

## Electricity from the Wind: Wind Energy and the Natural Gas Crisis

The words “energy crisis” may conjure images from the 1970s of gasoline rationing and long lines of cars at the pumps. For farmers and ranchers in 2003, the “energy crisis” is less obvious but is adding new burdens to an already long list of problems confronting our rural communities. America is facing a shortage of natural gas, and farmers and ranchers have been hit with a double-whammy: When natural gas prices increase, they’re forced to pay higher utility bills AND higher production costs.

Natural gas was until recently thought to be so abundant and cheap that power plants chose to burn it to produce electricity. This practice increased demand and significantly raised natural gas prices. Last winter, home-heating bills more than doubled in some areas of the country. But farmers and ranchers have more to worry about than high heating costs.

Many farmers use irrigation wells with natural gas engines. Farmers also use propane for space heating and grain drying, and propane prices are tied to natural gas prices. Natural gas also accounts for 80 to 90 percent of the cost of producing anhydrous ammonia for nitrogen fertilizers. In March, prices for anhydrous ammonia, which is typically derived from natural gas, jumped from \$185 per ton to \$350 per ton and had only declined to \$320 per ton by May. It’s estimated that farmers can expect to pay \$10 to \$15 more per acre for fertilizer.

Dan McGuire, Wealth from the Wind Program Director for the American Corn Growers Foundation (ACGF), knows that wind energy can counter the double-whammy facing rural America.

“The impact of higher natural gas prices in 2003 had a tremendously negative impact on corn farmers,” McGuire said. “The key is to move the wind energy agenda at both the state and national levels, including state and federal energy incentives, just as fast as possible. There is very strong support for wind energy among U.S. corn farmers.”

In areas of the country where wind farms generate electricity, they are directly helping to conserve natural gas supplies. And unlike natural gas prices, which are subject to market fluctuations, wind energy costs are predictable over time. Once a plant is built, the cost of producing electricity is stable, and the fuel source is free. This means that wind energy works well in tandem with natural gas production. For example, smart investors know that they should diversify their investment portfolios and balance potentially high-risk stocks with more-conservative bonds and mutual funds. Utilities should devise similar strategies to mitigate natural gas price fluctuations and risks—they should be able to use other energy sources when natural gas prices soar. The fixed cost of wind energy helps mitigate the rapidly fluctuating cost of natural gas in a utility’s “portfolio” and helps to keep rates low.

States with untapped wind resources could join the ranks of other states that have realized the economic benefits of wind energy projects in their communities. And the benefits are significant.

Wind energy projects create thousands of jobs and millions of dollars in royalty income for farming and ranching states. Wind projects also contribute to state business, sales, property, and income taxes. Thanks to wind energy, Pecos County, Texas, added \$4.6 million to its property tax revenue in 2002 alone. The increased revenue benefits local services such as schools, health care facilities, and roads. Farmers and landowners in rural communities also benefit directly. Landowners in southern Minnesota and northern Iowa who lease their land to wind developers receive annual payments from \$2,000 to more

than \$4,000 per turbine. In addition, wind projects benefit rural economies by providing local jobs, from temporary construction jobs during the initial phases of a project to permanent wind smith jobs.

## **Soaring Natural Gas Prices Are Here to Stay**

Federal Reserve Board Chairman Alan Greenspan recently testified to a U.S. Senate committee hearing on natural gas that no one should expect a return of low prices in the near future.

Why are natural gas prices so high? First, domestic natural gas wells are being “played out,” and even new, improved technologies can’t significantly increase production levels. Oil & Gas Journal reported that Texas, which produces one-third of the nation’s gas, must drill 6,400 new wells per year, or 17 wells per day, to keep its production from plummeting. But North American fields are maturing, which means that even new wells produce less natural gas for shorter amounts of time. More drilling isn’t a viable long-term solution.

