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January 24, 2012

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RE: 2012 Annual Transmission Adequacy Report

Dear Senator Rosen, Representative McNamara, Senator Higgens, Representative Hackbarth, Senator Ingebrigtsen, Representative Hilty, & Representative Wagenius:

Enclosed please find a report written by the Minnesota Department of Commerce's Division of Energy Resource's in consultation with the Minnesota Public Utilities Commission regarding Minnesota's electric transmission infrastructure needs. The report, *Minnesota's Electric Transmission System – Now and Into the Future*, is submitted pursuant to 2009 Minnesota Laws Chapter 110, Section 28 (Minn. Statute § 216C.054).

If you have any questions about the report, please contact me at 651.296-2569 or Peter.Brickwedde@state.mn.us .

Sincerely,

/s/ PETER BRICKWEDDE
Management Analyst

PB/ja
Enclosure

MINNESOTA'S ELECTRIC TRANSMISSION SYSTEM -- NOW AND INTO THE FUTURE

January 17, 2012

Submitted by

Minnesota Department of Commerce
Division of Energy Resources

In Consultation with
The Minnesota Public Utilities Commission

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I. INTRODUCTION

Minnesota Statute § 216C.054, the Annual Transmission Adequacy Report to the Legislature,[1] requires the Commissioner of Commerce, in consultation with the Public Utilities Commission, to prepare and submit this report annually to provide a nontechnical discussion of the "state" of Minnesota's current electric transmission system. This law also requires a report on transmission planning and other actions taken or in process to maintain electric service reliability as well as comply with the requirements of the State's Renewable Energy Standard.

Because transmission issues tend to involve numerous considerations and entities, this report provides a general discussion of transmission as a reference guide, similar to the discussion from the 2011 report. This report also provides an update of current transmission projects as identified in the recent biennial transmission report required by Minnesota transmission owners.

II. WHY TRANSMISSION MATTERS: OVERVIEW

Electricity is provided to consumers via three main steps: generation, transmission and distribution. As the link between the production (generation) of electricity and delivery (distribution) to consumers, transmission plays a vital role in helping to ensure that consumers have low-cost, reliable energy. While it is a critical component in providing electric service, transmission accounts for a much smaller percent of utility costs than either generation or distribution facilities. For example, transmission may account for 10 percent of the costs of providing electric service while generation and distribution make up the other 90 percent.[2]

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[1] The statute states:

> The commissioner of commerce, in consultation with the Public Utilities Commission, shall annually by January 15 submit a written report to the chairs and the ranking minority members of the legislative committees with primary jurisdiction over energy policy that contains a narrative describing what electric transmission infrastructure is needed within the state over the next 15 years and what specific progress is being made to meet that need. To the extent possible, the report must contain a description of specific transmission needs and the current status of proposals to address that need. The report must identify any barriers to meeting transmission infrastructure needs and make recommendations, including any legislation, that are necessary to overcome those barriers. The report must be based on the best available information and must describe what assumptions are made as the basis for the report. If the commissioner determines that there are difficulties in accurately assessing future transmission infrastructure needs, the commissioner shall explain those difficulties as part of the report. The commissioner is not required to conduct original research to support the report. The commissioner may utilize information the commissioner, the commission, and the Office of Energy Security possess and utilize in carrying out their existing statutory duties related to the state's transmission infrastructure. The report must be in easily understood, nontechnical terms.

[2] Source: Northern States Power d/b/a Xcel Electric's compliance with the Commission's requirement *In the Matter of an Investigation into Informing Customers of the Costs of Generation and Delivery of Electricity*, December 15, 2010.

Transmission facilities currently in place have been designed primarily to interconnect a utility's generation and distribution facilities, and secondarily to interconnect neighboring utilities to each other to provide additional backup power. This design enables utilities to access other generation or transmission systems if something goes wrong on that utility's system. This interconnection with other electric systems provides a more reliable system overall than isolated systems and allows utilities to access lower cost power from other suppliers, or purchase power on a temporary basis rather than building a generation facility that may be used only intermittently. Transmission helps the entire system of interconnected utilities operate more efficiently than if each utility were operated on a stand-alone basis.

