

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Great River Energy, Northern States Power Company (d/b/a Xcel Energy) and others for Certificates of Need for the Cap X 345-kV Transmission Projects.

PROPOSED FINDINGS OF FACT
CONCLUSIONS OF LAW AND
RECOMMENDATIONS OF
CITIZENS ENERGY TASK FORCE

Citizens Energy Task Force does not object to the introductory paragraphs on hearings and appearances contained in first two pages of Applicants' Findings of Fact.

STATEMENT OF ISSUE

Should the Public Utilities Commission ("Commission") grant certificates of need to Applicants Xcel Energy and Great River Energy for any or all of the three CapX2020 high voltage transmission projects and, if so, should any such certificates be contingent on conditions set by the Commission?

RECOMMENDATIONS

1. That the Commission conclude that relevant statutory and rule criteria necessary to obtain Certificates of Need apply differently to each of the three discrete CapX2020 Projects that are the subject of this Application – the Twin Cities –La Crosse, Wisconsin 345 kV Project ("La Crosse Project"), the Fargo, North Dakota – Twin Cities 345 kV Project ("Fargo Project") and the Brookings, South Dakota – Twin Cities 345 kV Project ("Brookings Project").
2. That the Commission grant and deny Certificates of Need to Applicants on behalf of themselves and the participating CapX2020 utilities as follows:
 - A. Deny Certificates of Need for the proposed La Crosse Project.
 - B. Grant a Certificate of Need for a segment of single-circuit 345 kV transmission from the existing Monticello substation to a new Quarry substation near St. Cloud to address community reliability needs in the St. Cloud area.
 - C. Deny Certificates of Need for the balance of the Fargo Project proposed to extend from the new Quarry substation to a new substation in the Alexandria, Minnesota area and then to the existing Maple River station in the Fargo, North Dakota area.

D. Grant Certificates of Need for the Brookings Project as proposed in the Application for certificates of need. Said certificates of need shall be conditioned on compliance with conditions specified herein to ensure that the project provides at least 700MW of generation outlet capacity for renewable energy and supports community-based energy development:

- (1) Applicants must sign power purchase agreements (“PPAs”) with wind developers and/or commit to utility-owned wind energy projects for a minimum of 700MW of wind energy on the Buffalo Ridge and/or in other areas served by the Brookings Project no later than two years prior to the in-service date of the Brookings Project and must timely seek Commission or other regulatory approval within a time frame permitting approval within 6 months after this signing/commitment date.
- (2) Applicants must verify the renewable generation capacity of the Brookings Project within 60 days of obtaining certificates of need and disclose this verified generation capacity and how they plan to allocate its capacity in a compliance filing. Applicants’ verified generation capacity may not fall below 700MW.
- (3) Applicants must install a total of 700MW or the verified generation capacity determined in condition (2) on the Buffalo Ridge and/or in other areas served by the Brookings Project by the time the Brookings Project transmission lines become operational.
- (4) Applicants must make Transmission Service Requests (“TSRs”) for network (firm) service to the Midwest Independent Transmission System Operator (“MISO”) for at least 700MW of wind energy as soon as permissible under the MISO Transmission and Energy Markets Tariff (“TEMT”) and obtain for utility-owned projects or cooperate with generators to obtain timely MISO interconnection service.
- (5) Applicants must designate the new wind resources required under these conditions as Network Resources pursuant to the MISO TEMT as soon as such designation may appropriately be made.
- (6) Applicants must make timely compliance filings if additional planned transmission improvements or generation additions subsequent to the verification in condition (2) will affect generation outlet capacity from the Buffalo Ridge and/or in other areas served by the Brookings Project.

3. That the Commission determine that any certificates of need in this matter be further conditioned on compliance with the following conditions:

- A. Applicants must purchase at least 300MW of dispersed C-BED prior to December

31, 2012 if viable C-BED projects are available at reasonable market rates. Applicants must cooperate to facilitate access to transmission for dispersed C-BED projects and must designate the new C-BED projects required under this condition as Network Resources pursuant to the MISO TEMT as soon as such designation may appropriately be made.

- B. Applicants must make compliance filings with the Commission demonstrating (1) their progress in implementing the requirements of the conditions in paragraphs 2.D regarding the Brookings Project and 3.A. regarding C-BED; (2) The degree to which utility-owned projects will be used to meet the conditions in paragraph 2(D); (3) the allocation among the utilities of the responsibilities for compliance with the conditions.
- C. Applicants must disclose ownership interests in the CapX2020 projects and obtain approval prior to transfer of ownership interests as follows:
 - (1) Applicants must make a compliance filing to inform the Commission and parties of the final ownership interests of all participating utilities designated in the Project Development Agreements contained in the Application, once ownership shares among the participating utilities have been allocated, along with an explanation of the financial implications of those ownership shares to that utility's ratepayers.
 - (2) Prior to sale, transfer or allocation of any ownership interest in any CapX2020 Project to an entity other than a participating utility, Applicants must notify the parties and obtain Commission approval of such proposed arrangement.
- D. Applicants shall make a compliance filing of any proposed changes at the regional or federal level that could affect the conditions imposed by the Commission.

7. That the Commission require that Applicants minimize the environmental, economic and human health impacts of any CapX2020 transmission lines by means such as routing power lines away from residential areas and farms, requiring construction and materials handling practices to minimize corona, and using any other practical means to reduce noise and exposure to electric and magnetic fields.

FINDINGS OF FACT

I. PARTIES

The Citizens Energy Task Force ("CETF") has proposed text to describe its own party status and modify Applicants' description of the application for Certificate of Need. In this section, where CETF does not object to Applicants' Proposed Findings the words "no change" are provided, and where changes are minor, they are indicated with underlining or strike-outs.

1. No change
2. No change
3. Applicants have jointly applied for Certificates of Need to construct three 345 kV transmission line projects with associated system connections. Applicants have asserted that these projects are needed to improve regional transmission system reliability, enhance community service and to increase generation outlet capacity, particularly for renewable energy.¹

3A. Citizens Energy Task Force (“CETF”) is a public interest group of citizens, founded by residents of Dakota County, Minnesota, many of whom received notice that the proposed CapX2020 transmission lines would directly impact their property. CETF intervened to protect their members and members of the public from adverse effects of the projects and to prevent the CapX2020 projects from supporting coal energy, rather than sustainable wind energy.² CETF has asserted that Applicants have not met their burden of proof regarding the CapX2020 projects, that the CapX proposal is not an economically rational plan to address energy needs and transmission infrastructure, and that an approach relying more on conservation, local generation, lower voltage transmission and renewable energy and less on bulk power transfer over high voltage power lines would be more cost-effective and more consistent with Minnesota policy.³

II. PROCEDURAL SUMMARY

CETF accepts many of the Applicants’ Procedural Summary Findings of Fact; these are identified with the phrase “no change.” Explanations for modifications in Procedural Findings are provided in footnotes.

4. No change.
5. No change.
6. No change.
7. No change.
8. On February 5, 2007, Applicants submitted a Request for Exemption from Certain Certificate of Need Application Content Requirements pursuant to Minn. R. 7849.0200, subp. 6.⁴
9. The Request for Exemption also asked that Xcel Energy and Great River Energy be Applicants on behalf of themselves and the other CapX2020 utilities and that the

¹ Clarifies that there are three separate projects and Applicants’ assertions of need.

² Motion to Intervene of Citizens Energy Task Force.

³ Ex. 166, pp. 4,7-8, 9-10, 17 (Kildegaard Direct).

⁴ These disputed matters were decided by the Commission and were not part of the contested case before the ALJ. Permitting each party to restate their arguments made to the Commission would be cumbersome and would not enhance the quality of the decision in this matter.

Commission not require that ownership of the transmission facilities be determined prior to receiving certificates of need.

10. No change.
11. No change.
12. No change.
13. No change.
14. No change.
15. No change.
16. No change.
17. No change.
18. No change.
19. No change.
20. No change.
21. No change.
22. No change.
23. No change.
24. No change.
25. No change.
26. No change.

27. On January 3, 2008, ALJ Heydinger issued the first prehearing Order (“January 3, 2008 Prehearing Order”) setting the schedule and parameters for the contested case. The January 3, 2008 Prehearing Order granted the Petitions for Intervention of UCAN, NAWO/ILSR and the Prairie Island Indian Community; established June 27, 2008, as the deadline for a party to intervene; established April 15, 2008, as the deadline to intervene for a party that wanted to call witnesses at the Evidentiary Hearing; established March 31, 2008, as the deadline for completing the Environmental Report; established April 30, 2008, as the deadline for filing Direct Testimony; established May 30, 2008, as the deadline for filing Rebuttal Testimony; established June 13, 2008, as the deadline for filing Surrebuttal Testimony; determined that public hearings would be held from June 16-27, 2008; determined that the Evidentiary Hearing would be held from July 7 – August 1, 2008; established August 8, 2008, as the deadline for written public comment; established September 5, 2008, as the deadline for Applicants to file their Post-Hearing Brief; established October 5, 2008, as the deadline for parties to file Responsive Briefs; established October 19, 2008, as the deadline for filing Reply Briefs; and noted that the parties have concurred with this schedule and agree that, in light of the size of the project, there is good cause to extend the timeline for the Commission’s action on the Application beyond November 27, 2008, as permitted pursuant to Minn. Stat. § 216B.243, subd. 5.⁵

28. No change.
29. No change.
30. No change.
31. No change.

⁵ Adds the initial deadline set for public comment and concurrence of the parties that extension of timelines is required due to the size of the projects.

- 32. No change.
- 33. No change.
- 34. No change.
- 35. No change.
- 36. No change.
- 37. No change.
- 38. No change.
- 39. No change.
- 40. No change.

41. On April 22, 2008, the ALJ issued an Order Granting Intervention to Citizens Energy Task Force and Midwest ISO, Staying Deadline to File Direct Testimony and Scheduling Pre-Hearing Conference.⁶

- 42. No change.
- 43. No change.
- 44. No change.
- 45. No change.
- 46. No change.

47. Proposed modification. From June 17, 2008, to July 2, 2008, nineteen public hearings were held at thirteen separate locations throughout the State in communities in the areas where the three proposed 345 kV Projects are proposed to be located. Public hearings were held in the following Minnesota locations: Moorhead, Fergus Falls, Alexandria, Melrose, Clearwater, Marshall, Redwood Falls, Arlington, New Prague, Lakeville, Cannon Falls, Winona, and Rochester. No public hearings were held in La Crescent, Minnesota or in La Crosse, Wisconsin.⁷

- 48. No change.
- 49. No change.
- 50. No change.
- 51. No change.
- 52. No change.
- 53. No change.
- 54. No change.

55. On September 26, 2008, the period for public comments closed. Approximately 220 public comments were received.

56. In the course of public hearings and throughout the public comments period, approximately 230 members of the public presented personal testimony or individual comments opposing the CapX projects, expressing concerns about its adverse

⁶ Clarifies that intervention petitions were granted. Schedules were not set in the April 22 Order; a deadline was stayed and a conference scheduled to review prior schedules.

⁷ Citizens signed a petition requesting a public hearing in La Crescent or La Crosse. Pub. Cmt., filed 8/25/08 (Chippis 8/08/08 petition, #5464471).

environmental, health or cost impacts or suggesting alternative ways to address energy needs, such as conservation, lower voltage transmission, generation located near load and dispersed renewable generation.

III. APPLICANTS' CAPX2020 PROPOSAL

From this point forward, based on the record created in the administrative trial of this matter, CETF proposes a substantially different organization of issues and substantially different Findings of Fact than those proposed by Applicants.

A. Development of CapX2020 Proposal

57. In 2004, Minnesota's largest transmission-owning utilities -- Great River Energy, Minnesota Power, Missouri River Energy Services, Otter Tail Power Company, Southern Minnesota Municipal Power Agency and Xcel Energy -- initiated the CapX2020 project. They acknowledged that the network of transmission lines of 230 kilovolts and higher was adequate to meet current needs. However, they anticipated future growth in demand in Minnesota and the region that would be served by high-voltage transmission expansions.⁸

58. "CapX" in the term CapX2020 stands both for capacity expansion and capital expenditure.⁹

59. The six initial CapX2020 utilities released an interim report in December 2004 and a *CapX 2020 Technical Update: Identifying Minnesota's Electric Transmission Infrastructure Needs* in October 2005, which defined a "vision for transmission infrastructure investments needed in Minnesota through 2020."¹⁰

60. As part of the CapX2020 planning efforts, utility engineers conducted a series of project-specific transmission studies in Minnesota. These three studies, the Southeastern Minnesota and Southwestern Wisconsin Reliability Enhancement Study dated March 13, 2006 (the "Rochester/La Crosse" study), the Red River Valley/Northwest Minnesota Load-Serving Transmission Study dated February 13, 2008 (the "TIPS Update") and the Southwest Minnesota -- Twin Cities EHV Development Electric Transmission Study dated November 9, 2005 (the "EHV" study) provide the basis for the CapX2020 utilities' Application for Certificates of Need for the three 345 kV projects in this proceeding. They are included as appendices to the Application.¹¹

61. On January 1, 2007, nine entities formalized their relationship by signing the CapX2020 Participation Agreement, the purpose of which was to facilitate the

⁸ Ex. 1, App. A-1, p. 1 (Application).

⁹ Tr. V. 6, p. 34, ll. 18-25 (McCarten).

¹⁰ Ex. 1, App. A-1 (Application). This report, contained in Apx. A-1 of the Application is referred to in testimony as the CapX2020 "vision study," the "vision plan" or the "technical update."

¹¹ Ex. 1, App. A-2 (Rochester/La Crosse Study); App. A-3 (TIPS Update); App. A-4 (EHV Study). Ex. 6, p. 18 (Rogelstad Direct).

Participants' pursuit of the goals of the CapX2020 initiative. The following were Participants in agreement: Xcel Energy, Great River Energy, Otter Tail Power Company, Missouri River Energy Services, Midwest Municipal Transmission Group, City of Rochester, Southern Minnesota Municipal Power Agency, Minnesota Power, and Wisconsin Public Power.¹²

62. Midwest Municipal Transmission Group (MMTG) is a consortium of public power entities in the upper Midwest, the members of which propose to turn over control of existing member transmission to the MISO or a sub-regional entity within MISO, such as the TRANSLink independent transmission company.¹³

63. ITC Transmission expressed interest in the CapX2020 Participation Agreement, but has not become a member. ITC is an independent transmission-only company.¹⁴

64. On March 7, 2007, Project Development Agreements (PDAs) were signed for each of the three proposed CapX2020 transmission projects – the La Crosse Project, the Fargo Project and the Brookings Project.¹⁵

65. Pursuant to the PDAs, Xcel Energy and Great River Energy have been named Development Managers to oversee the development of the three CapX2020 projects in this docket; they are joint Applicants in this proceeding as part of their role as Development Managers.¹⁶

66. The PDAs also identify the entities entitled to own a percentage share of the CapX2020 projects. Currently, each of the entities with an ownership option for the projects is a utility: Central Minnesota Municipal Power Agency (Brookings Project); Dairyland Power Cooperative (La Crosse Project), Great River Energy (Fargo Project, Brookings Project), Minnesota Power (Fargo Project), Missouri River Energy Services (Fargo Project, Brookings Project), Otter Tail Power Company (Fargo Project, Brookings Project), Rochester Public Utilities (La Crosse Project), Southern Minnesota Municipal Power Agency (La Crosse Project), Wisconsin Public Power Inc. (La Crosse Project), Xcel Energy (La Crosse Project, Fargo Project, Brookings Project).¹⁷

67. Since the Participation Agreement and the PDAs were signed, no additional participants have either joined or withdrawn, and there have been no other amendments to either the Participation Agreement or the PDAs.¹⁸

¹² Ex. 1, Apx. B-1, pp. 2, 27 (Application); Tr. V. 6, p. 59, ll. 11-19 (McCarten).

¹³ Information on MMTG is generally available at <http://www.iamu.org/mmtg/faq.htm>.

¹⁴ Tr. V. 6, p. 62, ll. 2-11 (McCarten); Tr. V. 14, pp. 11-12 (Grover, 7/31/08). Applicants' witness David Grover worked for Xcel Energy until May 2008; he now works for ITC Midwest. ITC is also identified in Ex. 61 (MISO Members).

¹⁵ Ex. 1, Apx. B-2, Apx. B-3, Apx. B-4 (Application).

¹⁶ Ex. 64, p. 13 (McCarten Direct).

¹⁷ Ex. 1, Apx B-2, Appendix A; B-3, Appendix A; B-4 Appendix A; Apx. D-5, p. 4 (Application); Tr. V. 6, pp. 65-67 (McCarten).

¹⁸ Tr. V. 6, p. 72-74 (McCarten).

68. At this time, no expected ownership shares are identified for the MMTG, TRANSLink or for any other independent transmission company.¹⁹

69. Each of the CapX2020 Project Development Agreements describes conditions under which transfer of ownership interests is permitted.²⁰

70. There is no requirement in the CapX2020 Project Development Agreements that the entity taking on an investment share of the CapX2020 Projects would have to be a Minnesota utility or even a utility.²¹

71. There is nothing in current Project Development Agreements that would preclude all current participants from selling their rights to ownership of CapX2020 to a third party, including a non-regulated transmission company.²²

72. The CapX2020 projects could be owned by a transmission-only company, such as TRANSLink or ITC.²³

B. La Crosse Project

73. The La Crosse Project proposed by Applicants is an approximately 150-mile long 345 kV transmission line from a proposed new Hampton Corner substation to be located in the southeast quadrant of the Twin Cities area to a new substation that would be built in the La Crosse, Wisconsin area. The Applicants also propose 161 kV transmission lines for the La Crosse Project.²⁴

74. In the event of a “southern crossing” of the Mississippi River for the La Crosse Project at either Winona or La Crescent/La Crosse, Applicants propose that the 345 kV transmission line would extend from a new Hampton Corner substation to a new North Rochester substation, then to the existing Chester substation and then across the Mississippi River to a new substation in the La Crosse area. Applicants also propose that a 161 kV transmission line would extend from the new North Rochester substation to the existing Northern Hills substation located in the Rochester area.²⁵

75. In the event of a “northern crossing” of the Mississippi River for the La Crosse Project at Alma, Applicants propose that the 345 kV transmission line would extend from a new Hampton Corner substation to a new North Rochester substation and then across the Mississippi River at Alma to either a new substation in the La Crosse area or the

¹⁹ Ex. 1, Apx. B-2, Apx. A; Apx. B-3, Appendix A; Apx. B-4 Appendix A; Apx. D-5, p. 4 (Application). Apx. D-5, p. 4 provides an accurate summary of the Appendix tables in each of the three Project Development Agreements. Tr. V. 6, pp. 75-76 (McCarten).

²⁰ Ex. 1, Apx. B-2, p. 20, Apx. B-3, p. 20, Apx. B-4, p. 20 (Application). Tr. V. 6, pp. 91-93 (McCarten).

²¹ Ex. 1, PDAs in Apx. B-2; B-3; B-4 (Application); *see also* Tr. V. 6, pp. 97-98 (McCarten).

²² Tr. V. 6, pp. 98-99 (McCarten).

²³ Tr. V. 14, p. 51, ll. 19-22 (Grover).

²⁴ Ex. 24 (La Crosse Project Southern Chart), Ex. 25 (La Crosse Project Chart); Tr. V. 12, pp. 88-89 (Grivna); Ex. 1, pp. 2.1, 2.2-2.3 (Application).

²⁵ Ex. 24 (La Crosse Project Southern Chart); Ex. 1, p. 2.2 (Application); Tr. V. 12, pp. 88-89 (Grivna).

existing North La Crosse Substation. (The 345kV transmission line would bypass the existing Alma substation.) Applicants also propose that two 161 kV transmission lines would extend from the new North Rochester substation; one would go to the Northern Hills substation and another would be double-strung with the 345kV for part of its route and then would angle south to Chester.²⁶

76. Applicants are seeking certificates of need for the La Crosse Project 345 kV transmission line and the 161 kV transmission lines proposed for both the southern and the northern Mississippi River crossing routes. They are requesting that no decision be made on the location for the Mississippi River crossing in this certificate of need proceeding.²⁷

C. Fargo Project

77. The Fargo Project proposed by Applicants will include a 345 kV transmission line approximately 250 miles long extending from the existing Monticello, Minnesota substation to the existing Maple River substation in the Fargo, North Dakota area. The Fargo Project is proposed to extend through a small substation in the Alexandria area that would be upgraded and a new substation in the St. Cloud area, referred to by Applicants as the “Quarry” substation.²⁸

78. The 230 kV transmission line proposed between Grand Rapids and Bemidji, which was identified in the TIPS Update report to support community reliability needs in the Red River Valley area, is being permitted separately in an uncontested certificate of need proceeding.²⁹

D. Brookings Project

79. The Brookings Project proposed by Applicants is an approximately 200-mile 345 kV transmission line extending from the existing Brookings County substation 5 or 10 miles west of the Minnesota border in South Dakota east across Minnesota to a new Hampton Corner substation to be located in the southeastern portion of the Twin Cities. The Brookings Project extends through the existing Lyon County and Franklin substations, a proposed new Helena substation, and the existing Lake Marion substation before terminating at the proposed new Hampton Corner substation.³⁰

80. As proposed in the Application, the segments of the 345 kV transmission line from Brookings County to Lyon County would be single-circuited, the segments from Lyon County to Franklin County and then to the proposed new Helena substation would

²⁶ Ex. 25 (La Crosse Project Chart); Ex. 1, p. 2.3 (Application); Tr. V. 12, pp. 88-89 (Grivna).

²⁷ Ex. 121, pp. 11-12 (Grivna Rebuttal).

²⁸ Ex. 22 (Fargo Project Chart); Tr. V. 12, p. 85, ll. 5-19 (Grivna); Ex. 1, pp. 2.1, 2.5 (Application).

²⁹ *In the Matter of the Application of Otter Tail Power Co., Minn. Power and Minnkota Power Coop., Inc. for a 230 kV Transmission Line From Bemidji to Grand Rapids, Minn.*, MPUC Docket No. ET-6/CN-07-1222; Ex. 1, Apx. A-3, p. 31 (Application).

³⁰ Ex. 23 (Brookings Project Chart); Tr. V. 11, p. 46, ll. 6-24 (Alholinna); Tr. V. 12, pp. 86-87 (Grivna); Ex. 1, p. 2.1 (Application).

be double-circuited and the segments from the new Helena substation to Lake Marion and then to the new Hampton Corner substation would be single-circuited 345 kV line.³¹

81. The segments of the Brookings Project that were originally proposed to be double circuited were designed with reference to the Dorsey problem to reduce impedance and inadvertent power flow.³²

82. In addition to the 345 kV line from Brookings County to the Twin Cities area, the Application also proposed a 35-40 mile transmission line from the Lyon County substation in Marshall, Minnesota northeast to the Hazel Creek substation and then a 10-mile transmission line to the Minnesota Valley substation.³³ The Hazel Creek substation, is scheduled to be built as part of the Buffalo Ridge Incremental Generation Outlet (“BRIGO”) projects.³⁴

83. Both the Hazel Creek and the Minnesota Valley substations are located in the Granite Falls area, and the Big Stone II transmission project is proposed to interconnect at either or both of these Granite Falls substations.³⁵

84. The Applicants initially proposed that the transmission line segment from the Lyon County substation to the Hazel Creek substation be constructed as a 345 kV single circuit line and that the transmission line segment from Hazel Creek to the Minnesota Valley substation be constructed as a 230 kV single circuit line.³⁶

E. Original Project Costs

85. In the Rochester/La Crosse study, when the costs of the proposed 345 kV La Crosse Project were compared to lower voltage alternatives to meet projected community reliability needs, the total estimated project costs were \$191 million.³⁷

86. As proposed in the Application, the La Crosse Project was estimated to cost from \$330-360 million.³⁸

87. As proposed in the Application, the Fargo Project was estimated to cost from \$390-560 million. The low end of the range assumes a 210-mile route built on a new transmission corridor, while the higher end of the range assumes a 270-mile route with substantial double circuiting with existing transmission lines.³⁹

³¹ Ex. 23 (Brookings Project Chart); Ex. 1, p. 2.7-2.8 (Application); Tr. V. 12, pp. 86-88 (Grivna).

³² Tr. V. 19, pp. 112-113 (Schedin).

³³ Ex. 23 (Brookings Project Chart); Ex. 1, pp. 2.7-2.8 (Application).

³⁴ Tr. V. 12, p. 86 (Grivna). Order Granting Certificate of Need, *In the Matter of the Application for Certificates of Need for Three 115 kV Transmission Lines in Sw. Minn.*, MPUC Docket No. E-002/CN-06-154 (September 14, 2007).

³⁵ Ex. 20, p. 41 (Big Stone II ALJ Recommendation); Ex. 28 (Big Stone II Map).

³⁶ Ex. 23 (Brookings Project Chart).

³⁷ Ex. 1, Apx. A-2, pp. 5, 145 (Application).

³⁸ Ex. 1, p. 1.17 (Application).

³⁹ Ex. 1, p. 1.17; Ex. 88, p. 4 (Stevenson Rebuttal).

88. As proposed in the Application, the Brookings Project was estimated to cost from \$660 million to \$665 million.⁴⁰ The low cost estimate is based on the general idea of a straight route, the high cost on a longer route; with fifteen percent added to mileage costs.⁴¹

89. In addition to the above costs, the Application estimates that CapX2020 Projects as a whole would require from \$70 to \$100 million in lower voltage upgrades.⁴²

90. Costs for the CapX2020 power lines are estimated based on \$595,000 per mile for a single circuit 161 kV transmission line, \$1,109,000 for a single circuit 345 kV line, and \$1,880,000 for a double circuit 345 kV power lines.⁴³

91. Applicants propose to use single steel pole structures for construction of the CapX2020 projects.⁴⁴ The structures in Figure 2-7 of the Application will be used for 345 kV single circuit transmission and those in Figure 2-5 for 345 kV double circuit lines.⁴⁵

92. At river crossings, corners and every five miles or so, Applicants will use mechanically more robust structures with thicker steel plate and a wider configuration, such as an H-Frame structure.⁴⁶

93. Applicants did not include costs for undergrounding for any segment of the CapX2020 project.⁴⁷

F. Upsizing

94. In pre-filed testimony, Office of Energy Security (“OES”) witness Steve Rakow recommended that the Fargo Project be “upsized” from a 345 kV line to a 500 kV line.⁴⁸ OES did not recommend any 500 kV transmission line “upsizing” for either the Brookings Project or the La Crosse Project.⁴⁹

95. Ultimately, the OES withdrew the proposal that the Fargo Project be “upsized” to 500 kV.⁵⁰ No parties are requesting that any portion of any CapX2020 Project be “upsized” to a voltage exceeding 345 kV.

⁴⁰ Ex. 1, p. 1.17 (Application).

⁴¹ Tr. V. 11, pp. 127-129 (Lennon).

⁴² Ex. 1, pp. 1.17, 2.19 (Application); Tr. V. 8, pp. 142-143 (Stevenson).

⁴³ Ex. 177, pp. 12a, Table 3a (Schedin Direct), Tr. V. 8, p. 41, ll. 10-12, p. 50, ll. 9-21 (Stevenson).

⁴⁴ Tr. V. 8, p. 44, l. 15 (Stevenson); Tr. V. 11 p. 99, ll. 11-15 (Lennon); Ex. 116, p. 6 (Lennon Direct).

⁴⁵ Tr. V. 11, p. 121, ll. 1-12 (Lennon); Ex. 1, pp. 2.13, Figure 2-7, 2.12, Figure 2-5 (Application).

⁴⁶ Tr. V. 11, pp. 121-123(Lennon).

⁴⁷ Tr. V. 11, p. 120 (Lennon).

⁴⁸ Ex. 282, pp. 20-21, 74-75 (Rakow Direct).

⁴⁹ Ex. 282, pp. 80-82 (Rakow Direct).

⁵⁰ Ex. 307, p. 21 (Rakow Surrebuttal); Ex. 308, p. 5 (Rakow Opening Statement); Tr. V. 24, p. 149, ll. 7-11 (Rakow).

96. In prefiled testimony, Joint Intervenors witness Larry Schedin suggested that the Fargo Project be “upsized” to a double circuit 345 kV line.⁵¹ Mr. Schedin did not recommend any additional double circuit 345 kV line “upsizing” for the Brookings Project and did not recommend double circuit 345 kV line “upsizing” for the La Crosse Project.⁵²

97. Ultimately, Mr. Schedin and Joint Intervenors withdrew the proposal that the Fargo Project be “upsized” to a double circuit 345 kV line.⁵³

98. The Applicants’ current proposal is to “upsize” all of the single circuit 345 kV lines proposed in the La Crosse, the Fargo and the Brookings CapX2020 345 kV Projects to a “double-circuit compatible” configuration.⁵⁴

99. Applicants currently also propose that the 10-mile single-circuit 230 kV transmission line between the Hazel Creek and Minnesota Valley substations of the Brookings Project be upsized to a “double circuit compatible” 345 kV configuration, but operated at 230 kV.⁵⁵

100. The 345 kV “double-circuit compatible” configuration proposed by Applicants would be built on single pole structures sufficient to accommodate a second 345 kV circuit at some future date, but Applicants would only string the first circuit now with the second circuit to be strung at some future date.⁵⁶

101. Applicants have acknowledged that a certificate of need or regulatory proceeding would be required before a second circuit could be approved.⁵⁷

102. The Applicants’ upsizing proposal for the La Crosse Project was estimated in prefiled testimony to cost from \$390-410 million.⁵⁸ More recently, Applicants have estimated the cost of the upsizing proposal for the La Crosse Project at \$389-432 million.⁵⁹

103. The Applicants’ upsizing proposal for the Fargo Project is estimated to cost from \$500-640 million.⁶⁰

104. The Applicants’ upsizing proposal for the Brookings Project is estimated to cost from \$654 million to \$725 million.⁶¹

⁵¹ Ex. 177, p. 23 (Schedin Direct).

⁵² Ex. 177, p. 21 (Schedin Direct).

⁵³ Ex. 199, p. 5 (Schedin Surrebuttal).

⁵⁴ Ex. 22 (Fargo Project Chart); Ex. 23 (Brookings Project Chart); Ex. 24 (La Crosse Project Southern Chart); Ex. 25 (La Crosse Project Chart).

⁵⁵ Tr. V. 10, pp. 154-155 (Alholinna).

⁵⁶ Ex. 121, p. 10 (Grivna Rebuttal).

⁵⁷ Ex. 121, p. 37 (Grivna Rebuttal).

⁵⁸ Ex. 88, p. 3 (Stevenson Rebuttal).

⁵⁹ Ex. 91 (Stevenson Chart).

⁶⁰ Ex. 91 (Stevenson Chart).

Costs for CapX2020 Projects in Millions of Dollars⁶²

Project	Study Apx. A- 2	Original Proposal		"Upsized" Proposal		Cost Increment	
		Ex. 1	Ex. 91	Ex. 1	Ex. 91	Low	High
		Low	High	Low	High	Low	High
La Crosse	\$191					\$198	\$241
		\$355	\$372	\$389	\$432	\$34	\$60
Fargo		\$390	\$560	\$500	\$640	\$110	\$80
Brookings		\$600	\$665	\$655	\$725	\$55	\$60
Underlying		\$70	\$100	\$70	\$100	\$0	\$0
TOTAL (1)		\$1,415	\$1,697	\$1,614	\$1,897	\$199	\$200

IV. APPLICANTS' ASSERTED NEED FOR THE CAPX2020 PROJECTS

105. Applicants asserted three categories of need for the CapX2020 345 kV transmission projects: (1) system-wide growth in demand; (2) community service reliability in specific identified communities; and (3) generation outlet capacity/renewable energy support.⁶³

106. Applicants have asserted a need for generation outlet capacity specifically in order to comply with the Renewable Energy Standard.⁶⁴

V. STATUTORY AND RULE CRITERIA

107. Applicants have asserted the need for three separate projects: the Twin Cities-La Crosse, Wisconsin Project ("La Crosse Project") the Fargo, North Dakota – Twin Cities Project ("Fargo Project") and the Brookings, South Dakota Project ("Brookings Project").

108. Each of these projects must be considered independently on its merits and must independently meet the criteria for certificate of need statutes and rules.⁶⁵ The Minnesota

⁶¹ Ex. 91(Stevenson Chart).

⁶² Ex. 91 (Stevenson Chart); Ex. 98, pp. 5-6 (Stevenson Rebuttal).

⁶³ Ex. 1, p. 1.3 (Application).

⁶⁴ Tr. V. 2A, p. 20, ll. 16-21 (Rogelstad).

⁶⁵ Statement of ALJ Beverly Jones Heydinger at prehearing conference on December 19, 2007.

Public Utilities Commission (“Commission”) has the flexibility to make decisions approving none, one, two or three of the CapX projects.⁶⁶

109. Each of the CapX2020 Projects are functionally independent and do not depend on another Project to go forward. If, for example, one project were denied, it would not impact the other two facilities but Applicants would need to model the change and assess needs going forward which might create proposals for other facilities.⁶⁷

110. The certificate of need statutory requirements for large energy facilities, including the high voltage transmission lines which are the subject of this CapX2020 proceeding are contained in Minn. Stat. § 216B.243. Under Minn. Stat. § 216B.243, subd. 2, no large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need consistent with the criteria for assessment of need.⁶⁸

111. These are the criteria for assessment of need under Subd. 3 of the Certificate of Need statute:

No proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures and unless the applicant has otherwise justified its need. In assessing need, the commission shall evaluate:

- (1) the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;
- (2) the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand;
- (3) the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18, or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;
- (4) promotional activities that may have given rise to the demand for this facility;
- (5) benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;
- (6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;
- (7) the policies, rules, and regulations of other state and federal agencies and local governments;
- (8) any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be

⁶⁶ Tr. V. 15, p. 123 (Alders).

⁶⁷ Tr. V. 15, pp. 123-124 (Alders).

⁶⁸ Minn. Stat. § 216B.243, Subd. 2.

provided by the proposed facility, and (ii) compete with it economically;

(9) with respect to a high-voltage transmission line, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota;

(10) whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subdivision 7, and have filed or will file by a date certain an application for certificate of need under this section or for certification as a priority electric transmission project under section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subdivision 7;

(11) whether the applicant has made the demonstrations required under subdivision 3a; and

(12) if the applicant is proposing a nonrenewable generating plant, the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk.⁶⁹

112. The conservation requirements of subdivision 3(8), which require consideration of any cost-effective conservation improvements that can replace part or all of the energy to be provided by a proposed facility, apply to the proposed CapX2020 projects.⁷⁰

113. Supplemental Findings of Fact, Conclusions of Law and Recommendation in the Big Stone II proceeding applied this energy conservation paragraph to certificates of need for transmission, stating that the initial paragraph in Minn. Stat. § 216.243, subd.3 and the energy conservation requirements of subd. 3(8) “restrict the Commission from granting a certificate of need unless Applicants show their demand for electricity cannot be met at least in part through less expensive energy conservation and load management.”⁷¹

114. In addition, Minnesota’s Certificate of Need statute applies a renewable energy where a transmission facility generates electric power by means of a nonrenewable energy source:

The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable

⁶⁹ Minn. Stat. § 216B.243.

⁷⁰ Applicants’ Findings of Fact #305 suggests that this conservation requirement is inapplicable, but Applicants’ Post-Hearing Brief acknowledges, p. p. 60 that the Commission must consider subdivision 3(8) of Minn. Stat. § 216B.243 in reviewing the CapX2020 projects.

⁷¹ Ex. 20, p. 5 (Big Stone II Supp. Findings 5/9/08).

energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.⁷²

115. Pursuant to Minn. Stat. § 216B.243, subd. 3(7), various state statutes summarized below must be analyzed in determining whether a Certificate of Need should issue for the CapX2020 Projects:

Renewable energy standard: Minn. Stat. § 216B.1691, subd. 2a, which sets forth requirements for electric utilities serving Minnesota to provide its retail customers with a specified percentage of renewable energy from eligible energy technologies on a schedule for 2010, 2012, 2016, 2020 and 2025.⁷³

Energy conservation law: Minn. Stat. § 216B.2401 setting a goal of annual energy savings equal to 1.5 percent of annual retail energy sales of electricity and precluding commissioner from approving a utility plan that provides for an annual energy savings goal of less than 1 percent.⁷⁴

Greenhouse Gas Emissions Control: Minn. Stat. § 216H.03, which prohibits an increase in statewide power sector carbon dioxide emissions resulting from construction of coal plants or the importation or purchase of energy from coal plants.⁷⁵ The Greenhouse Gas Emissions Control statute also required development of a Climate Change Action Plan, Minn. Stat. § 216H.02, which requirement was implemented through the Minnesota Climate Change Advisory Group appointed by the Governor.⁷⁶

Community-Based Energy Development: Minn. Stat. § 216B.1612 which reflects a state policy “to optimize local, regional, and state benefits from renewable energy development and to facilitate widespread development of community-based renewable energy projects throughout Minnesota”⁷⁷ and that, “The commission shall consider the efforts and activities of a utility to purchase energy from C-BED projects when evaluating its good faith effort towards meeting the renewable energy objective under section 216B. 1691.”⁷⁸

116. The Department of Commerce and the Public Utilities Commission must carry out their responsibilities energy infrastructure approval proceedings in accordance with the Minnesota Environmental Policy Act (MEPA), Minn. Stat. § 116D.03.⁷⁹

⁷² Minn. Stat. § 216B.243, subd. 3A.

