

July 6, 1998

Mr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101

RE: Comments on Northern States Power's 1998 Integrated Resource Plan  
(Docket No. E-002/RP-98-32)

Dear Mr. Haar:

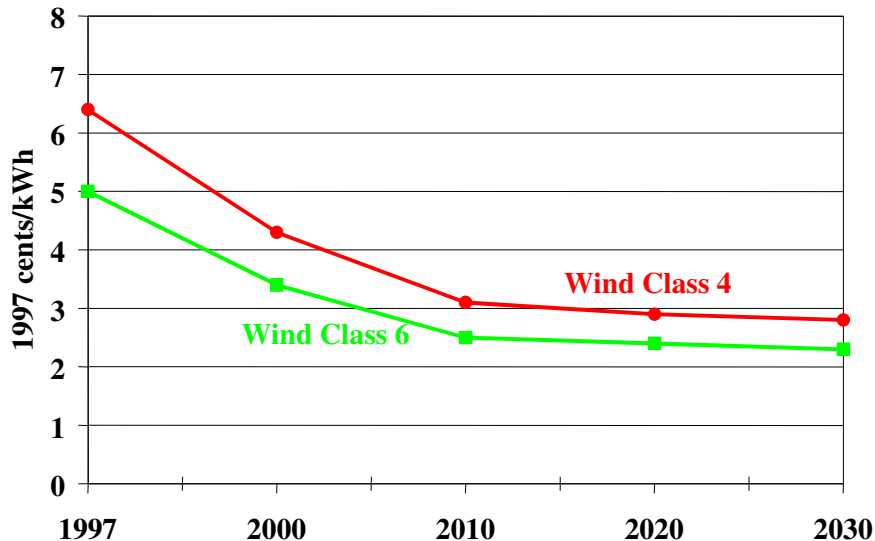
The Union of Concerned Scientists (UCS) thanks the Public Utilities Commission for this opportunity to comment on Northern States Power's 1998 Integrated Resource Plan. UCS is a national environmental organization which has had a program of research on renewable energy technologies for two decades. Since publication of our *Powering the Midwest* study in 1992, we have been actively involved in renewable energy issues in the region, working with the Izaak Walton League and other members of the Sustainable Energy for Economic Development (SEED) coalition. UCS has 1,990 Minnesota members.

UCS disagrees with Northern State's Power Company's (NSP's) assertion in its 1998 Integrated Resource Plan that "the addition of 400 MW of wind generation is not justified by least cost planning principles," and "is not in public interest." UCS has reviewed the Izaak Walton League's (IWL) draft analysis and comments pertaining to the additional 400 MW of wind. We support IWL's conclusion that wind power is an economically viable alternative to investments in natural gas combined cycle power plants in Minnesota and is in the public interest according to the state's least cost planning principles as specified in Minn. Rule 7843.0500, subp. 3.

In particular, IWL's analysis clearly shows that NSP has underestimated both the cost and risk of future natural gas prices. The natural gas price projections from the Energy Information Administration's (EIA) *Annual Energy Outlook-1998* (AEO 98) used by IWL result in a much higher cost of generating electricity from gas than when NSP's relatively flat, "risk free" gas prices are used. EIA projects that the demand for natural gas to generate electricity will more than double by 2010 and more than triple by 2020, which will place tremendous pressure on gas prices. NSP's gas price projection fails to recognize the likely effect that increasing gas demand will create on gas prices. Wind electricity also mitigates the risk of gas price volatility and even greater long-term price increases. EIA's *Annual Energy Outlook-1997* projected substantially higher long-term gas prices than AEO 98.