The interconnected transmission system is vast. Electrically, the transmission grid is split into three sections: the Eastern Interconnection, the Western Interconnection, and the Electric Reliability Council of Texas (ERCOT). These areas are shown in the attached map.[3]

Electricity follows the laws of physics: like water, it follows the path of least resistance. However, electricity has different properties that require different delivery systems than are used for water. For example, electricity placed onto the interconnected transmission grid could be withdrawn at any other place within the interconnection as long as there is no congestion. Moreover, the electrical system must be balanced, meaning that the amount of electricity being produced at any given time must essentially equal the amount of electricity being used by consumers. However, because electricity cannot be stored in a reasonable manner with current technology, the transmission system helps maintain this balance by allowing electricity to flow around the electrical system where possible. [4]

III. TRANSMISSION, RELIABILITY AND POWER COSTS

Adequate transmission is one essential component to ensure that Minnesotans have reliable and reasonably priced electric service. When there are material shortages in transmission capacity in certain areas, there are more frequent power outages and lower power quality (that can affect sensitive equipment such as computers). Since Minnesotans rely heavily on reliable power, it is critical to ensure that electric service is as reliable as reasonably possible to minimize the cost to Minnesota's economy in lost production time and disruption and potential harm to the myriad systems that depend on electricity.

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[3] Source and electronic link:
http://www.nerc.com/fileUploads/File/AboutNERC/maps/NERC_Interconnections_BW.jpg

[4] There are a number of technologies being developed to store un-needed electricity for later use. However, none of these technologies are commercially viable or operational at this time. One technology currently in use is known as "Pumped Hydro Power" which uses electricity at times when little power is being used for other purposes to pump large amounts of water into a reservoir. Later, when electricity is needed, this reservoir water is allowed to flow through a hydro-power turbine, generating electricity. This technology's use is restricted due to the need for a large amount of water needed to make it viable and the large facilities needed to store the water and generate the hydro-power. Currently, the largest Pumped-Hydro facility in the Eastern U.S. is located on the eastern shore of Lake Michigan. In addition, Northern States Power d/b/a Xcel Energy is testing use of a large battery facility to store power from wind energy for later use. Such batteries are still in the testing stage in the U.S.

Another effect of inadequate transmission capacity is increased cost of power delivered on the system. When there is not enough transmission capacity, certain paths on the system become congested, causing operators of the electric system to decrease the amount of electricity produced by generators in those areas and increase generation in other areas to make up for the generation that could not be delivered from the congested areas. The entire electric system starts with the least-cost generators, adding power from generators that are increasingly expensive to operate. As a result, when transmission congestion causes adjustments to the generation facilities used to produce power, the cost of power goes up as more expensive generation replaces less expensive generation.

Both of these factors hurt Minnesota's economy. Lapses in power quality and reliability, along with higher costs, could potentially disrupt businesses, industries, hospitals, schools, public services and citizens who depend on computers and other electronics in their day-to-day lives and expect that power costs will be reasonable.

IV. ROLES OF ENTITIES INVOLVED IN TRANSMISSION

Numerous entities affect the design and cost of Minnesota's transmission grid. While Minnesota's electric utilities are certainly involved in these matters, other entities affect the design and cost of the transmission system that serves Minnesota. The following is a list of major players; however, numerous other entities participate in various proceedings regarding transmission.

1. Because transmission lines located outside of Minnesota serve Minnesota customers, the utilities that own those facilities and states that regulate those utilities affect the cost and design of the transmission grid that serves Minnesotans.[5]
2. The Federal Energy Regulatory Commission (FERC)[6] regulates the wholesale rates that utilities charge for transmission service and the type of transmission services provided.
3. The Midwest Independent System Operator (MISO) operates the regional transmission system covering 11 states and the Canadian province of Manitoba.[7] FERC regulates MISO's rates.
4. The North American Electric Reliability Corporation (NERC) works with electric reliability councils and others to develop and enforce electric reliability standards of the transmission system as a whole.
5. The Midwest Reliability Organization (MRO), with members in six states[8] and two Canadian Provinces (Manitoba and Saskatchewan), develops and ensures compliance with regional and international electric standards and performs assessments of the grid's ability to meet demands for electricity.