⁷³ Minn. Stat. § 216B.1691, subd.2a

⁷⁴ Minn. Stat. § 216B.2401.

⁷⁵ Minn. Stat. § 216H.03.

⁷⁶ The Final Report of the Minnesota Climate Change Advisory Group prepared in compliance with this statute is available at <http://www.mnclimatechange.us/>.

⁷⁷ Minn. Stat. § 216B.1612, subd.1.

⁷⁸ Minn. Stat. § 216B.1612, subd. 5(c).

⁷⁹ 2005 Minn. Laws, Ch. 97, Art. 3, § 17:

“To ensure greater public participation in energy infrastructure approval proceedings and to better integrate and align state energy and environmental policy goals with economic decisions involving

117. MEPA requires state agencies and departments to study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources.⁸⁰ MEPA requires state agencies to “to use all practicable means, consistent with other essential considerations of state policy,” in order that the state may:

- (7) define, designate, and protect environmentally sensitive areas;
- (9) practice thrift in the use of energy and maximize the use of energy efficient systems for the utilization of energy, and minimize the environmental impact from energy production and use;
- (10) preserve important existing natural habitats of rare and endangered species of plants, wildlife, and fish, and provide for the wise use of our remaining areas of natural habitation, including necessary protective measures where appropriate.⁸¹

118. MEPA also sets the underlying standard for consideration of alternatives in approving a high voltage transmission line:

No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct.⁸²

119. Minnesota Rules provide guidance to determine if the criteria set under applicable statutes have been met. Minn. R. 7849.0120 states that a certificate of need must be granted to the applicant on determining that:

A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:

- (1) the accuracy of the applicant's forecast of demand for the type of energy

large energy infrastructure. . . . The Department of Commerce and the Public Utilities Commission shall carry out these duties in accordance with the provisions of Minnesota Statutes, section 116D.03.”

⁸⁰ Minn. Stat. § 116D.03, subd. 2(4).

⁸¹ Minn. Stat. § 116D.02, subd. 2.

⁸² Minn. Stat. § 116D.04, subd. 6. Approval of a high voltage transmission line is a state action significantly affecting the quality of the environment. *No Power Line, Inc. v. Minn. Env'tl. Quality Council (EQC)*, 262 N.W.2d 312 (Minn. 1977); *People for Env'tl. Enlightenment & Responsibility (PEER), Inc. v. Minn. Env'tl. Quality Bd. (MEQB)*, 266 N.W.2d 858 (Minn. 1978).

- that would be supplied by the proposed facility;
- (2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;
- (3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;
- (4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and
- (5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:

- (1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;
- (2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;
- (3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and
- (4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:

- (1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;
- (2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;
- (3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and
- (4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and

D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.⁸³

⁸³ Minn. R. 7849.0120.

120. Minnesota Rules also prescribe the types of alternatives that must be described in an application for a high voltage transmission line. Minn. R. 7849.0260 subp. B states that each application for a proposed LHVTL must include a discussion of the availability of alternatives to the facility, including but not limited to:

- (1) new generation of various technologies, sizes, and fuel types;
- (2) upgrading of existing transmission lines or existing generating facilities;
- (3) transmission lines with different design voltages or with different numbers, sizes, and types of conductors;
- (4) transmission lines with different terminals or substations;
- (5) double circuiting of existing transmission lines;
- (6) if the proposed facility is for DC (AC) transmission, an AC (DC) transmission line;
- (7) if the proposed facility is for overhead (underground) transmission, an underground (overhead) transmission line; and
- (8) any reasonable combinations of the alternatives listed in subitems (1) to (7).⁸⁴

121. Minnesota Rules also require that the Environmental Report prepared by the Department of Commerce contain specific content pertaining to alternatives to the proposed project, including the following items:

- A. A general description of the proposed project and associated facilities.
- B. A general description of the alternatives to the proposed project that are addressed. Alternatives shall include the no-build alternative, demand side management, purchased power, facilities of a different size or using a different energy source than the source proposed by the applicant, upgrading of existing facilities, generation rather than transmission if a high voltage transmission line is proposed, transmission rather than generation if a large electric power generating plant is proposed, use of renewable energy sources, and those alternatives identified by the commissioner of the Department of Commerce.
- C. An analysis of the human and environmental impacts of a project of the type proposed and of the alternatives identified.
- D. An analysis of the potential impacts that are project specific.
- E. An analysis of mitigative measures that could reasonably be implemented to eliminate or minimize any adverse impacts identified for the proposed project and each alternative analyzed.
- F. An analysis of the feasibility and availability of each alternative considered.
- G. A list of permits required for the project.
- H. A discussion of other matters identified by the commissioner.⁸⁵

122. The Administrative Law Judge (“ALJ”) has the authority to recommend and the Commission has the jurisdiction to modify any of the proposed CapX2020 transmission

⁸⁴ Minn. R. 7849.0260, subp. B.

⁸⁵ Minn. R. 7849.0260, subp. 1.

projects and to make issuance of the certificate contingent upon modifications and/or conditions on certification of any of the proposed CapX2020 transmission projects.⁸⁶

123. Any certificates of need would be granted to the Applicants, Xcel Energy and Great River Energy (“GRE”). They would remain responsible irrespective of ownership elections.⁸⁷

124. As a matter of law, the proposed conditions would bind the Applicants, Xcel Energy and GRE. The Applicants could further negotiate agreements to share the responsibilities for compliance with other utilities; that would be up to them.⁸⁸

VI. ANALYSIS OF NEED FOR THE CAPX2020 PROJECTS

A. System-Wide Growth in Demand

Minn. Stat. § 216B.243, subd. 3(1) and Minn. R. 7849.0120(A)(1) Accuracy of Forecasts

125. Minn. Stat. § 216.243, subd. 3(1) requires that the Commission evaluate “the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based.” Minn. R. 7849.0120(A)(1) requires consideration of “the accuracy of the applicant’s forecast of demand for the type of energy that would be supplied by the proposed facility.”

126. Applicants’ forecasts of system-wide growth are neither accurate nor reasonable either to evaluate long-range energy demand or as a forecast for the type of energy that would be supplied by the proposed facilities.

Minn. Stat. § 216B.243, subd. 3, subd. 3(2) and subd. 3(8) Conservation

127. Under Minnesota’s certificate of need statute, no large energy facility can be certified unless an applicant demonstrates that demand for the project cannot be met more cost-effectively through conservation and load management.⁸⁹

128. The statute requires the Commission to consider the effect of possible energy conservation programs under other state legislation on long-term energy demand.⁹⁰

129. The statute also requires the Commission to consider feasible and cost-effective energy conservation improvements that can replace part of the energy to be provided by

⁸⁶ Minn. Stat. § 216B.243, subd.5.

⁸⁷ Tr. V. 15, pp. 124-125 (Alders).

⁸⁸ Tr. V. 20 pp. 48-49,156, ll. 2-5 (Ellison); Ex. 204, p. 3 (Ellison Direct).

⁸⁹ Min. Stat. § 216B.243, subd. 2

⁹⁰ Minn. Stat. § 216B.243, subd. 3(2).

the proposed facility, even if conservation alone is not sufficient to eliminate the need for a proposed facility.⁹¹

Minn. Stat. § 216B.243, subd. 3(7) State Policies, Rules and Regulations

130. State policies, rules and regulations for conservation, Renewable Energy Standards and Greenhouse Gas Emissions control must be considered in determining whether certificates of need should issue.⁹²

131. Reviewing the information on this record pursuant to these statutes and rules, Applicants do not meet their burden of proof to justify the need for any of the CapX2020 Projects on the basis of system-wide growth in demand.

1. Applicants' Vision Study

132. Applicants' assertion that the La Crosse, Fargo and Brookings Projects are needed due to system-wide growth in demand is based on the data reflected in the *CapX 2020 Technical Update: Identifying Minnesota's Electric Transmission Infrastructure Needs* dated October 2005, which contained in Appendix A-1 of the Application. Applicants refer to this study as the "Vision Plan."⁹³

133. In the Vision Plan, planning engineers assessed future transmission needs through the year 2020 based on anticipated regional load growth within the service territories of electric utilities that have load-serving responsibilities for Minnesota consumers. This regional demand growth model included all of Minnesota and portions of North Dakota, South Dakota, Iowa, Wisconsin and Upper Michigan.⁹⁴

134. The Vision Plan used individual company load growth data from the 2004 MAPP Load and Capability Report for the control areas of the following utilities – Alliant Energy (west), Xcel Energy (north), Minnesota Power, Southern Minnesota Municipal Power Agency/Rochester Public Utilities, Great River Energy, Otter Tail Power Company/MPC and Dairyland Power Cooperative. Each control area contained not only the load belonging to the control area operator, but also that of other companies, such as Missouri River Energy Services, which have load in these control areas.⁹⁵ The loads for Minnesota Power and Great River Energy were scaled based on their most recent resource plan filings.⁹⁶

⁹¹ Minn. Stat. §216B.243, subd. 3(8).

⁹² Minn. Stat § 216B.243, subd. 3(7).

⁹³ See e.g. Ex. 9, p. 10 (Rogelstad Rebuttal).

⁹⁴ Ex. 1, p. 6.3; Ex. 1, Apx. A-1, p. 4 (Application).

⁹⁵ Ex. 1, Apx. A-1, p. 4 (Application).

⁹⁶ Ex. 1, Apx. A-1, p. 5 (Application).

135. The CapX2020 Vision Plan anticipated growth in demand within the CapX2020 region of 2.49% annually from 2009 through 2020, for a total projected increase of 6,300 megawatts.⁹⁷

136. The Vision Plan analyzed transmission needs based on 6,300 MW of increased load and correspondingly increased generation.⁹⁸

137. In addition to modeling their projected load growth of 6300 MW, the CapX2020 technical team performed a “sensitivity analysis” for a reduced load level of 4500MW to determine if the CapX2020 facilities would be needed at this specified slower growth level.⁹⁹

138. To model the 4500MW load level, the 6300MW Vision Plan model was uniformly scaled down in each control by a factor of 4500/6300 (about 71 percent).¹⁰⁰

139. The CapX2020 Vision Plan study was done from 2004 to 2005. It did not take into account more recent integrated resource plan forecasts or the energy savings goals and requirements enacted by the Minnesota Legislature in 2007.¹⁰¹

2. Minnesota 2007 Energy Conservation Statute

140. In 2007 Minnesota’s energy conservation standard was changed from a spending goal to an energy savings goal, effective July 1, 2007.¹⁰² A state energy policy to achieve annual energy savings equal to 1.5 percent of annual retail energy sales of electricity was set and the Commissioner of Commerce was given authority to establish and evaluate energy savings programs to meet this objective.

(a) The commissioner [of Commerce] shall establish energy-saving goals for energy conservation improvement expenditures and shall evaluate an energy conservation improvement program on how well it meets the goals set.

(b) Each individual utility and association shall have an annual energy savings goal equivalent to 1.5 percent of gross annual retail energy sales unless modified by the commissioner under paragraph (d). The savings goals must be calculated based on the most recent three-year weather normalized average.¹⁰³

141. Under specified conditions, a utility could request the commissioner to adjust its

⁹⁷ Ex. 1, Apx. A-1, pp. 1, 5 (Application).

⁹⁸ Tr. V. 1B, p. 78, ll. 22-24 (Rogelstad).

⁹⁹ Ex. 1, Apx. A-1, p. 27 (Application).

¹⁰⁰ Ex. 1, Apx. A-1, p. 27 (Application).

¹⁰¹ Tr. V. 1A, pp. 84-85 (Rogelstad).

¹⁰² Minn. Stat. §216B.2401(2007 Minn. Laws, Ch. 136, Art. 2, § 4).

¹⁰³ Minn. Stat. § 216B.2401, subd. 1c.

annual energy savings percentage goal, and the minimum level of annual energy savings that would be approved was set at one percent from energy conservation.¹⁰⁴

142. This 2007 conservation statute applies to the CapX2020 utilities' Minnesota retail load. Applicants have not disputed the application of the 2007 energy conservation statute to the projection of load growth through 2020, nor have they asked to be excused from the 1.5% energy savings goal in this Certificate of Need proceeding.

143. The 2007 goal of 1.5% energy savings should be the basis of planning assumptions for transmission resources.¹⁰⁵

144. In the Big Stone II proceeding, Administrative Law Judges Steve M. Mihalchick and Barbara Neilson advised that Applicants should not be excused from the 1.5% energy savings goal in a Certificate of Need proceeding pertaining to transmission, stating:

It would be contrary to the statute to plan to not meet the goal established by the Legislature, particularly where, as here, new facilities are being built, and particularly where this is one of the very first cases to arise under the new goal. If any of the Applicants need relief from the goal in future years, that can be provided by the Commissioner of Commerce under the new statute. At the beginning of a trip, you plan to stay on the main road and to use "off ramps" only when necessary.¹⁰⁶

3. Minnesota Renewable Energy Standard and Greenhouse Gas Emissions Control Laws

145. At the time when the CapX2020 Vision Plan studies were done, Minnesota had a Renewable Energy Objective ("REO") of ten percent. A distinguishing factor of the CapX2020 Vision Plan model was that it was designed to comply with the REO.¹⁰⁷

146. In the course of discovery, Applicants disclosed the underlying assumptions regarding the nature and location of generation in the Vision Plan study modeling, as reproduced below.¹⁰⁸

¹⁰⁴ Minn. Stat. §216B.2401, subd. 1c (d).

¹⁰⁵ Ex. 140, p. 6 (Michaud Direct); Tr. V. 16, p. 74, ll. 16-22 (Michaud).

¹⁰⁶ Ex. 20, p. 7, ¶ 17 (Supplemental Findings, Conclusions and Recommendations in Big Stone II Proceeding, CN-05-619).

¹⁰⁷ Tr. V. 1B, p. 82 (Rogelstad).

¹⁰⁸ Ex. 21 (Response to IR 12 of NAWO/ILSR).

NAWO 12 Attachment

Region	Modeling Information	MH / Dakotas					Minnesota Only					Wisconsin				
		Included	Import MW	REO MW	Peaker MW	Base MW	Included	Import MW	REO MW	Peaker MW	Base MW	Included	Import MW	REO MW	Peaker MW	Base MW
N. Minn.	Manitoba	y	1000	0	0	0	n					n				
	Forbes, MN	n					y	0	0	0	500	y	0	0	0	500
	Forbes, MN	n					y	0	0	0	500	n				
	Forbes, MN	y	0	0	0	700	n					n				
	Bemidji, MN	n					y	0	0	50	0	y	0	0	50	0
	Totals		1000	0	0	700	0	0	50	1000	0	0	0	50	500	
ND/SD	Ft Thompson, SD	y	0	150	0	0	y	0	150	0	0	y	0	150	0	0
	Pickert, ND	y	0	150	0	0	y	0	150	0	0	y	0	150	0	0
	Ellendale, ND	y	0	200	0	0	y	0	200	0	0	y	0	200	0	0
	McHenry, ND	y	0	200	0	0	y	0	200	0	0	y	0	200	0	0
	Watertown, SD	y	0	300	0	0	y	0	300	0	0	y	0	300	0	0
	Belfield, ND	y	0	0	0	500	n					n				
	Big Stone, SD	y	0	0	0	600	y	0	0	0	600	y	0	0	0	600
	Totals		0	1000	0	1100	0	0	1000	0	600	0	0	1000	0	600
S Minn / Iowa	Chanarambie, MN	y	0	200	0	0	y	0	200	0	0	y	0	200	0	0
	Nobles, MN	y	0	200	0	0	y	0	200	0	0	y	0	200	0	0
	Eagle, IA	y	0	100	0	0	y	0	100	0	0	y	0	100	0	0
	Adams, MN	y	0	400	0	0	y	0	400	0	0	y	0	400	0	0
	Yankee, MN	y	0	175	0	0	y	0	175	0	0	y	0	175	0	0
	Spencer, IA	y	0	200	0	0	y	0	200	0	0	y	0	200	0	0
	Lakefield, MN	n					y	0	0	150	0	y	0	0	150	0
	Pleasant Valley, MN	n					n					n				
	Lansing, IA	n					n					y	0	0	0	750
	Totals		0	1275	0	0	0	0	1275	150	0	0	0	1275	150	750
TC Metro	Elk River, MN	y	0	0	150	0	y	0	0	150	0	y	0	0	150	0
	Red Rock, MN	n					n					n				
	Chisago, MN	y	0	0	500	0	y	0	0	500	0	y	0	0	500	0
	Blue Lake, MN	n					y	0	0	500	0	n				
	Inver Hills, MN	n					y	0	0	500	0	n				
	Anson, MN	y	0	0	600	0	y	0	0	600	0	n				
	Cannon Falls, MN	n					n					y	0	0	350	0
Totals		0	0	1250	0	0	0	2250	0	0	0	0	0	1000	0	
Wisc	Genoa, WI	n					n					y	0	0	0	500
	Weston, WI	n					n					y	0	0	0	500
	Totals			0	0	0			0	0	0			0	1000	
			1000	2275	1250	1800	0	0	2275	2450	1600	0	0	2275	1200	2850

147. Each of the three generation scenarios modeled included 2275MW of renewable energy to meet the REO standards, 1275MW of which were in Minnesota and 1000MW of which were in North and South Dakota.¹⁰⁹

148. The North/West bias case included 700MW of base load coal from Forbes, Minnesota, 1100MW of base load coal from the Dakotas, including 500MW from Belfield, North Dakota as well 600MW from Big Stone, South Dakota and 1250MW of peaking gas plants in the Twin Cities Metro area.¹¹⁰

149. The Minnesota bias case included 1000MW of base load coal from the Forbes, Minnesota area, 600MW of base load coal from Big Stone, South Dakota and 2450MW from gas peaking plants in the Twin Cities Metro Area.¹¹¹

¹⁰⁹ Ex. 21 (Response to IR 12 of NAWO/ILSR); Tr. V. 2A, pp. 112-113 (Rogelstad).

¹¹⁰ Ex. 21 (Response to IR 12 of NAWO/ILSR). The names of the generation scenarios are taken from Exhibit 12 and from the description in Ex. 1, Apx. A-1, p. 8 (Application).

¹¹¹ Ex. 21 (Response to IR 12 of NAWO/ILSR).

150. The Eastern bias case included 2850 MW of base load coal -- 500MW from Forbes, Minnesota, 600MW from Big Stone, South Dakota, 750MW from Lansing, Iowa and 500MW each from Genoa and Weston, Wisconsin -- as well as 1200MW from gas peaking plants in the Twin Cities area.¹¹²

151. Every generation scenario studied in the Vision Plan assumed 600MW of base load coal from Big Stone II.¹¹³

152. In 2007, Minnesota statutes establishing the Renewable Energy Objective were amended to set new standards for electric utilities to generate or procure renewable energy for their retail customers.¹¹⁴

153. The 2007 Minnesota Renewable Energy Standards (“RES”) require Xcel Energy to supply 30 percent of its retail energy in Minnesota from renewable energy source by 2020 with interim milestones of achieving 15% by 2010; 18% by 2012; and 25% by 2016.¹¹⁵

154. The 2007 RES requires other electric utilities to supply 25% of retail energy in Minnesota from renewable energy sources by 2025 with interim milestones to achieve 12% by 2012; 17% by 2016 and 20% by 2020.¹¹⁶

155. The generation mix used as the basis for the CapX2020 Vision Plan model is inconsistent with Minnesota’s 2007 law establishing Renewable Energy Standards in that the level of renewable energy modeled is insufficient to comply with the RES.

156. Applying the 1.5% energy savings goal to the Applicants’ energy forecasts and a 40% capacity factor for renewable energy, the Office of Energy Security of the Department of Commerce (“OES”) estimated that a total of 3160 MW of wind nameplate capacity would be needed by 2020.¹¹⁷ If a 30% capacity factor were to be used, nameplate capacity needed would be 4580MW.¹¹⁸

157. Applying the 1.0% minimum energy savings to the Applicants’ energy forecasts and a 40% capacity factor for renewable energy, OES estimated that a total of 3421 MW of wind nameplate capacity would be needed by 2020.¹¹⁹ If a 30% capacity factor were to be used, nameplate capacity needed would be 4927.¹²⁰

¹¹² Ex. 21 (Response to IR 12 of NAWO/ILSR).

¹¹³ Tr. V. 2A, pp. 113-114 (Rogelstad).

¹¹⁴ 2007 Minn. Laws, Ch. 3, § 1; 2007 Minn. Laws, Ch. 146, Art. 4, § 10.

¹¹⁵ Minn. Stat. § 216B.1691, subd. 2a (b).

¹¹⁶ Minn. Stat. § 216B.1691, subd.2a (a).

¹¹⁷ Ex. 253 (RES Capacity Need 1.5%/40%). All of these estimates are in addition to renewable energy projects that utilities have committed to deploy by 2009. Tr. V. 22, p. 68, ll. 19-24 (Peirce).

¹¹⁸ Ex. 256 (RES Capacity Need 1.5%/30%).

¹¹⁹ Ex. 254 (RES Capacity Need 1.0%/40%).

¹²⁰ Ex. 255 (RES Capacity Need 1.0%/30%).

158. The renewable energy nameplate capacity OES calculated to be needed by 2020 – 3,160MW to 4,927MW of additional renewable energy nameplate capacity – exceeds the 2275MW of wind modeled in the CapX2020 utilities’ Vision Plan. At the lower end of the estimate, the OES analysis requires 140 percent of the renewable generation in the CapX2020 model; at the high end, it is over 215 percent.¹²¹

159. The generation mix used as the basis for modeling in the CapX2020 Vision Study is also inconsistent with Minnesota’s 2007 Greenhouse Gas Emissions Control law.

160. The Minnesota Greenhouse Gas Emissions Control law prohibits the construction within Minnesota, the import from outside the state, or the purchase of energy from a new large energy facility that would increase statewide power sector carbon dioxide emissions. “Statewide power sector carbon dioxide emissions” are defined to include “the total annual emissions of carbon dioxide from the generation of electricity within the state and all emissions of carbon dioxide from the generation of electricity imported from outside the state and consumed in Minnesota.”¹²²

161. This Greenhouse Gas Emissions Control statute is targeted at controlling new coal plants: both natural gas facilities¹²³ and biomass combustion are excluded from its prohibition.¹²⁴

Unless preempted by federal law, until a comprehensive and enforceable state law or rule pertaining to greenhouse gases that directly limits and substantially reduces, over time, statewide power sector carbon dioxide emissions is enacted and in effect, and except as allowed in subdivisions 4 to 7, on and after August 1, 2009, no person shall:

- (1) construct within the state a new large energy facility that would contribute to statewide power sector carbon dioxide emissions;
- (2) import or commit to import from outside the state power from a new large energy facility that would contribute to statewide power sector carbon dioxide emissions; or
- (3) enter into a new long-term power purchase agreement that would increase statewide power sector carbon dioxide emissions. For purposes of this section, a long-term power purchase agreement means an agreement to purchase 50

¹²¹ Ex. 274, p. 2 (Ham Surrebuttal); Ex. 275 (Minnesota Renewable Interconnection Need).

¹²² Minn. Stat. § 216H.03, subd. 2. The 2007 Minnesota Greenhouse Gas Emissions Control law contained an exception for facilities that provide permanent, quantifiable, verifiable and enforceable carbon dioxide emissions that would not have otherwise occurred Minn. Stat. § 216H.03, subd. 4.

¹²³ Minn. Stat. § 216H.03, subd. 1 defined a "new large energy facility" to include “a large energy facility, as defined in section 216B.2421, subdivision 2, clause (1), that is not in operation as of January 1, 2007, but does not include a facility that (1) uses natural gas as a primary fuel, (2) is designed to provide peaking, intermediate, emergency backup, or contingency services, (3) uses a simple cycle or combined cycle turbine technology, and (4) is capable of achieving full load operations within 45 minutes of startup for a simple cycle facility, or is capable of achieving minimum load operations within 185 minutes of startup for a combined cycle facility.”

¹²⁴ Minn. Stat. § 216H.03, subd. 2 states that emissions of carbon dioxide associated with the combustion of biomass, as defined in § 216B.2411, subd. 2 are not counted as contributing to statewide power sector carbon dioxide emissions.

megawatts of capacity or more for a term exceeding five years.¹²⁵

162. The 2007 Minnesota Greenhouse Gas Emissions Control statute contains an exception for new large energy facilities under consideration by the Minnesota Public Utilities Commission before April 1, 2007. This exception would apply to transmission for the Big Stone II coal plant expansion in Big Stone, South Dakota¹²⁶ and the petition pertaining to the Excelsior IGCC coal plant proposed in the Forbes, Minnesota area,¹²⁷ so that the Commission can approve or deny these pending applications on their merits.¹²⁸

163. However, the 2007 Minnesota Greenhouse Gas Emissions Control statute contains no exemptions that would permit the CapX2020 utilities to import or purchase of energy from coal plants in Belfield, North Dakota as proposed in the north/west generation scenario or from coal plants in Lansing, Iowa, Genoa, Wisconsin or Weston, Wisconsin as proposed in the east generation scenario of the 2005 Vision Plan to serve Minnesota load.¹²⁹

164. The Vision Plan's intention was clear that the potential generation additions modeled in the study, as identified in Ex. 21, would serve Minnesota load.¹³⁰

4. Current Forecasts of Demand Growth

165. Integrated resource plan forecasts should be used as the starting point to analyze load growth,¹³¹ and forecasts that have been reviewed and approved by the Commission are generally more reasonable than the ones that have not been so approved.¹³²

166. The OES conducted an analysis to determine the likely growth in demand within the CapX2020 region. OES used the most recent approved integrated resource plan forecasts to project demand growth prior to adjustments for compliance with the 2007 energy conservation statute.¹³³

167. The load growth percentages in Exhibit 265 reflect the most recent forecasts approved by the Minnesota Public Utilities Commission.¹³⁴

¹²⁵ Minn. Stat. § 216H.03, subd. 3.

¹²⁶ Application filed October 3, 2005, *In the Matter of the Application of Otter Tail Power Co. and Others for Certification of Transmission Facilities in W. Minn.*, MPUC Docket ET-9/CN-05-619.

¹²⁷ Petition filed December 27, 2005, *In the Matter of a Petition by Excelsior Energy Inc. for Approval of a Power Purchase Agreement under Minn. Stat. §216B.1694, and Determination of Least Cost Technology and Establishment of a Clean Energy Technology Minimum Under Minn. Stat. §216B.1693*, MPUC Docket E6472/M-05-1993.

¹²⁸ Minn. Stat. § 216H.03, subd. 7.

¹²⁹ Minn. Stat. § 216H.03, subd. 7; Ex. 21 (Response to IR 12 of NAWO/ILSR).

¹³⁰ Ex. 1, Apx. A-1, p. 4 (Application).

¹³¹ Tr. V. 23, p. 25, ll. 11-22 (Ham).

¹³² Tr. V. 16, pp.73-74 (Michaud).

¹³³ Ex. 265 (Demand Forecasts from Approved IRPs).

¹³⁴ Tr. V. 24, pp. 48-49 (Ham).

168. The approved growth rate for Xcel Energy used in Exhibit 265 came from Xcel's 2004 integrated resource plan; the approved rate for GRE came from the 2005 IRP.¹³⁵

169. The OES also analyzed the cumulative incremental energy and demand savings for CapX2020 utilities over and above what had been approved in recent integrated resource plans based on compliance with the 2007 energy conservation law.¹³⁶

170. Forecasts in Exhibit 217 are based on applying either the 1.5% savings goal from the 2007 Energy Conservation statute or the minimum 1.0% savings goal from the 2007 statute to Applicants' forecasts provided in Appendix C-7 of the Application.¹³⁷

171. The annual energy savings in column 4 of Exhibit 217 includes both the embedded conservation already in Applicants' forecasts and the incremental savings under the new law. The incremental energy savings due to application of the 2007 conservation law is presented in column 6, and the cumulative incremental demand savings is presented in column 8 of Exhibit 217.¹³⁸

172. The data in Exhibit 265 includes some existing conservation, but does not fully account for the 2007 1.5% energy conservation statute.¹³⁹ To fully account for the 1.5% energy savings in the 2007 statute, one would need to adjust Exhibit 265 by the information in column 8 of Exhibit 217.¹⁴⁰

173. The OES calculated that there would be approximately an additional 1,370MW in cumulative incremental demand reduction by 2020 as a result of applying the 1.5% energy savings.¹⁴¹

174. To create numbers comparable to the OES analysis, one could subtract the incremental demand savings in 2020 from Exhibit 217, column 8 from the load growth in 2020 in Exhibit 265. For GRE, for example, one would subtract 426 from 3,924 to estimate load in 2020.¹⁴²

175. The total aggregate demand growth from 2009 to 2020 estimated by the OES in Ex. 265 is 4,847 MW. In order to fully account for the 2007 1.5% energy conservation law, the cumulative incremental demand savings calculated by the OES in Ex. 217, a total of 1372 MW in aggregate demand savings, must be subtracted. Demand growth from 2009 to 2020 based on OES calculations is 3,475 MW.¹⁴³

¹³⁵ Tr. V. 23, p. 39, p. 42, ll. 13-15 (Ham), based on information in Ex. 50 (Response to IR 46E of OES).

¹³⁶ Ex. 217 (OES Chart/Energy Savings).

¹³⁷ Ex. 215, pp. 6-7 (Davis Direct); Ex. 217 (OES Chart/Energy Savings).

¹³⁸ Ex. 215, pp. 7-8 (Davis Direct); Ex. 217 (OES Chart/Energy Savings).

¹³⁹ Tr. V. 24, p. 41-42(Ham).

¹⁴⁰ Tr. V. 24, p. 42, ll. 20-25, p. 50 (Ham).

¹⁴¹ Tr. V. 24, p. 43, ll. 9-13 (Ham).

¹⁴² Tr. V. 24, pp. 54-55 (Ham).

¹⁴³ Ex. 265 (Demand Forecasts from Approved IRPs); Ex. 217 (OES Chart/Energy Savings). Method: System MW Demand for each utility in 2009 was subtracted from the System MW Demand in 2020 and

176. In their responses to discovery by the North American Water Office/Institute for Local Self-Reliance (“NAWO/ILSR”) on March 7, 2008, Applicants’ expert witness Matthew Lacey provided updated projections of growth in demand.¹⁴⁴

177. Applicants’ response to NAWO IR Number 7 (Exhibit 51) represents Applicants’ most recent effort to create reasonable forecasts offered in this record.¹⁴⁵ In this information request, Applicants used the most recent forecasts that were available at the time.¹⁴⁶

178. Applicants’ updated projection of growth in demand, in Exhibit 51, Figure 6-4 provided an Updated Median Resource Plan Forecast reflecting a growth in demand of 3919 MW from 2009 to 2020 with the CapX2020 region.¹⁴⁷

179. Exhibit 51 did not entirely take into account 1.5% energy conservation policy.¹⁴⁸ Mr. Lacey also noted that the resource plan growth rate for Xcel Energy had not been reviewed or accepted by the Minnesota Public Utilities Commission.¹⁴⁹

180. The percentage annual growth rate reflected in Exhibit 51 Figure 6-4 Updated Median Resource Plan Forecast corresponds to the approved integrated resource plan forecasts identified in the OES Exhibit 265 with two exceptions; Great River Energy and Xcel Energy.¹⁵⁰

181. The approved annual growth rate for GRE (2.86%)¹⁵¹ is comparable to the growth rate for GRE (2.9%) in Figure 6-5, the Updated High Integrated Resource Plan Forecast of Exhibit 51. Adjusting the load growth for GRE to reflect the 2.9% approved growth rate, Applicants’ most recent base case for load growth from 2009 to 2020 is 4193MW.¹⁵²

182. The annual growth rate forecasted for Xcel Energy in Exhibit 51 at 1.1% reflects Xcel Energy’s modification of its prior IRP approved growth rate of 1.69% to consider the 2007 energy conservation law. Xcel proposes to achieve energy savings of 1.1% with this revised growth rate.¹⁵³

then aggregated; the Cumulative Incremental Demand Savings from Column 8 in 2020 were aggregated and subtracted from the total.

¹⁴⁴ Ex. 51 (Response to IR No. 7 of NAWO/ILSR IR).

¹⁴⁵ Tr. V. 4, p. 17, ll. 17-21 (Lacey); Ex. 53, p. 10 (Lacey Rebuttal).

¹⁴⁶ Tr. V. 4, p. 48, ll. 5-12 (Lacey).

¹⁴⁷ Ex. 51, Update Figure 6-4 (Response to IR No. 7 of NAWO/ILSR).

¹⁴⁸ Tr. V. 4, p. 49 (Lacey).

¹⁴⁹ Ex. 51, p. 3 (Response to IR No. 7 of NAWO/ILSR), Tr. V. 4, pp. 32 – 33 (Lacey).

¹⁵⁰ Compare Ex. 51 (Response to IR No. 7 of NAWO/ILSR) and Ex. 265 (Demand Forecasts from Most Recently Approved MN IRP Proceeding).

¹⁵¹ Tr. V. 23, p. 151, ll. 14-18 (Ham).

¹⁵² Ex. 51 (Response to IR NO. 7 of NAWO/ILSR IR); Ex. 265 (Demand Forecasts from Approved IRPs). To obtain the “base case,” the 1046MW growth rate for GRE in Figure 6-5 of Ex. 51 was substituted for the 773MW growth rate in Figure 6-4.

¹⁵³ Tr. V. 23, p. 155, ll. 7-9 (Ham). Xcel’s prior IRP approved growth rate was 1.69%, Tr. V. 23, p. 154, ll. 17-25 (Ham).

183. The forecast for Xcel Energy in the Exhibit 51 updated median forecast is updated from recent filings based on Xcel’s proposal to achieve 1.1% demand side management.¹⁵⁴

184. This 4,193 MW “base case” based on Applicants’ Exhibit 51 data and the approved GRE forecast does not fully take into account the cumulative additional energy savings for the CapX2020 as a result of compliance with the 2007 Minnesota energy conservation statute.¹⁵⁵

185. Taking into account the cumulative incremental demand savings for 1.5% conservation reflected in OES Exhibit 217 and estimating the differential for Xcel Energy between 1.1% and 1.5% conservation, an estimated additional 1030MW of demand would be saved by 2020 as compared to the revised Exhibit 51 base case.¹⁵⁶

186. Modifying Applicants’ Exhibit 51 to provide an estimate of demand growth using approved integrated resource plans and cumulative incremental demand savings from attaining the 1.5% energy conservation goal enacted in Minnesota statutes in 2007, the projected load growth for the CapX2020 region is approximately 3,163 MW.¹⁵⁷

Forecasted Growth in Demand 2009-2020

Source	Demand Growth from 2009-2020
2020 CapX Vision Plan - Growth Projection	6,300 MW
2020 CapX Vision Plan -Sensitivity Analysis	4,500 MW
Ex.51 Applicants Median Forecast	3,919 MW
OES Forecast - Ex. 265 and Ex.217 (Approved IRP and 1.5% Conservation)	3,475 MW
Adjusted Ex. 51 Applicant Forecast (With 1.5% Conservation)	3,163 MW

¹⁵⁴ Tr. V. 23, pp. 154-155 (Ham).

¹⁵⁵ See Fn. 140, *supra*.

¹⁵⁶ Ex. 217 (OES Chart/Energy Savings), column 8 was used for utilities for which data was available. For Xcel Energy, it was based on the data in Ex. 217 it was estimated that the difference between the 1.1% energy savings modeled in Ex. 51 and the 1.5% savings goal would be about 200MW. See Attachment A.

¹⁵⁷ For some of the utilities in Ex. 51, OES had not calculated cumulative incremental demand savings, so the 3162MW projection may still slightly overstate demand growth.

5. Analysis of System-Wide Need for CapX2020 Projects

187. It is fundamental to energy planning that the nature of the fuel used for generation influences its location.

[E]conomical generation possibilities are almost always site-specific. The economics of wind generation depends on a number of characteristics of the wind resource, and these are anything but uniformly distributed. The economics of coal generation depend critically on the location of the mine and/or the railhead relative to the transmission network. The decision of where to build the ‘fat pipe’ of transmission will economically circumscribe the generation possibilities in clear and direct ways.¹⁵⁸

188. OES agreed with Dr. Kildegaard that transmission and generation are linked, “since location of transmission influences generation and location of generation influences transmission. There is a locational interaction between the two.”¹⁵⁹

189. Attaining renewable energy standards may require transmission from advantageous wind regimes and natural gas peaking plants for back-up.

190. Natural gas peaking plants are usually located near load centers. Natural gas plants also need to be located close to a pipeline.¹⁶⁰

191. Xcel Energy recently increased natural gas generation in the Twin Cities by about 300MW and avoided the costs of transmission by repowering two Metro Area coal plants through the Metro Emission Reduction Project (MERP).¹⁶¹

192. Change in the location of generation could change the transmission facilities needed, for example if new generation was located closer to where load is, for example in the Twin Cities area ring.¹⁶²

193. There is no evidence in this record establishing the likelihood that other energy generation facilities of similar sizes in Belfield, North Dakota, Lansing, Iowa; Genoa, Wisconsin and Weston, Wisconsin would be used to serve Minnesota load if coal generation was precluded through application of the Greenhouse Gas Emissions Control statute.¹⁶³

¹⁵⁸ Tr. V. 18A, p. 51, ll. 14-24 (Kildegaard).

