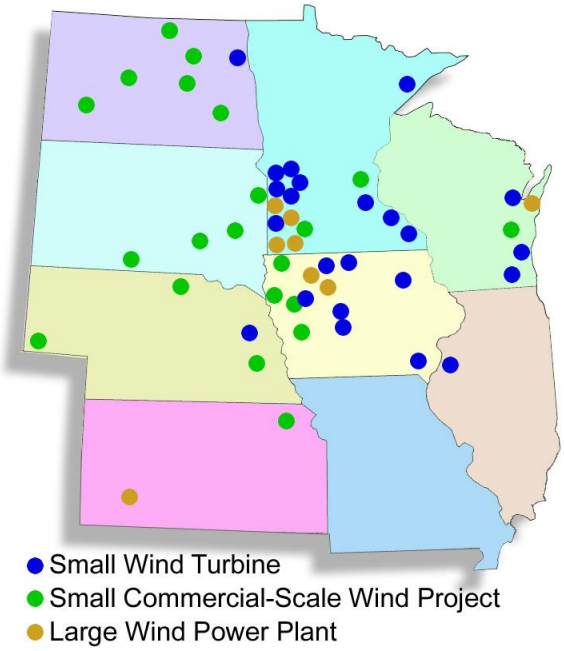
Wind Energy and the Natural Gas Crisis ***Special to the Nebraska Energy Quarterly***

The words “energy crisis” may bring to mind images from the 1970s of gas rationing and long lines of cars at the gas pumps, but for farmers and ranchers in 2003, “energy crisis” means yet another item on the long list of problems faced by rural communities. America is facing a shortage of natural gas — once thought to be so abundant that power plants burn it to produce electricity. Last winter, home-heating bills more than doubled in some areas, and they are expected to increase another 20 percent this winter. But farmers and ranchers have more to worry about than high heating costs.

Dan McGuire, American Corn Growers Foundation According to Dan McGuire, Wealth from the Wind program director for the American Corn Growers Foundation, “Many farmers use irrigation wells with natural gas engines. Farmers use propane for space heating and grain drying, and propane's prices are tied to natural gas prices. Natural gas also accounts for 80 percent to 90 percent of the cost of producing nitrogen fertilizer (anhydrous ammonia). In March, prices for hydrous ammonia, which is typically derived from natural gas, jumped from $185 per ton a year earlier to $350 per ton and had only declined to $320 per ton by May. Farmers' cost of production is affected by both the fuel and the fertilizer variables.” As Congress debates how to reduce our dependence on natural gas as well as foreign oil, the President's National Energy Policy recommends “examining the potential for greater electricity generation from sources other than natural gas.” McGuire knows that wind energy fits the bill. **Wind Turbine Sites in the Midwest Region**



“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.” The American Wind Energy Association predicts implementing policies that encourage the growth of wind energy would create thousands of jobs and millions of dollars in royalty income for hard-pressed 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. 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. Wind projects also benefit rural economies by providing local jobs, from temporary construction jobs during the initial phases of a project to permanent wind turbine maintenance jobs. 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 devise a similar strategy to mitigate natural gas price fluctuations and risks — they plan ways 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." **Soaring Natural Gas Prices Are Here to Stay** "The days of $2 gas are gone," Randall Swisher, executive director of American Wind Energy Association, said, referring to the historical market price for natural gas of just above $2 per 1,000 cubic feet prior to the

Randall Swisher, Executive Director, American Wind Energy Association.

California electricity crisis of 2001. Instead, a price range of $4 to $5 per 1,000 cubic feet is expected, with regional shortages and occasional spikes to $6-$10. 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 becoming "tapped 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.

Natural Gas Wells are becoming "tapped out" Proposed natural gas pipelines through Alaska and Canada are several years away, 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 obviously 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 this summer's heat and consumer use of air conditioning increases, natural gas prices will follow suit. Abraham said this year's challenge is to ensure adequate natural gas supplies at prices consumers can afford. "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.

Southern Minnesota and Northern Iowa farmers lease their land to wind developers to recieve annual payments. **The Wind Energy Solution** Energy experts estimate the current natural gas supply shortage amounts to 3-4 billion cubic feet per day, and they cite the increasing use of gas for electricity generation as one of the major causes of the shortfall. According to Swisher, rapid expansion of the nation's wind turbine fleet could sharply boost wind generation over the next four years, increasing its output to the equivalent of 3 billion cubic feet per day, or 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. The American Wind Energy Association has proposed transmission plans for 30,000 megawatts of wind in the Midwest and West, which the group believes is feasible in the near future. The wind industry has proposed a national policy agenda to help avoid future power generation problems, including:

- A five-year extension of the wind energy production tax credit, which expires December 31, 2003, under current law
- Tariff reform to increase effective transmission capacity on the current grid
- Enactment of a national renewable portfolio standard to diversify the national utility generating portfolio.

According to the American Wind Energy Association, in addition to the new jobs and royalty income generated, implementing these policies would also provide energy stability — and American businesses and farms desperately need that stability. *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 American Corn Growers Foundation and the American Corn Growers Association 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 and the U.S. Department of Energy. 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 is poised to take advantage of new, advanced wind technology to harvest the crop of the future. **On the Web** For more information on wind energy please visit the Wind Powering America Web site at:http://www.windpoweringamerica.gov

This article was prepared with information provided by the Department of Energy's Wind Powering America Program.

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 athttp://www.acga.org. Write to the foundation at P.O. Box 18157, Washington, DC 20036; or call (202) 835-0330.
- **Windustry** www.windustry.org This organization partners with the Institute of Agriculture and Trade Policy to promote wind educationand outreach. At the organization's web site, under the section, "About Windustry", you may join the *Wind Farmers Network of America*. You may write Windustry at 2105 First Ave. South, Minneapolis, MN or call 800-946-3640.
- **American Wind Energy Association** AWEA offers information on policies that promote wind energy and provide benefits to rural communities. Visithttp://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/.

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