[5] Similarly, the transmission grid physically located in Minnesota affects the electric service provided outside of Minnesota.
[6] http://www.ferc.gov/about/ferc-does.asp
[7] http://www.midwestmarket.org/page/About%20Us
[8] Minnesota, Wisconsin, Iowa, North Dakota, Nebraska, nearly all of South Dakota.

6. The Organization of MISO States (OMS) analyses and makes recommendations to MISO and to FERC regarding matters that affect regional transmission issues.
7. The Minnesota Public Utilities Commission requires Minnesota utilities to develop sufficient transmission to serve load and regulates the amounts of costs that Minnesota's investor-owned utilities charge to their retail customers for transmission. While the Minnesota Commission does not regulate the wholesale rates that Minnesota's investor-owned utilities charge to wholesale customers, the Commission does ensure that these utilities allocate transmission costs appropriately at the retail level, considering facts pertaining to retail customers.
8. The Division of Energy Resources investigates matters before the Commission and makes recommendations. In addition, the Department participates in several efforts by OMS.

Because it is so involved in the operations of Minnesota's electrical system, MISO warrants further discussion. MISO is a Regional Transmission Organization created and regulated by FERC. It is involved in numerous matters that are critical to the reliable and low-cost operation of the transmission system, including planning for contingencies if large generation plants or transmission components fail, conducting engineering analyses of the effects of changes in generation or transmission components on the system as a whole, planning for the transmission needs in the 11-state region, coordinating with other areas of the Eastern Interconnection System, monitoring the day-to-day (and minute-to-minute) operations of the transmission system, operating the system to call on the lowest cost generation facilities to operate, operating the system to address the effects of congestion on the transmission system, analyzing where the greatest congestion exists and so forth. The Department and Commission Staff participate in various MISO committees.

V. DETERMINING HOW MUCH TRANSMISSION IS ENOUGH

A. MINNESOTA'S TRANSMISSION SYSTEM

When the majority of Minnesota's current transmission system was built, home computers were unheard of, air conditioners were few, and many current plug-in appliances would have been mentioned only in science fiction. Today's power grid was largely built between 30 and 70 years ago. The transmission facilities were sized to meet the then-current electricity needs of the population and economy of the day plus some assumptions for growth based on what was known at that time. For example, facilities built in the 1940s were first sized to meet the demands of that era – electric lights to small houses, street or yard lights, plus power to radios, a few kitchen appliances and that new innovation, the television and secondarily sized to meet needs forecasted in the coming decade or so. Facilities built during the late 1970s and early 1980s were sized to provide (to a much larger population) electric lights to larger houses, street, traffic and (rural) yard lights, electric heating (during the "energy crisis" of the late 1970s), radios, stereos and televisions, clothes washers and dryers, major and small kitchen appliances including that new innovation, the microwave oven. Again, they were also sized so that the system could meet needs well into the future. However, the future-needs sizing was primarily designed to make room for more consumers; it was certainly not known at that time that households would have

home computers and the myriad other ways to use electricity in their homes and businesses which Minnesotans now enjoy.

While Minnesota's transmission system was previously built with more capacity than was immediately needed, Minnesota has been outgrowing its system, and the system has been aging. By the late 1990s, new housing continued to grow larger, households commonly had multiple televisions along with all of the other electric devices, and personal computers were readily available and in day-to-day use. And today, in addition to all of the items listed before, Minnesotans now have a tremendous number of new appliances that are using electricity twenty-four hours a day – for example, cable television converter boxes, DVRs, clocks, and gaming systems left plugged in. In addition, the number of computers used in a household and the size of televisions have negated some of the efficiency increases gained in refrigerators, dishwashers, and water heating. Finally, the number of devices requiring charging – cell phones, laptop computers, and portable music devices – has exploded. Use of electricity to power vehicles looms on the horizon as yet another way to use electricity, creating more demand on the electric grid.

