increase the incidence of debilitating illnesses, damage wildlife and plants, reduce crop yields and, potentially, cause major changes in climate. Utilities can take advantage of wind power's popularity with consumers-many of whom have indicated a willingness to spend more for "green power."

The significant benefits of wind power should play an increasingly important role in decisions about future power plant construction. Regardless of the outcome of utility restructuring, the benefits of environmental protection, long-term price stability and economic development will continue to make wind power an attractive and viable energy source.

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This brief was summarized by Jeff Dale, National Conference of State Legislatures, from a *Wind Energy Series* report by Michael Brower, Brower & Company.

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*The Wind Energy Issue Briefs are a product of the National Wind Coordinating Committee (NWCC). The NWCC is a collaborative endeavor that includes representatives from electric utilities and support organizations, state legislatures, state utility commissions, consumer advocacy offices, wind equipment suppliers and developers, green power marketers, environmental organizations, and state and federal agencies.*

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