November 20, 2008

Dear Upper Midwest Transmission Development Initiative (UMTDI) Executive Committee:

Xcel Energy is a major utility serving four of the five upper Midwest states participating in the UMTDI: Minnesota, Wisconsin, North Dakota and South Dakota. We are strongly committed both to environmental leadership and to providing the strong and robust utility infrastructure necessary to meet our customers' needs and implement today's energy policy objectives.

Xcel Energy supports the UMTDI in its objectives of establishing a plan that will guide and encourage the construction of interstate transmission lines to serve the upper Midwest region's commitment to cost effective renewable generation while maintaining reliability and developing an equitable cost-sharing methodology. As such, we are pleased to submit our answers in response to the initial questions posed in your letter of October 28, 2008.

We hope that this effort will result in an actionable consensus between all parties necessary to facilitate building the infrastructure needed to support today's energy policy, including ensuring fair and appropriate allocation of associated costs.

Sincerely,

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Xcel Energy Responses to Upper Midwest Transmission Development Initiative (UMDTI) Questions of 28 October 2008 21 November 2008

UMTDI Questions

1. **How much renewable energy should the upper Midwest states plan for, over what timeframe, and in what increments?**

Xcel Energy believes that, regardless of the ultimate amount of renewable energy sources developed in the upper Midwest, there is a fundamental need to expand and enhance the 345 kV network serving the upper Midwest. Such an expansion is needed to serve customers reliably while also providing basic adequate capacity to meet renewable resource development needs as established by existing RES and REOs. Furthermore, such transmission expansion is a necessary underpinning for any larger renewable resource development scenario, including extra high voltage transmission for significant export out of the upper Midwest.

The answer to the question of how much renewable energy is needed, and when, will likely evolve, and can be framed with two bookend considerations. One bookend is to plan for the amount of renewable energy needed by the upper Midwest states only. Another bookend is to plan for an amount of renewable energy that will serve not only the upper Midwest but also more distant load centers, for example, to the east.

The utilities and other stakeholders in the upper Midwest need to be engaged in the development of this policy. Xcel Energy supports the development and use of renewable energy and is committed to working with stakeholders to define and implement the agreed upon energy policies.

2. **What voltages, how many miles of new or upgraded transmission and how much related infrastructure is needed in the Upper Midwest region to meet our states' renewable electricity goals, ensure regional reliability, and promote economic dispatch?**

An effective and efficient transmission grid must be designed to serve multiple purposes

- Enabling the states' renewable energy goals
- Ensuring regional reliability
- Promoting economic dispatch of generating resources to hold down customers' energy costs

Another important influence on this question is the individual states' positions regarding development of in-state only resources and renewable energy

sources from outside their borders. Renewable energy sources may be near the five states' region, but not under the control of state policy makers. A clear and consistent policy from the states on this issue is necessary.

Determining how to expand the transmission system to serve all these needs is best accomplished through a full examination of many future scenarios. It is important to have the area utilities engaged in this process in order to properly integrate all drivers of transmission need, which in turn will lead to the most efficient and cost effective overall infrastructure. Conclusions that are common to many scenarios should guide transmission development. Put another way, we need to avoid making a "big bet" on one possible future and expanding the transmission grid to suit that "big bet". Near-term transmission plans, such as the CapX Group 1 projects and the next project(s) needed to meet MN RES 2016 milestones, resulted from analyses of a wide range of supply and market scenarios, and as such provide necessary flexibility for the future.

Xcel Energy is part of the CapX transmission planners consortium, which is well underway with new studies to evaluate size, type and timing of the next transmission lines needed in Minnesota and the surrounding states to meet the MN 2016 RES milestones as well as to ensure continued grid reliability. We know from this work that additional 345 kV infrastructure is needed in the near term to meet current renewable mandates, and that this infrastructure will be needed as an underpinning of a larger system expansion, should that be the ultimate goal. Preliminary analyses done by the CapX utilities indicate that double circuit 345 kV could be suitable for the five states' needs. Higher amounts of export outside the five state regions will drive higher voltage AC or HVDC solutions.

The MISO RGOS study, in concert with policy guidance by UMTDI, is a good place to synthesize supply, market and export assumptions and determine correspondingly appropriate levels of transmission expansion.

3. Where are the greatest potential renewable resources located in the upper Midwest? Where are the most accessible potential renewable resources located in the upper Midwest? Where are the markets for that energy? What are the likely and most appropriate means to deliver renewable generation to load?

Buffalo Ridge, which extends from northwestern Iowa through southwestern Minnesota into South Dakota and North Dakota, has the greatest potential for wind generation accessible to the NSP system. Pembina Ridge in North Dakota also has great potential for wind generation development. Substantial transmission infrastructure additions would be needed in both areas to maximize utilization of that potential. Southern Minnesota also has lesser, but still strong wind generation potential with somewhat less daunting

transmission infrastructure concerns. Indeed there has been a recent surge in wind development away from Buffalo Ridge for that reason.

Northern Minnesota and Northern Wisconsin have strong potential for woody biomass-fueled renewable energy development. This will be increasingly true if the current market downturn in the forest products industry persists. However, without more substantial, economic fuel transportation infrastructure, these resources will likely remain largely untapped.

The vast plains of North Dakota, Western Minnesota and certain locations in Northern Wisconsin could also provide grass or oil-seed based biomass fuels, but, again, fuel transportation costs have thus far proven to be prohibitive. Perhaps further research and crop productivity improvements will one day be able to overcome the basic fuel transportation cost problem.