More transmission has been added and more will be needed. Moreover, Minnesota customers and industry need not only electricity, but also acceptable power quality, meaning evenly delivered power without power surges and other fluctuations that can impact computers and other sensitive electronic devices. The lack of available space on the grid also means that there are some locations in the state where power quality may soon become unacceptable. Further, in some Minnesota locations too much electricity is trying to flow on the lines causing "grid lock," and reliability problems in making sure the power can be delivered where it is needed.

Determining the amount of transmission infrastructure needed requires balancing the risks of building too much transmission or too little; however, the risks are not symmetrical. If too much transmission capacity is built, the system will be reliable but will cost more than is necessary to provide adequate service. However, if too little capacity is built, the cost of electricity may be cheaper but the costs to Minnesota's economy for power that is not reliable may be far greater than the cost of building transmission. As noted above, these costs may include lost productivity, damage to security systems, damage to computer systems and other effects.

To account for this asymmetry of impacts on cost and reliability, it is important to plan to meet not only the expected demand for power but also the demand for relatively high amounts of power along with growth in the demand for power over at least the number of years that it takes to build new transmission lines, from planning, through engineering analysis, working with landowners and erecting the lines.[9]

Distributed generation also has a role in ensuring reliable power, particularly when such resources are relatively low cost and are located in areas where such resources can address congestion on the transmission system.

[9] Utilities have demand-side management tools to reduce demand on the system at peak times.

The goal is to have a system that is ready to handle the demand for power and allow for growth in the economy. If the transmission system were planned assuming that demand for power during a recessionary period would continue in the future, the transmission system would be unable to accommodate recovery and growth in the economy. Even if the transmission system were planned to meet the demand for power during a reasonably healthy point in the business cycle, the transmission system could not accommodate a boom period in the economy. Moreover, if plans for transmission ignore growth in the economy and the demand for power over time, then the transmission system may not be adequate in the future.

The Commission recognized these concepts in its May 22, 2009 Order in the certificate of need proceeding for the transmission capacity expansion project for 2020, or CAPX 2020:

> The fact that demand is less than forecast reflects a variety of factors, including both the current recession and abnormally cold weather. In evaluating the demand for facilities that are expected to last decades, however, the Commission must focus not on current levels of demand – reflecting fluctuations in the economy and weather - but rather on long-term trends.[10]

The Minnesota Court of Appeals affirmed the Commission's decision on June 8, 2010.

Thus, even though Minnesota is still in the process of recovering from the recent recession, once the economy recovers it will be necessary to ensure that the transmission system is ready to meet those needs. Prior to the recession, Minnesota's transmission grid was operating close to its limits with small amounts of unused space on the grid available in some locations to accept new power sources. Fortunately, work has begun to build significant transmission lines that the Minnesota Commission approved for use throughout Minnesota in the CAPX 2020 proceeding noted above. These transmission lines and other facilities (substations, etc.) will help ensure that power is delivered reliably and allow new generation facilities of significant size to connect to these areas of the transmission grid in the future.

Minnesota largely avoided serious problems with its transmission system due to having one of the strongest energy conservation programs in the country.[11] Minnesota's Conservation Improvement Program has, since its inception, conserved enough energy to push back by many years the need for building multiple major electric generation plants by offering industry, business and residents various programs to save energy in their day-to-day operations. As a consequence, while power usage continued to increase due to finding more ways to use electricity in our homes and businesses, the increases were smaller in the 1980s and 1990s than the increases experienced in the 1970s. However, these programs cannot put off addition to transmission indefinitely, particularly when more transmission is needed to accommodate new generation, as discussed below.

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[10] Minnesota Public Utilities Commission's May 22, 2009 Order in Docket No. E017, et. al./CN-06-1115, page 11.

[11] The 2007 Minnesota Legislature greatly strengthened the State's conservation efforts with the passage of the Next Generation Energy Act. Minnesota Statutes section 216B.242 now require utilities to set a goal of achieving energy savings equivalent to 1.5 percent of retail sales each year.