¹⁵⁹ Ex. 303, pp. 18-19 (Rakow Rebuttal).

¹⁶⁰ Tr. V. 15, p. 91, ll. 15-17 (Alders).

¹⁶¹ Tr. V. 15, pp. 92-93 (Alders); see Staff Briefing Papers, p. 13-14, *In the Matter of a Petition by Xcel Energy for Approval of a Three-Plant Emissions Reduction Proposal and Rate Rider to Recover Costs*, Docket No. E-002/M-02-633 (December 12, 2003). See also Ex. 222, p. “15 out of 23” (Response to IR No. 29 of OES); Tr. V. 22, p. 22 (Shaw).

¹⁶² Tr. V. 1B, pp. 18-19 (Rogelstad).

¹⁶³ Ex. 21 (Response to IR No. 12 of NAWO/ILSR); Minn. Stat. § 216H.03.

194. Modeling remote central station generation affects the outcome of Applicants' engineering analysis. The effectiveness of a 115 kV line is a distance of 100 miles or less, while a 345 kV line can span states. Assuming the location of generation remote from load virtually guarantees that the transmission selected will be 345 kV high voltage transmission.¹⁶⁴

195. It is not disputed that "generally, if you have less load, you're probably going to have less need to have transmission."¹⁶⁵

196. If demand is reduced, the nature or size of generation inserted into the grid might change.¹⁶⁶

197. The 2007 energy conservation statute has already affected utility resource acquisition. Xcel Energy filed a notice of change in circumstances and the Commission agreed there was a significant enough change to require reassessment of resource needs due to new conservation requirements:

The 2007 legislative initiatives have fundamentally altered the nature of the types of capacity resources to be developed in the future. It is appropriate to assume that there will be at least some change in the amount and type of other resources needed to meet system demand and to accommodate or complement the development of the mandated resources.¹⁶⁷

198. In GRE's integrated resource plan filed in July 2008, the impact on surplus or deficit energy needs by 2020 showed that conservation in compliance with the 1.5 percent energy conservation law lowered GRE's need for new capacity by about 50 percent.¹⁶⁸

199. Mr. Rogelstad testified that load levels are what drive the need for the CapX projects, "So if we reduce the load, we are that much closer to meeting our reliability, our safe reliability limits. So I suspect that, you know, if load is decreased, that that has a potential to delay the need for something."¹⁶⁹

200. Applicants' witness, Tim Rogelstad testified that if system load growth were low enough – 2,000 MW was used as an example – "certainly there would be less facilities"¹⁷⁰ and "if you want to determine the exact load level at what point you would need these [the CapX projects] you'd have to do the additional studies."¹⁷¹

¹⁶⁴ Ex. 140, p. 14 (Michaud Direct); Tr. V. 16, pp. 109-110 (Michaud).

¹⁶⁵ Tr. V. 1B, p. 70, ll. 5-7 (Rogelstad).

¹⁶⁶ Tr. V. 2B, pp. 21-22 (Rogelstad).

¹⁶⁷ Ex. 165, p. 3 (Order addressing Xcel Resource Plan dated 3/19/08, closing PUC Docket 06-1518).

¹⁶⁸ Ex. 113, p. 44, Figure 6-3 (GRE Resource Plan 7/1/08).

¹⁶⁹ Tr. V. 3, p. 101, ll. 16-19 (Rogelstad).

¹⁷⁰ Tr. V. 1B, pp. 19-20 (Rogelstad).

¹⁷¹ Tr. V. 3, pp. 83-85 (Rogelstad); *see also* Tr. V. 1B, p. 19-20 (Rogelstad); Tr. V. 3, p. 30 (Rogelstad).

201. Reasonable forecasts based on approved integrated resource plan growth rates and compliance with the 2007 1.5% conservation statute are all substantially lower than the 6,300 MW of growth projected in the Vision Plan, and are also lower than the 4,500 MW growth figure used as a sensitivity analysis in the Vision Plan.

202. Applicants have done no study comparable to the 2005 Vision Plan study to determine what transmission facilities would be needed under an assumption of 4000MW or 3500MW of systemic load growth for the CapX2020 utilities between 2009 and 2020.¹⁷²

203. In fact, Applicants have done no analysis to determine whether the CapX2020 power lines would be needed under any systemic load growth assumptions from 2009 to 2020 lower than the 4500MW projected in the Vision Study.¹⁷³

204. Mr. Rogelstad explained his opinion that the need for the CapX2020 projects would not be eliminated if there were only 2,000 MW of system growth was based in part on his analysis of the specific community reliability studies pertaining to the Red River and the Rochester-La Crosse area which he believed would still support need for the projects.¹⁷⁴

205. It is significant that Applicants did not study any scenario where there was load growth below 4500 MW. The problems that one would encounter in transmission tend to grow as load grows. The range of problems would be different and less severe with lower load growth. Applicants have not tested the CapX projects against the most likely forecast and the most likely set of problems.¹⁷⁵

206. In addition to estimating megawatts of renewable energy likely to be required in compliance with the RES and the 2007 conservation law (3,160 MW to 4,927 MW depending on conservation and the wind capacity), OES also calculated the number of megawatts of “non-renewable” generation needed by the CapX utilities by 2020 to meet demand.

207. OES estimated the statewide capacity deficit in the year 2020, and then subtracted accredited wind generation capacity to conclude that 2,233 MW to 3,057 MW of “non-renewable” generation would be needed by 2020.¹⁷⁶

208. OES analysis contained assumptions that would tend to increase the number of “non-renewable” megawatts required by 2020.

¹⁷² Ex. 26 (Response to IR 5 of CETF).

¹⁷³ Tr. V. 2B, pp. 15-16, 17-18 (Rogelstad); Ex. 26 (Response to IR No. 5 of CETF).

¹⁷⁴ Tr. V. 3, p. 30, p. 83-85 (Rogelstad); *see also* Tr. V. 2B, p. 84, ll. 18-22 (Rogelstad).

¹⁷⁵ Tr. V. 16, pp. 69-70 (Michaud).

¹⁷⁶ Ex. 257, p. 17 (Ham Direct).

209. OES estimates presumed that future wind facilities will have capacity factors similar to existing facilities and did not account for any technology enhancements to improve capacity.¹⁷⁷

210. Although other technologies would also count toward the RES, OES estimates of RES capacity needs assumed that the only renewable technology used was wind.¹⁷⁸ Biomass and biogas combustion typically have higher capacity factors than the 30% or 40% capacity factors OES estimated for wind.¹⁷⁹

211. OES assumed that any dispatchable power must be non-renewable. Within the 2020 time frame, it would be reasonable to expect a variety of technologies to firm up wind capacity to be cost-effective and dispatchable, potentially including compressed air storage, batteries and hydrogen storage using electrolyzers and fuel cells.¹⁸⁰

212. The “non-renewable” megawatts identified by OES could be any technology that was least cost and met Commission standards, including biomass, such as wood waste co-fired with coal.¹⁸¹ For a project co-firing biomass, 100 percent of the megawatts fueled from the biomass would be eligible for the RES.¹⁸²

213. In calculating the need for “non-renewable” energy, OES provided credit for wind nameplate generation at a rate of 13.5%.¹⁸³ Accreditation rates used by utilities for planning purposes range from 10% to 36%.¹⁸⁴

214. OES did not demonstrate that the CapX projects would interconnect with projected generation.

215. OES did not provide testimony that any specific megawatts of wind identified by OES as needed under the RES statute would be interconnected with the CapX projects.¹⁸⁵

216. OES witness Susan Peirce did not testify that any specific transmission lines would be used to interconnect Renewable Energy Standards projects.¹⁸⁶ Ms. Peirce acknowledged that new renewable projects interconnected with or without CapX could be used for compliance with the Minnesota RES.¹⁸⁷

¹⁷⁷ Ex. 231, p. 19 (Peirce Direct); Tr. V. 22, pp. 74,110 (Peirce).

¹⁷⁸ Tr. V. 22, p. 75, ll. 4-7, p. 79, ll. 1-5 (Peirce).

¹⁷⁹ Tr. V. 22, p. 113, ll. 11-16 (Peirce); Ex.245 (Response to IR58 of OES)

¹⁸⁰ Xcel Energy is testing a one MW wind battery storage system at the MinnWind wind farm in southwestern Minnesota. This test is expected to demonstrate technology to make wind power dispatchable on a utility scale. Tr. V. 16, pp. 99-101 (Michaud).

¹⁸¹ Tr. V. 23, pp. 68-69 (Ham).

¹⁸² Tr. V. 22, p. 103 (Peirce).

¹⁸³ Tr. V. 24, pp. 21-22 (Ham); Ex. 272; Ex. 257, p. 17 (Ham Direct).

¹⁸⁴ Ex. 231, p. 20 (Peirce Direct).

¹⁸⁵ Tr. V. 24, p. 19 (Ham); Tr. V. 22, p. 82 (Peirce).

¹⁸⁶ Tr. V. 22, p. 106, ll. 13-18 (Peirce).

¹⁸⁷ Tr. V. 22, p. 106, ll. 19-24 (Peirce).

217. The analysis performed by OES calculated that a greater number of wind megawatts are needed to comply with the RES than the 2275 proposed by Applicants as inputs in their Vision Study model.¹⁸⁸

218. The OES analysis calculated a lower number of non-renewable energy megawatts are needed than the 4050MW used by Applicants as inputs in each scenario in their Vision Study model.¹⁸⁹

219. OES intended that the numbers for wind and non-renewable generation that they were producing in their analysis would be comparable to the numbers reflected in Exhibit 21, describing the inputs to Applicants' Vision Study model.¹⁹⁰

220. OES testified that their analysis showed a lack of intention on the part of Applicants to bias the results of the Vision Study, but they did not know what the engineering outcome would be with the changes in inputs identified by OES.¹⁹¹

221. OES witness Mr. Hwikwon Ham stated, "I'm not pretending I'm engineer, and I'm not verifying the individual details of engineering inputs."¹⁹² Mr. Ham's testimony continued:

Q: You said that you're not an engineer. Given that, you're not testifying that if engineers plugged the OES assumptions into the engineering models used in Appendix A-1 they'd get the same result, correct?

A: No, I'm not claiming any of engineering output."¹⁹³

222. Neither Applicants' analysis in the Vision Plan study nor the OES analysis of potential megawatts of generation needed to meet demand and comply with the RES demonstrate a need for the CapX2020 projects based on system-wide growth of demand.

223. The CapX2020 projects may only be approved pursuant to Minn. Stat. § 216B.243, subd. 3 if Applicants can demonstrate that the transmission facilities are needed for local community reliability or generation outlet capacity, particularly renewable energy support.

B. Community Reliability and Generation Outlet Capacity/Renewable Energy Support

1. Reliability

¹⁸⁸ Tr. V. 24, pp. 26-27 (Ham); *Compare* Ex. 253-256 (Estimated RES Capacity Need) and Ex. 275 (Minnesota Renewable Interconnection Need) *with* Ex. 21 (Response to IR No 12 of NAWO).

¹⁸⁹ Tr. V. 24, p. 28, ll. 6-14 (Ham); *Compare* Ex. 275 (Minnesota Non-Renewable Interconnection Need) *with* Ex. 21 (Response to IR No 12 of NAWO).

¹⁹⁰ Tr. V. 24, p. 32 (Ham).

¹⁹¹ Tr. V. 24, p. 33, ll. 3-19 (Ham).

¹⁹² Tr. V. 24, p. 37, ll. 17-19 (Ham).

¹⁹³ Tr. V. 24, p. 38, ll. 16-21 (Ham).

224. In addition to their claim that the CapX2020 transmission projects were needed due to growth in system-wide demand, Applicants asserted that the projects were needed for community service reliability in specific identified communities by 2020 and to provide generation outlet capacity, particularly renewable energy support to comply with Minnesota's RES.¹⁹⁴

Minn. Stat. § 216B.243, subd. 3 (5); Minn. R. 7849.0120, subp. A, Reliability

225. In considering proposed large energy facilities, the Commission must consider the point where denial of a certificate of need would result in an "adverse effect" on reliability, minn. R. 7849.0120, subp. A, and "the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives." Minn. R. 7849.0120, subp. A(4).

226. Analysis of community reliability needs is based on whether the CapX2020 projects are needed to meet NERC n-1 reliability needs during the time period through 2020.

227. Under NERC (North American Electric Reliability Council) standards, Category B, is an event resulting in the loss of a single element, which is also referred to as an n-1 (n minus one) condition.¹⁹⁵

228. Applicants concur that planning of transmission is designed to meet n-1 (Category B) contingencies, loss of a single facility. Planning engineers also study multiple losses, but for those situations, they can interrupt load.¹⁹⁶

229. The issue for transmission system providers is to provide customers with power and meet NERC n-1 reliability criteria¹⁹⁷ and NERC n-1 is the key contingency for a transmission planner.¹⁹⁸

230. Under NERC standards, it is anticipated that there may be planned or controlled curtailment of load during Category C events.¹⁹⁹

231. NERC standards do not assume maintenance of load under Category D extreme events.²⁰⁰

232. The critical load level represents the load level at which point the transmission system is determined to exceed its capability.²⁰¹ In order to determine the capacity of transmission, load has to increase and generation has to increase to match load.²⁰²

¹⁹⁴ Ex. 1, p. 1.3 (Application); Tr. V. 2A, p. 20 (Rogelstad).

¹⁹⁵ Tr. V. 9, p. 120, ll. 12-18 (King); Ex. 103 (NERC Rules).

¹⁹⁶ Tr. V. 1A, pp. 73-74 (Rogelstad).

¹⁹⁷ Tr. V. 15, p. 12, ll. 17-22 (Alders).

¹⁹⁸ Tr. V. 9, p. 176, l. 5 (Alholinna).

¹⁹⁹ Ex. 103 (NERC Rules); Tr. V. 9, p. 124 (King).

²⁰⁰ Ex. 103 (NERC Rules) Tr. V. 9, p. 126, ll. 19-21 (King).

²⁰¹ Tr. V. 7, p. 136, ll. 2-5 (Kline).

2. Alternatives

Minn. Stat. § 216B.243, subd. 3 (6); Minn. R. 7849.0260 Alternatives

233. Reasonable alternatives under the certificate of need statute include, but are not limited to the potential for increased efficiency, upgrading existing generation and transmission facilities, load management and distributed generation.²⁰³

234. Under applicable Rules, an Application for a high voltage transmission line must include a discussion of alternatives to the facility, including new generation of various technologies, sizes and fuel types, transmission lines with different design voltages, transmission lines with different terminals or substations and any reasonable combination of the alternatives listed above.²⁰⁴

235. In this proceeding, much of the Applicants' discussion of generation and transmission alternatives to the proposed CapX2020 Projects is contained in discovery documents, prefiled testimony and the record at the administrative hearing, as well as in the Application itself.

236. This record evidence must be evaluated in assessing Applicants' claims that the CapX2020 projects are needed for community reliability.

237. Applicants agree that it is appropriate for the Commission to take into account the effect other planned transmission projects may have on reliability in reviewing the timing of the CapX Projects.²⁰⁵

3. Conservation and Load Management

Minn. Stat. § 216B.243, subd. 3, Minn. Stat. § 216B.243, subd. 3(8) Conservation

238. Under Minnesota's certificate of need statute, no large energy facility can be certified unless an applicant demonstrates that demand for the project cannot be met more cost-effectively through conservation and load management.²⁰⁶

239. To meet this statutory burden Applicants must compare the costs of conservation and energy demand management with the cost of proposed facilities to determine whether a facility is, in fact, needed. The first component is, can energy conservation be used to replace it, and the second component is, is that energy conservation cost-effective.²⁰⁷

²⁰² Tr. V. 7, p. 74, ll. 2-5 (Kline).

²⁰³ Minn. Stat. § 216B.243, subd. 3(6).

²⁰⁴ Minn. R. 7849.0260 B(1) through (8).

²⁰⁵ Tr. V. 8, pp. 108-109 (Stevenson). Applicants have asked for flexibility in setting the in-service date for the Northern Hills- North Rochester 161 kV line in the event RIGO is approved. Ex. 83, p. 10 (Stevenson Direct).

²⁰⁶ Minn. Stat. § 216B.243, subd. 3.

²⁰⁷ Tr. V. 21 at 84(Davis)

240. The statute requires the Commission to consider any feasible and cost-effective combination of energy conservation improvements that can replace all or part of the energy to be provided by the proposed facility.²⁰⁸

Minn. Stat. § 216B.243, subd. 3(7) State Policies, Rules and Regulations

241. In addition, where state law has established policies, rules and regulations for conservation, Minnesota certificate of need law requires that compliance with these requirements become part of the certificate of need consideration.²⁰⁹

242. The forecasts of local need submitted in the Application for the CapX2020 projects did not take into account the demand savings that would result from compliance with the 2007 energy conservation statute and Applicants did not attempt to determine what the load growth would be if the 1.5% conservation were taken into account.²¹⁰

243. OES provided forecasted local need data for Rochester, La Crosse, South Red River Valley, Alexandria and St. Cloud based on taking the original assumptions in the Application and reducing the forecasts by the incremental demand savings that might result from the 2007 energy conservation statute.²¹¹

244. Once OES identified a gap between 1.5 percent conservation and projected demand OES did not look at whether any additional conservation, demand side management or supply side facilities could meet that gap more cost-effectively than the proposed projects.²¹²

245. OES did no analysis of the costs of various types of conservation and load management to achieve a specific level of demand reduction so that the critical load level in communities identified by Applicants in this proceeding would not be exceeded by 2020.²¹³

246. Lowering peak load can affect the year at which the transmission system would reach critical load and affect the year at which a project is needed.²¹⁴ To the extent that load management lowers the magnitude of peak energy use, it defers the time within which a reliability constraint might appear.²¹⁵

²⁰⁸ Minn. Stat. § 216B.243, subd. 3(8).

²⁰⁹ Minn. Stat. § 216B.243, subd. 3(7).

²¹⁰ Tr. V. 12, pp. 73-74 (Grivna).

²¹¹ Ex. 215, p. 14 (Davis Direct).

²¹² Tr. V. 21 at 86-87 (Davis)

²¹³ Tr. V. 21 at 90 (Davis)

²¹⁴ Tr. V. 9 at 102-103 (King)

²¹⁵ Tr. V. 16 at 71-72 (Michaud)

247. All of the community reliability needs asserted by Applicants in this proceeding are to meet demand at the particular times of summer or winter peak energy usage,²¹⁶ so demand side management that lowers peak demand is particularly pertinent to the specific community reliability needs in this proceeding.

248. The 2007 energy conservation statute focuses on energy savings and is an average for the entire service territory of a utility, not designed to focus on any specific geographic area.²¹⁷ A utility could be in compliance with the 2007 conservation law and still not be implementing all cost-effective conservation and load management to reduce peak demand in a particular community.²¹⁸

249. To convert energy savings into demand (MW) savings, OES assumed that 5,300 megawatt hours of incremental energy savings would result in one megawatt of peak demand savings.²¹⁹ This estimate was based on incremental extensions of typical past programs focused on energy savings, such as commercial lighting programs.²²⁰

250. Programs more targeted to saving energy in peak hours, such as programs to save kilowatt hours from air conditioning, would have a larger impact on peak demand savings.²²¹

251. OES witness Christopher Davis agreed that if one were trying to identify a way in which to reduce summer peak demand, one would use summer peak savings programs, such as the saver switch program, which have a higher coincidence factor than general energy savings programs.²²²

252. Effective targeted load management programs currently available to utilities to manage peak demand include a dual fuel heating system for residential and commercial users that controls winter peak demand and an air conditioner program that cycles users on and off resulting in a reduction of summer peak demand.²²³ These strategies have closer to a one-to-one effect in reducing winter peak demand.²²⁴

253. Xcel Energy's Saver's Switch air conditioning program has about 325 MW of load management available.²²⁵ Xcel also has about 680MW of load management available from business customers who have committed to reduce electricity to a

²¹⁶ Ex. 1, Apx. C-1 through C-5 (Application)

²¹⁷ Tr. V. 21 at 88-89 (Davis)

²¹⁸ Tr. V. 21 at 89 (Davis)

²¹⁹ Ex. 215 at 9-10 (Davis Direct)

²²⁰ Tr. V. 21 at 72 (Davis)

²²¹ Tr. V. 21 at 72-73 (Davis)

²²² Tr. V. 21 at 91 (Davis); Tr. V. 21 at 91 (Davis)

²²³ Tr. V. 16 at 77 (Michaud) CETF7

²²⁴ Tr. V. 21 at 92 (Davis)

²²⁵ Ex. 303 at 24 (Rakow Rebuttal)

contracted level during peak-use periods.²²⁶ GRE has summer peak demand and interruptible business demand programs available for about 300MW.²²⁷ Otter Tail Power Company has about 80MW of available load management for winter peak loads.²²⁸

254. To the extent that Applicants' local forecasts for communities are overstated, it would change the timing and need for resources.²²⁹

255. Applicants should have examined how targeted conservation and load management programs would have partially or completely resolved each of the 2020 year local reliability issues they identified.²³⁰

256. The use of Smart Grid technology was not considered in the OES calculation of future energy saved.²³¹

257. According to Xcel Energy, "[A] smart grid is an intelligent, auto-balancing, self-monitoring power grid that accepts any source of fuel (coal, sun, wind) and transforms it into a consumer's end use (heat, light, warm water) with minimal human intervention. It is a system that will allow society to optimize the use of renewable energy and minimize our collective environmental footprint. It is a grid that has the ability to sense when a part of the system is overloaded and reroute power to reduce that overload and prevent a potential outage situation; a grid that enables real-time communication between the consumer and the utility allowing us to optimize a consumer's energy usage based on environmental and/or price preference."²³²

258. Xcel Energy believes there is compelling evidence existing today that Smart Grid benefits will include reductions in residential peak demand by 30 percent and energy consumption by 10 percent by providing real-time price and environmental signals in conjunction with advanced in-home technologies.²³³

259. Xcel Energy believes there is compelling evidence existing today that Smart Grid benefits will include an additional 25 percent reduction in residential peak demand once the utility system is fully integrated with distributable generation technologies scaled for mass penetration.²³⁴

²²⁶ Ex. 303 at 24 (Rakow Rebuttal)

²²⁷ Ex. 303 at 25 (Rakow Rebuttal)

²²⁸ Ex. 303 at 26 (Rakow Rebuttal)

²²⁹ Tr. V. 16 at 75 (Michaud)

²³⁰ Ex. 140 at 9 (Michaud Direct)

²³¹ Tr. V. 21 at 73 (Davis)

²³² Ex. 134 at 8, document page 0000235 of *Xcel Energy Smart Grid A White Paper* (Response to NAWO IR 15 2nd Supp. Attachment)

²³³ *Id.*, at 11, doc. p. 0000238

²³⁴ *Id.*, at 11, doc. p. 0000238

260. This record provides information regarding the effects of the 1.5% energy conservation law on predicted local need. It does not provide information regarding all potential for cost-effective conservation to meet community reliability needs based on summer or winter peak demand.

C. La Crosse Project

1. Community Reliability

a. Rochester Area

261. The CapX2020 345 kV La Crosse Project is not needed to provide community reliability in the Rochester area through the year 2020 given current and planned lower voltage transmission and local generation.

262. The Rochester Incremental Generation Outlet (RIGO) projects are currently being planned to provide generation outlet capacity in southeastern Minnesota.²³⁵ Xcel plans to seek expedited consideration of the RIGO application.²³⁶

263. Notice plans and requests for exemption from certificate of need filing requirements have been filed for the RIGO projects²³⁷ and utility plans for compliance with the 2012 RES milestone depend on the RIGO 161 kV lines.²³⁸

264. The RIGO projects are independent of CapX2020,²³⁹ and Xcel's commitment to proceed with the certificate of need for the RIGO projects does not depend on the outcome of this CapX2020 proceeding.²⁴⁰

265. The RIGO projects include three new 161 kV transmission lines: 1) a Pleasant Valley –Byron 161 kV line, 2) a Pleasant Valley – Willow Creek 161 kV line and 3) 161 kV line from the Byron substation to a new West Side Energy Park substation on the western city limits of Rochester a Byron-Westside Energy Park 161 kV line.²⁴¹

266. The RIGO projects are designed to help utilities achieve their 2012 Renewable Energy Standard (RES) milestones and are expected to provide 700 to 900 MW of

²³⁵ Tr. V. 8, p. 164 (King); *In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for a Certificate of Need for Two 161 kV Transmission Lines in the Greater Rochester Area, ("RIGO Proceeding")*, MPUC Docket No. E002/CN-08-992.

²³⁶ Tr. V. 8, pp. 107-108 (Stevenson).

²³⁷ RIGO Proceeding, Docket No. E002/CN-08-992.

²³⁸ RIGO Proceeding, Docket No. E999/M-07-1028; Supplemental Compliance Filing of the Minnesota Transmission Owners, p. 6, *In the Matter of the 2007 Minnesota Biennial Transmission Project Report and Renewable Standards Report*, MPUC Docket No. E999/M-07-1028 (Document #5497544, filed 9/11/08)("RES Compliance Filing 9/11/08"); *Compare with Applicants' Proposed Finding #144*.

²³⁹ Tr. V. 8, p. 164, ll. 7-9 (King).

²⁴⁰ Tr. V. 8, p. 108, ll. 2-6 (Stevenson).

²⁴¹ Ex. 94, p. 21 (King Direct).

generation outlet capacity for wind in southeastern Minnesota.²⁴² The RIGO 161 kV lines will also provide load-serving benefits to Rochester.²⁴³

267. The Rochester-Adams 161 kV reconductoring project is a separate Dairyland Power project independent of CapX2020 and RIGO.²⁴⁴ This project has been accelerated and is now scheduled for completion for the summer of 2009 to serve wind generation being added in the Adams, Minnesota area.²⁴⁵

268. Ms. King further testified that, once the RIGO projects are built and the Rochester-Adams 161 kV line is reconductored, with no other changes to the existing system, the transmission system would be able to reliably support 468MW and serve the Rochester area reliably until 2018 without running any Rochester local generation.²⁴⁶

269. Ms. King's identification of 468MW as the critical load level for the Rochester area did not include any of Rochester's internal generation. Local generation in the Rochester – 181 MW total – was assumed no longer to be in existence.²⁴⁷

270. In response to OES discovery, Applicants provided information on existing generation, planned additions to generation and planned retirements of generation plants, including local generation in the Rochester area.²⁴⁸

271. Prior to 2020, Rochester Public Utilities (RPU) plans to retire three Silver Lake units and one unit at Cascade Creek,²⁴⁹ while adding 100MW of gas generation from the West Side combustion turbine #1 for a net gain of about 23MW of dispatchable generation in Rochester.²⁵⁰

272. By 2020, RPU also plans to add 50MW of base load generation from an undetermined location, and by 2025, RPU also plans to add another 50MW of gas combustion from West Wide Energy Park.²⁵¹

273. RPU has prepared permits for the West Side Energy substation.²⁵² RPU has also proposed two new 161 kV lines from West Side Energy Park to the Northern Hills and

²⁴² Ex. 94, p. 21 (King Direct); Tr. V. 8, pp. 37-39 (Stevenson); see Ex. 5, Map 3 (Environmental Report).

²⁴³ Tr. V. 8, p. 107, ll. 10-18 (Stevenson); Ex.83, pp. 9-10 (Stevenson Direct).

²⁴⁴ Tr. V. 9, p. 58 (King).

²⁴⁵ PUC Docket No. E999/M-07-1028, #5497544, p. 5 (September 11, 2008). Supplemental Compliance Filing of the Minnesota Transmission Owners. (*Compare with* Applicants Proposed Finding #128).

²⁴⁶ Tr. V. 8, p. 164, ll. 21-24 (King); Ex. 94, p. 21 (King Direct).

²⁴⁷ Tr. V. 9, p. 106, ll. 9-13 (King); Ms. King stated that the basis for her belief that no local generation would be operable was a conversation with RPU engineers, but she could not recall any specifics of the conversation and had no specific knowledge about specific generators in the Rochester area. Tr. V. 9, pp. 106-107 (King).

²⁴⁸ Ex. 220, pp. 2-3 (Shaw Direct); Ex. 222 (Response to IR No. 29 of OES).

²⁴⁹ Cascade Creek Unit 2 is a 50 megawatt natural gas generation plant that was installed in about 2001, Ex. 1, Apx. A-1, p. 10 (Application). There are no plans for its retirement. Ex. 222 (Response to IR No. 29 of OES).

²⁵⁰ Ex. 222, "11 out of 23" (Response to IR No. 29 of OES), Tr. V. 22, pp. 19-22 (Shaw).

²⁵¹ Ex. 222, "11 out of 23" (Response to IR No. 29 of OES).

IBM Substations in the Rochester area. Each of these infrastructure elements would provide some additional level of load support and affect the timing of any community need.²⁵³

274. If existing generation in Rochester is assumed to continue to exist along with construction of the RIGO projects and Adams reconductoring, Applicants have determined that there will be sufficient transmission capacity in Rochester without the CapX2020 Projects to provide community reliability until 2026 or 2028.²⁵⁴

275. Applicants' study demonstrating reliability until 2026 or 2028 without the CapX La Crosse Project did not include adding incremental generation in the Rochester area from the West Side Energy Park gas plant.²⁵⁵

276. Local natural gas generation providing further load support would push beyond 2026 or 2028 any problems that were predicted to occur as a result of load levels in the Rochester area.²⁵⁶

277. Although it is not necessary to adjust Rochester area forecasts to establish community reliability through 2020 without the CapX2020 La Crosse Project, Applicants' forecast for the Rochester area is unreasonably high.

278. The forecast information for the Rochester area in Exhibit 96 reflects a historical 3% growth rate and continuing the trend forward with an increase of 3% per year.²⁵⁷ Even before applying demand side management, this forecast is higher than the 2.7% annual growth predicted in the RPU Report²⁵⁸ that the Application cites as the authoritative source for demand information in the Rochester area.²⁵⁹

279. Application of the 1.5% conservation statute would reduce forecasted local need in the Rochester area by approximately 30MW in 2020, resulting in an adjusted local need of 461MW by 2020.²⁶⁰

280. Once Rochester area forecasts are adjusted to comply with the 1.5% energy conservation statute (461MW local need), even if one removed all local Rochester

²⁵² Tr. V. 8, pp. 39-40 (Stevenson).

²⁵³ Tr. V. 17A, p. 18, ll. 7-12 (Michaud).

²⁵⁴ Tr. V. 9, p. 111, ll. 1-13 (King). Ms. King's prefiled testimony suggested that the "existing" transmission system, with RIGO and the Rochester-Adams reconductoring would reliably serve the Rochester area until 2032. Ex. 98, p. 4 (King Rebuttal); But, she clarified in cross-examination that this analysis had included part of the CapX 345 kV in its definition of the "existing" high voltage system. Tr. V. 9, pp. 60-62 (King).

²⁵⁵ Tr. V. 9, p. 111 (King).

²⁵⁶ Tr. V. 17A, pp. 19-20 (Michaud); Ex. 157 S-21 and S-22 (RPU 2005 Report).

²⁵⁷ Tr. V. 9, pp. 67-68 (King); Ex. 96 (Rochester forecast).

²⁵⁸ Ex. 157, pp. II-1 (RPU 2005 Report).

²⁵⁹ Ex. 1, Apx. A-2, p. 34 (Application).

²⁶⁰ Ex. 219, p. 1 (Davis Chart/Impact of CIP Statute).

generation, the RIGO and Adams projects would ensure local area reliability (468MW of load) to at least 2020.²⁶¹

b. La Crosse Area

281. If existing local generation at Xcel Energy's French Island Units 3 and 4 are running as system support, the transmission system described in the Application would be sufficient to support the level of summer peak demand projected by Applicants through 2020.

282. Not counting French Island 1 and 2, there are 1118MW of dispatchable local generation to serve load in the La Crosse area connected by existing 161 kV transmission lines, including 368MW of coal in Genoa, Wisconsin; 610MW of coal at Alma, Wisconsin; and 140MW from French Island Units 3 and 4 within the City of La Crosse.²⁶²

283. The critical summer peak load level of 470MW projected by Applicants to be exceeded in the event of a "transmission only" scenario assumed outage of the Genoa – Coulee line and that French Island Units 3 and 4 were off, which is a Category C event under NERC rules.²⁶³

284. If French Island Units 3 and 4 were running as system support during this contingency, the capacity of the transmission system in the La Crosse area would be 610 MW, which exceeds the level of summer peak demand (602 MW) projected by Applicants through 2020.²⁶⁴

285. Xcel Energy has reported no plans to retire existing French Island generation in La Crosse, Wisconsin.²⁶⁵

286. Applicants did not compare the costs of running French Island units when peak demand approached 470MW as compared to the costs of the CapX2020 Project.²⁶⁶

287. The other contingencies identified by Applicants to justify the La Crosse Project on the basis of regional reliability in the La Crosse area (such as loss of a coal plant at Genoa and loss of transmission lines to the coal generation at Alma) all involve the simultaneous loss of two or more facilities. These are Category C or Category D events under NERC guidelines.²⁶⁷

²⁶¹ See Ex. 219, p. 1 (Davis Chart/Impact of CIP Statute); Tr. V. 8, pp. 164-165 (King); Ex. 94, p. 21 (King Direct).

²⁶² Ex. 1, pp. 4.8-4.9 (Application); Tr. V. 9, p. 112 (King).

²⁶³ Tr. V. 9, pp. 123-124(King); Ex. 1, pp. 4.14-4.15, Apx C-2 (Application); Ex. 103 (NERC Rules).

²⁶⁴ Ex. 94, p. 11 (King Direct); Ex. 1, p. 4.10, Apx. C-2 (Application).

²⁶⁵ Tr. V. 22, pp. 23-24 (Shaw); Ex. 222, "15 out of 23" (Response to IR No. 29 of OES).

²⁶⁶ Tr. V. 9, p. 127 (King).

²⁶⁷ Tr. V. 9, pp. 125-126, (King); Ex. 1, pp. 4.11-4.12, Apx. C-2 (Application); Ex. 103 (NERC Rules).

288. Lower voltage transmission upgrades have been completed that were not included in the modeling used for the Application also enhance reliability in the La Crosse area.²⁶⁸ These upgrades were identified in Applicants' Response to IR 19 of NAWO/ILSR ("IR 16 Upgrades").²⁶⁹

Arrowhead-Gardner Park 345 kV line
Monroe County 60 MVAR 161 kV Capacitor
La Crosse (2) MVAR 161 kV Capacitors
Hillsboro 30.24 VAR 161 kV Capacitor
Monroe County Council Creek 161 kV line
Genoa-Coulee 161 kV Upgrade.

289. Applicants' n-2 NERC contingency analysis of the La Crosse 345 kV line (performed in response to IR 11 of NAWO/ILSR) demonstrates that these new IR 16 Upgrades, plus the 161 kV system upgrades identified in Applicants' Appendix A-2 study would provide reliable transmission to the La Crosse area through at least 2020 without construction of the proposed La Crosse 345 kV transmission line.²⁷⁰

290. NAWO/ILSR witness Michael Michaud explained that Applicants' study of an n-situation with an outage of the La Crosse 345 kV radial segment is equivalent to an n-1 study of same configuration of lower voltage lines without building the 345kV line.²⁷¹

291. Applicants' n-2 NERC analysis showed that in the event of a combined outage of the 345 kV radial segment and the Genoa 3 generator, the electrical system in the La Crosse area would support 700MW, while with a combined outage of the 345 kV radial segment and the John P. Madgett coal plant would support 800MW.²⁷² The electrical system capability under both of these contingencies far exceeds the 602MW load projected by Applicants in the La Crosse area for 2020.²⁷³

292. The additional 161 kV system voltage upgrades included in the Applicants' n-2 NERC analysis of the of the La Crosse area that have not already been completed as part of the IR 16 Upgrades are estimated in the Rochester/La Crosse study to cost approximately \$31 million.²⁷⁴

²⁶⁸ Tr. V. 16, p. 126 (Michaud).

²⁶⁹ Ex. 11, p. 2 (Supp. Response to IR 16 of NAWO/ILSR); Ex. 140, pp. 21-22 (Michaud Direct).

²⁷⁰ Ex. 140, pp. 22-23 (Michaud Direct); Tr. V. 16, pp. 126-127 (Michaud). The n-2 contingency analysis for a radial 345kV line is equivalent to an n-1 analysis excluding the 345 kV segment.

²⁷¹ Ex. 140, p. 22-23 (Michaud Direct); Tr. V. 16, p. 126-127 (Michaud). The n-2 contingency analysis for a radial 345kV line is equivalent to an n-1 analysis excluding the 345 kV segment.

²⁷² Ex. 11, p. 4 (Supp. Response to IR 11 of NAWO/ILSR).

²⁷³ Ex. 1, p. 4.15 (Application).

²⁷⁴ Ex. 1, Apx. A-2, p. 144 (Application). Remaining lower voltage improvements include the Bell Center Capacitor and all but the first two 161 kV line segment rebuilds projects.