The various state renewable energy requirements are based on expected annual performance. In day-to-day operation, though, there is a great ebb and flow to wind generation that could be managed with energy flow into and out of the rest of the Midwest ISO market to the east. Obviously, there would have to be a combination of adequate transmission infrastructure and adequate energy storage resources to handle that ebb and flow of energy. Much has already been studied and is in the process of being done regarding transmission adequacy to the east, but there has been little work done to study the economics of energy storage as an alternative. Given its location between areas of great renewable energy potential and eastern MISO that can absorb large-scale renewable generation fluctuations, Wisconsin might prove to be a good home for a large-scale energy storage system, depending on the technology.

Transmission is the means to deliver energy. However, the vast majority of the new generation will not be located near load, and so will require high voltage transmission. The design of that transmission – AC or DC, what voltage, where, etc. – will come out of the comprehensive assessment discussed in answer to # 2.

4. Once potential generation sites are determined along with development timeframes, what are the estimated costs of constructing an economically and operationally optimal network of needed transmission additions or upgrades? Over what time frame?

Today, Xcel Energy's transmission costs are about 8% of a customer's electric energy bills. Significant expansion of the grid will increase the transmission portion of customers' bills, and the relative cost of transmission may increase over current levels. However, energy market benefits resulting from appropriate facilitating transmission development may help offset the costs of new transmission infrastructure.

Costs can only be estimated once generation sites have been determined. Costs are dependent on many factors, which are in turn highly dependent on the specific need and solution. In addition, we anticipate that recent price increases in materials, equipment and labor will continue with the increasing rate of transmission development across the country.

A point of reference for costs is the 200 mile, 345 kV Brookings – Twin Cities CapX project, which is estimated to cost approximately $700 million (2007$).

The timeframe for transmission development is very dependent upon the specific need and solution. It can easily take 10 years to get a project in service.

5. What options exist to control or mitigate the costs of transmission construction?

The CapX utilities are collaborating in the sourcing effort for the Group 1 projects. This approach means that we can leverage in the marketplace the larger scope of the combined projects and thereby increase our ability to obtain good prices, and availability, for services, equipment and materials.

In addition, a focused effort to sequence and stage project construction can avoid or reduce costs due to associated system impacts.

Continued coordination and streamlining among the upper Midwest states of the Need and route review and approval processes for transmission lines needed for regional solutions would help expedite transmission development. The significant ramp-up in new projects will require increased staff at the state regulatory agencies responsible for review and permitting.

6. How should the costs of needed transmission construction be apportioned across the region? For example, should producers and/or sellers of the energy interconnected to a particular transmission line be apportioned a certain percentage for delivering their product over that line? Should energy buyers/users of energy delivered by a specific power line bear a cost allocation percentage for that line? Should States through which a transmission line crosses but does not necessarily provide energy pay a portion of the costs of the transmission line?

7. What benefits from transmission additions can be demonstrated, how are they measured, and what is the business case for investments in these facilities?

(combined response to both questions)

A robust transmission system provides the critical options and choices that enable delivery of a wide array of societal benefits.

We are entering a rare period of alignment in societal needs driving transmission investment – focus on reinforcing basic infrastructures (for reliability, security, economic development), focus on adding and integrating renewable energy sources (for carbon reduction and other beneficial environmental impacts), and focus on energy supply competition (for lower consumer energy costs, improved and more efficient energy resources, and a viable energy market with associated market benefits). Transmission is the common factor that enables delivery of benefits associated with addressing all of these diverse needs. Transmission is a prerequisite to successful implementation of today's energy and economic policy priorities.

Any given transmission investment adds to an existing network system. In a network system, by its very nature, the whole is greater than the sum of the parts. More specifically in this context, the benefits of the whole network are greater than the sum of incremental benefits associated with adding each individual component. Additionally, in a network system the uses and benefits of any individual component can vary greatly over time and circumstance. Therefore it is essentially impossible to specifically identify and assign the full array of likely benefits associated with any individual network component investment over its useful life.

In this current situation of significant and broad need drivers, the real challenge is in determining the point of diminishing returns of additions or upgrades to the existing network. Given the array of needs driving transmission investment at this time, we are currently far away from reaching that point. A significant amount of transmission investment is currently needed to reinforce and provide basic infrastructure, add and integrate renewable resources, and facilitate energy supply competition.

The business case challenge then becomes defining a <u>reasonable</u> primary backbone transmission network that is robust enough to provide the options and choices necessary to address these cumulative societal needs in different regions of the country. The benefits from this kind of fundamental enabling infrastructure investment would be broad and diffuse; cost allocation should follow accordingly. The primary backbone network must have enough capacity to accommodate reasonable future growth in a reasonable amount of time, and to enable delivery of benefits under a variety of potential future scenarios. Subsequent secondary investments to interconnect specific new resources and loads, tweak local area system performance, and the like have benefits that can

more reasonably be assigned to a smaller area, and cost allocation should follow accordingly.

The business case for today's transmission investment requires both art and science, a linking of policy and engineering justifications to define reasonable and sufficient transmission investment and identify its beneficiaries. The investment needed to provide today's primary fundamental backbone is a more strategic kind of investment, and the supporting business case must recognize and accommodate both the policy and engineering aspects of that.

Finally, cost recovery certainty is a key element of any transmission investment business case. Risk and uncertainty drive higher costs. Agreement between states within a region and alignment with applicable federal mandates and requirements is necessary in order to avoid potential trapped costs between retail and wholesale customers or between different states.