B. FEDERAL ACTIONS IMPACTING MINNESOTA'S TRANSMISSION GRID IN 2011

Additions to transmission are needed not only due to factors in Minnesota, but also due to federal and regional governmental actions directly impacting the use of Minnesota's transmission grid (as well as other states' grids). The 2011 report listed historical developments that have affected Minnesota; the current report discusses several issues with potential effects on Minnesota.

During 2011, several regional or federal issues have affected Minnesota or have the potential to affect Minnesota. This report does not list all of these issues, but the following discusses a few issues briefly.

Multi-Value Transmission Projects: MISO categorizes transmission projects based on their primary purpose: those designed primarily to address reliability issues (Reliability); those designed to offer low cost power into the market (Economic); and those designed to provide generators access to the MISO grid (Generator Interconnection). A project's category determines how its costs are allocated under MISO tariffs. Since the last report, MISO has added a fourth category for projects that address public policy issues, i.e., Multi-Value Transmission Projects. By definition, these are transmission projects with far-reaching effects that merit consideration of costs and benefits beyond one or two entities to a regional scope. When such projects are found to provide value in excess of their costs under a variety of future policy and economic conditions, then the projects may qualify as multi-value projects and their costs are spread more broadly across the entire MISO footprint. For example, Minnesota's Brookings line was approved as a multi-value project. While MISO's MVP tariff filing is in the courts, it is expected that the concept of multi-value projects will continue.

Federal Right of First Refusal: FERC recently issued Order 1000 changed the procedures for building new transmission by taking away incumbent utilities' long-standing right of first refusal (ROFR) to build new transmission lines approved for construction in incumbent utility service areas. FERC did so claiming that the ROFR had become anti-competitive. However, FERC did not require any competitive bidding or further vetting as to which entity would build new transmission lines. In addition, FERC was careful not to tread on the rights of states pertaining to state ROFRs. For example, North Dakota and South Dakota already have laws addressing the ROFR issue in similar but different ways.[12]

While the goal of FERC's Order 1000 is to encourage utilities to build more transmission, application of FERC's Order 1000 in Minnesota may have the opposite effect. It appears to the Department that Minnesota's utilities have been ahead of the curve in sharing information with each other to coordinate and build transmission lines (such as CAPX2020—Docket No. ET2, E002/CN-06-1115—which required significant effort and cooperation among several utilities). FERC's Order 1000 may actually discourage utilities from sharing information since another entity could step in and build lines a utility would like to build. This issue merits further discussion.

[12] See Attachment for the legislation in the two states.

VI. MINNESOTA'S TRANSMISSION SYSTEM – PLANNING FOR THE FUTURE

A. BIENNIAL TRANSMISSION REPORT

Minnesota Statute section 216B.2425 requires utilities that own or operate electric transmission facilities in the state to report by November 1 of each odd-numbered year on the status of the transmission system, including present and foreseeable inadequacies and proposed solutions.

The following utilities jointly issued a biennial transmission report on November 1:

- American Transmission Company, LLC
- Dairyland Power Cooperative
- East River Electric Power Cooperative
- Great River Energy
- Hutchinson Utilities Commission
- ITC Midwest LLC
- L&O Power Cooperative
- Marshall Municipal Utilities
- Minnesota Power
- Minnkota Power Cooperative
- Missouri River Energy Services
- Northern States Power Company d/b/a Xcel Energy
- Otter Tail Power Company
- Rochester Public Utilities
- Southern Minnesota Municipal Power Agency
- Willmar Municipal Utilities

These utilities also jointly maintain the following website providing information about transmission planning and projects: http://www.minnelectrans.com.

The 2011 Biennial Transmission Report indicates that Xcel, Minnesota Power and ITC Midwest have plans to file certificates of need over the next year.