293. Neither the IR 16 Upgrades that have already been completed in the La Crosse area nor the remaining 161 kV upgrades identified in the Rochester/La Crosse study require an additional transmission line crossing of the Mississippi River.²⁷⁵

294. Although it is not necessary to adjust La Crosse area forecasts to establish community reliability through 2020 without the CapX2020 La Crosse Project, Applicants' forecast for the La Crosse area is unreasonably high.

295. Forecasts for the La Crosse area were derived by Dairyland for substations serviced by its distribution cooperatives based on projections of historical peak growth rates from 2002 to 2006 and by Xcel Energy based on compounding its 2006 actual growth rate by the 2.3% average historical growth rate for the substations.²⁷⁶

296. Applicants' witness King could not verify the accuracy or reasonableness of the forecasts of load growth in the La Crosse area.²⁷⁷

297. Application of the 1.5% conservation statute would reduce forecasted local need in the La Crosse area by approximately 63MW in 2020, resulting in an adjusted local need of 539MW by 2020.²⁷⁸

298. La Crosse forecasts adjusted to comply with the 1.5% conservation statute (539MW) are substantially below the level of load that can be sustained by operating French Island Units 3 and 4 ahead of contingency (610 MW) and yet more substantially below the levels of load that can be sustained under various contingencies (700MW) by completing upgrades to the 161kV system in La Crosse.

2. Generation Outlet Capacity/Renewable Energy Support

299. OES witness Dr. Steve Rakow concluded regarding the La Crosse project, "The Applicants did not make a firm claim that they were going to get generation outlet due to the project."²⁷⁹

300. No number for generation outlet capacity resulting from the CapX2020 La Crosse Project has been defined either in the Application or in testimony.²⁸⁰

301. Although Joint Intervenors witness Larry Schedin suggested that studies should be done for the La Crosse Project to demonstrate the outlet benefit to substantial generation development in southern and southeastern Minnesota,²⁸¹ Mr. Schedin admitted

²⁷⁵ Tr. V. 16, p. 127, ll. 14-20 (Michaud).

²⁷⁶ Ex. 1, p. 4.14 (Application).

²⁷⁷ Tr. V. 9, p. 129, ll. 12-16 (King).

²⁷⁸ Ex. 219, p. 2 (Davis Chart/Impact of CIP Statute).

²⁷⁹ Tr. V. 25, p. 68, ll. 16-18 (Rakow).

²⁸⁰ Ex. 1, pp. 4.47-4.48 (Application); Tr. V. 21, p. 39, ll. 12-16 (Ellison).

²⁸¹ Ex. 177, p. 7 (Schedin Direct).

that he knew of no studies demonstrating generation outlet capacity for the CapX2020 La Crosse Project.²⁸²

302. Although the Brookings Project is described as “crucial” in the Renewable Energy Standards Report filed with the 2007 Minnesota Biennial Transmission Projects Report (“RES Report”) and a statement is made that the Fargo Project “will mean a likely increase in the amount of generation that can be transferred” from North Dakota to the Twin Cities, the CapX2020 La Crosse Project is not among the projects identified in the RES Report as part of the plan to achieve any RES milestones.²⁸³

303. Numerous other transmission projects discussed in these proceedings are identified in the RES Report and its subsequent compliance filings as necessary to meet RES milestones, including the following projects: BRIGO, RIGO, Bemidji to Grand Rapids 230 kV; Adams-Rochester upgrade; and the Pillsbury (North Dakota) Wind Farm Transmission.²⁸⁴

304. The La Crosse Project is not necessary for the Brookings Project; the Brookings EHV study does not assume the Twin Cities- La Crosse Project as part of the system studied.²⁸⁵

3. Reasonable and Prudent Alternatives

305. The RES Report concluded that “local load serving issues could be addressed with shorter term 161 kV developments” in the Rochester and Greater La Crosse, but that utilities had elected to pursue the 345 kV option to enhance regional transmission capabilities.²⁸⁶

306. Considering the RIGO projects, the Adams-Rochester reconductoring and the IR 16 Upgrades in the La Crosse area, the remaining upgrades to the 161 kV transmission system needed to support local reliability in the Rochester and La Crosse area would be approximately \$30 million.²⁸⁷

307. The cost of completing these lower voltage upgrades is far lower than the cost of the \$330 to \$360 million CapX2020 345 kV La Crosse Project reflected in this record.²⁸⁸

²⁸² Tr. V. 19, p. 161, ll. 6-9 (Schedin).

²⁸³ Ex. 54, pp. 297-298 (Renewable Energy Standards Report 2007); Ex. 282, p. 13 (Rakow Direct)

²⁸⁴ Ex. 282, p. 88 (Rakow Direct); Supplemental Compliance Filing of the Minnesota Transmission Owners, p. 3-7, MPUC Docket No. E999/M-07-1028, #5497544 (September 11, 2008); Ex. 54 (Renewable Energy Standards Report 2007).

²⁸⁵ Ex. 1, Apx. A-4, pp. 40-41 (Application); Tr. V. 11, pp. 48-49 (Alholinna).

²⁸⁶ Ex. 54, p. 200 (Renewable Energy Standards Report 2007).

²⁸⁷ Ex. 1, Apx. A-2, p. 144 (Application). Costs include \$265 thousand for the Bell Center capacitor and all 161 kV line segments except the \$1.8 million for Genoa-Coulee reconductoring that has already taken place (\$32.7 - \$1.8 - \$0.27 million).

²⁸⁸ Ex. 1, p. 1.17 (Application).

308. Dr. Rakow's analysis of a 161 kV alternative to the 345 kV La Crosse line was based on data in the 2006 Rochester/La Crosse study in Apx. A-2 of the Application.²⁸⁹ This data neither took into account the built and planned improvements to the 161kV system reflected in the record of this proceeding nor the costs of the 345 kV line reflected in the Application, which exceed the \$191 million cost estimated in the A-2 study.²⁹⁰

309. Improvements in the 161 kV system (RIGO, Adams reconductoring, the IR 16 Upgrades and the additional 161kV upgrades in the La Crosse area identified in the A-2 at a cost of \$31 million) address the community reliability needs in the Application in the 2020 time frame without any segment of the La Crosse Project 345 kV line.²⁹¹

4. Environmental Impacts

310. All proposals for the CapX2020 345 kV La Crosse Project cross the Mississippi River.²⁹² Applicants are considering routes crossing the Mississippi River either at Alma, Winona or at La Crescent/La Crosse.²⁹³

311. All of the proposed routes for the La Crosse project under consideration would require crossing the Mississippi River within the USFWS Upper Mississippi National Wildlife Refuge.²⁹⁴

312. Minnesota Rules prohibit routing of transmission lines through state or national parks or state scientific and natural area unless the transmission line would not materially damage or impair the purpose for which the area was designated and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line.²⁹⁵

313. The Upper Mississippi River National Wildlife Refuge provides recreation and habitat protection for fish, mammals, reptiles and amphibians and a large percentage of migratory birds that use the Mississippi Flyway.²⁹⁶

314. The Mississippi Flyway is one of the major areas in the United States used by birds for migration, including migration to other countries.²⁹⁷

315. The most significant impact or high voltage power lines across a migratory bird flyway are the impacts of birds flying into the lines. On the face of the statute, migratory

²⁸⁹ Tr. V. 24, pp.158-159 (Rakow); Ex. 300 (Rakow Analysis).

²⁹⁰ Tr. V. 24, pp. 155, 158-161 (Rakow); Ex. 11, p. 2 (Supp. Response to NAWO IR 16); Ex. 1, Apx. A-2, pp. 143-145 (Application).

²⁹¹ Tr. V. 17A, pp.15, 22 (Michaud).

²⁹² Tr. V. 8, p. 69, ll. 17-20 (Stevenson).

²⁹³ Tr. V. 13, p. 67, ll. 12-20 (Rasmussen).

²⁹⁴ Tr. V. 13, pp. 79-80 (Rasmussen).

²⁹⁵ Minn. R. 7849.5930, subp. 2.

²⁹⁶ Ex. 128, p. 8 (Rasmussen Direct).

²⁹⁷ Tr. V. 13, pp. 80-81 (Rasmussen).

bird deaths from flying into power lines violate the terms of the Migratory Bird Treaty Act.²⁹⁸

316. Devices placed on power lines to protect migratory birds from collisions cannot be placed on 345 kV lines; this could cause excessive corona.²⁹⁹

317. The environmental setting for a proposed Alma crossing of the La Crosse Project is within the United States Fish and Wildlife Service (USFWS) Upper Mississippi National Wildlife Refuge. There is a wide stretch of this potential crossing that has a moderate biological diversity significance and some areas have a high biodiversity significance.³⁰⁰

318. The environmental setting for a proposed Alma crossing for the La Crosse Project also includes the Kellogg Weaver Dunes State Scientific and Natural Area, the McCarthy Lake Wildlife Management Area and a number of threatened and endangered species, including a “critically imperiled” section of swamp white oak terrace forest and several state threatened and endangered plants.³⁰¹

319. The Alma Crossing area has four other State threatened animal species populations considered species of special concern: the wood turtle, Blanding’s turtle, the ottoe skipper butterfly and the paddlefish.³⁰²

320. The area near the existing Alma 161 kV transmission line that is being considered for the La Crosse Project route contains “areas of high and outstanding diversity significance,” including calcareous and other large fens, as well as shrub-dominated wetlands. This type of fen is “critically imperiled” in Minnesota.³⁰³

321. There is an active bald eagle nest in or adjacent to the existing Alma power line on the Minnesota side of the USFWS Upper Mississippi National Wildlife Refuge³⁰⁴ One record places a peregrine falcon near the proposed Alma crossing and falcons are beginning to nest in cliffs along the Mississippi. The peregrine falcon is the rarest bird of prey in Minnesota and is considered an endangered species.³⁰⁵

322. The environmental setting for a proposed Winona crossing for the La Crosse Project is within the USFWS Upper Mississippi River National Wildlife Refuge. The crossing has several state threatened and endangered plant species and an assortment of

²⁹⁸ Tr. V. 13, pp. 82-84 (Rasmussen); 16 U.S.C. § 703(a), “Unless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill . . . any migratory bird.”

²⁹⁹ Tr. V. 12, p. 174 (LaCasse).

³⁰⁰ Tr. V.13, pp. 69-71 (Rasmussen); Ex. 1, Apx. E-1, Map 5 (Application – Alma Crossing of Mississippi River Environmental Setting).

³⁰¹ Ex. 1, Apx. E-1, p. 13, Apx. E-1, Map 5 (Application); Tr. V. 13, p. 72 (Rasmussen).

³⁰² Ex. 1, Apx. E-1, p. 14 (Application).

³⁰³ Ex. 1, Apx. E-1, p. 13 (Application).

³⁰⁴ Ex. 131 (2/19/08 Letter from USFWS).

³⁰⁵ Ex. 1, Apx. E-1, p. 15 (Application).

state threatened and endangered species, including the northern cricket frog, the rock pocketbook mussel, the wartyback mussel, the smooth soft shell turtle, Blanding's turtle, the timber rattlesnake and the paddlefish.³⁰⁶

323. Bald eagle and osprey nesting areas exist around the crossing and peregrine falcons have been identified in the southeastern portion of the crossing area.³⁰⁷

324. The United States Fish and Wildlife Service believes that a proposed Winona crossing would likely require new right-of-way across portions of the national wildlife refuge and would not be permitted by the USFWS, since policy and regulations do not allow new uses that fragment habitat on refuges.³⁰⁸

325. The environmental setting for a proposed La Crescent/La Crosse crossing for the La Crosse Project is within the USFWS Upper Mississippi National Wildlife Refuge. The crossing vicinity contains areas of high biodiversity significance.³⁰⁹

326. The setting for a proposed La Crescent/La Crosse Mississippi River crossing also contains areas of high visual sensitivity, where transmission lines would have impacts on viewsheds from residences and from scenic roads, including the Great River Road (Southern Minnesota Scenic Byway).³¹⁰

327. Many state threatened and endangered species have been found within the La Crescent/La Crosse crossing vicinity, including mussel species, the peregrine falcon and the timber rattlesnake.³¹¹ This crossing is in proximity to an active eagle nest and a blue heron colony on the Wisconsin side and an important heron and egret feeding area on the Minnesota side.³¹²

328. The Wisconsin Department of Natural Resources has identified more than two dozen rare, threatened or endangered species in La Crosse County, Wisconsin the county bordering a proposed La Crescent/La Crosse River crossing. These endangered and threatened species include insects (Pecatonica river mayfly); fish (crystal darter, goldeye, starhead topminnow, pallid shiner, black redhorse, river red horse, bullhead, blue sucker); amphibians (the Blanchard's cricket frog); reptiles (wood turtle, Blanding's turtle); and birds (loggerhead shrike, great egret, red-shouldered hawk, cerulean warbler, Kentucky warbler, Bell's vireo, osprey) among other species.³¹³

329. There is also a bike/pedestrian trail proposed on land owned by the City of La Crescent and the USFWS, just south of the existing 69 kV towers.³¹⁴

³⁰⁶ Ex. 1, Apx. E-1, pp. 17-18, Apx. E-1, Map 6 (Application).

³⁰⁷ Ex. 1, Apx. E-1, p. 17 (Application).

³⁰⁸ Ex. 131, p. 2 (2/19/08 Letter from USFWS).

³⁰⁹ Ex. 1, Apx. E-1, p. 23, Apx. E-1, Map 8 (Application); Tr. V. 13, pp. 74-75,79-80 (Rasmussen).

³¹⁰ Ex. 1, Apx. E-1, p. 24 (Application); Tr. V. 13, pp. 86-87 (Rasmussen).

³¹¹ Ex. 1, Apx. E-1, p. 25 (Application).

³¹² Ex. 131, p. 1 (2/19/08 Letter from USFWS).

³¹³ Ex. 1, Apx. E-1, pp. 26-27 (Application).

³¹⁴ Ex. 131, p. 1 (2/19/08 Letter from USFWS).

330. The USFWS also expressed concern that the larger towers and additional lines for a proposed La Crescent/La Crosse crossing may come into conflict with the La Crosse Airport and Federal Aviation Administration guidelines.³¹⁵

331. The USFWS proposed that an alternative corridor using a buried line should be considered for the proposed CapX2020 project in light of various USFWS concerns and “due to the large number of eagles, egrets, herons, and pelicans [that] cross back and forth over the interstate bridges as they use the various sloughs and channels on either side.”³¹⁶

332. The USFWS also suggested that the option of burying crossing lines below the river and removing existing lines, especially those across refuge or wildlife management lands be considered.³¹⁷

333. Applicants do not intend to put any section of the La Crosse project underground.³¹⁸ Burying transmission lines in a river environment also has risks, including disruption during underground construction, seepage of bentonite clay into the river and the potential for oil-filled cables to seep into the river if the containment system fails after construction.³¹⁹

334. All three proposed Mississippi River crossings for the La Crosse Project – At Alma, Winona or La Crescent/La Crosse – will impact environmentally sensitive areas.³²⁰

335. Visual and environmental impacts from the proposed La Crosse Project would be different from those of existing lower voltage transmission lines. The typical steel structure for a double circuit 345 kV power line is 140-170 feet tall, requiring 150 feet of right of way.³²¹ Poles for a 161kV power line are from 70-115 feet tall, requiring approximately half as much right of way³²² and poles for a 69kV power line are from 60-80 feet tall.³²³

336. In addition to visual impacts, unavoidable long-term environmental impacts could include permanent destruction of wetlands along the area where lines are located and clearing forested areas of trees – for the most part anything growing over 20 feet – across the right-of-way.³²⁴

³¹⁵ Ex. 131, p. 2 (2/19/08 Letter from USFWS).

³¹⁶ Ex. 131, p. 2 (2/19/08 Letter from USFWS).

³¹⁷ Ex. 131, p. 2 (2/19/08 Letter from USFWS).

³¹⁸ Tr. V. 8, p. 92, ll. 18-24 (Stevenson).

³¹⁹ Ex. 1, pp. 9.10-9.11 (Application).

³²⁰ Tr. V. 13, pp. 87-88 (Rasmussen).

³²¹ Tr. V. 8, pp. 88-89 (Stevenson); Ex. 1, p. 2.12 (Application), A 170-foot pole in equivalent in height to a 15-story building.

³²² Ex. 1, p. 2.15 (Application). 80 feet of right of way.

³²³ Tr. V. 8, p. 98, p. ll. 8-13 (Stevenson).

³²⁴ Tr. V. 13, pp. 93-94 (Rasmussen, 7/30/08), J p. 10.

337. All three proposed Mississippi River crossings for the La Crosse Project – at Alma, Winona or La Crescent/La Crosse – will create some unavoidable short-term and unavoidable long-term environmental impacts.³²⁵

338. Applicants have not demonstrated that the La Crosse line is needed for system-wide demand growth, community reliability in the Rochester or La Crosse area or for generation outlet capacity. Feasible and prudent alternatives avoid impacts to a national wildlife refuge and impairment of natural resources.

D. Fargo Project

1. Community Reliability

a. North Red River Valley

339. Applicants acknowledge that the proposed Bemidji to Grand Rapids 230 kV transmission line addresses reliability issues for the North Red River Valley through 2020.³²⁶

340. An application for certificate of need for the 68-mile Bemidji-Grand Rapids 230 kV line has been filed, and is independent of the results of the CapX2020 proceeding. Construction costs for the Bemidji-Grand Rapids line are estimated at \$60.5 million.³²⁷

341. The Bemidji-Grand Rapids 230 kV power line is moving forward. The Certificate of Need has been filed and the Commission process is uncontested.³²⁸

342. In the Northern Red River Valley, the CapX2020 Fargo Project is not needed if the Bemidji-Grand Rapids 230 kV line is built; reliability problems are solved with the addition of that facility.³²⁹

b. Southern Red River Valley

343. The TIPS study for the Fargo Project did not perform a load forecast. It gradually increased load to determine at what point the transmission system would be unable to serve load. The TIPS made a rough projection based on projecting the historical load growth of the time frame in which the southern Red River Valley would no longer be able to serve all its load, but it went no further than that.³³⁰

³²⁵ Tr. V. 13, p. 88, ll. 9-10 (Rasmussen); Ex. 130, p. 3 (Rasmussen Rebuttal); Tr. V. 18A, pp. 28-29 (Birkholz).

³²⁶ Tr. V. 6, p. 161, ll. 22-24 (Kline).

³²⁷ Tr. V. 7, p. 62, ll. 3-7 (Kline); *In the Matter of the Application of Otter Tail Power Co., Minn. Power and Minnesota Power Coop., Inc. for a 230 kV Transmission Line From Bemidji to Grand Rapids, Minn.*, (“Bemidji-Grand Rapids Proceeding”), MPUC Docket No. ET-6/CN-07-1222. Project cost is in Application, Part. 1, p. 16, filed March 17, 2008.

³²⁸ Tr. V. 16, p. 132, ll. 11-14 (Michaud).

³²⁹ Tr. V. 17A, p. 23, ll. 3-6 (Michaud).

³³⁰ Tr. V. 7, pp. 115-116 (Kline).

344. Additional forecasting was done for the CapX2020 Certificate of Need Application.³³¹ In preparation for the application, Applicants obtained load forecast information from individual utilities in the Fargo project study area and based load growth on these forecasts.³³²

345. The combined substation forecasts for the Fargo Project used in the Application have not been accepted in any integrated resource plan,³³³ and Applicants' calculations did not consider the new 2007 demand side management obligation.³³⁴

346. Using Applicants' forecast, the first year for which winter peak demand in the Southern Red River Valley may exceed the n-1 critical load level is 2019, with five potential "megawatts at risk" out of 1364MW load. Even by 2020, the total megawatts at risk by which critical load may be exceeded are 21MW out of 1381MW.³³⁵

347. The OES analyzed the impact of 2007 conservation law on forecasts for the Southern Red River Valley and determined that compliance with the 1.5% energy conservation statute would reduce cumulative demand in the Southern Red River Valley 176 MW by 2019 and 196 MW by 2020.³³⁶ This is a substantially greater reduction than the megawatts at risk identified by Applicants (5MW in 2019 and 21 MW in 2020).

348. When OES adjusted the Red River Valley loads for the 2007 conservation statute, OES compared the critical load that could be supported by transmission (1,360MW) to the total summed up from all substation forecasts, rather than providing the 0.769 load adjustment factor needed to take into account historical coincidence of peak demands.³³⁷

349. If the appropriate (0.769) load adjustment factor and the demand adjustment for the 2007 conservation statute are applied to the Southern Red River forecast, the adjusted winter peak load is 1,230 MW in 2020, well below the 1,360MW critical load level.³³⁸

350. Even if construction of the Bemidji-Grand Rapids 230kV line slightly reduces the critical load level in the Southern Red River Valley to 1,255MW, as suggested by Applicants in response to discovery,³³⁹ the 1,230 MW adjusted winter peak load in the Southern Red River Valley would remain below this critical load level.

³³¹ Tr. V. 7, p. 116 (Kline).

³³² Tr. V. 6, p. 146, ll. 12-19 (Kline).

³³³ Ex. 79 (Response to IR 14 of CETF).

³³⁴ Tr. V. 7, pp. 132-133 (Kline); Ex. 82 (Response to OES IR 47).

³³⁵ Tr. V. 7. Pp. 136-138 (Kline); Ex. 1, p. 4.26, Figure 4-13, Apx. C-3 (Application).

³³⁶ Ex. 219, p. 3 (Davis Chart/Impact of CIP Statute).

³³⁷ Ex. 1, p. 4.22 (Application).

³³⁸ See Ex. 219, p. 3 (Davis Chart/Impact of CEP Statute); Ex. 1, p. 4.22-4.24 (Application). OES reduced local substation totals from 1,795MW to 1,599MW by taking into account 1.5% conservation; multiplying 1,599 by 0.769 results in the adjusted winter peak load.

³³⁹ Ex. 144, p. 2 (Response to IR No. 13 of NAWO/ILSR).

351. Applicants' analysis noted that there was not an abundance of generation in the Red River Valley.³⁴⁰ To the extent that it was suitably reliable, dispersed local generation in the Southern Red River Valley would mitigate reliability problems.³⁴¹

352. It would be possible for additional generation coming on line before 2020 in the Southern Red River Valley to support local load growth if developed in vicinity of areas of need or connected through the topology of the transmission system, although there might be effects on the transmission system.³⁴²

353. A 358MW wind project is being constructed in the Southern Red River Valley in Pillsbury, North Dakota, connecting to the Maple River substation, with 200MW of wind coming on line in 2008.³⁴³

354. In tabulating a utility's generation resource assets, a utility may count 15 or 20 percent of the capacity of any wind facility toward their total generation need.³⁴⁴

355. For the Pillsbury project, for planning purposes one would typically consider 15 to 20 percent of the total power of that 200MW source – 30MW to 40 MW -- as an available resource for community reliability and load support.³⁴⁵

356. Applicants have not studied the impact of this new 200MW of wind generation electrically connected to Maple River on local load serving for the Southern Red River Valley.³⁴⁶

357. Demand management in compliance with the 2007 conservation statute and local renewable generation development coming on line to meet the Renewable Energy Standards³⁴⁷ would address community reliability in the Southern Red River Valley.

c. Alexandria

358. Community reliability needs in the Alexandria area will be met with a combination of planned transmission and conservation in compliance with the 2007 conservation statute, without the Fargo Project.

359. In the CapX2020 Application, the critical load level for the Alexandria area was estimated at 171MW.³⁴⁸

³⁴⁰ Tr. V. 6, pp. 126-127 (Kline).

³⁴¹ Tr. V. 4, p. 121 (Webb, 7/17/08); NAWO, p. 3.

³⁴² Tr. V. 7, p. 104 (Kline).

³⁴³ Tr. V. 7, pp. 108-110 (Kline); Ex. 70, p. 5 (Kline Rebuttal).

³⁴⁴ Tr. V. 7, pp. 91, 169-170 (Kline).

³⁴⁵ Tr. V. 7, pp. 169-170 (Kline).

³⁴⁶ Tr. V. 7, pp. 110-111 (Kline).

³⁴⁷ Supplemental Compliance Filing of the Minnesota Transmission Owners, p. 7, MPUC Docket No. E999/M-07-1028, #5497544 (September 11, 2008).

³⁴⁸ Ex. 1, p. 4.29, Apx. C-4 (Application).

360. With the Bemidji-Grand Rapids 230 KV line in service, Applicants have testified that the Alexandria area will be capable of serving 191MW of customer load.³⁴⁹

361. Using Applicants' forecasts of local need, building the Bemidji –Grand Rapids 230 kV line alone mitigates Alexandria reliability issues until the 2017-2019 time frame.³⁵⁰ Under Applicants' demand assumptions, summer peak load in 2020 would be 185MW³⁵¹ and winter peak load in 2020 would be 198MW.³⁵²

362. The OES analyzed the impact of 2007 conservation law on forecasts for Alexandria. OES determined that compliance with the 1.5% energy conservation statute would reduce cumulative winter peak demand in the Alexandria area by 21.6 MW by 2020.³⁵³

363. Local Alexandria area winter peak demand adjusted for the 2007 conservation statute would be 176MW by 2020,³⁵⁴ well below the 191MW of load that can be reliably supported in the Alexandria area with the Bemidji-Grand Rapids 230kV line in service.³⁵⁵

364. Although not required to demonstrate reliability in this instance, conservation alone, at the level of 1.5% cumulative additional energy savings reflected in the OES sensitivity analysis, would be sufficient to defer Alexandria's reliability concerns until some time after 2020.³⁵⁶

365. Although local generation could also serve load in the Alexandria area with appropriate interconnection and upgrades,³⁵⁷ community reliability needs in the Alexandria area can be met without either the Fargo Project or development of additional local generation.

d. St. Cloud

366. No witness in these proceedings disputed the need for additional 345 kV support to address community reliability needs in the St. Cloud area.

367. The critical load level in St. Cloud was calculated by Applicants at 285 MW with Granite City generation on line.³⁵⁸ Even with the OES adjustment to comply with the

³⁴⁹ Tr. V. 7, p. 140, ll. 17-21 (Kline); Ex. 74, p. 4 (Kline Surrebuttal).

³⁵⁰ Ex. 144 (Response to IR No 13 of NAWO/ILSR).

³⁵¹ Ex. 1, Apx. C-4.

³⁵² Tr. V. 7, p. 142 (Kline); Ex. 1, Apx C-4 (Application); Ex. 144 (Response to NAWO IR 13).

³⁵³ Ex. 219, p. 4 (Davis Chart/Impact of CIP Statute).

³⁵⁴ Ex. 219, p. 4 (Davis Chart/Impact of CIP Statute).

³⁵⁵ Tr. V. 7, p. 140 (Kline); Ex. 74, p. 4 (Kline Surrebuttal).

³⁵⁶ Tr. V. 21, pp. 98-99 (Davis); This is the OES sensitivity analysis in Ex. 219, p. 4 (Davis Chart/Impact of CIP Statute).

³⁵⁷ Tr. V. 7, p. 108, ll. 1-10 (Kline).

³⁵⁸ Ex. 1, Apx. C-5 (Application).

2007 conservation statute, local need in St. Cloud was estimated at 407 MW, well in excess of that capacity.³⁵⁹

368. NAWO/ILSR witness Michael Michaud has recommended that a radial segment of the Fargo 345 kV line from Monticello to St. Cloud be constructed to address community reliability needs in St. Cloud.³⁶⁰

369. If the need that is desired to be served is St. Cloud load serving, Applicants' witness Daniel Kline agreed that a Monticello- St. Cloud 345 kV segment is sufficient to meet that need. Using the load growth assumptions in the Application, this 345 kV portion of the proposed Fargo line would meet the needs in St. Cloud well past 2020.³⁶¹

370. Costs for the new Quarry substation (St. Cloud) would be about \$12-13 million, and costs for upgrading the Monticello substation would be about \$4-5 million.³⁶²

371. The segment of the Fargo Project from the Monticello substation in Monticello to the new Quarry substation in St. Cloud would be from 30 to 40 miles long.³⁶³

372. The total cost for a radial segment of the Fargo 345 kV line running from Monticello to a new Quarry substation in St. Cloud would be from \$49 million to \$62 million.³⁶⁴

373. Other than the segment from Monticello to St. Cloud, the balance of the Fargo Project is not needed for community reliability.³⁶⁵

2. Generation Outlet Capacity/Renewable Energy Support

374. To the extent that the Application described a generation outlet need for the Fargo Project, that need was defined in terms of renewable wind energy, for example:

The Twin Cities-Fargo 345 kV Project will increase generation outlet in northwestern Minnesota and eastern North Dakota, an area with significant potential for wind generation development. (The area has an annual average wind power of Class 4, 15 to 17 mph.)³⁶⁶

375. On this record, there is no study evidence that the Fargo Project will meet a need for wind generation outlet capacity. The only record evidence of generation outlet

³⁵⁹ Ex. 219, p. 5 (Davis Chart/Impact of CIP Statute).

³⁶⁰ Ex. 140, pp. 27-29 (Michaud Direct); Tr. V. 16, p. 134 (Michaud).

³⁶¹ Tr. V. 6, p. 157, ll. 20-22 (Kline); Tr. V. 7, p. 144 (Kline).

³⁶² Tr. V. 8, p. 42 (Stevenson).

³⁶³ Ex. 83, p. 12 (Stevenson Direct).

³⁶⁴ Costs for the CapX2020 power lines are \$1.1 million for single circuit 345 kV, Ex. 177, p. 12a, Table 3a (Schedin Direct), Tr. V. 8, p. 50 (Stevenson). Calculations for low end (\$4 + \$12 + 30 miles x \$1.1 million), for high end (\$5 + \$13 + 40 miles x \$1.1 million).

³⁶⁵ Tr. V. 16, p. 136 (Michaud).

³⁶⁶ Ex. 1, p. 4.48 (Application).

capacity for the Fargo Project is that it will increase North Dakota Export capability by 350MW.³⁶⁷

376. In the TIPS study of the CapX2020 Fargo Project, as Applicants increased load they modeled an increase in existing generation.³⁶⁸

377. The sources for incremental for the Fargo Project included the Antelope Valley, North Dakota coal plant; the Boswell coal plant owned by Minnesota Power; the Monticello nuclear power plant owned by Xcel Energy; the Big Bend, South Dakota 500MW hydroelectric power plant, and the Coyote coal plant near Beulah, North Dakota operated by Otter Tail Power company. One hundred percent of the incremental generation increases for the TIPS study were allocated to these facilities.³⁶⁹

378. Subject to interconnection and ability to deliver power, any location within North Dakota would take advantage of the 350MW increase in NDEX resulting from the Fargo Project.³⁷⁰

379. There are coal plants located in central North Dakota.³⁷¹ There is more existing coal generation in central North Dakota than there is wind.³⁷²

380. If the Fargo Project were constructed, it would be possible for Antelope Valley to serve as a source of incremental generation as modeled in the TIPS study. The Antelope Valley Station power plant in North Dakota is the newest coal-based power plant in North Dakota.³⁷³

381. Minnesota's certificate of need statute establishes a preference for renewable energy when a transmission project transmits energy from a new generation source:

The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source.³⁷⁴

³⁶⁷ Ex. 70, p. 3 (Kline Rebuttal)

³⁶⁸ Tr. V. 2B, p. 54 (Rogelstad); Tr. V. 7, pp. 88-89 (Kline).

³⁶⁹ Ex. 1, Apx. A-3, p. 16 (TIPS Update); Tr. V. 7, pp. 83-84 (Kline).

³⁷⁰ Tr. V. 7, p. 86 (Kline).

³⁷¹ Tr. V. 7, p. 30, l. 18 (Kline).

³⁷² Tr. V. 7, pp. 39-40 (Kline).

³⁷³ Ex. 1, Apx. A-3, p. 16 (TIPS Update); Tr. V. 7, pp. 81-82 (Kline).

³⁷⁴ Minn. Stat. § 216B.243, subd. 3a.

382. To the extent that the Fargo Project transmitted electric power generated from a new coal generation source in North Dakota, it would violate this renewable energy preference.

383. Wind projects completed or under construction in North Dakota do not demonstrate the need for the Fargo line to provide renewable generation outlet capacity, since none of these projects depend on the Fargo Project for their transmission.³⁷⁵

384. It is not clear on this record how the 350 MW increase in NDEX projected for the Fargo Project equates to generation outlet capacity in any place.³⁷⁶

385. NDEX does not affect development that occurs in Minnesota. There has also been no examination of how much new renewable energy capacity could be added on the Minnesota side of the NDEX boundary.³⁷⁷

386. Mr. Schedin suggested that studies be conducted with respect to the Fargo Project to demonstrate the generator outlet benefit for substantial wind generation development in eastern North Dakota³⁷⁸ and did not recommend delaying the certificates of need to do these studies.³⁷⁹

387. However, Mr. Schedin acknowledged that the TIPS Study did not evaluate generator outlet benefits of the Fargo Project for wind generation and that there are no studies provided in the application for certificate of need that demonstrate the generator outlet benefits for substantial new wind generation development in eastern North Dakota.³⁸⁰

388. On this record, there is no evidence of generation outlet capacity from the Fargo Project other than the TIPS study and no data to determine if or to what extent the Fargo Project would support renewable energy either in Minnesota or North Dakota.

389. There is evidence on this record that dispersed renewable generation would provide generation outlet capacity to support wind energy consistent with state policy, as required by Minnesota certificate of need law.

390. A statewide study to evaluate the wind generation outlet potential for dispersed renewable generation was required as part of the Governor's Next Generation Energy Initiative enacted by the Minnesota Legislature in May 2007.³⁸¹ The Minnesota Department of Commerce was directed to manage a statewide transmission study of

³⁷⁵ Tr. V. 19, p. 165-167 (Schedin). Wind projects are described in Ex. 177, p. 22 (Schedin Direct).

³⁷⁶ Tr. V. 15, p. 50-51 (Alders).

³⁷⁷ Ex. 148, p. 14 (Michaud Rebuttal); Tr. V. 16, p. 150, ll. 19-23 (Michaud).

³⁷⁸ Ex. 177, p. 6 (Schedin Direct).

³⁷⁹ Tr. V. 19, p. 175, ll. 8-11 (Schedin).

³⁸⁰ Tr. V. 19, p. 159, ll. 14-19 (Schedin); Ex. 1, TIPS Study in Apx. A-3 p. 16 (Application). Mr. Schedin noted that some private development studies support a wind generation benefit.

³⁸¹ 2007 Minn. Laws, Ch. 36, Art. 4, §.17.

dispersed renewable generation potential. Divided into two phases of 600MW each, with reports due June 2008 and September 2009, respectively.³⁸²

391. The DRG study concluded:

The statewide aggregate analysis demonstrated a dispersed renewable generation scenario where a total of 600 MW of 10 to 40 MW new generation projects could potentially be sited without significantly affecting any transmission infrastructure.³⁸³

392. Applicants agree that the Dispersed Renewable Generation Transmission Study found, given the assumptions of the study, that one could connect and deliver 600MW of dispersed renewable generation without the need to build new transmission.³⁸⁴

393. OES witness Dr. Rakow testified that for generation outlet needs, dispersed generation is a potential alternative to new transmission.³⁸⁵

394. Applicants' witness Tim Rogelstad testified that acquiring 600MW of dispersed renewable generation may be the least cost way to secure new generation.³⁸⁶

395. NAWO/ILSR proposed dispersed renewable generation as an alternative means of providing generator outlet capacity.³⁸⁷

396. Using the mid-point estimate (\$56 million) for the cost from Monticello to St. Cloud, the remaining portion of the Fargo Project beyond this segment would cost from \$334 million to \$504 million under Applicants' original proposal.

397. On a per megawatt basis, reflecting the 350MW of NDEX increase, the portion of the Fargo Project beyond the St. Cloud area would cost from \$954,000 to \$1,440,000 per megawatt of generation outlet capacity.

398. The Environmental Report provided an example of the requirements to support 750MW of wind energy in Minnesota by summarizing the MISO Group 4 study projects. The four high voltage transmission line projects in this MISO Group 4 study would support 750 MW of wind with 66 to 73 miles of 115 kV and 161 kV transmission, and do not rely on the CapX2020 Projects.³⁸⁸

³⁸² Ex. 110, p. 10 (DRG Study).

³⁸³ Ex. 110, p. 13 (DRG Study).

³⁸⁴ Tr. V. 9, pp. 178-179 (Alholinna); Ex. 110 (DRG Study).

³⁸⁵ Ex. 282, p. 27 (Rakow Direct).

³⁸⁶ Tr. V. 1B, p. 79, ll. 1-5 (Rogelstad).

³⁸⁷ Ex. 154, p. 3-4 (Michaud Surrebuttal).

³⁸⁸ Ex. 5, p. 83 (Environmental Report); Tr. V. 18A, p. 9 (Birkholz).

399. Based on the cost of transmission lines accepted in this record,³⁸⁹ the total cost of the Group 4 projects described in the Environmental Report to support 750MW of wind would be approximately \$37 or \$38 million.

400. The Environmental Report also described the MISO Group 5 study projects as supporting 2,858 MW of wind capacity for a transmission cost of \$503 million or a transmission cost per megawatt of capacity of \$176,000.³⁹⁰

401. There is insufficient evidence in this record to demonstrate that the Fargo Project beyond the St. Cloud area would provide a least cost alternative for provide generation outlet capacity or renewable generation support.

