



## **Comments to the MN Public Utility Commission on Xcel Energy's Resource Plan**

*The following comments were delivered verbally to the Commission by Christina Mills on Thursday October 25, 2012.*

Madame Chair and Commissioners,

Good morning. My name is Christina Mills and I am here today on behalf of myself as a customer of Xcel Energy and also as a staff member of the Institute for Energy and Environmental Research, or I-E-E-R for short. IEER is a non-profit organization based in Takoma Park, Maryland and focuses on providing scientific and technical analysis of energy issues. We have had an office in Minnesota since 2000 and are active on many different state-level energy matters.

I support the comments of the environmental intervenors overall and specifically the recommendation for Xcel Energy to produce a baseload diversification study for replacing the coal-fired Sherco Units 1 and 2 and I support the general recommendation for increasing the solar power generation in Xcel's service territory. Minnesota has no in-state fossil fuel resources; it does have abundant wind and solar potential. Xcel should give much more emphasis than it has to these local sources.

Recently, the National Renewable Energy Laboratory published their "Renewable Electricity Futures" study, which found 80% renewable energy generation, in combination with a more flexible electric system, feasible for the entire U.S. It means that facilities which cannot be flexible with wind and solar power, notably nuclear and coal plants, will be increasingly irrelevant, and even a hindrance to a future with large amounts of renewables. Phasing out these large, aging, and inflexible plants will be a win-win for Xcel and Minnesota, given the statutory goal of an 80% reduction in greenhouse gas emissions and renewable energy standard requirements.

In March 2012, IEER published a similar report "Renewable Minnesota", co-authored by myself, IEER's President, Dr. Arjun Makhijani, and Dr. M.V. Ramana, a scholar at Princeton University. This report looked at whether Minnesota could have a 100% renewable energy system and is available on the IEER website. We used actual hourly demand data from Xcel Energy for 2007 – all 8760 hours – and matched that with in-state potential for wind and solar generation, while maintaining the industry-standard reliability criterion of 12% capacity above load for all hours of the year. While showing that the technology is commercially available and there is sufficient wind and sun in Minnesota to make the transition to 100% renewable energy over three or four decades it also highlights the role of energy efficiency and demand side management in keeping the costs of such a system reasonable – in fact we found this transition could be done at a cost to ratepayers of only 1-2 cents more per kWh than current rates. And that's not counting the collateral benefits of more in-state resources and reduced costs from ill-health associated with air pollution.

We must start now to cost-effectively transform our electricity system and get rid of the obsolete mode of thinking that inflexible baseload plants are necessary to operate the electricity system. The Commission and Xcel, in this and future IRPs, should proactively set a course for a future in which the electrical grid in Minnesota will be as different in 2040 from that of today, just as the iPhone and Internet are from the phone and computer systems of 1980.