NSP also overestimates the cost of generating electricity from wind by ignoring projected reductions in cost and improvements in performance of wind turbines. As IWL's analysis shows, this is confirmed in a recent analysis by the Electric Power Research Institute (EPRI) and the U.S. Department of Energy (DOE) called *Renewable Energy Technology Characterizations* (December 1997). This report projects the cost of wind power to fall to roughly 3-4 cents per kilowatt-hour in 2003 depending on the wind resource and without the federal production tax credit, as shown in Figure 1. At this level, wind power is an economically viable alternative to natural gas combined cycle plants when the EIA's gas price projections are used. If the federal wind production tax credit is extended and if the risk of potential gas price increases are reflected, wind power would be even less expensive. Thus, developing wind would help Minnesota maintain its low rates.

**Figure 1. The Projected Cost of Generating Electricity from Wind**  
(Not including the federal wind production tax credit)



Source: EPRI and DOE, *Renewable Energy Technology Characterizations*, December 1997, (EPRI TR-109496).

The case for installing the additional 400 MW of wind power in Minnesota is even more compelling when other least cost planning principles are considered. First, displacing imported fossil fuels with wind energy creates jobs and provides additional income to farmers in Minnesota. This is demonstrated by wind farms that have already been installed in Southwestern Minnesota and in a study by the Southwest Regional Development Commission, *Economic Impact Analysis of Windpower Development in Southwest Minnesota* (September 1996). The study showed that installing the 425 MW of wind power as required under the law, will add \$8.2 million in income and 456 jobs to the regional economy during the construction phase and approximately \$2 million in income and 77-100 jobs during the wind farm's 30-year operation. NSP claims that "it is not practicable to specifically quantify socioeconomic effects..." because "it is possible that the wind will not be located in Minnesota." While this is possible, these potential benefits should not be ignored given the state's enormous wind potential. UCS' 1993 report *Powering the Midwest* shows that Minnesota has the potential to generate up to 5,000 MW

of wind for under 4.2 cents per kilowatt-hour without the production tax credit, and not considering the full potential cost reductions in wind shown in the EPRI/DOE report.

Second, wind provides important environmental benefits over natural gas and other fossil fuels. While natural gas is cleaner than other fossil fuels, increased natural gas use to meet the growing demand for electricity or to replace retiring nuclear capacity will increase carbon dioxide (CO<sub>2</sub>) emissions. The cost of complying with likely future U.S. and international commitments to reducing CO<sub>2</sub> emissions could be considerably higher than the externality values Minnesota currently requires utilities to include in integrated resource planning. Developing wind will reduce this environmental and financial risk.

Third, developing an additional 400 MW of wind could provide significant financial benefits to NSP and its ratepayers under a deregulated environment. Five federal restructuring bills (Schaefer, Bumpers, Markey, Jeffords, and the Clinton Administration) before Congress include a renewable portfolio standard (RPS) that would require electricity providers to obtain a minimum percentage of their electricity from renewable resources. These bills also contain a credit trading scheme that would allow electricity providers to generate the electricity themselves or purchase credits from renewable generators. Under this system, NSP's could sell renewable credits to electricity providers in other states for a premium.

Fourth, wind power can maintain and enhance the reliability of the electricity system by siting wind turbines strategically on the transmission and distribution system. By disbursing wind generation widely throughout a utility system, it can also contribute to peak loads. Wind turbines generally have an availability of around 98 percent compared to availabilities below 80 percent for many large coal and nuclear plants.

In conclusion, based on IWL's analysis and the comments presented above, UCS believes that the additional 400 MW of wind is an economically viable alternative to natural gas combined cycle power plants according to least cost planning principles. Adding this wind capacity will help maintain Minnesota's low rates and insulate consumers from the financial risks of fuel price increases, supply shortages and complying with future commitments to reduce carbon dioxide. Furthermore, it will create jobs and income, enhance environmental quality, maintain reliability, and provide a potential source of income for NSP and its ratepayers. Thus, UCS believes it is in the public interest for NSP to install the additional 400 MW of wind.

Thank you again for opportunity to comment.

Sincerely,

Steve Clemmer  
Senior Energy Analyst  
Union of Concerned Scientists