402. Applicants have not demonstrated that the CapX2020 Fargo Project is needed for system-wide demand growth, community reliability in the Northern Red River Valley, Southern Red River Valley or Alexandria or for generation outlet capacity, particularly renewable generation support.

403. Applicants have demonstrated a need for the segment of the Fargo 345 kV line from Monticello to St. Cloud to meet community reliability needs in St. Cloud. The estimated costs for that segment of the project are from \$49 to \$62 million.

E. Brookings Project

1. Community Reliability

404. With respect to benefits of community load serving for the Brookings Project, OES has concluded that the Applicants did not make “a firm claim that could be tested.”³⁹¹

405. In Appendices C-1 through C-5 of the Application there are data for local communities proposed to be served by the La Crosse and Fargo Projects, stating critical load levels, estimates of demand growth and megawatts potentially at risk due to community reliability concerns.³⁹²

406. There are no similar appendices, tables or data provided by the Applicants for the Brookings line.³⁹³

407. Although Applicants have asserted that the Brookings Project would provide local reliability “benefits” to the communities in the project area,³⁹⁴ they have not defined a need in any of the communities in the Brookings project area or an “adverse effect” on

³⁸⁹ Ex. 177, p. 12a, Table 3a (Schedin Direct): calculating single circuit cost for 161 kV \$595,000 per mile; single circuit cost for 115 kV \$458,000 per mile.

³⁹⁰ Ex. 5, p. 86 (Environmental Report).

³⁹¹ Tr. V. 25, p. 67, ll. 5-7 (Rakow).

³⁹² Ex. 1, Apx. C-1 through C-5 (Application).

³⁹³ Tr. V. 11, pp. 76-77 (Alholinna).

³⁹⁴ See e.g. Ex. 104, pp. 7-8 (Alholinna Direct).

the future reliability that would result in these communities if the project is not certified.³⁹⁵

2. Generation Outlet Capacity for Renewable Energy

408. Once constructed, the Twin Cities- Brookings County 345 kV Project is projected to provide approximately 700MW of additional generation outlet capacity in the Buffalo Ridge area over and above the 1,200 MW of generation outlet that will be available after the Buffalo Ridge Incremental Generation Outlet (BRIGO) projects are in service.³⁹⁶

409. The record repeatedly confirms that the “primary purpose of the Twin Cities-Brookings County 345 kV Project is to increase transmission available to support the wind generation in the Buffalo Ridge region.”³⁹⁷

410. The primary rationale for the Twin Cities-Brookings County 345 kV project is to add generation outlet capacity in southwestern Minnesota to accommodate increasing amounts of available wind energy.³⁹⁸

411. The Brookings Project is driven by wind generators who are waiting to interconnect and will not be able to do so without the Brookings Project.³⁹⁹

412. Applicants have stated in several locations that generation outlet is the primary driver for the Twin Cities to Brookings line and associated projects.⁴⁰⁰ This generation outlet will be used primarily by renewable resources.⁴⁰¹

413. There are numerous places in Application where Applicants assert that the purpose for the Brookings Project is “renewable based generation,”⁴⁰² “wind farm development,”⁴⁰³ “renewable energy generation” and “further wind generation development on the Buffalo Ridge.”⁴⁰⁴

414. It is expected that the generation outlet capacity of the Brookings Project would be fully subscribed shortly after the project comes into service, in either 2013 or 2014.⁴⁰⁵

415. Although there are many statements in the Application regarding the need for the Brookings Project to support wind and renewable generation, there are no similar

³⁹⁵ Minn. R. 7849.0120 A.

³⁹⁶ Ex. 104, p. 5 (Alholinna Direct).

³⁹⁷ Ex. 104, p. 7 (Alholinna Direct); Tr. V. 10, p. 70, ll. 16-20 (Alholinna).

³⁹⁸ Tr. V. 2B, p. 26, ll. 14-18 (Rogelstad); Ex. 1, p. 4.4 (Application).

³⁹⁹ Tr. V. 3, p. 33 (Rogelstad); Ex. 56, p. 33 (Webb Direct).

⁴⁰⁰ Tr. V. 11, p. 76 (Alholinna).

⁴⁰¹ Tr. V. 10, pp. 68-70 (Alholinna).

⁴⁰² Ex. 1, p. 1.4 (Application).

⁴⁰³ Ex. 1, p. 1.15 (Application).

⁴⁰⁴ Ex. 1, p. 1.21 (Application).

⁴⁰⁵ Tr. V. 11, p. 18, ll. 12-17 (Alholinna).

statements about the need for the Brookings Project to provide generation outlet capacity for coal generation⁴⁰⁶ or non-renewable generation in general.⁴⁰⁷

416. Within the 2013 to 2014 time frame, there is no evidence that any utility would need to locate non-renewable generation served by the additional outlet capacity of the Brookings Project.⁴⁰⁸

417. Fundamentally, in order for the CapX2020 utilities to meet their RES milestones, more wind generation outlet capability from the Buffalo Ridge is needed. The Brookings line allows for generation to meet the RES milestones.⁴⁰⁹

3. Operation and Use of Brookings Facilities

418. Joint Intervenors' witness Christopher Ellison testified:

Applicants do not control access to the proposed new lines and they cannot ensure that these projects will support the RES requirements without taking specific steps. Absent such steps, there is the very real risk that this new capacity will be allocated to the Big Stone II coal project or other nonrenewable facilities in a manner that will impede achievement of the state's RES policies.⁴¹⁰

419. Applicants acknowledged that they could not say as a fact whether the Brookings line will in fact increase generation outlet capacity for wind or for another form of energy.⁴¹¹

420. Given the way in which the MISO queue operates, there is no guarantee that the Brookings Project would be exclusively for renewable generation.⁴¹²

421. MISO also agreed that there is no guarantee that the 700MW of new generation outlet capacity estimated for the Brookings line will be used for renewable energy.⁴¹³

422. In terms of MISO's review, a coal project could request transmission service without being owned by a utility and without demonstrating a power purchase agreement. A coal project, such as the Big Stone II, could also deliver power outside Minnesota. MISO is intentionally neutral in terms of buyers and sellers.⁴¹⁴

⁴⁰⁶ Tr. V. 11, p. 110 (Lennon).

⁴⁰⁷ Tr. V. 15, pp. 82-84 (Alders).

⁴⁰⁸ Tr. V. 11, p. 18 (Alholinna); See also Ex. 113, p. 71, 73 (GRE 7/1/08 Resource Plan).

⁴⁰⁹ Tr. V. 3, pp. 216, 217-218 (Lacey); Ex. 53, p. 11-12 (Lacey Rebuttal).

⁴¹⁰ Tr. V. 20, p. 13, ll. 13-21 (Ellison).

⁴¹¹ Tr. V. 11, p. , ll. 10-15 (Alholinna).

⁴¹² Tr. V. 13, p. 112, ll. 17-23 (Alders).

⁴¹³ Tr. V. 5A, p. 68 (Webb).

⁴¹⁴ Tr. V. 21, pp. 32-34 (Ellison).

423. There are over 4,200 MW of coal currently in the MISO queue for Minnesota, South Dakota, North Dakota, Wisconsin, and Iowa.⁴¹⁵

424. The 229 active projects in the MISO queue with signed interconnection agreements and an expected in-service date prior to 2016 are dominated by 4,511 megawatts of coal projects. Gas-fueled combined-cycle projects amount to 1,805 megawatts, and wind projects total 1,008 megawatts.⁴¹⁶

425. The range of generation that could end up benefiting from the Brookings Project extends beyond the study area of the Brookings line; generation further west in central South Dakota could also use the transmission.⁴¹⁷

426. Applicants' witness Walter Grivna testified regarding a "notable" future extension of an Antelope Valley, North Dakota 345 kV transmission line to the Brookings or White substation that would increase the use of the Brookings County to Lyon County segment of the Brookings Project.⁴¹⁸

427. In questioning, Mr. Grivna explained that the Brookings Project and Antelope Valley-Broadland extension would provide a more direct connection for coal or lignite to the areas served by the CapX lines:⁴¹⁹

Q: And if the Brookings projects -- CapX projects were built, that would then also provide a more direct connection between Antelope Valley and the load serving areas of the Brookings project, wouldn't it?

A: Yes.

Q: Are you aware of the generation types that are located in Antelope Valley?

A: I'm not sure if it's coal or lignite.

Q: So your understanding is that the Antelope Valley station is either a coal or lignite coal power plant in North Dakota?

A: I believe so.⁴²⁰

428. Concern that the Brookings Project would serve non-renewable generation is based on the position of coal plants at or near the top of the list in the queue that would be essentially ready to go but for a transmission outlet to deliver their product. To the extent that coal was higher in the queue it could trump all the wind.⁴²¹

429. The EHV study for the Brookings Project assumed 600MW of generation from the Big Stone II coal plant and its associated transmission in its base model.⁴²²

⁴¹⁵ Ex. 60, p. 2 (MISO Response to IRs No. 3-8 of NoCapX).

⁴¹⁶ Ex. 59, p. 37 (2007 MTEP Report)

⁴¹⁷ Tr. V. 17A, p. 48 (Michaud).

⁴¹⁸ Tr. V. 12, pp. 69-70 (Grivna).

⁴¹⁹ Ex. 121, p. 38 (Grivna Rebuttal).

⁴²⁰ Tr. V. 12, p. 77, ll. 12-23(Grivna).

⁴²¹ Tr. V. 17A, pp. 14, 47-48 (Michaud).

⁴²² Tr. V. 10, pp. 153-154 (Alholinna); Ex. 1, Apx. A-4 (Application).

430. Although CapX2020 Projects are not necessary for Big Stone II, adding the Brookings line would benefit Big Stone II along with other generators in the region.⁴²³
431. The Brookings Project provides a lower impedance path than the Minnesota Valley to Blue Lake transmission for Big Stone II, so a certain amount of the power from Big Stone would be coming onto the Brookings line as a path of least resistance.⁴²⁴
432. If the Big Stone II transmission project currently before the Minnesota Public Utilities Commission⁴²⁵ is approved by the Commission, there is no question that the Brookings Project will transmit some degree of non-renewable energy from the Big Stone coal plant. This is a matter for another docket.
433. If the CapX2020 projects are approved and no conditions are placed on the Brookings line, this record suggests that the Brookings Project could transmit coal generation from Big Stone II even if the Commission denies a certificate of need for the Big Stone II transmission projects.
434. It would be possible electrically for the Big Stone II coal plant to connect to a portion of the Brookings Project that is in South Dakota.⁴²⁶
435. The point of interconnection for the Big Stone II for purposes of the MISO queue is at the existing Big Stone I substation in South Dakota, not at the Minnesota locations of the two new facilities proposed to be built from Big Stone II to Morris and Granite Falls.⁴²⁷
436. If the certificates of need for the Big Stone II upgrades are denied by the Commission, a change in the interconnection point would not be needed; Big Stone II could seek interconnection using different upgrades without triggering a “material modification” and losing its queue position. If the interconnection were restudied at MISO considering the additional transfer capacity of the Brookings line, Big Stone II might obtain transmission access through the CapX lines.⁴²⁸
437. Interconnection for Big Stone II using upgrades that connect to the Brookings Substation in South Dakota would not be subject to the jurisdiction of the Minnesota Public Utilities Commission.

⁴²³ Tr. V. 2B, pp. 61-62 (Rogelstad).

⁴²⁴ Tr. V. 10, p. 156 (Alholinna).

⁴²⁵ *In the Matter of the Application of Otter Tail Power Co. and Others for Certification of Transmission Facilities in W. Minn.*, MPUC Docket ET-9/CN-05-619

⁴²⁶ Tr. V. 2A, pp. 116-117(question); 119(answer)(Rogelstad); Tr. V. 2B, pp. 90-91 (Rogelstad).

⁴²⁷ Tr. V. 3, pp. 72-73 (Rogelstad).

⁴²⁸ Tr. V. 21, pp. 42-44 (Ellison).

438. Big Stone II has a high or favorable position in the MISO queue and is grandfathered in under the old, pre-reform MISO interconnection process, so it still retains its favorable position.⁴²⁹

439. Absent the proposed conditions and depending on the Commission's decision in the Big Stone II transmission case, the Big Stone II queue position could enable it to take a significant amount of the capacity on the Brookings line. The impact of conditions on the Brookings Project is to ensure that this doesn't happen.⁴³⁰

440. Under Federal Energy Regulatory Commission ("FERC") rules, absent conditions Applicants would have no particular right to use new transmission facilities simply because they have built them and no particular right to transmit renewable energy because they have contracted with renewable energy developers or plan to construct utility-owned renewable energy projects.⁴³¹

441. In order to comply with the RES, utilities will enter into contracts and purchase energy from renewable energy facilities. In order for that generation to count toward achieving RES goals, the facilities will need to be successfully interconnected to the network and successfully run and produce energy.⁴³²

442. If the CapX2020 projects were certified and built without conditions and significant amounts of capacity were used for non-renewable energy, this could contribute to a claim by utilities that the "off-ramp" in Minnesota's renewable energy standard should be exercised.⁴³³

4. 825MW Wind Proceeding

443. In the proceeding brought by Xcel Energy in 2001 for certification of four HVTLs to support 825 MW of wind in southwestern Minnesota ("825MW Wind Proceeding") the Commission's rationale for imposing conditions was as follows:

The Commission concurs with the Administrative Law Judge that it is critical to place conditions on these certificates of need to maximize the likelihood that the certified lines will be used for their intended purpose.⁴³⁴

⁴²⁹ Tr. V. 20, pp. 140-141 (Ellison); Tr. V. 21, p. 29 (Ellison). It is also significant that the facilities study for the Big Stone II project has not been "finalized," Tr. V. 20, p. 130, ll. 22-24 (Ellison), so MISO deadlines do not apply.

⁴³⁰ Tr. V. 20, pp. 142-143 (Ellison).

⁴³¹ Ex. 204, p. 5 (Ellison Direct).

⁴³² Tr. V. 13, p. 150 (Alders).

⁴³³ Tr. V. 20, p. 180, ll. 17-23 (Ellison); See Minn. Stat. § 216B.1691, Subd. 2(b).

⁴³⁴ Ex. 214, p. 16 (Order *In the Matter of the Application of N. States Power Co. d/b/a/ Xcel Energy for Certificates of Need for Four Large High Voltage Transmission Line Projects in Sw. Minn.* MPUC Docket No. E-002-CN-01-1958 March 11, 2003 "825MW Wind Order").

444. The Commission also noted that the applicant “claims that the lines are needed to meet a transmission deficit that is preventing the development of wind energy in Minnesota,” thereby frustrating state policies requiring Minnesota utilities to rely more heavily on wind generation.⁴³⁵

445. The primary need asserted for the Brookings Project is virtually indistinguishable from the grounds upon which conditions were imposed in the 825 MW Wind Proceeding.⁴³⁶

446. In the 825 MW Wind Proceeding, the Commission noted that the application for the four transmission lines “carries the risk that the proposed transmission lines will not be used for the purpose for which they are intended and for which any certificates of need would be granted.”⁴³⁷

447. The same risk that the lines would be used for non-renewable energy rather than renewable energy is presented for the Brookings Project in this proceeding.⁴³⁸

448. In the 825 MW Wind Proceeding, the purpose of the transmission was for wind outlet on the Buffalo Ridge.⁴³⁹

449. The Brookings Project, similarly, is specifically intended to provide wind outlet on the Buffalo Ridge.⁴⁴⁰

450. In the 825MW Wind Proceeding, the sole applicant, Xcel Energy objected to the imposition of conditions.⁴⁴¹

451. In this CapX2020 case, Applicants’ witness James Alders acknowledged that Applicants’ objections to conditions in this proceeding are “similar to” and express “the same concerns” as were expressed in 825MW Wind Proceeding. In the 825 MW Wind Proceeding, conditions were imposed on the lines and the lines were constructed and put into service.⁴⁴²

452. Conditions proposed by Joint Intervenors’ witness Mr. Ellison were designed to operate in the same manner as conditions imposed in the 825MW wind case, with some differences reflecting changes since that time.⁴⁴³

⁴³⁵ *Id.*, p. 3 (825MW Wind Order).

⁴³⁶ Tr. V. 20, p. 162, ll. 20-25 (Ellison).

⁴³⁷ Ex. 214, p. 3 (825MW Wind Order).

⁴³⁸ Tr. V. 20, pp. 163-164 (Ellison).

⁴³⁹ Tr. V. 20, pp. 39-40 (Ellison).

⁴⁴⁰ Ex. 104, p. 7 (Alholinna Direct); Tr. V. 10, p. 70, ll. 15-20 (Alholinna).

⁴⁴¹ Tr. V. 15, p. 10 (Alders).

⁴⁴² Tr. V. 15, pp. 10-11 (Alders).

⁴⁴³ Tr. V. 20, p. 28 (Ellison), The “825 MW wind” case refers to case involving CON for 4 large energy facilities, docket 01-1958, *see* Tr. V. 20, p. 39 (Ellison).

5. Conditions for the Brookings Project

453. Mr. Ellison proposed that the Commission condition certificates of need on the following conditions to ensure that new firm capacity enabled by the CapX lines is made fully available to renewable energy:⁴⁴⁴

1) Applicants (a) sign PPAs with renewable energy developers and/or commit to utility-owned projects using the capacity from the new transmission lines at least 2 years prior to the expected in-service date of the proposed transmission lines and (b) timely seek PUC approval of the contracts or utility-owned renewable projects so that the PUC can grant approval within six months of the signing of the PPAs or commitments.⁴⁴⁵

2) Applicants make a compliance filing within 30 days of obtaining the CON addressing (a) how much capacity will be enabled by the new transmission facilities; (b) by megawatt how Applicants propose to allocate the capacity enabled by the transmission facilities for purpose of delivering renewable energy, (c) the type of firm MISO transmission service Applicants plan to seek for the renewable generation to be carried by the new lines.⁴⁴⁶

3) Applicants sign PPAs or commit to utility-owned renewable energy projects within the timeframe of the Minnesota RES milestones, or earlier.⁴⁴⁷

4) Applicants make transmission service requests (TSR) to MISO for network (firm) transmission as appropriate and necessary for the total amount of new capacity enabled by the transmission lines to ensure full subscription of the capacity for renewable generation and work with renewable energy generators to enable timely interconnection service.⁴⁴⁸

5) To the extent necessary and appropriate to ensure delivery of the renewable energy in condition number one, Applicants should commit to designate the new renewable resources as Network Resources pursuant to the MISO Transmission and Energy Markets Tariff (“TEMT”).⁴⁴⁹

454. The most important of the conditions proposed by Mr. Ellison is the first one, requiring either a power purchase agreement (“PPA”) or proposal to build or own renewable generation to take advantage of transfer capability. A PPA has always been the

⁴⁴⁴ Tr. V. 20, pp. 28-29 (Ellison).

⁴⁴⁵ Ex. 204, pp. 3, 13 (Ellison Direct).

⁴⁴⁶ Ex. 204, pp. 7-8, 14 (Ellison Direct); *See* Tr. V. 20, pp. 172-173 (Ellison) clarifying the intent that “firm” rather than “non-firm” transmission service be designated.

⁴⁴⁷ Ex. 204, pp. 8, 14 (Ellison Direct).

⁴⁴⁸ Ex. 204, pp. 9-10, 14-15 (Ellison Direct).

⁴⁴⁹ Ex. 204, pp. 10, 15 (Ellison Direct).

key to successful project development and recent MISO reforms make it even more important.⁴⁵⁰

455. In theory, whether in 2002 or today, it has always been possible to interconnect to transmission without a PPA. In practice, typically most developers aren't able to develop a project without one.⁴⁵¹

456. Applicants agree that, in many cases, for projects to move forward with financing, they need a PPA to guarantee the amount of income they'll need to stay afloat.⁴⁵² A power purchase agreement would certainly make it easier for a wind project to succeed.⁴⁵³

457. Mr. Ellison's conditions (1(a) and 1(b)) requiring PPAs or commitments for utility-owned projects and timely seeking of Commission approval are comparable to conditions 4(a) and 4(b) imposed by the Commission in the 825MW Wind Proceeding, with an added provision allowing for utility-owned projects as well as PPAs.⁴⁵⁴

458. Mr. Ellison proposes that a planning number for generator outlet capacity, from which compliance with conditions can be determined, can be set within 30 days of issuance of the certificate of need.⁴⁵⁵

459. For the Brookings Project, condition 2(a) would require verification that 700MW of generation outlet capacity is the appropriate number by which to measure compliance.⁴⁵⁶

460. If changes to the transmission system significantly change the generation outlet capacity of the Brookings Project -- such as denial of the Big Stone II transmission upgrades⁴⁵⁷ or the approval of an upgrade to the Minnesota Valley -- Blue Lake Corridor -- it would be appropriate to have a compliance filing to the PUC. The Commission would then decide whether or not to require changes to the conditions.⁴⁵⁸

461. Mr. Ellison's third condition addresses Applicants' assertion that the Brookings Project is needed to meet RES milestones.⁴⁵⁹ It responds to concerns about use of the "off ramps" contained in the statute.⁴⁶⁰

⁴⁵⁰ Tr. V. 20, p. 14, ll. 6-15 (Ellison).

⁴⁵¹ Tr. V. 15, pp. 69-70 (Alders).

⁴⁵² Tr. V. 6, p. 168, ll. 2-7 (Kline).

⁴⁵³ Tr. V. 6, p. 170, ll. 4-6 (Kline).

⁴⁵⁴ Tr. V. 20, p. 166 (Ellison); Ex. 214, p. 24 (825MW Wind Order).

⁴⁵⁵ Ex. 204, p. 14 (Ellison Direct); Tr. V. 20, pp. 99-100 (Ellison).

⁴⁵⁶ Tr. V. 20, p. 169 (Ellison).

⁴⁵⁷ See discussion at Tr. V. 11, p. 37-38 (Alholinna).

⁴⁵⁸ Tr. V. 20, pp. 170-171 (Ellison).

⁴⁵⁹ Ex. 204, p. 8 (Ellison Direct).

⁴⁶⁰ Minn. Stat. § 216B.1691, subd. 2b.

462. Ellison's fourth condition that Applicants make transmission requests for network (firm) transmission is comparable to condition 4(c) of the 825 MW wind Order, except that the 825MW order requires that requests be made within 15 days of the certificate of need while the timing of Mr. Ellison's condition is not specified.⁴⁶¹

463. This change is based in part on the MISO Real-Time Energy Markets, which became effective in April 2005 and is also intended to give the parties more flexibility in timing.⁴⁶²

464. Since the 825MW Wind Proceeding, the MISO Day 2 process adopted in 2005 has changed the way in which transmission service requests (TSR) go through the MISO queue.⁴⁶³

465. Under current process, the time to file the TSR is when there is a contract of a commitment for the project and the size and specifics are known, either due to PPA or a utility development of a project.⁴⁶⁴

466. Firm power would have a priority status over a generation source that was interconnected but did not have firm transmission service.⁴⁶⁵

467. Mr. Ellison's fifth condition requiring Applicants to designate the new renewable energy resource as Network Resources to the extent necessary and appropriate is comparable to condition 4(d) of the 825 MW wind Order. To require designation as soon as allowed by MISO, as provided in the 825 MW wind Order is an appropriate way to handle timing issues.⁴⁶⁶

468. Network Resource Interconnection Service ("NRIS") designation in the MISO regime means that the resource has firm transmission rights for the capacity that has been evaluated in the MISO studies. Energy resource interconnection or ERIS is when a power plant is accepted by the system only to the extent the transmission system has capacity.⁴⁶⁷

469. For wind resources, NRIS designation can be made up to the creditable nameplate capacity evaluated to be available against reserve requirements. The rest of the nameplate for wind is treated as an energy resource (ERIS) rather than as a network resource.⁴⁶⁸

⁴⁶¹ Ex. 214, p. 24 (825 MW wind Order). The 825MW Wind Order also states a specific number of megawatts, which the proposed conditions suggest would be determined in the compliance filing required in condition 2(a).

⁴⁶² Tr. V. 20, pp. 174-175 (Ellison).

⁴⁶³ Tr. V. 15, pp. 65-66 (Alders).

⁴⁶⁴ Tr. V. 15, p. 66 (Alders); Ex. 132, p. 17 (Alders Rebuttal).

⁴⁶⁵ Tr. V. 20, p. 121, ll. 4-8 (Ellison).

⁴⁶⁶ Tr. V. 20, pp. 177-178 (Ellison); Ex. 214, p. 24 (825MW Wind Order). These changes respond to concerns raised about appropriate timing for network resource designation in Ex. 132, p. 21 (Alders Rebuttal).

⁴⁶⁷ Tr. V. 15, p. 71 (Alders).

⁴⁶⁸ Tr. V. 15, p. 110-111 (Alders).

470. NAWO/ILSR witness Mr. Michaud also explained that designation as a network resource would enable the conditions to effectively ensure use of transmission:

In the end, the capacity on the line will be available to those with firm transmission service reservations. Energy resources would be essentially bumped aside in terms of priority of use compared to network resource use of the proposed facilities. And in that sense it's the firm use of the system capacity that is a company designation as a network resource that enables the transactions to essentially be guaranteed use of the line.⁴⁶⁹

471. Applicants acknowledged that if a facility at one of the six interconnection points (busses) studied for the Brookings Project had transmission through a transmission service request and interconnection through the MISO queue, it would indeed use part of the 700MW estimated generation outlet capacity for the Brookings line.⁴⁷⁰

472. Conditions to ensure that the capacity of a proposed transmission line be used for renewable energy have been proposed elsewhere in the United States as an alternative to denial of a certificate of need for a transmission line.⁴⁷¹

473. The Brookings Project, without upsizing, would provide an initial 700MW of wind capacity for a cost of \$600 to \$665 million, at cost of at least \$857,000 per megawatt.

474. The Brookings Project generation outlet capacity limitation of 700MW is due to n-1 contingencies in the underlying and surrounding transmission system, not due to the thermal rating of the proposed 345 kV transmission line.⁴⁷²

475. The line capacity of a 345 kV transmission line is approximately 2050 MVA. Although MVA combines real and reactive power flow, the lions share of MVA is megawatts so the thermal limit of the CapX 345 kV power lines exceeds 2000MW.⁴⁷³

476. Limit of generation outlet capacity for Brookings was due to the expenses of next step of system upgrades. The specific limits causing the problem included the Wilmarth-

⁴⁶⁹ Tr. V. 16, p. 59-60 (Michaud).

⁴⁷⁰ Tr. V. 13, p. 154, ll. 17-25 (Alders).

⁴⁷¹ Applicants asked if similar conditions have been proposed in other jurisdictions, Tr. V. 20, pp. 105-106 (Ellison). They were proposed as an alternative to denial of certification in Alternate Proposed Decision Granting as Conditioned a Certificate of Public Convenience and Necessity for the Sunrise Powerlink Transmission Project *In the Matter of the Application of San Diego Gas & Elec. Co. for a Certificate of Public Convenience and Necessity for the Sunrise Powerlink Transmission Project, Cal. Public Utilities Comm'n*, Docket No. A.06-08-010 (October 31, 2008) (<http://docs.cpuc.ca.gov/efile/ALT/93073.pdf>). The ALJ Proposed Decision Denying a Certificate of Public Convenience and Necessity for the Sunrise Powerlink Transmission Project (October 31, 2008) is at (<http://docs.cpuc.ca.gov/efile/PD/93071.pdf>).

⁴⁷² Tr. V. 10, pp. 118-119 (Alholinna).

⁴⁷³ Tr. V. 7, p. 57, ll. 24-25 (Kline); Ex. 76, p. 3 (Response to IR 3 of Joint Intervenors).

Lakefield 345kV line, the Brookings 345 kV to 115 kV transformer and the Eden Prairie 345 kV to 115 kV transformer.⁴⁷⁴

477. Applicants' statement that Brookings project increases generation outlet capacity on the Buffalo Ridge by 700MW from 1,200MW to 1,900MW is not an absolute limit, but a point where the transmission system won't support more generation at an n-1 contingency unless additional projects are included.⁴⁷⁵

478. If the Minnesota Valley-Blue Lake line were upgraded from 230 kV to 345 kV as is currently under review in the "Corridor Study," generation outlet capacity from the western part of Minnesota, including the Buffalo Ridge area could increase 1,100 MW beyond what is in the Application for the Brookings Project, for a total generation capacity exceeding 3,000 MW.⁴⁷⁶

479. Decisions on other projects currently under review could affect the renewable generation outlet capacity from the Buffalo Ridge and costs per megawatt of renewable generation. A condition requiring Applicants to timely update information regarding outlet capacity would increase the likelihood of cost-effective use of transmission to support renewable energy.

6. Recent MISO reforms

480. On August 25, 2008, the Federal Energy Regulatory Commission ("FERC") conditionally approved MISO proposal to reform the generator interconnection queue process.⁴⁷⁷ MISO queue reforms approved in this FERC Order support the application of the proposed conditions and their emphasis on wind power purchase agreements.⁴⁷⁸

481. The most important change reflected in the MISO queue reform process is the requirement of milestones. Now projects will achieve interconnection on the basis of first-ready, first interconnected rather than first-in, first-interconnected.⁴⁷⁹

482. MISO's proposals for definitive planning milestones were adopted in the August 2008 FERC Order and are detailed in MISO's current Business Practices Manual: After MISO completes its System Planning and Analysis Review, an interconnection customer is required to do *one* of the following: (1) provide security reasonably acceptable to the Transmission Provider for the cost of network upgrades; (2) execute a power off-take agreement or be designated a network resources; or (3) demonstrate that generation turbines have been ordered.⁴⁸⁰

⁴⁷⁴ Tr. V. 9, pp. 162-163 (Alholinna).

⁴⁷⁵ Tr. V. 11, pp. 30-31 (Alholinna).

⁴⁷⁶ Tr. V. 11, pp. 40, 81-82 (Alholinna); Ex. 104, p. 14 (Alholinna Direct).

⁴⁷⁷ Ex. 208 (FERC Order Granting MISO Queue Reform, August 25, 2008).

⁴⁷⁸ Tr. V. 16, p. 157 (Michaud).

⁴⁷⁹ Tr. V. 20, pp. 19-20 (Ellison).

⁴⁸⁰ Ex. 208, p. 27 (FERC Order Granting MISO Queue Reform, August 25, 2008); *see also* Ex. 209, p. 14 (MISO Business Practices Manual updated 9/11/08).

483. Under the new MISO process, a PPA is needed to enter the definitive planning that puts a project on a faster track. Unless it is a utility-owned project, purchase of turbines or commitment to costs for transmission upgrades are rarely made without a PPA.⁴⁸¹ Realistically the only way for a wind project to meet the new MISO milestones is a PPA.⁴⁸²

484. Compliance with the new MISO milestones permits projects to move forward along the queue and projects with PPAs can jump ahead of projects without agreements.⁴⁸³

485. Applicants can negotiate with the entire range of projects in the queue or even not in the queue and assist projects in moving through interconnection by virtue of the PPA. The concern that Applicants might have to choose among only those projects with high queue positions of that conditions might confer market power are misplaced.⁴⁸⁴

486. Mr. Ellison explained:

In my experience, few projects would put up a letter of credit for the upgrades or order turbines without having a power purchase agreement or some guaranteed purchaser for the power. So as a practical matter, for most projects, this milestone requires a power purchase agreement or ownership by the load serving entity. That means that the condition I propose requiring power purchase agreements or ownership by the load serving entity for the capacity of these lines is even more important and more workable than it was previously.⁴⁸⁵

7. Effects of Conditions

487. In the 825MW of Wind Proceeding, applicant Xcel Energy claimed that the conditions would “violate federal law, impede wind development, and jeopardize the Company’s ability to proceed with construction in light of the uncertainty it would create regarding rate recovery of the cost of a potentially unusable investment.”⁴⁸⁶

488. None of these events occurred with reference to the 825MW Wind Proceeding. There was no determination of a violation of federal law. Conditions did not impede wind development; in fact they moved wind forward.⁴⁸⁷

489. In 2003, the Commission granted certificates of need that approved the first set of major transmission improvements in the Buffalo Ridge region in the 825MW Wind

⁴⁸¹ Tr. V. 21, pp. 13-14 (Ellison).

⁴⁸² Tr. V. 16, pp. 158-160 (Michaud); the cited elements of Ex. 155, pp. 11-13 (MISO Business Practices Manual) were not changed in the FERC Order Granting MISO Queue Reform, Ex. 208.

⁴⁸³ Tr. V. 20, pp. 104-105 (Ellison).

⁴⁸⁴ Tr. V. 20, pp. 182-183 (Ellison).

⁴⁸⁵ Tr. V. 20, pp. 20-21 (Ellison).

⁴⁸⁶ Ex. 214, p. 7 (825MW Wind Order).

⁴⁸⁷ Tr. V. 20, pp. 164-165 (Ellison).

Proceedings. These facilities were energized in spring 2008, and by the end of 2008 it is expected that these facilities will already be fully subscribed for wind energy.⁴⁸⁸

490. Conditions on granting the certificate of need did not prevent facilities from being constructed and put in service as planned.⁴⁸⁹

491. Xcel Energy's project manager Grant Stevenson recalled no discussion about wind resource acquisition conditions influencing construction of the 825 MW wind transmission project or interfering with the completion of the projects.⁴⁹⁰

492. As was the case with the 825MW wind conditions, nothing in Ellison's proposed conditions is inconsistent with FERC policies for open access – the conditions fully comply with the open access rules of MISO and the Federal Power Act and are consistent with FERC policies, rules and regulations.⁴⁹¹

493. Nothing in MISO queue process would prevent Applicants from entering into power purchase agreements with wind generators in order to comply with proposed conditions.⁴⁹²

494. MISO witness Jeffrey Webb testified that there are nearly 60 generator interconnection requests along or near the counties where the Brookings line is intended to be routed, with over 7,460 MW specifically within the counties along the preliminary Brookings route.⁴⁹³

495. Mr. Ellison estimated that at least 4,000MW of projects proposed and currently in the MISO queue could reasonably use the 700MW of firm capability that would be provided by the Brookings Project.⁴⁹⁴

496. Applicants' witnesses agreed that interest in wind generation in the MISO queue in the area of the Brookings Project exceeds the 700MW of additional generation outlet capacity it provides.⁴⁹⁵

497. To comply with the conditions proposed, Applicants could contract with wind energy projects already in the queue, rather than wind projects not yet in queue.⁴⁹⁶

498. Due to this high level of potential supply, conditions proposed for the Brookings Project will not confer market power or result in raised prices. There will be substantial competition under the conditions.⁴⁹⁷

⁴⁸⁸ Ex. 104, p. 3 (Alholinna Direct); Tr. V. 8, p. 75-77 (Stevenson); Tr. V. 11, p. 17 (Alholinna).

⁴⁸⁹ Tr. V. 10, p. 64 (Alholinna).

⁴⁹⁰ Tr. V. 8, pp. 77-78 (Stevenson).

⁴⁹¹ Tr. V. 21, pp. 25-26, 69-70 (Ellison).

⁴⁹² Tr. V. 15, p. 26 (Alders).

⁴⁹³ Ex. 56, p. 33 (Webb Direct).

⁴⁹⁴ Tr. V. 20, pp. 91-93 (Ellison).

⁴⁹⁵ Tr. V. 12, p. 32, ll. 6-10 (Grivna).

⁴⁹⁶ Tr. V. 15, pp. 24-25(Alders).

499. The Brookings Project could provide generation opportunities in a wide region, including dispersed renewable generation.⁴⁹⁸

500. If the Brookings Project provided generation “on-ramps” at the Lyon County and Franklin substations as well as on the Buffalo Ridge, generation outlet capacity from the Brookings Project would increase slightly rather than diminish.⁴⁹⁹

501. Applicants expressed concerns about entering into PPAs two years prior to the expected in-service date of transmission and about possible expiration of the wind production tax credit in January of 2009.⁵⁰⁰

502. The condition requiring PPAs two years in advance of the proposed transmission in-service date is appropriate. Two years is a reasonable number for the development cycle of a wind project, including time for interconnection, financing and land use permitting as well as construction.⁵⁰¹

503. It is common for utilities to execute power purchase agreements with generators two years or more before the proposed online date for that generator. Contracting in advance allows time for facility licensing, financing and construction.⁵⁰²

504. The wind production tax credit is a significant factor in the economics of wind projects in the United States.⁵⁰³ When the production tax is renewed, there has been a rush to get generators on line before its expiration.⁵⁰⁴

505. Applicants agree that taking advantage of the production tax credit for wind to lower overall customer costs is one reason for purchasing wind in advance of RES milestones.⁵⁰⁵

506. The Energy Improvement and Extension Act of 2008 enacted an extension of the wind production tax credit until January 1, 2010.⁵⁰⁶

F. Upsizing of Proposed CapX2020 Facilities

⁴⁹⁷ Tr. V. 20, p. 94, ll. 1-6 (Ellison).

⁴⁹⁸ Tr. V. 10, p. 162 (Alholinna).

⁴⁹⁹ Tr. V. 10, pp. 160-161 (Alholinna).

⁵⁰⁰ Ex. 132, pp. 30-31 (Alders Rebuttal).

⁵⁰¹ Tr. V. 21, p. 13, ll. 14-16 (Ellison).

⁵⁰² Ex. 206, p. 18 (Ellison Surrebuttal).