Detailed information (including maps) on all transmission actions is broken down into six geographic zones of the state: Northeast, Northwest, West Central, Twin Cities, Southwest and Southeast. The transmission-owning utilities operating in six geographical zones put that zone's report together. The six zones in the state are shown in the map below.
The transmission owning utilities in each region are:

1. Northwest Zone – Great River Energy, Minnkota Power Cooperative, Missouri River Energy Services, Otter Tail Power company and Xcel Energy
2. Northeast Zone – American Transmission Company, LLC, Great River Energy, Minnesota Power and Xcel Energy

3. West Central Zone – Great River Energy, Hutchinson Utilities Commission, Missouri River Energy Services, Otter Tail Power Company, Willmar Municipal Utilities and Xcel Energy
4. Twin Cities Zone – Great River Energy and Xcel Energy
5. Southwest Zone – ITC Midwest LLC, East River Electric Power Cooperative, Great River Energy, L&O Power Cooperative (headquartered in Iowa), Marshall Municipal Utilities, Missouri River Energy Services, Otter Tail Power Company and Xcel Energy
6. Southeast Zone – Dairyland Power Cooperative, Great River Energy, ITC Midwest LLC, Rochester Public Utilities, Southern Minnesota Municipal Power Agency and Xcel Energy


KITTSON
ROSEAU
LAKE OF THE WOODS
MARSHALL
Northwest Zone
KOOCHICHING
PENNINGTON
BELTRAMI
RED LAKE
COOK
LAKE
POLK
CLEARWATER
ITASCA
ST LOUIS
Northeast Zone
NORMAN
MAHNOMEN
HUBBARD
CLAY
BECKER
CASS
AITKIN
WADENA
CROW WING
CARLTON
WILKIN
OTTER TAIL
PINE
TODD
MILLE LACS
DOUGLAS
GRANT
MORRISON
KANABEC
BENTON
TRAVERSE
STEVENS
STEARNS
SHERBURNE
ISANTI
CHISAGO
BIG STONE
POPE
West-Central Zone
ANOKA
SWIFT
KANDIYOHI
MEEKER
WRIGHT
WASHINGTON
CHIPPEWA
HENNEPIN
LAC QUI PARLE
McLEOD
CARVER
Twin Cities Zone
YELLOW MEDICINE
RENVILLE
SCOTT
DAKOTA
SIBLEY
RICE
GOODHUE
LINCOLN
LYON
REDWOOD
NICOLLET
LE SUEUR
WABASHA
Southwest Zone
BROWN
PIPESTONE
MURRAY
COTTONWOOD
WATONWAN
BLUE EARTH
WASECA
STEELE
DODGE
OLMSTED
WINONA
Southeast Zone
ROCK
NOBLES
JACKSON
MARTIN
FARIBAULT
FREEBORN
MOWER
FILLMORE
HOUSTON

Although most of the smaller transmission fixes are planned for the years 2011-2016, some information on transmission upgrades planned for 2020-2026 is included along with pertinent assumptions and other data on the needs and timing of these longer-range projects. In addition, the Minnesota transmission owners are actively participating in the longer-range regional transmission planning efforts currently underway which should inform their own Minnesota longer-range planning efforts in the future.

B. RENEWABLE ENERGY STANDARD TRANSMISSION STUDY

Utilities are also required to estimate how many megawatts of renewable generating capacity they will require beyond what is presently available to meet an upcoming milestone of the Minnesota Renewable Energy Standard (RES). As of 2011, utilities are in compliance with present standards and expect to have enough generation and transmission to meet RES milestones through 2016. Thus it appears that no significant additional transmission investment is required for the RES in the near future. However, there may be a need for new transmission by 2020.

VII. CHALLENGES TO TRANSMISSION PLANNING –POTENTIAL IMPACTS TO MINNESOTA

A. NEW TRANSMISSION PROJECTS RAISE CONCERNS ABOUT LAND USE AND LAND RIGHTS

In the last few years, a number of energy entities, including natural gas pipeline, electric utilities, and ethanol plants, have sought approval to construct new energy projects in Minnesota. Since the siting process in Minnesota mandates a number of public meetings and hearings as well as other outreach efforts to potentially impacted residents and landowners, the laws and issues regarding land rights and land use are also receiving close scrutiny. In addition to wanting to know what benefit their area or the State would derive from the project, landowners and other impacted citizens naturally want to know what their rights are regarding such projects impacting their land so they may be assured that their rights are not infringed upon during the process.