New natural gas pipelines through Alaska and Canada have been proposed, but these projects are years away from completion, and some question whether Canada, also faced with dwindling reserves and rising natural gas prices, will continue to export increasing quantities to meet the demand of its neighbor to the south. Importing liquefied natural gas via tankers requires special port facilities, and only 1 percent of America’s natural gas is imported this way anyway. Many have voiced concerns about security issues surrounding liquefied natural gas facilities near metropolitan areas. These proposed solutions cannot make a significant dent in the present demand, and according to U.S. Secretary of Energy Spencer Abraham, demand for natural gas is expected to rise by as much as 50 percent over the next 25 years.

Second, natural gas reserves are lower than past inventories because last winter was cooler than normal. Analysts worry that if blazing summers lead to increased consumer air conditioning use, natural gas use will increase and prices will follow suit.

“America’s natural gas shortage affects everyone—from senior citizens living on fixed incomes to small business owners trying to keep the lights on,” Abraham said.

And that’s where wind energy enters the picture. Electricity from the wind can keep the lights on—and benefit rural communities at the same time.

## **The Wind Energy Solution**

Energy experts estimate that the current natural gas supply shortage amounts to 3-4 billion cubic feet per day (Bcf/day), and they cite the increasing use of gas for electricity generation as one of the major causes of the shortfall. According to Randall Swisher of the American Wind Energy Association, rapid expansion of the nation's installed wind capacity could sharply boost wind energy production over the next four years, increasing its output to the equivalent of 3 Bcf/day (about as much natural gas as the states of Colorado and Alaska produce today).

“Wind plants can be permitted and built relatively quickly—typically, within one to two years,” Swisher said. This presents a much more immediate solution to the energy crisis than waiting for pipelines to be built or ports to be retrofitted to handle liquefied natural gas.

And building wind plants makes good economic sense as well. In 2001, the Colorado Public Utilities Commission ordered Xcel Energy, a regulated Colorado utility company, to engage in good faith

negotiations for a wind power plant because the commission found that new wind generation would cost less than new gas-fired power plants.

Time magazine reported that businesses including Coors Brewery, Dow Chemical, and Owens Corning have urged President Bush to declare war on natural gas prices by “maximizing use of other energy sources for power generation.” American corn growers concur.

“Higher production costs combined with low commodity prices paid to farmers spells economic trouble for rural America,” McGuire said. “That’s why the ACGF and the American Corn Growers Association (ACGA) are promoting wind energy. It’s why we developed the Wealth from the Wind program and work with the Wind Powering America program of the National Renewable Energy Laboratory (NREL) and the U.S. Department of Energy (DOE). We support wind farming as both an alternative income stream for farmers and landowners and an economic development opportunity for rural communities.”

In the 1970s, wind energy technology could not be considered a viable alternative to conventional fuels, and it certainly could not provide an answer to the energy crisis. In 2003, rural America must make a choice: either continue down the natural gas path or choose wind energy projects, which will save natural gas, reduce demand for natural gas, reduce the cost of natural gas and farmers’ production costs, and provide economic benefits for rural communities.

*This article was prepared information provided by the Department of Energy's Wind Powering America Program. For more information, please visit <http://www.windpoweringamerica.gov>.*

## **To Learn More about Wind Energy’s Benefits to the Rural Community:**

- **American Corn Growers’ Foundation**  
Learn more about the foundation’s Wealth from the Wind program at <http://www.acga.org>. Write to the foundation at P.O. Box 18157, Washington, DC 20036; or call (202) 835-0330.
- **Windustry**  
This organization partners with the Institute for Agriculture and Trade Policy to promote wind education and outreach. The organization’s Web site at [www.windustry.org](http://www.windustry.org) features a section called Wind Farmers Network of America. If you don’t have Internet access, write to Windustry, 2105 First Avenue South, Minneapolis, MN 55404; or call (800) 946-3640.
- **American Wind Energy Association**  
AWEA offers information on policies that promote wind energy and provide benefits to rural communities. Visit <http://www.awea.org>; write to The American Wind Energy Association at 122 C Street NW, Suite 380, Washington, DC 20001; or call (202) 383-2500.
- **Wind Energy Resource Atlas**  
To find out whether you have a strong wind resource in your area, visit <http://rredc.nrel.gov/wind/pubs/atlas/>.