⁵⁰³ Tr. V. 20, p. 71, ll. 5-11 (Ellison).

⁵⁰⁴ Tr. V. 20, p. 74, ll. 23-25 (Ellison).

⁵⁰⁵ Ex. 139, p. 43 (Renewable Energy Plan).

⁵⁰⁶ See e.g. Tr. V. 15, pp. 42-43 (Alders). Extension of PTC in *Energy Improvement and Extension Act of 2008*, H. R. 1424 Title I, Subtitle A, Sec. 101 Renewable Energy Credit, adopted as part of H.R. 1424, *Emergency Economic Stabilization Act of 2008*, see http://www.house.gov/apps/list/press/financialsvcs_dem/essabill.pdf.

1. Costs and Impacts

507. There is a current financial cost of \$200 million to upsize the CapX2020 projects to install a second 345 kV circuit.⁵⁰⁷

508. In addition, upsizing the CapX2020 would increase the visual impacts of the 345 kV projects and their construction impacts.

509. Higher poles are needed for the higher voltage of a double circuit 345 kV line to provide more clearance to the ground. The national electric safety code sets standards, as do most utilities.⁵⁰⁸

510. Increased costs for upsizing (Exhibit 91) are due to greater size and strength of poles and greater size and strength of the foundations for the poles.⁵⁰⁹

511. As compared to the poles for a single-circuit 345 kV line (typical height 100-150 feet), pole structures for a double-circuit compatible upsize (typical height 140-175 feet) are likely to be taller as well as to require construction of a more substantial foundation.⁵¹⁰

512. At the time of construction of a “double-circuit compatible” structure, one 345 kV power line along with its davit arms would be strung. The davit arms for a second 345 kV power line and the circuit itself would only be strung at a later date, to the extent that Applicants showed that the second circuit was needed.⁵¹¹ The pole structure would have an asymmetrical appearance.⁵¹²

2. Analysis of Need for Upsizing

513. No need for the double circuit 345 kV upsizing of the CapX2020 projects has been demonstrated on this record.

514. Having had the opportunity to fully consider all the testimony that's been filed in this matter, including the work that was done to come forward with the upsizing alternative, Applicants still agree with the statement that the three CapX2020 projects as proposed in application are sufficient to meet load serving and generation outlet needs outlined in the application.⁵¹³

⁵⁰⁷ Ex. 91 (Stevenson Chart).

⁵⁰⁸ Tr. V. 8, pp. 87-88 (Stevenson).

⁵⁰⁹ Tr. V. 8, p. 90 (Stevenson).

⁵¹⁰ Ex. 1, pp. 2.12 (Figure 2-5), 2.13 (Figure 2-7) (Application).

⁵¹¹ Ex. 121, p. 10 (Grivna Rebuttal).

⁵¹² Ex. 1, p. 2.12 (Figure 2-4, 2-5) (Application).

⁵¹³ Tr. V. 12, p. 91, ll. 10-16 (Grivna); Ex. 121, p. 9 (Grivna Rebuttal).

515. There is uncertainty about how the future transmission system may develop both internal and external to Minnesota and whether a need to add a second circuit will materialize in the future.⁵¹⁴

516. Factors that contribute to this uncertainty include where other transmission may develop, the locations of generation proposed, how it may interconnect, load levels, generation technology innovations, climate change regulations, social policy issues.⁵¹⁵

517. The electric industry is in a period of change. As a result, future growth patterns could be altered and future long-term needs could be altered.⁵¹⁶

518. Significant additional transmission infrastructure would need to be constructed before the benefits of the larger capacity lines described in the upsized proposal could be realized.⁵¹⁷ Neither the costs, the need nor the timing for these future transmission projects can be predicted at this time.⁵¹⁸

519. One would need to find out where the future growth was in order to determine if costs for a second 345 kV circuit and additional associated transmission infrastructure would be greater or less than other potential transmission enhancements to address that growth.⁵¹⁹

520. Given the uncertainty about how the future transmission system may develop, both internal and external to Minnesota, it is possible that a solution to the future load growth needs might involve a combination of generation and transmission or entail upgrades in different alignments or different sizes than the proposed 345 kV corridor upsize.⁵²⁰

521. Applicants did not study any transmission alternatives to upsizing the CapX projects.⁵²¹

522. Applicants did not verify with a load flow study or with other means the performance of the upsize option. Without specific information on generation sites or conditions that would warrant using the capacity, there are no tools using scientific methods that could evaluate the performance of the upsize option.⁵²²

⁵¹⁴ Ex. 121, p. 33 (Grivna Rebuttal).

⁵¹⁵ Tr. V. 12, pp. 14-15 (Grivna).

⁵¹⁶ Tr. V. 11, p. 153 (Grivna).

⁵¹⁷ Ex. 121, p. 16 (Grivna Rebuttal).

⁵¹⁸ Tr. V. 11, p. 152 (Grivna).

⁵¹⁹ Tr. V. 12, pp. 74-75 (Grivna).

⁵²⁰ Tr. V. 12, pp. 75-76 (Grivna).

⁵²¹ Tr. V. 11, p. 165, ll. 12-14 (Grivna).

⁵²² Tr. V. 11, p. 166 (Grivna); Ex. 121, p. 15 (Grivna Rebuttal).

523. It would not be appropriate to begin a study now to determine whether the Brookings facility in particular should be upgraded. Studies underway are designed to determine the best way to meet the RES.⁵²³

524. In addition, double circuiting of 345 kV lines may provide less reliability than other transmission choices and may create electric system stability concerns.

525. In general, two circuits using two rights of way at otherwise equivalent end points would have greater reliability than two circuits on the same structure.⁵²⁴

526. Double circuiting either the Fargo or the Brookings line could cause electric system stability concerns. Stability concerns include voltage swings, which may result in problems including retaining load, problems with generation, and cascading outages.⁵²⁵

527. Although Applicants suggest that for the upsizing proposal, there are “potential benefits of the proposed facilities to meet needs beyond the foreseeable future,” there is no specific time frame for these benefits.⁵²⁶

528. Given current financial costs to double circuit the 345 kV lines, speculative and unquantifiable benefits, lack of evidence on the performance of the upsize option and potential concerns about double-circuiting, there is no justification for Applicants proposal to double-circuit the CapX2020 345 kV transmission lines.

G. Other Considerations Regarding Need

1. Community Reliability

529. Testimony from non-applicant witnesses asserting community reliability needs for the La Crosse and Fargo Projects does not establish the need for either of these projects. Non-applicant experts often had incomplete information or relied on an inapplicable NERC standards.

530. All of the reliability scenarios described in MISO witness Jeffrey Webb’s prefiled testimony for the Rochester area are NERC Category C (n-2) contingencies representing combinations of system failures.⁵²⁷ MISO also did not analyze the impacts of the RIGO projects on Rochester reliability.⁵²⁸

531. All of the reliability scenarios described in Mr. Webb’s prefiled testimony for the La Crosse area are NERC Category C (n-2 or n-3) events representing combinations of

⁵²³ Tr. V. 12, p. 32 (Grivna, 7/29/08); WOW, p. 8.

⁵²⁴ Tr. V. 5A, p. 49, ll. 4-8 (Webb).

⁵²⁵ Tr. V. 12, pp. 24-25 (Grivna).

⁵²⁶ Tr. V. 12, p. 44 (Grivna); Ex. 121, p. 8 (Grivna Rebuttal).

⁵²⁷ Tr. V. 5A, p. 51 (Webb); Ex. 56, pp. 27-28 (Webb Direct).

⁵²⁸ Tr. V. 4, p. 128, ll. 7-9 (Webb).

system failures.⁵²⁹ The French Island generators 3 and 4 are assumed to be turned off for all overloading conditions in Table 1 of Mr. Webb's prefiled testimony.⁵³⁰

532. Joint Intervenors' witness Larry Schedin acknowledged that when he evaluated sub-area community reliability needed he used the data presented in the Application and did not know how much conservation was included in estimating load growth.⁵³¹ He did not test whether reducing load would address system deficiencies.⁵³²

533. Mr. Schedin also didn't do a detailed evaluation of the need for the La Crosse line given the construction and operation of the RIGO projects; he just looked at it from a cursory point of view.⁵³³ Mr. Schedin did not look at or know of upgrades in the La Crosse area that had been built since the study was done.⁵³⁴

534. The MISO CapX study which Mr. Webb referenced in his testimony was not provided in the record⁵³⁵ and was not available in narrative draft form at the time of Mr. Webb's testimony.⁵³⁶

535. Mr. Webb could not recall in cross-examination what the specific assumptions were for annual peak winter load growth in the Red River area in the MISO study or for any of the specific communities in the MISO study for the Fargo line.⁵³⁷ Mr. Webb also could not recall what the specific assumptions were for annual peak summer load growth in either the Rochester or the La Crosse area.⁵³⁸

536. The forecasts for the MISO CapX studies were provided by Applicants.⁵³⁹ Mr. Webb did not know which conservation and demand-side management strategies were included in any of the load growth forecasts used in the MISO CapX studies.⁵⁴⁰

537. Mr. Ham's testimony that the CapX2020 projects were needed in order to improve transmission reliability was not based on his independent assessment, but on conclusions of MISO.⁵⁴¹

⁵²⁹ Tr. V. 5A, p. 58 (Webb); Ex. 56, p. 30 (Webb Direct).

⁵³⁰ Tr. V. 5A, p. 88 (Webb); Ex. 56, p. 30 (Webb Direct).

⁵³¹ Tr. V. 19, pp. 162-163 (Schedin).

⁵³² Tr. V. 19, pp. 177-178 (Schedin).

⁵³³ Tr. V. 19, pp. 178-179 (Schedin).

⁵³⁴ Tr. V. 19, pp. 179-180 (Schedin).

⁵³⁵ The MISO study was different from those provided by Applicants in Apx. A-1 through A-4 of the Application. Tr. V. 5A, p. 80 (Webb).

⁵³⁶ Tr. V. 5B, p. 10 (Webb).

⁵³⁷ Tr. V. 5A, pp. 80-82 (Webb). This information was not provided in prefiled testimony either. Ex. 56 (Webb Direct).

⁵³⁸ Tr. V. 5A, pp. 83-84 (Webb). This information was not provided in prefiled testimony either, Ex. 56 (Webb Direct).

⁵³⁹ Tr. V. 5A, pp. 81, 84 (Webb).

⁵⁴⁰ Tr. V. 5A, p. 84 (Webb).

⁵⁴¹ Tr. V. 23, p. 161, ll. 6-13 (Ham).

538. The effects of new and planned transmission improvements that were not part of the original Application were not included in the OES analysis.⁵⁴²

539. Specifically, effects of RIGO transmission lines on reliability in Rochester, effects of lower voltage transmission construction in the La Crosse area and effects of the planned Bemidji 230 kV transmission line on reliability in the Red River Valley were not considered in the OES analysis.⁵⁴³

2. Other Transmission Issues

540. Although OES witnesses raised numerous issues pertaining to transmission plans and the value of transmission, none of these ancillary comments establish a need for the CapX2020 transmission projects.

541. OES witness Hwikwon Ham's testimony that the CapX2020 Projects would have a "positive impact" in meeting the State's energy need⁵⁴⁴ wasn't intended to select the CapX2020 transmission as a specific project. Mr. Ham explained, "I just stated it will have a positive impact. I didn't say it is [the] best option."⁵⁴⁵

542. Although an "islanding" event jeopardizing reliability in September 2007 was discussed in Mr. Ham's testimony,⁵⁴⁶ Mr. Ham did not testify that the CapX projects are needed to solve the engineering problems that resulted in this "islanding" event.⁵⁴⁷

543. Similarly, although his testimony described adverse impacts on energy costs resulting from a "narrowly constrained area" in parts of Minnesota and Iowa,⁵⁴⁸ Mr. Ham did not testify that the CapX projects would address congestion from or provide a solution to this "narrowly constrained area."⁵⁴⁹

544. OES did not calculate any number of megawatts by which any of the winter peak demand forecasts in this proceeding would change as a result of what Mr. Ham referred to as "predictable extreme weather."⁵⁵⁰

3. Greenhouse Gas Emissions Control

545. Minnesota's Greenhouse Gas Emissions Control statute and policies⁵⁵¹ require an analysis of the greenhouse gas emissions (GHG) impacts of the CapX2020 transmission line. This analysis was also requested in comments on the scope of the Environmental

⁵⁴² Tr. V. 21, pp. 95-96 (Davis).

⁵⁴³ Tr. V. 21, pp. 95-96, 121-122 (Davis); Tr. V. 25, p. 69 (Rakow).

⁵⁴⁴ Ex. 257, p. 10 (Ham Direct).

⁵⁴⁵ Tr. V. 23, p. 26, ll. 18-20 (Ham).

⁵⁴⁶ Ex. 257, p. 6 (Ham Direct).

⁵⁴⁷ Tr. V. 23, pp. 131-132 (Ham).

⁵⁴⁸ Ex. 257, p. 13 (Ham Direct).

⁵⁴⁹ Tr. V. 23, p. 131, ll. 17-21 (Ham); Tr. V. 24, p. 85-86 (Ham).

⁵⁵⁰ Tr. V. 24, p. 25, ll. 6-14 (Ham).

⁵⁵¹ Minn. Stat. § 216H.02, establishing State goal and planning process.

Report.⁵⁵²

546. The Minnesota Climate Change Advisory Group, in its Final Report recommended that in state agency analysis of the potential environmental impacts of a proposed action or project in Minnesota, greenhouse gas (GHG) emissions should be considered to enable comparison of reference case GHG emission levels to future GHG emission levels as a result of proposed projects. The MCAG stated, “This information will guide officials and developers in choosing technologies and activities that result in development that protects the environment and reduces additional contributions of GHGs.”⁵⁵³

547. Dr. Rakow estimated the construction impacts of carbon dioxide at 500,000 tons, based on 727 tons of CO₂ per mile of construction and 700 miles of transmission and using data supplied from a transmission project in California.⁵⁵⁴

548. To the extent that the CapX2020 transmission lines support wind energy and displace non-renewable fuel, the adverse greenhouse gas emissions impact from construction activities would be quickly outweighed.

549. The CapX2020 Projects, however, create a risk that a transmission system would be built by and across Minnesota that circumvents the provisions of the Minnesota Greenhouse Gas Control statute establishing a moratorium on the construction of new coal plants.⁵⁵⁵

550. Since 2007, Minnesota has had a moratorium in place for coal plants, preventing new coal plants or delivery to coal to Minnesota customers.⁵⁵⁶

551. The greenhouse gas statute moratorium on constructing additional coal plants applies to power plants built in Minnesota or the importation of power to be used by Minnesota consumers. Other Midwestern states have no similar law preventing importation of energy from new coal plants.⁵⁵⁷

552. Other states within MISO, including North and South Dakota, Wisconsin and Iowa also do not have a moratorium on the construction of new coal plants.⁵⁵⁸

⁵⁵² Ex. 161 (Comments on Scope of Environmental Report – C. Childs/Sierra Club 1/14/08).

⁵⁵³ Minnesota Climate Change Advisory Group Final Report, Chapter 7-6, <http://www.mnclimatechange.us/ewebeditpro/items/O3F16700.pdf>.

⁵⁵⁴ Tr. V. 25, pp. 18-19 (Rakow); Ex. 303, p. 32 (Rakow Rebuttal); see ALJ Proposed Decision Denying a Certificate of Public Convenience and Necessity for the Sunrise Powerlink Transmission Project, p. 163, *In the Matter of the Application of San Diego Gas & Elec. Co. for a Certificate of Public Convenience and Necessity for the Sunrise Powerlink Transmission Project, Cal. Public Utilities Comm'n*, Docket No. A.06-08-010, (October 31, 2008) (<http://docs.cpuc.ca.gov/efile/PD/93071.pdf>).

⁵⁵⁵ Minn. Stat. § 216H.03, subd. 2.

⁵⁵⁶ Ex. 132, p. 29 (Alders Rebuttal); Tr. V. 15, p. 54, 56 (Alders). Current Big Stone II proceedings are exempt from this moratorium.

⁵⁵⁷ Tr. V. 15, p. 102 (Alders).

⁵⁵⁸ Tr. V. 24, p. 91, ll. 13-15 (Ham).

553. The Minnesota Greenhouse Emissions statute would preclude the interconnection of coal plants in South Dakota or North Dakota with the CapX projects if energy is to be delivered to Minnesota and would not preclude the interconnection if energy is to be delivered outside Minnesota, further east to Wisconsin, Illinois, Indiana.⁵⁵⁹

554. The CapX2020 projects would provide delivery of significant generation resources from North Dakota. This could include coal generation if it was developed.⁵⁶⁰

555. The CapX Projects would reduce line losses and costs for importing power across Minnesota from the Dakotas to Wisconsin.⁵⁶¹ As OES witness Dr. Rakow explained, “The line clearly ends in La Crosse for the La Crosse project so it's going to be serving Wisconsin load.”⁵⁶²

556. If the CapX projects facilitate the ability of Wisconsin utilities to import power from the Dakotas, the greenhouse gas law would not place any restrictions on that purchase of coal.⁵⁶³

557. If the three proposed CapX2020 Projects are built, a coal plant in South or North Dakota seeking to serve load in Wisconsin or further east could be entitled to transmission service under MISO rules. It would also be possible for a coal plant in South or North Dakota to sell directly into the MISO market without a purchase by a designated load serving entity.⁵⁶⁴

4. Economic Conditions

558. Current recessionary economic conditions suggest additional caution before approving projects based on claims of increasing future load growth.

559. There is a positive correlation between income and energy use. The less money people have, the less energy they consume.⁵⁶⁵ Economic recession can lower electrical consumption.⁵⁶⁶

560. Even in July, Applicants’ witness James Alders acknowledged that we are in a “downturn” of the economy and that the anticipated demand in 2020 may not reach the peak projected.⁵⁶⁷

⁵⁵⁹ Tr. V. 25, p. 32 (Rakow).

⁵⁶⁰ Tr. V. 11, pp. 155-156 (Grivna); Ex. 121, p. 13 (Grivna Rebuttal).

⁵⁶¹ Tr. V. 25, pp. 85-86 (Rakow).

⁵⁶² Tr. V. 25, pp. 73-74 (Rakow).

⁵⁶³ Tr. V. 15, p. 103, ll. 1-7 (Alders).

⁵⁶⁴ Tr. V. 21, pp. 45-46 (Ellison). *See also* Tr. V. 17A, p. 30 (Michaud).

⁵⁶⁵ Tr. V. 4, p. 18, ll. 12-16 (Lacey).

⁵⁶⁶ Tr. V. 16, p. 70, ll. 17-18 (Michaud).

⁵⁶⁷ Tr. V. 15, pp. 119-120 (Alders). Since 7/30/08, the date of this testimony, economic conditions have worsened and a global as well as United States recession impact is likely to have an unprecedented affect on projected demand.

561. In September, OES witness Hwikwon Ham testified that we are in a recession and that a recession will have impact on load growth extending through however long the recession may be. The impact of the recession on load growth will depend on how long and how deep the recession might be.⁵⁶⁸

562. Although renewable generation outlet capacity to meet RES milestones may be needed even in an economic downturn, claims for system-wide need for the CapX2020 projects and claims for community reliability the communities identified in this record (with the exception of St. Cloud) are further weakened by this economic news.

H. Additional Conditions

1. Community-Based Energy Development

563. Minnesota statutes establish a policy “to optimize local, regional, and state benefits from renewable energy development and to facilitate widespread development of community-based renewable energy projects throughout Minnesota.”⁵⁶⁹

564. Applicants acknowledge that Minnesota has made community-based energy development a public policy priority.⁵⁷⁰

565. Minnesota certificate of need rules also require consideration of whether “the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments.”⁵⁷¹

566. There is a clear consensus that community wind ownership provides greater local economic benefits than corporate wind ownership.⁵⁷²

567. Several studies have shown greater positive impact from community ownership on local economics as a result of job creation and spending effects in the local economy.⁵⁷³

568. A recent Minnesota study showed that, even if construction impacts are assumed to be equal, the profit stream accrues locally for community-based projects and is re-spent, creating a considerably larger economic impact from local ownership.⁵⁷⁴

⁵⁶⁸ Tr. V. 23, p. 126, ll. 18-22 (Ham).

⁵⁶⁹ Minn. Stat. § 216B.1612, subd.1.

⁵⁷⁰ Tr. V. 1B, pp. 59 (Rogelstad).

⁵⁷¹ Minn. R. 7849.0120, subp. c requires demonstration that the proposed facility or a suitable modification of the facility will provide benefits to society and requires consideration of the effects of the project on socioeconomic environments.

⁵⁷² Ex. 166, p. 15, ll.28-29 (Kildegaard Direct).

⁵⁷³ Ex. 166, p. 16 (Kildegaard Direct)

⁵⁷⁴ Tr. V. 18A, pp. 101-102 (Kildegaard).

569. Through input-output modeling, this University of Minnesota study found that community wind can have 5 times the economic value on local value added and 3.4 times the impact on local job creation relative to a corporate-owned development.⁵⁷⁵

570. Applicants' witness James Alders testified that facilitating community-based ownership is in the public interest because with ownership on the part of people in the community, there are more opportunities for revenue to go into those communities.⁵⁷⁶

571. The 825MW Wind Proceeding Order included conditions for C-BED projects to serve a public interest on the part of the State of Minnesota and facilitate community-based ownership as part of the mix.⁵⁷⁷

572. NAWO/ILSR have suggested that a condition on any certificate of need that might be issued in this proceeding is that the CapX2020 utilities in the aggregate sign power purchase agreements for 600 MW of dispersed C-BED projects within the next two years.⁵⁷⁸

573. Xcel Energy has announced an intention to deploy 500MW of small community-based wind projects by 2010 and issued a request for proposals (RFP) on June 13, 2008 to fill some or all of this commitment.⁵⁷⁹ The RFP for small community wind is intended to focus on areas that are less transmission constrained than the Buffalo Ridge,⁵⁸⁰ and projects would not necessarily have to use the Brookings transmission line.⁵⁸¹

574. Xcel Energy witness James Alders has suggested that compliance with conditions proposed by Mr. Ellison to ensure use of renewable energy on the Brookings line could reduce Xcel's ability to develop small projects in a timely manner,⁵⁸² or "complicate" efforts to achieve 500MW of C-BED.⁵⁸³

575. In order to prevent contracts for the Brookings line from serving as a reason to defer C-BED projects as well as to optimize socioeconomic benefits of renewable energy, in keeping with State policy, conditions incorporating C-BED development into these CapX proceedings are warranted.

2. Ratepayer Issues

576. In their Request for Exemption from having to provide information on system revenue requirements pursuant to Minn. R. 7849.0270, subp. 2(E), Applicants asserted that it was not possible to provide information on system revenue requirements or rate

⁵⁷⁵ Ex. 168, p. 21 (Community vs. Corporate Wind Study).

⁵⁷⁶ Tr. V. 13, p. 108 (Alders).

⁵⁷⁷ Tr. V. 13, pp. 107-108 (Alders).

⁵⁷⁸ Ex. 115, p. 4 (Michaud Surrebuttal); Tr. V. 17A, p. 17 (Michaud).

⁵⁷⁹ Ex. 132, p. 25 (Alders Rebuttal).

⁵⁸⁰ Tr. V. 15, p. 50 (Alders).

⁵⁸¹ Tr. V. 13, p. 166, ll. 18-21 (Alders).

⁵⁸² Tr. V. 13, pp. 164-165 (Alders).

⁵⁸³ Tr. V. 14, p. 134-135 (Alders).

impacts because the ownership interests in the CapX projects had not been finally determined.⁵⁸⁴

577. The Minnesota Public Utilities Commission relied on that representation in granting Applicants' exemption from disclosure of information required under Minnesota rules, over the objections of several parties.⁵⁸⁵

578. The Commission further stated in its Order granting the exemption that "the Commission fully expects the parties to generate estimates of rate impacts at some point in the analysis."⁵⁸⁶

579. The Applicants did not provide any evidence of the rate impacts of the CapX projects on any customers of any utility at any time. The Office of Energy Security provided a single page of analysis one day before the close of hearings in this matter.⁵⁸⁷

580. Exhibit 310 was provided by the OES on September 17, 2008 in an attempt to be responsive to criticism that there is no rate impact information in this record that the Commission might consider.⁵⁸⁸ Exhibit 310 uses "a very simple method" to give "a quick and dirty estimate" of the potential impacts on rates.⁵⁸⁹

581. OES analysis assumed that all three CapX projects would be classified as Baseline Reliability Projects. If a project were generated as a Generation Interconnection Network Upgrade, costs to ratepayers would increase by approximately ten percent.⁵⁹⁰

582. The OES analysis in Exhibit 310 understated projected capital costs, because OES didn't have the formula to calculate revenue requirements for proposed upsizing.⁵⁹¹

583. Forecasts used to estimate costs for ratepayers in Exhibit 310 did not include the 1.5% conservation requirement. To the extent there is more conservation, cost impacts will rise.⁵⁹²

584. For Dairyland and RPU, whatever their investment is, it will be borne entirely by their retail customers,⁵⁹³ OES made no effort to estimate the rate impact for RPU customers of the CapX projects.⁵⁹⁴

⁵⁸⁴ *In the Matter of the Application of Great River Energy, N. States Power Co. (d/b/a Xcel Energy) and Others for a Certificate of Need for the CapX-345 kV Transmission Project*, Docket No. ET-2, E-002 et al./CN-06-1115 (hereinafter "CapX Certificate of Need Proceeding/CN-06-1115"), *Request for Exemption from Certain Certificate of Need Data Requirements and Designation of Applicants for Certificate of Need Filing* (October 23, 2007).

⁵⁸⁵ CapX Certificate of Need Proceeding/CN-06-1115, *Order Designating Applicants and Setting Filing Requirements* (June 4, 2007), p. 14.

⁵⁸⁶ *Id.*, p. 14.

⁵⁸⁷ Ex. 310, provided by Steve Rakow on 9/17/08.

⁵⁸⁸ Tr. V. 24, p. 114, ll. 17-20 (Rakow).

⁵⁸⁹ Tr. V. 25, pp. 48-49 (Rakow).

⁵⁹⁰ Ex. 1, Apx. D-5, p. 10 (Application).

⁵⁹¹ Tr. V. 25, p. 63 (Rakow).

⁵⁹² Tr. V. 25, pp. 60-61 (Rakow).

585. There is little evidence on this record of potential rate impacts for the CapX2020 projects. Applicants objected to questions regarding cost recovery for the CapX2020 projects as outside the scope of the hearing.⁵⁹⁵

586. OES witness Hwikwon Ham testified that with a regulated utility, regulators can ensure that a set amount of revenues earned by the utility are allocated to ratepayers to pay back any costs charged to ratepayers.⁵⁹⁶

587. No testimony suggested that ratepayers would have similar protection if the CapX2020 assets were transferred to a non-regulated entity. OES witness Steve Rakow testified that transfer to a non-regulated entity would not require a hearing and might not even require the compliance filing offered by Applicants.⁵⁹⁷

VII. ENVIRONMENTAL ISSUES (All CapX2020 Projects)

A. Environmental Report

588. The Environmental Report prepared by the Department of Commerce assumed Applicants' claimed need for the proposed project.⁵⁹⁸

589. The Environmental Report accepted Applicants' description of need, including an increase in system-wide growth of 4000 to 6000 MW, local load serving in specific cities along the routes and the potential to serve renewable energy at a level somewhere between 400 to 800MW.⁵⁹⁹

590. The no-build alternative in the Environmental Report did not take into account other local transmission or generation projects that are planned or underway that might affect the need issues alleged in the Application.⁶⁰⁰

591. The Environmental Report did not do any independent analysis of the potential of upgrading existing transmission and reconfiguration alternatives other than what the Applicant provided in the application.⁶⁰¹

592. The Environmental Report analysis of conservation assumed that demand side management would need to replace the entire 4000 to 6000 MW of Applicants' claimed

⁵⁹³ Tr. V. 14, pp. 94-95,97 (Grover).

⁵⁹⁴ Tr. V. 25, p. 39, ll. 11-16 (Rakow).

⁵⁹⁵ Tr. V. 25, p. 45 (Rakow).

⁵⁹⁶ Tr. V. 23, pp. 80-81 (Ham).

⁵⁹⁷ Tr. V. 25, p. 25 (Rakow).

⁵⁹⁸ Tr. V. 17A, p. 55, ll. 7-9 (Birkholz).

⁵⁹⁹ Tr. V. 17B, pp. 74, 76-77 (Birkholz).

⁶⁰⁰ Tr. V.17B, pp. 90-91,92 (Birkholz).

⁶⁰¹ Tr. V.17B, p. 13, ll. 6-14 (Birkholz).

need and concluded that there would be no level of conservation that would replace this level of megawatts.⁶⁰²

593. For its Environmental Report, the Department of Commerce did not independently verify how much generation would be needed by 2020 in various specific communities for community reliability.⁶⁰³

594. The Environmental Report did not analyze any alternative based on conservation and/or load management to address all or part of the community reliability needs identified by Applicants.⁶⁰⁴

595. The Environmental Report did not assess the incremental generation that might be entailed in the CapX2020 plan or any air quality impacts of that generation.⁶⁰⁵

596. The Environmental Report did not address the impacts of the Applicants' proposal to upsize the CapX2020 projects.⁶⁰⁶

597. The Environmental Report did not include any discussion of greenhouse gas impacts of construction of the CapX2020 Projects.⁶⁰⁷

598. Environmental Report analysis of noise, electric field and magnetic field impacts of the CapX2020 projects was based on the data received from Applicants.⁶⁰⁸

599. Environmental Report analysis of magnetic field relied on the data received from the Applicant. DOC staff could not recall the levels of current that were modeled by Applicants to estimate magnetic fields.⁶⁰⁹

600. No comparison was made in the Environmental Report of the environmental impacts of the La Crosse 345 kV line to alternatives that would not require a new 345 kV transmission line crossing of the Mississippi River.⁶¹⁰

B. Environmental and Other Impacts

1. Property Values

601. The effects of transmission project on the sale price for a single-family home may range from 0 to 14 percent.⁶¹¹

⁶⁰² Ex. 5, p. 90 (Environmental Report); Tr. V. 17B, pp. 8-9 (Birkholz).

⁶⁰³ Tr. V. 17B, p. 79 (Birkholz).

⁶⁰⁴ Tr. V. 17B, p. 83 (Birkholz).

⁶⁰⁵ Tr. V. 18A, pp. 11-12 (Birkholz).

⁶⁰⁶ Tr. V. 17B, p. 23, ll. 22-24 (Birkholz).

⁶⁰⁷ Tr. V. 17A, p. 87, ll. 8-13 (Birkholz); Tr. V. 17B, p. 97 (Birkholz).

⁶⁰⁸ Tr. V. 17B, pp. 72-73 (Birkholz).

⁶⁰⁹ Tr. V. 17B, pp. 43-44 (Birkholz).

⁶¹⁰ Tr. V. 17B, p. 85 (Birkholz).

⁶¹¹ Ex. 5, p. 14 (Environmental Report).

602. Adverse effects on the sale price are most often observed for property crossed by or immediately adjacent to a power line, but effects have also been observed for properties farther away from the line.⁶¹²

603. Environmental and health effects of the CapX2020 Projects are significant and often increase with higher voltage transmission lines and double circuit configurations.

2. Audible and Electromagnetic Noise

604. Noise, interference with electromagnetic signals, electrical and magnetic fields created around the conductors are all impacts that result from the normal operation of high voltage transmission. They do not require faulty maintenance.⁶¹³

605. High voltage transmission lines generate corona, which is an ionization of air within a few centimeters of the conductor when the voltage on the surface of the conductor breaks down and changes the molecular structure of air.⁶¹⁴

606. The breakdown of air molecules in the region around transmission lines can generate audible noise, radio frequency noise (interference), light, ozone, energy loss and other effects.⁶¹⁵ These effects extend along the entire length of the transmission line.⁶¹⁶

607. Audible noise from transmission creates a sporadic crackling and spitting sound.⁶¹⁷ Audible noise is more likely under wet conditions; it can occur anywhere where it is wet or rainy.⁶¹⁸

608. Any imperfection or irregularity on a transmission line, including a scratch on the conductor's surface or a water droplet, can cause corona and associated audible and radio frequency noise.⁶¹⁹

609. Audible noise is based on the voltage of the line; the higher the voltage the higher the noise.⁶²⁰ Audible noise can be generated either day or night.⁶²¹

610. Minnesota law prohibits nighttime noise from exceeding 55 decibels (dBA) for more than ten percent of every hour (L₁₀) in residential areas.⁶²²

⁶¹² Ex. 5, p. 14 (Environmental Report).

⁶¹³ Tr. V. 12, pp. 131-132 (LaCasse); Ex. 126, p. 2 (LaCasse Direct).

⁶¹⁴ Tr. V. 12, pp. 133-134 (LaCasse); Ex. 126, pp. 2-3 (LaCasse Direct).

⁶¹⁵ Ex. 126, p. 3 (LaCasse Direct).

⁶¹⁶ Tr. V. 12, p. 132 (LaCasse).

⁶¹⁷ Tr. V. 12, p. 134 (LaCasse).

⁶¹⁸ Tr. V. 12, p. 132, ll. 23-25 (LaCasse).

⁶¹⁹ Ex. 126, p. 3 (LaCasse Direct).

⁶²⁰ Tr. V. 12, p. 141, ll. 8-9 (LaCasse).

⁶²¹ Tr. V. 12, p. 137, ll. 9-12 (LaCasse).

⁶²² Minn. R. 7030.0040, subp. 2.

611. Applicants' model indicates 57.7dBA for L₅ but does not specify the noise level at L₁₀. Noise calculations produced by Applicants do not demonstrate that CapX2020 double circuit 345 kV power lines would comply with Minnesota (L₁₀) noise rules for residential areas.⁶²³

612. Applicants have stated that actual noise levels may vary somewhat from the levels provided in the application in Figure 9-8, but they have not provided any data for the range of variability from their noise estimates.⁶²⁴

613. At the edge of the right of way, Applicants' model indicates a 49.9 dBA at L₅₀ for a double circuit 345 kV power line. If actual noise varied slightly above this estimate for at least half an hour it would have the potential to exceed Minnesota noise standards prohibiting noise heard for over fifty percent of the hour (L₅₀.) in residential areas from exceeding fifty decibels.⁶²⁵

614. Since decibels are a function of distance,⁶²⁶ noise directly below the power lines would be closer to the source and would be louder than Applicants' estimates at the edge of the right-of-way.

615. Electrical interference is more likely in areas distant from radio or TV towers, which areas are more likely to be rural.⁶²⁷

616. Modern farm equipment that relies on radio frequency technology to help steer tractors and more accurately till and spread chemicals could be affected by electromagnetic noise from power lines at that location.⁶²⁸

3. Electric Fields

617. The higher the operating electric voltage of the power line, the greater intensity of its electric field.⁶²⁹

618. Tall equipment used on a farm could create a risk of electrocution from direct contact with power lines.⁶³⁰

619. Induced voltage is where an electric field discharges to a conductive object, such as a vehicle or a metal fence in close proximity to a transmission line. Induced voltage

⁶²³ Tr. V. 12, pp. 149-150 (LaCasse); Ex. 1, p. 9.21, Figure 9-8 (Application); Ex. 126, p. 5 (LaCasse Direct).

⁶²⁴ Tr. V. 12, pp. 138-139 (LaCasse; Ex. 1, pp. 9.20, 9.21, Figure 9-8 (Application).

⁶²⁵ Tr. V. 12, p. 148 (LaCasse); Ex. 1., p. 9.21, Figure 9-8 (Application); Ex. 126, p. 5 (LaCasse Direct).

⁶²⁶ Tr. V. 12, p. 139 (LaCasse).

⁶²⁷ Tr. V. 12, pp. 132-133 (LaCasse).

⁶²⁸ Tr. V. 12, p. 152 (LaCasse).

⁶²⁹ Tr. V. 12, pp. 152-153 (LaCasse); Ex. 126, p. 7 (LaCasse Direct).

⁶³⁰ Tr. V. 12, p. 156 (LaCasse).

does not require direct contact with a power line. It results from transmission of the electric field produced by the power lines through the air to an object.⁶³¹

620. Normal farm operations, such as parking a vehicle or using livestock fences near transmission lines result in increased likelihood of induced voltage from power lines.⁶³²

621. Transmission lines can also induce “stray voltage” on an electric distribution circuit that is parallel or under a transmission line. Farm animals affected by this stray voltage may not milk properly and may not feed properly.⁶³³

622. The predicted electric fields for the CapX2020 projects exceed the levels that may produce interference with older style pacemakers.⁶³⁴ No data was developed to determine how many of these pacemakers may be in used in areas proposed for the CapX projects.⁶³⁵

623. DOC witness David Birkholz did not know how wide a right of way would be needed to bring electric field levels below the 1.2 kV/meter that may affect older model pacemakers.⁶³⁶

4. Electromagnetic Fields (EMF)

624. Although electric fields are shielded by common materials, such as wood or metal, magnetic fields easily pass through materials like wood or metal and will penetrate into houses and barns.⁶³⁷

625. Magnetic fields are related to the amount of current flowing through the power lines.⁶³⁸

626. In Applicants’ calculations of magnetic fields⁶³⁹ the currents used to calculate potential magnetic field exposures were significantly less than the maximum power flows reflected in the summer thermal ampacity rating.⁶⁴⁰

627. The currents used by Applicants to model magnetic fields varied from fifty amps to several hundred amps. This is less than one-third of the highest potential current level

⁶³¹ Tr. V. 12, pp. 154, 156 (LaCasse); Ex. 126, pp. 7-8 (LaCasse Direct).