To date, answers to impacted citizens and landowners have been identified during the regulatory processes. The answer to "what benefit does this project have for my area or my State" is a key question that is addressed in the State's Certificate of Need process (Minn. Stat. § 216B.243) and land rights questions are addressed in various parts of Minnesota's statutes. However, the questions may get harder to answer if large regional or national transmission projects come to fruition as a result of regional and national planning efforts noted in this report. Also, issues surrounding land rights and land use may be affected as to whether future projects continue under state jurisdiction or are preempted by the federal government.

B. COST RESPONSIBILITY FOR MITIGATIONS

As utilities build more energy infrastructure, state regulators need to ensure that utilities use cost discipline as they construct new resources. To encourage cost discipline and prevent ratepayers

from paying more than is reasonable for new utility infrastructure, at a minimum, a utility must justify any cost recovery above the amount the utility originally indicated that the project would cost. This focus on cost discipline is important since decisions to approve or deny a project are often based on cost *estimates.* Consequently, it is important to minimize errors in estimation to avoid ill-informed decisions from being made that would result in higher system costs than necessary.

When utilities install infrastructure in an area, there are always mitigation measures employed to address local concerns. Thus, it is important to ensure that decisions made by a utility on behalf of local governments reasonably consider the cost implications noted above. Further, it is important that costs of any significant upgrades are equitably allocated to ratepayers, based on ratemaking principles such as cost-causation, cost minimization and administrative feasibility. Discussions about such issues are likely to occur in the future.

C. FEDERAL VS. STATE JURISDICTION OVER TRANSMISSION SITING AND CONSTRUCTION AND THE THREAT OF FEDERAL PREEMPTION

The federal government "opened up" the interstate electric transmission grid in the 1990s. Certain eastern States challenged the federal government's jurisdiction over interstate electric transmission lines.[13] The challenge went to the U.S. Supreme Court which upheld that FERC does, indeed, have legal and regulatory jurisdiction over electric lines used for interstate commerce (States retain jurisdiction over small power lines that distribute power directly to retail electric customers.) After the Supreme Court reached its verdict, FERC issued a policy statement saying that it would not "preempt" state regulation of transmission lines as long as transmission service is not detrimentally impacted by state actions. However, when the federal approach of one-size-fits-all has not worked for Minnesota, the Department and Commission have advocated for the interests of Minnesota.

Also, in the 2000s, Congress stepped up federal jurisdiction over electric transmission lines in a slightly different way by enacting a law that provides the Department of Energy with the ability to designate "energy corridors" across states which would mean, among other things, that any transmission siting within a designated energy corridor would automatically go through federal, versus state, siting processes. Wind developers and states to the west of Minnesota, with an eye to selling electricity to eastern markets, proposed to the Department of Energy that it designate energy corridors across Minnesota. The Department of Energy did not take such designation actions but left the door open for later designations. Overall, the Department of Energy has not been particularly active in terms of naming many new corridors. Instead, the Department of Energy provided federal grants to the States and regional grid operators to engage and collaborate in transmission planning across the U.S.[14]

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[13] See New York, et al. v. FERC, et al. and Enron Power Marketing, Inc. v. FERC for further details.

[14] Further discussion on these efforts is discussed in the section entitled "National Transmission Planning Including and Impacting Minnesota."