⁶³² Tr. V. 12, pp. 158-159 (LaCasse); Ex. 1, p. 9.31-9.32 (Application).

⁶³³ Tr. V. 12, pp. 159-161 (LaCasse).

⁶³⁴ Ex. 5, p. 24 (Environmental Report).

⁶³⁵ Tr. V. 18A, pp. 19-20 (Birkholz).

⁶³⁶ Tr. V. 18A, p. 30 (Birkholz), J 17; Ex. 5, pp. 23-24 (Environmental Report).

⁶³⁷ Tr. V. 12, p. 162 (LaCasse).

⁶³⁸ Tr. V. 12, p. 108, ll. 7-9 (LaCasse).

⁶³⁹ Ex. 1, pp. 9.29-9.30, Figure 9-10; Ex. 126, pp. 11-14 (LaCasse Direct).

⁶⁴⁰ Tr. V. 12, pp. 117, 119 (LaCasse); Ex. 76, p. 3 (Response to IR 3 of Joint Intervenors).

(3700 amps) for the 345 kV transmission configuration proposed for the CapX2020 projects.⁶⁴¹

628. There is no information in the record specifying or justifying the levels of the current used to calculate the magnetic fields from the CapX projects either for single circuit or double circuit configurations.⁶⁴²

629. MilliGauss (mG) or micro Teslas (μ T) are commonly used to measure magnetic fields. One milliGauss is equivalent to 10 micro Teslas.⁶⁴³

630. The World Health Organization has classified electromagnetic fields as “possibly carcinogenic to humans.” This classification was based on pooled analyses of epidemiological studies demonstrating a consistent pattern of a two-fold increase in childhood leukemia associated with average exposure to residential power-frequency magnetic fields above 0.3 to 0.4 micro Teslas (μ T).⁶⁴⁴

631. Applicants acknowledged that studies have shown an association between magnetic fields and adverse health effects, including higher rates of childhood leukemia, although the World Health Organization has concluded that the evidence is not strong enough to be considered causal.⁶⁴⁵

632. Most of the peak magnetic fields at the edge of the right of way for the proposed CapX projects substantially exceed the 3 to 4 milliGauss level (equivalent to 0.3 to 0.4 μ T) associated with doubling of childhood leukemia in the pooled epidemiological studies.⁶⁴⁶ DOC staff did not know how far away one would have to be from the proposed projects to reduce exposure to the 0.3 (μ T) level.⁶⁴⁷

633. Other studies cited in public comments, including the 600-page 2007 *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Fields* written by fourteen international scientists, public health and public policy experts, have concluded that exposure to electromagnetic fields causes childhood leukemia.⁶⁴⁸

⁶⁴¹ Tr. V. 12, pp. 117-118 (LaCasse); Ex. 76, p. 3 (Response to IR 3 of Joint Intervenors). Each 345 kV line proposed by Applicants would be a twin bundled 954 kcm 54/19 ACSS, 345 kV conductor.

⁶⁴² Tr. V. 12, pp. 120, 176-177 (LaCasse).

⁶⁴³ Ex. 5, p. 24 (Environmental Report).

⁶⁴⁴ Ex. 5, p. 27 (Environmental Report).

⁶⁴⁵ Tr. V. 12, pp. 164-165, 167 (LaCasse); *see also* Ex. 5, p. 27 (Environmental Report).

⁶⁴⁶ Estimated magnetic fields are provided in Table 2-5 in Ex. 5, pp. 24-26 (Environmental Report) and in Figure 9-10 in Ex. 1, pp. 9.29-9.30 (Application). Most of the estimates are in the 15 to 30 milliGauss range.

⁶⁴⁷ Tr. V. 18A, p. 31 (Birkholz), J 17.

⁶⁴⁸ Pub Cmt. Docket No. 5520590, pp. 14-19 (Letter of J. Otto, Chair of the Eureka Township Board of Supervisors, filed 9/24/08); Pub. Cmt., Docket No. 5520587, p. 8 (August 31, 2007 *BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF)* filed 9/24/08 as Otto Email Attachment).

634. Scientists contributing to the BioInitiative Report concluded that public safety standards limiting exposure to electromagnetic fields are outdated and that biologically-based exposure standards are needed to prevent exposure from power lines at levels that have been linked to childhood leukemia.⁶⁴⁹

635. Citing health risks pertaining to electromagnetic fields and the Precautionary Principle, the Chair of the Eureka Township Board of Supervisors asked that the CapX2020 certificates of need be denied, that easement widths be increased to reduce electromagnetic exposures along with increased compensation to adjacent residents, that additional technology to sheath power lines and reduce electromagnetic broadcast be investigated and that the paradigm of lower voltage lines connected to less remote generation sources be adopted to reduce adverse health risks.⁶⁵⁰

VIII. PUBLIC TESTIMONY AND COMMENT

636. More than 200 members of the public presented personal testimony or individualized comments opposing the CapX projects, expressing concerns about its adverse environmental, health or cost impacts and suggesting alternative ways to address energy needs.

637. Citizens also signed petitions opposing the projects. David Byers of Marshall, Minnesota filed a petition with 49 signatures of residents concerned that the CapX project would enable coal, rather than renewable energy.⁶⁵¹ Ruth Lahmayer Chipps of LaCrescent filed a petition signed by 174 people supporting community based renewable energy closer to where power is needed instead of the CapX projects and asking for public hearings in La Crescent or La Crosse.⁶⁵²

638. The Town of Eureka enacted a resolution requesting that the Commission ensure ratepayers do not subsidize infrastructure used by someone else; optimize lower voltage development before building high voltage transmission; more toward increasing renewable generation; support community-based energy development; demonstrate that greenhouse gas benefits of renewable energy outweigh greenhouse gas construction and operations impacts of transmission and that transmission be designed in light of the Precautionary Principle.⁶⁵³

639. Numerous members of the public expressed concern that the CapX2020 projects would provide transmission support to the Big Stone II coal plant⁶⁵⁴ or coal plants in

⁶⁴⁹ Pub. Cmt. Docket No. 5520587, pp. 21, 25 (BioInitiative Report).

⁶⁵⁰ Pub Cmt., Docket No. 5520590, pp. 14-19 (Letter of J. Otto, Chair of the Eureka Township Board of Supervisors, filed 9/24/08)

⁶⁵¹ Pub. Cmt., filed 10/07/08 (Byers petition, #5554862).

⁶⁵² Pub. Cmt., filed 8/25/08 (Chipps 8/08/08 petition, #5464471).

⁶⁵³ Pub. Cmt., Docket No. 5198165 (Eureka Township Resolution, filed 5/12/08).

⁶⁵⁴ Pub Hear Trans, 6/18/08 FerFalls (Ms. Wika, Tab 2, Pg 29 –34); Pub Hear Trans, 6/18/08 Alex (Mr. Campbell, Tab 3, Pg 35 & 42); Pub Hear Trans, 6/18/08 Alex (Mr. Jensen, Tab 3, Pg 43, 44); Pub.Cmt, filed 10/16/08 (Pierce 9/24/08 letter, #5567282); Pub.Cmt, filed 9/22/08 (Braun 8/26/08 email, #5518690); Pub.Cmt, filed 8/08/08 (Schoofs 8/4/08 letter, #5417357); Pub.Cmt, filed 6/18/08 (Crozier 2/14/08 letter,

general.⁶⁵⁵ Jim Jensen, who serves on the Douglas County Planning Commission Advisory Board, and Todd Paddock of Winona expressed concern about mercury emissions from the Big Stone II coal plant.⁶⁵⁶ Citizens were also concerned that the specific power generating sources for the project have not been identified, creating uncertainties as to the location, fuel, source, ownership or costs of the generation facilities.⁶⁵⁷

640. Citizens testified that the CapX2020 projects should not increase global warming.⁶⁵⁸ Leo Klisch from the St. Joe stated that he believes that it is irresponsible to push the CapX projects through unless they reduce CO₂.⁶⁵⁹

641. Many members of the public asked for a guarantee that the CapX2020 projects would be used to support wind energy, often explicitly requesting that conditions be placed on any certificates of need to give priority access for renewable energy.⁶⁶⁰ Margaret Levin wrote on behalf of Sierra Club North Star Chapter and its 800,000

#5286821); Pub Hear Trans, 6/18/08 Alex (Mr. Jensen, Tab 3, Pg 43, 44); Pub Hear Trans, 7/01/08 Winona (Mr. Paddock, Tab 16, Pg 27-30).

⁶⁵⁵ Pub Hear Trans, 6/26/08 Lakvll (Ms. Olstad, Tab 12, Pg 26-27); Pub Hear Trans, 6/26/08 Lakvll (Mr. Diffley, Tab 13, Pg 32-36); Pub Hear Trans, 6/26/08 Lakvll (Ms. Ferichs, Tab 13, Pg 37-40); Pub Hear Trans, 6/30/08 CanFalls (Ms. Longfellow, Tab 15, Pg 51-53); Pub.Cmt, filed 9/22/08 (Kepner 9/11 letter, #5518689); Pub.Cmt, filed 9/22/08 (Lavelle 9/12/08 email, #5518690); Pub.Cmt, filed 9/22/08 (Hinderscheit 9/16/08 email, #5518690); Pub.Cmt, filed 7/08/08 (Dwyer 6/24/08 letter, #5322765); Pub. Cmt, filed 10/06/08 (Fredrickson 9/23 letter #5551880); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 10/06/08 (Iremonger, PhD letter 9/23 #5551881); Pub. Cmt, filed 10/06/08 (Paddock email undated #5551881); Pub. Cmt, filed 10/06/08 (Morse letter 9/25 #5551881); Pub. Cmt, filed 10/06/08 (Howe email undated #5551881); Pub. Cmt, filed 9/24/08 (Zerbe letter undated #5520583); Pub. Cmt, filed 9/24/08 (Weibel letter 9/14 #5520583); Pub. Cmt, filed 9/24/08 (Meisenheimer letter 9/17 #5520583); Pub. Cmt, filed 9/24/08 (Shell letter undated #5520583); Pub. Cmt, filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Van Art letter 9/16 #5520585).

⁶⁵⁶ Pub Hear Trans, 6/18/08 Alex (Mr. Campbell, Tab 3, Pg 35 & 42); Pub Hear Trans, 6/18/08 Alex (Mr. Jensen, Tab 3, Pg 43, 44); Pub Hear Trans, 7/01/08 Winona (Mr. Paddock, Tab 16, Pg 27-30).

⁶⁵⁷ Pub Hear Trans, 6/30/08 CanFalls (Mr. Soule, Tab 15, Pg 34-46); Pub Hear Trans, 6/30/08 CanFalls (Mr. Bockman, Tab 15, Pg 28-33).

⁶⁵⁸ Pub Hear Trans, 6/19/08 Mel (Mr. Klisch, Tab 4, Pg 36-37); Pub. Cmt, filed 10/06/08 (Fredrickson 9/23 letter #5551880); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 9/24/08 (Reedy letter 9/16 #5520583); Pub. Cmt, filed 10/06/08 (Eide-Tollefson email 9/26 #5551881); Pub Hear Trans, 6/19/08 Mel (Mr. Klisch, Tab 4, Pg 36-37).

⁶⁵⁹ Pub Hear Trans, 6/19/08 Mel (Mr. Klisch, Tab 4, Pg 36-37).

⁶⁶⁰ Pub Hear Trans, 6/23/08 Marsh (Ms. Dacey, Tab 7, Pg 36-39); Pub Hear Trans, 6/18/08 FerFalls (Ms. S. Wika, Tab 2, Pg 29 -34); Pub Hear Trans, 6/30/08 CanFalls (Mr. Martin, Tab 14, Pg 42-47); Pub Hear Trans, 7/01/08 Winona (Mr. Kruger, Tab 16, Pg 30); Pub.Cmt, filed 8/25/08 (Pohl 8/21/08 letter, #5464478); Pub.Cmt, filed 8/08/08 (Harris 8/4/08 letter, #5417357); Pub.Cmt, filed 8/08/08 (Ross 8/5/08 letter, #5417357); Pub.Cmt, filed 7/3108 (Schell email, #5405084); Pub.Cmt, filed 7/3108 (Grecco 7/21/08 letter, #5405095); Pub.Cmt, filed 7/3108 (Kawahara 7/28/08 letter, #5405095); Pub.Cmt, filed 7/3108 (Ouray 7/29/08 letter, #5405095); Pub.Cmt, filed 7/07/08 (Patterson 6/25/08 letter, #5321403); Pub. Cmt, filed 10/06/08 (Lutz email 9/26 #5551881); Pub. Cmt, filed 10/06/08 (Paddock email undated #5551881); Pub. Cmt, filed 10/06/08 (Morse letter 9/25 #5551881); Pub. Cmt, filed 9/24/08 (Madland letter 9/16 #5520583); Pub.Cmt, filed 10/07/08 (Levin/Sierra 9/26/08 letter, #5554862).

members supporting conditions requiring utilities to sign power purchase agreements with renewable energy developers or commit to utility-owned renewable projects.⁶⁶¹

642. Luke Schell, of Lund Food Holding of Minneapolis, stated that if permitted, the lines should include conditions requiring the incorporation of conservation and renewable energy.⁶⁶² Conditions from Mary Harris, a CETF member in Minneapolis, were that the lines would be supportive and usable for C-BEDs and require a large percent of wind, especially local projects.⁶⁶³ Mike Greco, a member of CETF, stated that his conditions were that CapX should be required to plan for and support distributed, community-based energy, coordinate purchase and construction of power lines so that they carry predominantly renewable energy, and fully offset construction-phase greenhouse gas emissions.⁶⁶⁴

643. Many citizens expressed concerns about electric transmission line losses over long distances and stated that generation should be produced closer to where it is used.⁶⁶⁵ Glenn Bennet of Lowry, former director of Runestone Electric and of Cooperative Power, noted that as much as one-third of the electricity sold is lost in transmission.⁶⁶⁶ Mike Easter of St. Charles opposed CapX because it will be more costly than alternatives, including generation near load with a greater proportion of renewable energy.⁶⁶⁷ John Maass of La Crescent commented that it does not make sense to send power across multiple states since doing so increases our grid vulnerability, loses power, affects wildlife and humans and ruins our landscape.⁶⁶⁸ Travis Lusk of Minneapolis stated that moving electricity over long distance is expensive, inefficient, unsustainable, generates pollution and impacts people and wildlife through electromagnetic field exposure.⁶⁶⁹

644. Citizens supported local renewable generation as an alternative to the CapX2020 power lines.⁶⁷⁰ Virgil Fuchs, who has a large wind generator on his property from which

⁶⁶¹ Pub.Cmt, filed 10/07/08 (Levin/Sierra 9/26/08 letter, #5554862). Sierra Club also questioned the need for the Fargo and LaCrosse projects.

⁶⁶² Pub.Cmt, filed 7/31/08 (Schell email, #5405084)

⁶⁶³ Pub.Cmt, filed 8/08/08 (Harris 8/4/08 letter, #5417357)

⁶⁶⁴ Pub.Cmt, filed 7/31/08 (Grecco 7/21/08 letter, #5405095)

⁶⁶⁵ Pub Hear Trans, 6/20/08 Clear (Mr. Zabinski, Tab 6, Pg 31-33); Pub Hear Trans, 6/23/08 Marsh (Ms. Dacey, Tab 7, Pg 36-39); Pub Hear Trans, 6/25/08 NewPrag (Ms Ruhland, Tab 11, Pg 37); Pub Hear Trans, 6/26/08 Lakvll (Ms. Jones, Tab 12, Pg 23-25); Pub Hear Trans, 6/26/08 Lakvll (Ms. Topp, Tab 12, Pg 33-37); Pub Hear Trans, 7/01/08 Winona (Mr. Tollefson, Tab 17, Pg 35-39); Pub.Cmt, filed 10/06/08 (Nytes 9/22/08 letter, #5551877); Pub.Cmt, filed 9/22/08 (Wambeke 9/18/08 email, #5518690); Pub.Cmt, filed 7/31/08 (Bigaouette email, #5405084); Pub.Cmt, filed 7/31/08 (Lusk 7/29/08 letter, #5405095); Pub. Cmt, filed 10/6/08 (Sackett 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Salaba 9/23 affidavit #5551879), Pub. Cmt, filed 10/6/08 (Tupy 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Pomeranke 9/23 affidavit #5551879); Pub. Cmt, filed 9/24/08 (Schosow letter 9/16 #5520583); Pub Hear Trans, 6/18/08 Alex (Mr. Bennet, Tab 3, Pg 19-22); Pub Hear Trans, 7/02/08 Rochester (Mr. Easter, Tab 18, Pg 32-34); Pub.Cmt, filed 10/06/08 (Maass 9/23/08 letter, #5551877); Pub.Cmt, filed 7/31/08 (Lusk 7/29/08 letter, #5405095).

⁶⁶⁶ Pub Hear Trans, 6/18/08 Alex (Mr. Bennet, Tab 3, Pg 19-22).

⁶⁶⁷ Pub Hear Trans, 7/02/08 Rochester (Mr. Easter, Tab 18, Pg 32-34).

⁶⁶⁸ Pub.Cmt, filed 10/06/08 (Maass 9/23/08 letter, #5551877).

⁶⁶⁹ Pub.Cmt, filed 7/31/08 (Lusk 7/29/08 letter, #5405095).

⁶⁷⁰ Pub Hear Trans, 6/25/08 NewPrag (Mr. Minar, Tab 11, Pg 23); Pub Hear Trans, 6/26/08 Lakvll (Ms. Mealman, Tab 13, Pg 69-70); Pub Hear Trans, 6/30/08 CanFalls (Mr. Leck, Tab 15, Pg 54-55); Pub Hear

he supplies his own needs and sells energy to Runestone and Stearns County, testified that Minnesota should provide our own renewable energy.⁶⁷¹ George Flavell, who belongs to the national solar energy society and goes to national and international conventions, testified that solar energy generation and storing wind energy with compressed air underground could support peak demand.⁶⁷² Duanne Ninneman wrote on behalf of Clean up the River Environment (CURE) to support a lower cost, distributed generation alternative to CapX.⁶⁷³ Dr. Carrie Jennings, Township Supervisor of Eureka Township, stated that energy should be produced locally through renewable energy, using shorter and smaller transmission lines and building local economies and local electrical systems.⁶⁷⁴ Jai Johnson, La Crosse City Council Member and County Board Supervisor, strongly opposed the CapX2020 project and stated that CapX takes us in the exact opposite direction from where we need to go – towards renewable and localized energy sources.⁶⁷⁵

645. Members of the public explicitly supported smaller-scale, locally-owned C-BED projects to support local communities.⁶⁷⁶ Brian Budenski, a member of the Eureka Township Board and of CETF, testified that proper utilization of C-BED generation would eliminate the need for the CapX2020 power lines and also provide local jobs and local economic development.⁶⁷⁷ Lee Topp, a CETF member from Lakeville, expressed concerns that the CapX projects would not provide affordable interconnection for smaller wind projects and that CapX is a superhighway with few off-ramps.⁶⁷⁸ CETF member

Trans, 7/01/08 Winona (Ms Eide-Tollefson, Tab 17, Pg 31-35); Pub Hear Trans, 7/01/08 Winona (Mr. Tollefson, Tab 17, Pg 35-39); Pub.Cmt, filed 9/22/08 (Heisel email, #5518690); Pub.Cmt, filed 8/25/08 (Teschler 8/15/08 letter, #5464470); Pub.Cmt, filed 8/25/08 (Turpening 8/25/08 letter, #5464478); Pub.Cmt, filed 8/08/08 (Fenske 7/31/08 letter, #5417357); Pub.Cmt, filed 7/31/08 (Martin email, #5405084); Pub.Cmt, filed 7/31/08 (Marroquin email, #5405084); Pub. Cmt, filed 10/06/08 (Fredrickson 9/23 letter #5551880); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 10/06/08 (Rozovics letter 9/24 #5551881); Pub. Cmt, filed 10/06/08 (Johnson email undated #5551881); Pub. Cmt, filed 10/06/08 (Groshek email undated #5551881); Pub. Cmt, filed 10/06/08 (Krenz email undated #5551881); Pub. Cmt, filed 9/24/08 (Pankow letter 9/15 #5520583); Pub. Cmt, filed 9/24/08 (Zerbe letter undated #5520583); Pub. Cmt, filed 9/24/08 (Halligan letter 9/16 #5520583); Pub. Cmt, filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Breidel email undated #5520590); Pub. Cmt, filed 9/24/08 (Farkas email 9/23 #5520590); Pub Hear Trans, 6/19/08 Mel (Mr. Fuchs, Tab 4, Pg 26); Pub Hear Trans, 6/26/08 Lakvll (Mr. Flavell, Tab 13, Pg 22-28); Pub Hear Trans, 6/26/08 Lakvll (Mr. Diffley, Tab 13, Pg 32-36); Pub.Cmt, filed 9/22/08 (Jennings 9/4/08 letter, #5518689); Pub.Cmt, filed 7/31/08 (Johnson email, #5405084).

⁶⁷¹ Pub Hear Trans, 6/19/08 Mel (Mr. Fuchs, Tab 4, Pg 26).

⁶⁷² Pub Hear Trans, 6/26/08 Lakvll (Mr. Flavell, Tab 13, Pg 22-28).

⁶⁷³ Pub.Cmt, filed 10/07/08 (Ninneman/Cure 9/26/08 letter, #5554862).

⁶⁷⁴ Pub.Cmt, filed 9/22/08 (Jennings 9/4/08 letter, #5518689).

⁶⁷⁵ Pub.Cmt, filed 7/31/08 (Johnson email, #5405084).

⁶⁷⁶ Pub Hear Trans, 6/26/08 Lakvll (Mr. Olstad, Tab 13, Pg 29-31); Pub Hear Trans, 6/26/08 Lakvll (Ms. Diffley, Tab 13, Pg 47-53); Pub Hear Trans, 6/30/08 CanFalls (Mr. Tyler, Tab 14, Pg 30-34); Pub Hear Trans, 6/30/08 CanFalls (Mr. Bockman, Tab 15, Pg 28-33); Pub Hear Trans, 6/30/08 CanFalls (Ms. Longfellow, Tab 15, Pg 51-53); Pub.Cmt, filed 7/31/08 (Grecco 7/21/08 letter, #5405095); Pub.Cmt, filed 7/31/08 (Kawahara 7/28/08 letter, #5405095); Pub.Cmt, filed 7/31/08 (Ouray 7/29/08 letter, #5405095); Pub.Cmt, filed 7/08/08 (Dwyer 6/24/08 letter, #5322765); Pub Hear Trans, 6/26/08 Lakvll (Mr. Budenski, Tab 12, Pg 29-32); Pub Hear Trans, 6/30/08 CanFalls (Mr. Topp, Tab 15, Pg 61-66).

⁶⁷⁷ Pub Hear Trans, 6/26/08 Lakvll (Mr. Budenski, Tab 12, Pg 29-32).

⁶⁷⁸ Pub Hear Trans, 6/30/08 CanFalls (Mr. Topp, Tab 15, Pg 61-66).

Mike Greco opposed the CapX line and advocated supporting and encouraging C-BED development and distributed renewable generation, and enhancing substations and lower-voltage power lines instead of long distance high-voltage to efficiently collect energy from dispersed renewable generation.⁶⁷⁹ Peter Dwyer of the Avon Hills Initiative asked that the PUC take a look at policy change that would guide us towards a newer infrastructure to optimize distributed and dispersed C-BED development. Avon Hills Initiative is concerned the CapX lines will transmit larger amounts of coal-fired electricity and diminished amounts of C-BED electricity generated in Minnesota.⁶⁸⁰ Martin Diffley testified that any transmission built in Minnesota should be designed to optimize the lowest voltage potential first, support distributed C-BEDs and carry large amounts of renewable energy generation.⁶⁸¹

646. Several members of the public asked that conservation be implemented before building the CapX2020 projects.⁶⁸² Glenn Bennet of Lowry, who has served as director of Runestone Electric, on and off for 20 years and as director of Cooperative Power testified that additional conservation, such as motion detector switches and time of day metering, should be implemented before building the CapX2020 transmission lines.⁶⁸³ Irv Balto of Chaseburg stated that power lines are not needed if conservation and managed peak energy demand are maximized.⁶⁸⁴ CETF member Dr. Bernadette Wood of Farmington, stated that it is time for smart transmission planning, conservation based on consumer choice, help for businesses and homes using solar energy and reductions of consumption at key peak times. She has reviewed the dispersed renewable generation study also and asks for a denial of the CapX permit and a move to local renewable generation.⁶⁸⁵

647. Citizens often requested that a combination of strategies, including conservation, local transmission and locally owned renewable energy serve as an alternative to the CapX2020 Projects.⁶⁸⁶ Linda Halley of Eureka Township asked that CapX2020 be denied

⁶⁷⁹ Pub.Cmt, filed 7/31/08 (Grecco 7/21/08 letter, #5405095).

⁶⁸⁰ Pub.Cmt, filed 7/08/08 (Dwyer 6/24/08 letter, #5322765).

⁶⁸¹ Pub Hear Trans, 6/26/08 Lakvll (Mr. Diffley, Tab 13, Pg 32-36).

⁶⁸² Pub Hear Trans, 6/25/08 NewPrag (Mr. Minar, Tab 11, Pg 23); Pub Hear Trans, 6/26/08 Lakvll (Ms. Olstad, Tab 12, Pg 26-27); Pub Hear Trans, 6/26/08 Lakvll (Ms. Buckley, Tab 12, Pg 28); Pub Hear Trans, 6/26/08 Lakvll (Ms. Diffley, Tab 13, Pg 47-53); Pub Hear Trans, 6/26/08 Lakvll (Ms. Mealman, Tab 13, Pg 69-70); Pub Hear Trans, 6/26/08 Lakvll (Mr. Kaufenberg, Tab 13, Pg 53-68); Pub Hear Trans, 6/30/08 CanFalls (Ms. Osborn, Tab 14, Pg 48-50); Pub Hear Trans, 6/30/08 CanFalls (Mr. Bockman, Tab 15, Pg 28-33)(Conservation should be our first line of action); Pub Hear Trans, 6/30/08 CanFalls (Mr. Leck, Tab 15, Pg 54-55); Pub Hear Trans, 7/01/08 Winona (Ms. Bosshard, Tab 17, Pg 46-55); Pub.Cmt, filed 9/22/08 (Hanson 9/13/08 letter, #5518689); Pub.Cmt, filed 8/25/08 (Timmerman 8/8/08 email, #5464476); Pub.Cmt, filed 8/25/08 (Pohl 8/21/08 letter, #5464478); Pub.Cmt, filed 8/08/08 (Balto 8/3/08 letter, #5417357); Pub.Cmt, filed 7/31/08 (Beach email, #5405084); Pub. Cmt, filed 10/6008 (Sackett 9/22 affidavit #5551879); Pub. Cmt, filed 9/24/08 (Cerwin letter 9/19 #5520590); Pub Hear Trans, 6/18/08 Alex (Mr. Bennet, Tab 3, Pg 19-22); Pub.Cmt, filed 7/31/08 (Wood 7/16/08 email, #5405085).

⁶⁸³ Pub Hear Trans, 6/18/08 Alex (Mr. Bennet, Tab 3, Pg 19-22).

⁶⁸⁴ Pub.Cmt, filed 8/08/08 (Balto 8/3/08 letter, #5417357).

⁶⁸⁵ Pub.Cmt, filed 7/31/08 (Wood 7/16/08 email, #5405085).

⁶⁸⁶ Pub Hear Trans, 7/02/08 Rochester (Mr. Erickson, Tab 18, Pg 35-43); Pub.Cmt, filed 10/06/08 (Pfenning 9/23/08 letter, #5551876); Pub.Cmt, filed 10/06/08 (Wambeke 9/23/08 letter, #5551877); Pub.Cmt, filed 10/06/08 (Christenson 9/26/08 letter, #5551877); Pub.Cmt, filed 9/22/08 (Francois 9/10/08

and alternatives that rely on conservation, more efficient use of our existing power lines, smart transmission development and more C-BED wind projects be developed instead.⁶⁸⁷ Julie Anderson and Denise Radcliffe requested alternatives to CapX that rely on conservation, more efficient use of lower voltage power lines, smart transmission development and more community based renewable energy used closer to where it is used.⁶⁸⁸ Caroline van Schaik of La Crescent opposes the lines on the basis they are an inappropriate approach to energy in this age. The proposal is not based on conservation, “smart grid” technology, and ignores the possibility of transmitting energy from wind, sun, and other renewable sources. She said that the reasons behind CapX require a different approach than barreling old style energy through antiquated lines strung across land and that long term goals of conservation, renewable energy, and local control need to be the cornerstones to a real plan.⁶⁸⁹

648. The risks to national security from terrorist attacks on a centralized system, and from our dependence on foreign oil, were also cited as reasons to support more local transmission and renewable energy.⁶⁹⁰

649. Citizens also expressed concerns about the overall costs of the CapX2020 projects as compared with other alternatives.⁶⁹¹ Several citizens expressed concerns about the

letter, #5518689); Pub.Cmt, filed 9/22/08 (Hunt 9/11/08 letter, #5518689); Pub.Cmt, filed 9/22/08 (Buckbee 9/10/08 email, #5518690); Pub.Cmt, filed 9/22/08 (Falc 9/15/08 email, #5518690); Pub.Cmt, filed 9/22/08 (Bovee email, #5518690); Pub.Cmt, filed 8/25/08 (O'Malley 8/16/08 letter, #5464474); Pub.Cmt, filed 8/25/08 (Radcliffe 8/20/08 letter, #5464474); Pub.Cmt, filed 8/25/08 (Hill 8/23/08 letter, #5464478); Pub.Cmt, filed 8/08/08 (Schoofs 8/4/08 letter, #5417357); Pub.Cmt, filed 7/3108 (Ouray 7/29/08 letter, #5405095); Pub.Cmt, filed 7/08/08 (Moe 6/23/08 letter, #5322765); Pub.Cmt, filed 7/3108 (Wood 7/16/08 email, #5405085); Pub.Cmt, filed 6/18/08 (Crozier 2/14/08 letter, #5286821); Pub. Cmt, filed 10/06/08 (van Schaik letter 9/23 #5551881); Pub. Cmt, filed 10/06/08 (Van Keulen letter 9/25 #5551881); Pub. Cmt, filed 10/06/08 (Paddock email undated #5551881); Pub. Cmt, filed 10/06/08 (Boyer email undated #5551881); Pub. Cmt, filed 10/06/08 (Howe email undated #5551881); Pub. Cmt, filed 9/24/08 (Dukerschein letter 9/17 #5520583); Pub. Cmt, filed 9/24/08 (Meisenheimer letter 9/17 #5520583); Pub. Cmt, filed 9/24/08 (Redig letter 10.16 #5520585); Pub Hear Trans, 6/30/08 CanFalls (Ms. Halley, Tab 15, Pg 56-60); Pub.Cmt, filed 8/25/08 (Radcliffe 8/20/08 letter, #5464474); Pub. Cmt, filed 10/06/08 (van Schaik letter 9/23 #5551881).

⁶⁸⁷ Pub Hear Trans, 6/30/08 CanFalls (Ms. Halley, Tab 15, Pg 56-60).

⁶⁸⁸ Pub.Cmt, filed 8/25/08 (Radcliffe 8/20/08 letter, #5464474).

⁶⁸⁹ Pub. Cmt, filed 10/06/08 (van Schaik letter 9/23 #5551881).

⁶⁹⁰ Pub.Cmt, filed 9/22/08 (Buckbee 9/10/08 email, #5518690)Pub.Cmt, filed 9/22/08 (Duckerschein email, #5518690); Pub.Cmt, filed 7/3108 (Ouray 7/29/08 letter, #5405095); Pub.Cmt, filed 7/08/08 (Moe 6/23/08 letter, #5322765); Pub.Cmt, filed 6/18/08 (Crozier 2/14/08 letter, #5286821); Pub. Cmt, filed 9/24/08 (Reedy letter 9/16 #5520583).

⁶⁹¹ Pub Hear Trans, 6/30/08 CanFalls (Mr. Bockman, Tab 15, Pg 28-33); Pub.Cmt, filed 9/22/08 (Kepner 9/11 letter, #5518689); Pub Hear Trans, 7/02/08 Rochester (Mr. Easter, Tab 18, Pg 32-34); Pub.Cmt, filed 10/06/08 (Chippis 9/23/08 letter, #5551876); Pub.Cmt, filed 10/06/08 (Coudron 9/18/08 letter, #5551877); Pub.Cmt, filed 9/22/08 (Gile 9/12/08 letter, #5518689); Pub.Cmt, filed 7/3108 (Martin email, #5405084); Pub.Cmt, filed 7/3108 (Grecco 7/21/08 letter, #5405095); Pub.Cmt, filed 7/3108 (Lusk 7/29/08 letter, #5405095); Pub.Cmt, filed 7/08/08 (Dwyer 6/24/08 letter, #5322765); Pub. Cmt, filed 10/6008 (Sackett 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Salaba 9/23 affidavit #5551879), Pub. Cmt, filed 10/6/08 (Tupy 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Pomeranke 9/23 affidavit #5551879); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 10/06/08 (Groshek email undated #5551881); Pub. Cmt, filed 10/06/08 (Van Keulen letter 9/25 #5551881); Pub. Cmt, filed 10/06/08 (Acevedo email undated #5551881); Pub. Cmt, filed 9/24/08 (Rozovics letter 9/18 #5520583); Pub. Cmt,

effects of the CapX projects on their property values,⁶⁹² on aesthetics in the area⁶⁹³ and on quality of life as a result of the humming sound from the line.⁶⁹⁴ Several members of the public living near the Mississippi bluff areas affected by the LaCrosse line stated that they had not received notice,⁶⁹⁵ or that the notice received was inadequate.⁶⁹⁶

650. Citizens directly expressed the opinion that with existing infrastructure and/or investments in conservation, renewable energy and demand maximization, the CapX2020 project would be unnecessary.⁶⁹⁷ Stephen Quinlivan quoted from the Environmental Report to suggest that there are feasible alternatives.⁶⁹⁸ Irv Balto of Chaseburg stated the power lines are not needed if conservation and managed peak energy demand are maximized.⁶⁹⁹ Mackenzie Sigler is a student at the University of Wisconsin- La Crosse and stated that these lines are not needed if you consider conserving energy, renewable energy, and peak energy demand maximization.⁷⁰⁰ Dr. Dawn Patterson of Northfield is a policy analyst and conservation biologist. Because need has not been demonstrated for this project she asked that the Twin Cities-La Crosse line be denied. She stated that existing infrastructure is available to handle the needed transmission if it were utilized to maximize efficiency.⁷⁰¹ Peter and Peggy Wilson of Kimball stated that with more people considering dual fuel options and other conservation practices, and national trends toward smaller, more energy efficient homes, the new power line is not justified.⁷⁰² Christopher

filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Devick letter undated #5520583); Pub. Cmt, filed 9/24/08 (Cerwin letter 9/19 #5520590); Pub. Cmt, filed 9/24/08 (Karoll letter 9/20 #5520590); Pub. Cmt, filed 9/24/08 (Farkas email 9/23 #5520590).

⁶⁹² Pub.Cmt, filed 10/06/08 (Gilb 9/26/08 letter, #5551877); Pub. Cmt, filed 9/24/08 (Rabaey email undated #5520590); Pub.Cmt, filed 8/25/08 (Prchal 8/19/08 email, #5464476); Pub.Cmt, filed 7/31/08 (Marroquin email, #5405084); Pub. Cmt, filed 10/6/08 (Chippis 9/24 letter, #5551878); Pub. Cmt, filed 10/6/08 (Sackett 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Salaba 9/23 affidavit #5551879), Pub. Cmt, filed 10/6/08 (Tupy 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Pomeranke 9/23 affidavit #5551879); Pub. Cmt, filed 10/06/08 (VanOverbeke letter undated #5551881); Pub. Cmt, filed 9/24/08 (Wiering letter undated #5520583); Pub. Cmt, filed 9/24/08 (Devick letter undated #5520583); Pub. Cmt, filed 9/24/08 (Byers email undated #5520590).

⁶⁹³ Pub.Cmt, filed 7/31/08 (Bigaouette email, #5405084); Pub. Cmt, filed 10/6/08 (Chippis 9/24 letter, #5551878); Pub. Cmt, filed 10/06/08 (VanOverbeke letter undated #5551881); Pub. Cmt, filed 10/06/08 (Groshek email undated #5551881); Pub. Cmt, filed 10/06/08 (Howe email undated #5551881); Pub. Cmt, filed 10/06/08 (Morse letter 9/25 #5551881); Pub. Cmt, filed 9/24/08 (Miller letter 7/2 #5520590)

⁶⁹⁴ Pub.Cmt, filed 8/25/08 (Gile 8/22/08 letter, #5464478); Pub. Cmt, filed 10/06/08 (VanOverbeke letter undated #5551881).