D. ALLOCATING THE COSTS OF NEW TRANSMISSION PROJECTS POSES MAJOR CHALLENGES

In every business transaction, some of the bottom-line questions are naturally, "Who will use it or benefit from it and how much will it cost?" From the answers to those questions, the logical next step is to look to charging the cost of "it" to those who use it or benefit from it. What seems like a fairly straight-forward concept is anything but straight forward when the "it" in question is a package of large interstate, interconnected transmission lines costing billions of dollars. The "how much will it cost" question is answered, but the "who will use it or benefit from it" question becomes elusive, albeit important, because of the myriad uses and benefits to different parties that any new transmission line can provide to an integrated grid from moment to moment every day. Deciding who pays for transmission is one of the largest challenges facing the states, utilities and the grid operator, which in turn affects all those who use electricity. Not only are the answers very difficult to find, but even more so, whatever answers are found are not agreed to by all parties. The controversy in these questions is probably the core challenge facing all of the regional and national planning processes discussed below. It also is a core challenge for project proposers because transmission proposers and investors are naturally reluctant to move forward with transmission construction until they have some answers on how they will be able to recoup their investment from those who use or benefit from the new project.

VIII. FEDERAL LAW AND POLICY DEVELOPMENTS EXPECTED TO IMPACT STATE, REGIONAL AND NATIONAL GENERATION AND TRANSMISSION PLANNING AND MINNESOTA

The rules of Environmental Protection Agency regarding Power Plant Emissions have been released and are being studied and debated. The rules are expected to have significant effects on the configuration of the integrated electrical system. However, because each utility needs to study its own system and assess the plans of neighboring utilities, it will be difficult to know with certainty how each utility will respond.

IX. SUMMARY AND CONCLUSIONS

In summary:

- Electricity has become increasingly important in Minnesota homes and businesses.
- Minnesotans and the economy depend on reliable power every day.
- Despite the fact that we are using the transmission system in a highly efficient manner, our use of electricity has strained the transmission grid which was not designed for the purposes for which it is currently being used and expected to be used in the future as we find more ways to use electricity.
- The functional control of the electric transmission grid providing services in Minnesota is under the authority of a Regional Transmission Organization (i.e., MISO) which operates the grid to achieve regional coordination and efficiency.
- For these reasons, the time has come to enhance the transmission infrastucture.

- The way that we build transmission is affected by state and federal policies, rules and laws facilitating the construction of certain types of generation and transmission and restricting other types of electricity and transmission in the state, region and across the United States.
- Minnesota has been and will be involved in numerous regional and national efforts to ensure that electricity transmission is planned in a reasonable and cost-effective manner for the State's economic future and the needs of its businesses and citizens.

Attachment 1: Laws Passed in North Dakota and South Dakota Pertaining to State Right of First Refusal for Transmission Lines

North Dakota
PUBLIC UTILITIES

Notwithstanding any ~~of the foregoing provisions~~ other provision of this section, the commission may grant a certificate if ~~no~~ an interested party, including any local electric cooperative, has not requested a hearing on ~~said~~ an application after receiving at least twenty days' notice of opportunity to request such hearing. In addition, the commission may not issue a certificate to an electric transmission provider for construction or operation of an electric transmission line that will interconnect with an electric transmission line owned or operated by an electric public utility if the electric public utility is willing and able to construct and operate a similar electric transmission line.[15]

South Dakota

49-32-20. Right of incumbent electric transmission owner to construct and own electric transmission line to electric facilities--Notice--Permit application. Any incumbent electric transmission owner may construct, own, and maintain an electric transmission line that connects to facilities owned by the incumbent electric transmission owner. The right to construct, own, and maintain an electric transmission line that connects to facilities owned by two or more incumbent electric transmission owners belongs individually and proportionally to each incumbent electric transmission owner, unless otherwise agreed in writing. If an electric transmission line has been approved for construction in a federally registered planning authority transmission plan, the incumbent electric transmission owner may give notice to the commission, in writing, within ninety days of approval, of its intent to construct, own, and maintain the electric transmission line. If no notice is provided, the incumbent electric transmission owner shall surrender its first right to construct, own, and maintain the electric transmission line. Within eighteen months after the notice, the incumbent electric transmission owner shall file an application for a permit in accordance with chapter 49-41B.
Source: SL 2011, ch 208, § 3.

[15] CHAPTER 346, SENATE BILL NO. 2322 (Senators Klein, Krebsbach, Robinson); (Representatives Delmore, Keiser, Thoreson). Modifying: 49-03-02. Prerequisites to issuance of certificate of public convenience and necessity.