⁶⁹⁵ Pub Hear Trans, 7/01/08 Winona (Ms. Bosshard, Tab 17, Pg 46-55); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880).

⁶⁹⁶ Pub. Cmt, filed 10/06/08 (Van Keulen letter 9/25 #5551881); Pub. Cmt, filed 9/24/08 (Reedy letter 9/16 #5520583).

⁶⁹⁷ Pub.Cmt, filed 7/31/08 (Quinlivan 7/14/08 letter, #5405095); Pub.Cmt, filed 8/08/08 (Balto 8/3/08 letter, #5417357); Pub.Cmt, filed 7/07/08 (Patterson 6/25/08 letter, #5321403); Pub. Cmt, filed 10/06/08 (Bot letter 9/23 #5551881); Pub. Cmt, filed 10/06/08 (Lundberg letter 9/26 #5551881); Pub. Cmt, filed 10/06/08 (Morse letter 9/25 #5551881); Pub. Cmt, filed 9/24/08 (Shell letter undated #5520583); Pub. Cmt, filed 9/24/08 (Sigler email undated #5520590); Pub.Cmt, filed 7/31/08 (Wilson email, #5405084); Pub. Cmt, filed 10/06/08 (Iremonger, PhD letter 9/23 #5551881).

⁶⁹⁸ Pub.Cmt, filed 7/31/08 (Quinlivan 7/14/08 letter, #5405095).

⁶⁹⁹ Pub.Cmt, filed 8/08/08 (Balto 8/3/08 letter, #5417357).

⁷⁰⁰ Pub. Cmt, filed 9/24/08 (Sigler email undated #5520590).

⁷⁰¹ Pub.Cmt, filed 7/07/08 (Patterson 6/25/08 letter, #5321403).

⁷⁰² Pub.Cmt, filed 7/31/08 (Wilson email, #5405084).

Iremonger, PhD, a teacher and sheep farmer in south Winona County, objected to the CapX lines because they would be built without consideration of conservation and reduced energy demand.⁷⁰³

651. Members of the public stated that the Twin Cities to LaCrosse line, in particular, was not needed to serve Rochester and LaCrosse and should not be approved.⁷⁰⁴ Kristen Eide-Tollefson of Frontenac testified that Rochester and La Crosse's needs do not justify this line.⁷⁰⁵ Norm Erickson of Rochester testified that the Brookings line may be justifiable for renewable energy by the La Crosse line is just a marketing conduit for coal-fired generation.⁷⁰⁶ Margaret Levin wrote on behalf of Sierra Club North Star Chapter and its 800,000 members questioning the reliability need for the La Crosse project.⁷⁰⁷

652. Residents also opposed the La Crosse project due to concerns about environmental impairment on the bluffs and at the Upper Mississippi River Wildlife Refuge where the 345 kV line would cross the Mississippi River.⁷⁰⁸ Leo and Marilyn Smith, Xcel stockholders from Homer, and Jane Eiseley, were opposed to the CapX lines based on potential degradation to the scenic and wilderness values of the environment.⁷⁰⁹ Joe Morse spoke on behalf of the Bluff Land Environment Watch and stated that they are

⁷⁰³ Pub. Cmt, filed 10/06/08 (Iremonger, PhD letter 9/23 #5551881).

⁷⁰⁴ Pub Hear Trans, 6/26/08 Lakvll (Mr. Diffley, Tab 13, Pg 32-36); Pub Hear Trans, 6/26/08 Lakvll (Ms. Ferichs, Tab 13, Pg 37-40); Pub Hear Trans, 7/01/08 Winona (Mr. Chipps, Tab 17, Pg 39-45); Pub Hear Trans, 7/01/08 Winona (Ms. Bosshard, Tab 17, Pg 46-55); Pub.Cmt, filed 10/07/08 (Levin/Sierra 9/26/08 letter, #5554862); Pub.Cmt, filed 10/06/08 (Williams 9/23/08 letter, #5551877); Pub. Cmt, filed 10/06/08 (Fredrickson 9/23 letter #5551880); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 10/06/08 (Rozovics letter 9/24 #5551881); Pub Hear Trans, 7/01/08 Winona (Ms Eide-Tollefson, Tab 17, Pg 31-35); Pub Hear Trans, 7/02/08 Rochester (Mr. Erickson, Tab 18, Pg 35-43); Pub.Cmt, filed 10/07/08 (Levin/Sierra 9/26/08 letter, #5554862).

⁷⁰⁵ Pub Hear Trans, 7/01/08 Winona (Ms Eide-Tollefson, Tab 17, Pg 31-35).

⁷⁰⁶ Pub Hear Trans, 7/02/08 Rochester (Mr. Erickson, Tab 18, Pg 35-43).

⁷⁰⁷ Pub.Cmt, filed 10/07/08 (Levin/Sierra 9/26/08 letter, #5554862).

⁷⁰⁸ Pub.Cmt, filed 10/06/08 (Rosendahl 9/22/08 letter, #5551876); Pub.Cmt, filed 10/06/08 (Freedland 9/19/08 letter, #5551877)(Specifically, the Coulee Region environment); Pub.Cmt, filed 9/22/08 (Hanson 9/13/08 letter, #5518689); Pub Hear Trans, 6/26/08 Lakvll (Ms. Buckley, Tab 12, Pg 28); Pub.Cmt, filed 9/22/08 (Hammes email, #5518690); Pub.Cmt, filed 9/22/08 (Edon email, #5518690); Pub.Cmt, filed 9/22/08 (Heisel email, #5518690); Pub.Cmt, filed 8/25/08 (Hanson 8/09/08 letter, #5464470); Pub.Cmt, filed 8/25/08 (O'Malley 8/16/08 letter, #5464474); Pub.Cmt, filed 8/25/08 (Blum 7/31/08 email, #5464476); Pub.Cmt, filed 8/25/08 (Timmerman 8/8/08 email, #5464476); Pub.Cmt, filed 8/25/08 (Friend 8/20/08 email, #5464476); Pub.Cmt, filed 8/25/08 (Hill 8/23/08 letter, #5464478); Pub.Cmt, filed 8/08/08 (Dailey 7/29/08 letter, #5417357); Pub.Cmt, filed 8/08/08 (Balto 8/3/08 letter, #5417357); Pub.Cmt, filed 7/31/08 (Daily 7/28/08 email, #5405085); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 10/06/08 (Krenz email undated #5551881); Pub. Cmt, filed 10/06/08 (Morse letter 9/25 #5551881); Pub. Cmt, filed 10/06/08 (Acevedo email undated #5551881); Pub. Cmt, filed 10/06/08 (Howe email undated #5551881); Pub. Cmt, filed 9/24/08 (Dukerschein letter 9/17 #5520583); Pub. Cmt, filed 9/24/08 (Van Art letter 9/16 #5520585); Pub. Cmt, filed 9/24/08 (Cerwin letter 9/19 #5520590); Pub. Cmt, filed 9/24/08 (Karoll letter 9/20 #5520590); Pub. Cmt, filed 9/24/08 (Breidel email undated #5520590); Pub Hear Trans, 7/01/08 Winona (Mr. Morse, Tab 17, Pg 28-31); Pub Hear Trans, 7/01/08 Winona (Mr, and Ms. Smith, Tab 17, Pg 26-27); Pub.Cmt, filed 9/22/08 (Eisley 9/8/08 letter, #5518689); Pub.Cmt, filed 8/25/08 (Greening 8/14/08 email, #5464476); Pub.Cmt, filed 9/22/08 (Larsen 7/29/08 letter, #5518689).

⁷⁰⁹ Pub Hear Trans, 7/01/08 Winona (Mr, and Ms. Smith, Tab 17, Pg 26-27); Pub.Cmt, filed 9/22/08 (Eisley 9/8/08 letter, #5518689); Pub. Cmt, filed 10/06/08 (Howe email undated #5551881).

opposed to the La Crosse line due to human health concerns and the effect on waterfowl.⁷¹⁰ John and Susan Greening and Reverend Howard Larsen of La Crescent expressed concern about the La Crosse line affecting the natural beauty of the area and the birds.⁷¹¹ Jeanne Dukerschein, a natural resources professional in La Crescent, expressed strong concerns about the La Crosse line crossing the Mississippi River. She stated that damage to migrating birds cannot be fully mitigated, that habitat will be lost, and that many species are sensitive to habitat fragmentation.⁷¹² Eileen Krenz of the La Crescent Chamber of Commerce expressed concern about building the lines in the Mississippi Wetlands.⁷¹³ Sue Howe of the La Crescent Area Healthy Community Partnership is opposed because of the lines' effects to the historical and scenic cities and bluff land of the Mississippi River.⁷¹⁴ Sue Howe of La Crescent Area Healthy Community Partnership, La Crescent, stated that the lines should not be built in this beautiful, scenic area and would ruin precious bits of history.⁷¹⁵ Julia Crozier of Fountain City expressed concerns about the lines affecting wildlife and birds. She states the river and birds and other river animals are already under major environmental stress. There has been a 48% decline in species of birds on the river in the last few years.⁷¹⁶

653. A few citizens testified as to the detrimental impact of the routing of CapX2020 projects affecting private lands or their ability to farm.⁷¹⁷ Lezlie & Jason LaVoy of Milroy stated that they would rather build a wind turbine on their farm than have lines which could affect their electronic equipment, and their ability to farm under them.⁷¹⁸ Elmer Green lives on a farm in Lynd, and support the need for the power line but wants it to bypass all housing and work with landowners to avoid damaging farm drainage systems or farming practices.⁷¹⁹ Keith and Cheryl Miller of Marshall are opposed to a specific route that could put transmission 120 feet from their front door.⁷²⁰ Dan and Rose Bot of Cottonwood advocate for lines built on highways and railroad right of ways, not privately owned land. One of the proposed routes is through their farm.⁷²¹

⁷¹⁰ Pub Hear Trans, 7/01/08 Winona (Mr. Morse, Tab 17, Pg 28-31).

⁷¹¹ Pub.Cmt. filed 8/25/08 (Greening 8/14/08 email, #5464476); Pub.Cmt. filed 9/22/08 (Larsen 7/29/08 letter, #5518689).

⁷¹² Pub.Cmt. filed 9/22/08 (Duckerschein email, #5518690).

⁷¹³ Pub. Cmt. filed 10/06/08 (Krenz email undated #5551881).

⁷¹⁴ Pub. Cmt. filed 10/06/08 (Howe email undated #5551881).

⁷¹⁵ Pub. Cmt. filed 10/06/08 (Howe email undated #5551881).

⁷¹⁶ Pub.Cmt. filed 6/18/08 (Crozier 2/14/08 letter, #5286821).

⁷¹⁷ Pub. Cmt. filed 10/06/08 (Henry letter undated #5551881); Pub.Cmt. filed 10/06/08 (LaVoy letter undated #5551881); Pub. Cmt. filed 10/06/08 (van Schaik letter 9/23 #5551881); Pub. Cmt. filed 10/6/08 (Tupy 9/22 affidavit #5551879); Pub. Cmt. filed 10/06/08 (Rohlik 9/23 letter #5551880); Pub. Cmt. filed 10/06/08 (Bot email undated #5551881); Pub. Cmt. filed 10/06/08 (Kluver email undated #5551881); Pub. Cmt. filed 10/06/08 (Van Keulen letter 9/25 #5551881); Pub. Cmt. filed 9/24/08 (Green letter undated #5520583); Pub. Cmt. filed 9/24/08 (Prchal email undated #5520590); Pub. Cmt. filed 9/24/08 (Bot email undated #5520590).

⁷¹⁸ Pub.Cmt. filed 10/06/08 (LaVoy letter undated #5551881).

⁷¹⁹ Pub. Cmt. filed 9/24/08 (Green letter undated #5520583).

⁷²⁰ Pub. Cmt. filed 9/24/08 (Miller letter 7/2 #5520590).

⁷²¹ Pub. Cmt. filed 9/24/08 (Bot email undated #5520590).

654. Citizens opposed the CapX2020 projects due to impacts on people and the environment, including magnetic fields.⁷²² LaVonne Beach of La Crescent expressed concerns about environmental impacts and stray voltage.⁷²³ Ed and Denise Holleran of LeCenter are dairy farmers, and stated their concerns about hosting these power lines in addition to another one erected by NSP in the early 1970's which is 275 feet west of their house. They have dealt with tingling caused by stray voltage and also express concerns about health risks for them and their family of four children.⁷²⁴ MariJo and Jim Babcock of Marshall are concerned for their century farm located ½ mile from the projected route. They already have one large power line and it disrupts their phones service. They are concerned for their health as MariJo has health issues with electricity: headaches, muscle pain and even nausea. She says florescent light bulbs held under the lines glow and hair will stand up around them.⁷²⁵

655. Many citizens are concerned about health effects related to the electromagnetic fields (EMFs) resulting from the CapX2020 projects, including possible links to cancer.⁷²⁶ Joe Kenning spoke of the numerous problems on his farm from a transmission

⁷²² Pub.Cmt, filed 9/22/08 (Beebout email, #5518690); Pub.Cmt, filed 8/08/08 (Fenske 7/31/08 letter, #5417357); Pub.Cmt, filed 7/3108 (Beach email, #5405084); Pub.Cmt, filed 8/08/08 (Dailey 7/29/08 letter, #5417357); Pub.Cmt, filed 7/3108 (Lusk 7/29/08 letter, #5405095); Pub.Cmt, filed 6/18/08 (Crozier 2/14/08 letter, #5286821); Pub. Cmt, filed 10/6/08 (Chippis 9/24 letter, #5551878); Pub. Cmt, filed 10/06/08 (Iremonger, PhD letter 9/23 #5551881); Pub. Cmt, filed 10/06/08 (van Schaik letter 9/23 #5551881); Pub. Cmt, filed 10/06/08 (Henry letter undated #5551881); Pub. Cmt, filed 10/06/08 (Van Keulen letter 9/25 #5551881); Pub. Cmt, filed 10/06/08 (Holleran letter undated #5551881); Pub.Cmt, filed 10/06/08 (LaVoy letter undated #5551881); Pub. Cmt, filed 10/06/08 (Van Keulen letter 9/25 #5551881); Pub. Cmt, filed 10/6008 (Sackett 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Salaba 9/23 affidavit #5551879), Pub. Cmt, filed 10/6/08 (Tupy 9/22 affidavit #5551879); Pub. Cmt, filed 10/6/08 (Pomeranke 9/23 affidavit #5551879); Pub. Cmt, filed 10/06/08 (Fredrickson 9/23 letter #5551880); Pub. Cmt, filed 10/06/08 (DeVetter 9/24 letter #5551880); Pub. Cmt, filed 10/06/08 (VanOverbeke letter undated #5551881); Pub.Cmt, filed 7/3108 (Bigaouette email, #5405084); Pub.Cmt, filed 7/07/08 (Peterson 6/23/08 letter, #5322007); Pub. Cmt, filed 9/24/08 (Pankow letter 9/15 #5520583); Pub. Cmt, filed 9/24/08 (Schossow letter 9/16 #5520583); Pub. Cmt, filed 9/24/08 (Meisenheimer letter 9/17 #5520583); Pub. Cmt, filed 9/24/08 (Shell letter undated #5520583); Pub. Cmt, filed 9/24/08 (Devick letter undated #5520583); Pub. Cmt, filed 9/24/08 (Redig letter 10.16 #5520585); Pub. Cmt, filed 9/24/08 (Babcock letter 9/18 #5520585); Pub. Cmt, filed 9/24/08 (Claeys letter 9/19 #5520590); Pub. Cmt, filed 9/24/08 (Byers email undated #5520590); Pub. Cmt, filed 9/24/08 (Prchal email undated #5520590); Pub. Cmt, filed 9/24/08 (Malecha email undated #5520590); Pub. Cmt, filed 9/24/08 (Miller letter 7/2 #5520590).

⁷²³ Pub.Cmt, filed 7/3108 (Beach email, #5405084).

⁷²⁴ Pub. Cmt, filed 10/06/08 (Holleran letter undated #5551881).

⁷²⁵ Pub. Cmt, filed 9/24/08 (Babcock letter 9/18 #5520585).

⁷²⁶ Pub Hear Trans, 6/19/08 Clear (Mr. McCooley, Tab 5, Pg 61); Pub Hear Trans, 6/20/08 Clear (Mr. Zabinski, Tab 6, Pg 31-33); Pub Hear Trans, 6/23/08 Marsh (Ms. Dacey, Tab 7, Pg 36-39); Pub Hear Trans, 6/24/08 RedFalls (Mr. Turbes, Tab 9, Pg 31); Pub Hear Trans, 6/25/08 NewPrag (Ms. Sackett, Tab 11, Pg 42-43); Pub Hear Trans, 6/26/08 Lakvll (Ms. Diffley, Tab 13, Pg 47-53); Pub Hear Trans, 6/30/08 CanFalls (Mr. Tyler, Tab 14, Pg 30-34); Pub Hear Trans, 6/30/08 CanFalls (Ms. Tyler, Tab 14, Pg 37-41); Pub Hear Trans, 6/30/08 CanFalls (Mr. Bockman, Tab 15, Pg 28-33); Pub Hear Trans, 6/30/08 CanFalls (Ms. Halley, Tab 15, Pg 56-60); Pub Hear Trans, 6/30/08 CanFalls (Ms. Grovender, Tab 15, Pg 66-67); Pub.Cmt, filed 10/07/08 (Byers petition, #5554862); Pub.Cmt, filed 10/06/08 (Pfenning 9/23/08 letter, #5551876); Pub.Cmt, filed 10/06/08 (Coudron 9/18/08 letter, #5551877); Pub.Cmt, filed 10/06/08 (Gilb 9/26/08 letter, #5551877); Pub.Cmt, filed 9/22/08 (Gile 9/12/08 letter, #5518689); Pub Hear Trans, 6/26/08 Lakvll (Ms. Buckley, Tab 12, Pg 28); Pub.Cmt, filed 9/22/08 (Bovee email, #5518690); Pub.Cmt, filed 8/25/08 (Christensen 8/13/08 letter, #5464470); Pub.Cmt, filed 8/25/08 (Nunemacher 8/013/08 letter, #5464470);

line that runs about 250 feet from his house. He described adverse effects from the electromagnetic field of the line to his livestock and his family's personal health. Mr. Kenning measures the magnetic fields with ground stakes and copper wire and sometimes reads as much as 100-200 million amps coming from the ground.⁷²⁷ Jan Rohwer of Greenvale Township lost her father at an early age due to cancer and her son at age five from leukemia. She expressed serious concern that the CapX 2020 lines may go through her community and result in health problems.⁷²⁸ Robert Dahse, a solar and wind installer who has worked in renewable energy for 25 years, cited several studies linking adverse health impacts to EMF exposure and concluded that the only solution was to put generation near load.⁷²⁹ Duane Teschler of Onalaska and John Magnussen cited the BioInitiative Report and concerns about EMF exposure and childhood leukemia as well as other health risks, and reported on different studies linking EMF exposure to a variety of adverse health issues.⁷³⁰ Mr. Magnussen also filed a United Kingdom article suggesting that children under 15 living near a high voltage power line could have a 69% increased risk of leukemia.⁷³¹ Quentin Donahue of St. Joseph is concerned that EMF exposure may worsen his wife's difficult health problems. She already suffers from Charcot-Marie-Tooth disease, a group of progressive disorders that affect the peripheral nerves and suffers from tremors.⁷³² Marie Hanson is concerned about the La Crescent lines. She already suffered through a very large brain tumor and is concerned about EMF exposure adding to future trauma.⁷³³

656. Several members of the public encouraged the use of the precautionary principle in making decisions regarding the CapX projects.⁷³⁴ Eliza Brown of Farmington, a nurse

Pub.Cmt, filed 8/25/08 (Dworschak 8/18/08 letter, #5464474); Pub.Cmt, filed 8/25/08 (O'Malley 8/16/08 letter, #5464474); Pub.Cmt, filed 8/25/08 (Prchal 8/19/08 email, #5464476); Pub.Cmt, filed 8/25/08 (Hill 8/23/08 letter, #5464478); Pub.Cmt, filed 8/08/08 (Dailey 7/29/08 letter, #5417357); Pub.Cmt, filed 8/08/08 (Donabauer 8/1/08 letter, #5417357); Pub.Cmt, filed 8/08/08 (Hanson 8/4/08 letter, #5417357); Pub.Cmt, filed 7/31/08 (Daily 7/28/08 email, #5405085); Pub.Cmt, filed 7/31/08 (Lusk 7/29/08 letter, #5405095); Pub.Cmt, filed 7/07/08 (Nelson 7/1/08 letter, #5322175); Pub. Cmt, filed 10/06/08 (Iremonger, PhD letter 9/23 #5551881); Pub. Cmt, filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Wambeke letter 9/19 #5520583); Pub. Cmt, filed 9/24/08 (Buyne letter undated #5520583); Pub. Cmt, filed 9/24/08 (Redig letter 10.16 #5520585); Pub. Cmt, filed 9/24/08 (Breidel email undated #5520590); Pub. Cmt, filed 9/24/08 (Otto email undated #5520590); Pub Hear Trans, 6/19/08 Clear (Mr. Kenning, Tab 5, Pg 43 – 53); Pub Hear Trans, 6/30/08 CanFalls (Ms. Rohwer, Tab 15, Pg 25-27); Pub.Cmt, filed 9/22/08 (Dahse 1/11/08 letter, #5518686); Pub.Cmt, filed 8/25/08 (Teschler 8/15/08 letter, #5464470); Pub.Cmt, filed 8/25/08 (Magnussen 8/13/08 letter, #5464472); Pub.Cmt UK Telegraph article submitted, filed 8/25/08 (Magnussen 8/13/08 letter, #5464472).

⁷²⁷ Pub Hear Trans, 6/19/08 Clear (Mr. Kenning, Tab 5, Pg 43 – 53).

⁷²⁸ Pub Hear Trans, 6/30/08 CanFalls (Ms. Rohwer, Tab 15, Pg 25-27).

⁷²⁹ Pub.Cmt, filed 9/22/08 (Dahse 1/11/08 letter, #5518686).

⁷³⁰ Pub.Cmt, filed 8/25/08 (Teschler 8/15/08 letter, #5464470); Pub.Cmt, filed 8/25/08 (Magnussen 8/13/08 letter, #5464472).

⁷³¹ Pub.Cmt UK Telegraph article submitted, filed 8/25/08 (Magnussen 8/13/08 letter, #5464472).

⁷³² Pub.Cmt, filed 8/08/08 (Donabauer 8/1/08 letter, #5417357).

⁷³³ Pub.Cmt, filed 8/08/08 (Hanson 8/4/08 letter, #5417357).

⁷³⁴ Pub Hear Trans, 6/26/08 Lakvll (Ms. Jones, Tab 12, Pg 23-25); Pub Hear Trans, 6/26/08 Lakvll (Ms. Diffley, Tab 13, Pg 47-53); Pub.Cmt, filed 10/06/08 (Pfenning 9/23/08 letter, #5551876); Pub.Cmt, filed 9/22/08 (Falc 9/15/08 email, #5518690); Pub.Cmt, filed 8/25/08 (Brown 7/31/08 email, #5464476); Pub. Cmt, filed 10/06/08 (Iremonger, PhD letter 9/23 #5551881); Pub.Cmt, filed 9/22/08 (Turner email, #5518690); Pub.Cmt, filed 8/08/08 (Dailey 7/29/08 letter, #5417357).

with three young children, expressed concerns about potential dangers of EMF exposure. She has read the BioInitiative Report and urged use of the precautionary principal and denial of the CapX2020 certificates of need.⁷³⁵ Deborah Turner of Marshall expressed concerns about EMF exposure based on studies showing links to a variety of health problems, and requested the Judge to consider that lack of conclusive proof means there is a possible threat to human health.⁷³⁶ Cheryl Dailey of La Crescent pointed out that while correlation between EMF exposure and health problems is presently inconclusive, it took a long time before cigarettes were determined to be detrimental to health.⁷³⁷

CONCLUSIONS OF LAW

1. Any of the preceding Findings of Fact more properly designated as Conclusions of Law are hereby adopted as such.
2. The Public Utilities Commission (“Commission”) and the Administrative Law Judge (“ALJ”) have jurisdiction to consider the Certificates of Need applied for by Applicants in this proceeding.
3. The Commission issued an Order accepting the Certificate of Need Application as Substantially Complete, Contingent on Submission of Additional Data on November 21, 2007.
4. Public hearings were conducted in the proposed project areas for the three CapX2020 345 kV Projects from June 17, 2008 to July 2, 2008 and the public was given an opportunity to appear at the hearings and submit written comments until September 26, 2008.
5. The evidentiary portion of the contested case proceeding was held from July 14, 2008 to August 1, 2008, from August 11, 2008 to August 14, 2008 and from September 11, 2008 to September 18, 2008 in St. Paul, Minnesota.
6. The criteria for evaluating the application for certificates of need are set forth in statute and rule.⁷³⁸
7. No large energy facility can be certified for construction in Minnesota without a certificate of need from the Commission.⁷³⁹ Each of the proposed transmission lines for which Applicants are seeking certificates of need in this proceeding is a large energy facility.⁷⁴⁰

⁷³⁵ Pub.Cmt, filed 8/25/08 (Brown 7/31/08 email, #5464476).

⁷³⁶ Pub.Cmt, filed 9/22/08 (Turner email, #5518690).

⁷³⁷ Pub.Cmt, filed 8/08/08 (Dailey 7/29/08 letter, #5417357).

⁷³⁸ Minn. Stat. § 216B.243; Minn. R. 7849.0120

⁷³⁹ Minn. Stat. § 216B.243, subd. 3.

⁷⁴⁰ Minn. Stat. § 216B.2421, subd. 2.

8. Applicants have the burden of proof to demonstrate the need for the proposed facilities and that the asserted need cannot be met more cost-effectively through energy conservation and load management.⁷⁴¹
9. Before it can grant a certificate of need, the Commission must evaluate the accuracy of the long-range demand forecasts on which the necessity for a facility is based⁷⁴² and the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility.⁷⁴³
10. Before it can grant a certificate of need, the Commission must evaluate the effect of existing and possible conservation programs under other state legislation⁷⁴⁴ and any feasible combination of cost-effective energy conservation improvements that can replace part or all of the energy to be provided by the proposed facility.⁷⁴⁵
11. The Commission must evaluate the effects of the proposed facility or a suitable modification thereof on the natural and socioeconomic environment.⁷⁴⁶
12. Before it can grant a certificate of need, the Commission must evaluate possible alternatives for satisfying the energy demand or transmission needs met by the proposed facility.⁷⁴⁷
13. Application of the criteria for certificates of need of transmission lines includes a determination that there is no reasonable and prudent alternative to the proposed projects.⁷⁴⁸
14. Alternatives to the proposed projects are required to be provided by Applicants and in the Environmental Report.⁷⁴⁹
15. Before its can grant a certificate of need, the Commission must evaluate the consistency of the proposed facility with other state policies, rules and regulations.⁷⁵⁰
16. Minnesota Renewable Energy Standards ("RES") require Xcel Energy to supply 30 percent of its retail energy in Minnesota from renewable energy source by 2020 with interim milestones to achieve 15% by 2010; 18% by 2012; and 25% by 2016.⁷⁵¹

⁷⁴¹ Minn. Stat. § 216B.243, subd. 3.

⁷⁴² Minn. Stat. § 216B.243, subd. 3(1).

⁷⁴³ Minn. R. 7849.0120, subp. A(1).

⁷⁴⁴ Minn. Stat. § 216B.243, subd. 3(2).

⁷⁴⁵ Minn. Stat. § 216B.243, subd. 3(8).

⁷⁴⁶ Minn. R. 7849.021, subp. C(1).

⁷⁴⁷ Minn. Stat. § 216B.243, subd. 3(6).

⁷⁴⁸ See e.g. Minn. Stat. § 116D.04, subd. 6.

⁷⁴⁹ Minn. R. 7849.0260, subp. B; Minn. R. 7849.7060, subp. B.

⁷⁵⁰ Minn. Stat. § 216B. 243, subd. 3(7).

⁷⁵¹ Minn. Stat. § 216B.1691, subd. 2a (b).

17. The RES requires other electric utilities to supply 25% of retail energy in Minnesota from renewable energy sources by 2025 with interim milestones to achieve 12% by 2012; 17% by 2016 and 20% by 2020.⁷⁵²
18. Minnesota energy conservation statutes set a goal of annual energy savings equal to 1.5 percent of annual retail sales of electricity.⁷⁵³
19. Minnesota greenhouse gas emissions control statutes prohibit an increase in statewide power sector carbon dioxide emissions resulting from the construction of coal plants in Minnesota or the importation or purchase of energy from coal plants.⁷⁵⁴
20. Minnesota has a state policy to optimize local, regional and state benefits from renewable energy development and to facilitate widespread development of community-base renewable energy projects throughout Minnesota.⁷⁵⁵
21. In 2007, the Minnesota legislature required a study of the statewide potential to site 600MW of dispersed renewable generation.⁷⁵⁶
22. Before it can grant a certificate of need for a transmission line that will carry electric power generated by a non-renewable energy source, the Commission must find that the applicant has demonstrated that it has explored the possibility of generating power through renewable energy sources and that the facility proposed is less expensive, including environmental costs, than power generated by a renewable energy source.⁷⁵⁷
23. The renewable energy preference in certificate of need proceedings applies to transmission facilities proposed to support new generation, where a material portion of the energy to be transmitted would be from a non-renewable energy source.⁷⁵⁸
24. Any approved certificate of need may be contingent upon modifications or conditions required by the Commission.⁷⁵⁹
25. Applicants in this proceeding are responsible for compliance with any conditions required by the Commission, irrespective of the ownership structure for the proposed CapX2020 transmission facilities.

⁷⁵² Minn. Stat. § 216B.1691, subd.2a (a).

⁷⁵³ Minn. Stat. § 216B. 2401.

⁷⁵⁴ Minn. Stat. § 216H.03.

⁷⁵⁵ Minn. Stat. § 216B.1612, subd.1.

⁷⁵⁶ 2007 Minn. Laws, Ch. 136, Art. 4, §17.

⁷⁵⁷ Minn. Stat. § 216B.243, subd. 3a.

⁷⁵⁸ Supplemental Findings of Fact, Conclusions of Law, and Recommendation, p. 11, *In the Matter of the Application of Otter Tail Power Company and Others for Certification of Transmission Facilities in Western Minnesota*, MPUC Docket No. ET-9/CN-05-619 (May 9, 2008); Order Granting Certificate of Need, p. 9, *In the Matter of the Application of Otter Tail Power Company for a Certificate of Need for the Appleton-Canby 115 kV High Voltage Transmission Line*, MPUC Docket No, E-017/CN-06-677 (April 18, 2007).

⁷⁵⁹ Minn. Stat. §216B.243, subd. 5; Minn. R. 7849.0400, subp. 1.

26. Applicants have not demonstrated the need for any of the CapX2020 Projects on the basis of system-wide growth in demand.
27. Applicants' forecasts of long-term demand were unreasonable, given the effects of the 2007 Minnesota Energy Conservation statute.
28. Applicants forecasts of the types of energy that would be needed were unreasonable, given the Minnesota RES and greenhouse gas emissions control laws.
29. Analysis by the Department of Commerce Office of Energy Security ("OES") consistent with state statutes did not establish need for the particular CapX2020 projects that are the subject of this proceeding.
30. Applicants did not demonstrate that the CapX2020 La Crosse Project is needed for community reliability in Rochester or La Crosse. There is a preponderance of evidence on this record that the need for community reliability can be met cost-effectively with alternative transmission, local generation and conservation.
31. Applicants did not demonstrate that the CapX2020 La Crosse Project is needed for generation outlet capacity or renewable energy support.
32. All routes for the CapX2020 La Crosse Project would require crossing the Mississippi River in the area of the United States Fish and Wildlife Service Upper Mississippi River Wildlife Refuge and result in some permanent environmental harm not subject to mitigation, including harms to the Mississippi River Flyway and to rare and endangered species and habitats, as well as adverse visual impacts.
33. Constructing the CapX2020 La Crosse project would violate State rules prohibiting transmission lines from crossing national parks and refuges if there are feasible and prudent alternatives.⁷⁶⁰
34. Feasible and prudent alternatives to the La Crosse Project would avoid new transmission line crossings of the Mississippi River and the Upper Mississippi River National Wildlife Refuge and would prevent resulting environmental harm.
35. Applicants demonstrated the need for a segment of the CapX2020 Fargo Project from Monticello to St. Cloud on the basis of community reliability.
36. Applicants did not demonstrate that the Fargo Project was needed from St. Cloud to Alexandria or from Alexandria to Fargo, North Dakota on the basis of community reliability in the North Red River Valley, the South Red River Valley or the Alexandria area. There is a preponderance of evidence on this record that the need for community reliability in these communities can be met cost-effectively with alternative transmission, local renewable generation and conservation.

⁷⁶⁰ Minn. R. 7849.5930, subp. 2.

37. Applicants did not demonstrate a need for the Fargo Project for generation outlet capacity or renewable energy support, consistent with Minnesota renewable energy policies and least cost requirements.
38. Applicants did not demonstrate that the CapX2020 Brookings Project is needed to provide community reliability.
39. Applicants have demonstrated a need for the CapX2020 Brookings Project to provide 700MW of renewable generation outlet capacity from the Buffalo Ridge area and southwestern Minnesota to the degree that conditions ensure that such new capacity from the Brookings Project will be secured for wind energy development.
40. The claim of need, considerations and rationale in the 825MW Wind Proceeding apply to the CapX2020 Brookings Project and similar conditions are appropriate for the Brookings Project.⁷⁶¹
41. Applicants have not demonstrated a need for “upsizing” CapX2020 projects beyond the facilities proposed in the Application to provide 345 kV double-circuit capable structures. Other proposals for upsizing the CapX2020 projects have been withdrawn.
42. Consideration of state C-BED policy and the socioeconomic benefits of community-based renewable energy environment support conditions to ensure that C-BED projects are developed.
43. The Environmental Report and the complete record created in this matter are sufficient to address the issues of alternatives and impacts required by law.⁷⁶²
44. Environmental and health impacts from the CapX2020 Projects will require additional mitigation for any certified transmission lines.
45. Applicants did not provide information regarding rates impacts on customers requested by the Commission in its Order of June 4, 2007.
46. The Commission has the authority to require Applicants to submit for its review and approval any plans to transfer CapX2020 transmission facilities to non-regulated entities, including but not limited to independent transmission owning companies.
47. No certificates of need should be issued for the La Crosse Project.
48. A certificate of need should be issued for the segment of the Fargo Project from Monticello to St. Cloud. No other certificates of need should issue for the Fargo Project.

⁷⁶¹ Ex. 214 (Order *In the Matter of the Application of N. States Power Co. d/b/a/ Xcel Energy for Certificates of Need for Four Large High Voltage Transmission Line Projects in Southwestern Minn.*, MPUC Docket No. E-002-CN-01-1958 March 11, 2003

⁷⁶² Minn. R. 7849.7090, subp. 2.

49. Certificates of need should issue for the Brookings Project contingent on conditions ensuring that it will be used for renewable generation outlet capacity from the Buffalo Ridge and southwestern Minnesota.

50. No certificates of need issued in this proceeding should reflect upsizing of transmission lines or structures beyond what was proposed in the Application for certificates of need.

51. Certificates of need should contain additional provisions to provide for C-BED development, Commission review prior to transfer of assets to non-regulated entities and consideration of ways to mitigate adverse impacts to land owners and farm workers.

52. Citations to transcripts, exhibits or public comments in these Findings of Fact are not intended to indicate that all evidentiary support in the record has been cited.

Dated this ____ day of _____, 2009.

BEVERLY JONES HEYDINGER

Administrative Law Judge

ATTACHMENT A

Ex. 51 UPDATED Median Resource Plan Forecast Revised to Reflect Approved Integrated Resource Plan Forecasts (Ex. 265) and Cumulative Incremental Demand Savings from Compliance with 1.5% Energy Conservation Statute (Ex. 217)

Company	2009 Load (MW)	2020 Load IRP (MW)	Load Growth 2020-2009 IRP	Annual Growth Rate (%)	1.5% Demand Saved 2020 (MW)	Load Growth 2020-2009 IRP & 1.5% Savings
Alliant Energy West	3006	3606	600	1.7%		600
Southern Minnesota Municipal Power Agency	569	667	99	1.5%	79	20
Missouri River Energy Services	820	969	149	1.5%	60	89
Great River Energy (1)	2878	3924	1,046	2.9%	426	620
Northern States Power	9,881	11,176	1,295	1.1%	200(4)	1095
Dairyland Power Cooperative	1,050	1,226	176	1.4%	22	154
Otter Tail Power Company	741	910	169	1.9%	53	116
Minnkota Power Cooperative	569	744	175	2.5%	48	127
Minnesota Power	1773	1984	211	1.0%	90	121
Rochester Public Utilities	96	213	117	7.5%		117
Central Minnesota Municipal Power Agency	108	122	14	1.1%	12	2
Hutchinson Utilities Commission	65	73	8	1.1%		8
Minnesota Municipal Power Agency	314	420	106	2.7%	40	66
New Ulm Public Utilities Commission	48	57	9	1.6%		9
Willmar Municipal Utilities	65	83	18	2.30%		18
Total (MW)	21983(2)	26176(2)	4193(2)		1030	3,162