

**STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE ENVIRONMENTAL QUALITY BOARD**

In the Matter of the Application to the
Minnesota Environmental Quality Board
for a Generating Plant Site Permit and a
Transmission Line Route Permit

**REPORT AND
RECOMMENDATION**

The above-entitled matter came on for hearing before Administrative Law Judge Raymond R. Krause on May 17, 2004 at 2:00 p.m. at the County Boardroom, Scott County Government Center, Services Building, Shakopee, Minnesota.

Appearances: Alan R. Mitchell and William Storm appeared on behalf of the staff of the Minnesota Environmental Quality Board ("MEQB"); Julia Anderson, Office of the Minnesota Attorney General, appeared on behalf of the Department of Commerce ("Department"); Michael C. Krikava and Lisa M. Agrimonti, Briggs & Morgan P.A., appeared on behalf of Northern States Power Company d/b/a Xcel Energy ("Xcel Energy" or "Company"); David L. Jacobson, 121 Seventh Place East, Suite 350, St. Paul, Minnesota 55101, appeared on behalf of the staff of the Minnesota Public Utilities Commission ("Commission").

Public hearings were held at 2:00 p.m. and 7:00 p.m. on Monday May 17, 2004.

NOTICE

This project qualifies for alternative review under the Power Plant Siting Act, Minn. Stat. § 116.575. The MEQB was not required to hold a contested case hearing on this project pursuant to chapter 14, and it did not do so. Under MEQB rules, the MEQB has the option to conduct a public hearing itself or to request that an Administrative Law Judge conduct the hearing and compile a record for the MEQB to consider in making its final decision. The MEQB also has the option to request that the Administrative Law Judge prepare a report and recommendation, which it did in this case. This report contains a summary of the evidence in the record and a recommendation based on that record. It is not a final decision. Pursuant to Minn. Stat. § 116C.575, subd. 7, the MEQB will make the final determination of the matter within 60 days of the completion of the public hearing. Persons wishing to file comments concerning this report with the MEQB should contact Alan Mitchell for information about the procedures to be followed. Further notice is hereby given that the MEQB may, at its own discretion, accept or reject the Administrative Law Judge's recommendation.

STATEMENT OF ISSUE

Should the MEQB issue a Site Permit specifying the Blue Lake substation as the location for the addition of two natural gas-fired simple cycle combustion turbine generators and, if so, which route should be specified in a Route Permit to build a 230/115 kV double circuit transmission line connecting an existing 230 kV line to the Blue Lake substation?

Based upon all the proceedings herein, the Administrative Law Judge makes the following:

SUMMARY OF EVIDENCE

A. Procedural History and the Parties

1. Xcel Energy is a public utility under the laws of the State of Minnesota. Xcel Energy and its parent public utility holding company are headquartered in Minneapolis, Minnesota. Xcel Energy has 1.5 million electricity customers in its upper Midwest service territory which includes parts of Minnesota, Wisconsin, Michigan, North Dakota and South Dakota. Xcel Energy owns and operates 22 electric generation facilities serving this area using a variety of technologies and fuels including coal, oil, natural gas, hydro, refuse derived fuel and nuclear.¹

2. On February 10, 2004, Xcel Energy filed an application with the MEQB. The application requests a site permit to construct and operate two 162-megawatt, simple cycle, natural gas fueled combustion turbine generators ("CTGs") at its existing Blue Lake Generating Plant ("Plant"). In addition, the application seeks a route permit to construct a short 230/115 kV double circuit transmission line to connect the existing Blue Lake substation to an existing 230 kV transmission line that passes the Plant site to the south. (The two new CTGs and the transmission line will be referred to collectively as "the Project". The application for a site permit and a route permit will be referred to collectively as "the Site Application").²

3. Xcel Energy's Site Application seeks review of its proposal using the procedures of Minnesota Statute Section 116C.575 and Minnesota Rules 4400.200 through 4400.2950, known as the Alternative Permitting Process. The Project is eligible to be considered under the Alternative Permitting Process because the proposed units

¹ PUC Exhibit 1, Certificate of Need Application, at 2-1. References to the record are provided for the convenience of the MEQB and its Staff. Reference to one record citation to support a particular finding does not mean that is the only support for the finding in the record. Each exhibit citation has the additional description of PUC or MEQB. These descriptors were added to clarify whether the exhibit was received in the Public Utilities Commission Certificate of Need proceeding or this parallel Minnesota Environmental Quality Board proceeding.

² MEQB Exhibit 2, at 1-1.

will be fueled by natural gas and the proposed transmission line is less than five miles long.³

4. On February 17, 2004, the MEQB accepted Xcel Energy's application for the Project and began the review process.⁴

5. On February 25, 2004, the MEQB mailed notice of the filing of the application and public meeting to those persons on the MEQB General Contact List, local officials and property owners as required by Minn. R. 4400.1350, subp. 2.⁵

6. The MEQB conducted a public information meeting in the City of Shakopee's public meeting room located in City Hall on March 11, 2004 at 2:00 p.m. and 7:00 p.m.⁶ Xcel Energy representatives and 10 other people attended. The public had an opportunity to ask questions during informal discussions with Company representatives. Written comments were accepted until 5:00 p.m. on April 2, 2004. Written comments were received from the Shakopee City Administrator and the Shakopee Director of Natural Resources. The major areas of concern expressed in the oral and written comments related to noise, air emissions and routing of the transmission line through MN/DOT Parcel No. 75.⁷

7. On April 13, 2004, after consideration of the public comments, the Chair of the MEQB issued a scoping order. Notice of the scoping order was provided by the MEQB to the persons specified in Minn. R. 4400.2750, subp. 3.⁸

8. On February 17, 2004, the MEQB accepted the application of Xcel Energy for a site and route permit.⁹ The MEQB determined that because the turbines would be constructed on the existing Blue Lake Plant site and the route of the proposed 230/115 kV transmission line would parallel an existing 345/115 kV transmission line, it was unnecessary to appoint a citizen advisory task force to consider alternative sites or routes.¹⁰

9. On April 21, 2004, the MEQB Staff sent a Notice of Public Hearing as required by Minnesota Rule 4400.2800 to the persons specified in the rule. Additionally,

³ Minn. R. 4400.2000, subp. 1, items B and D.

⁴ MEQB Exhibit 17, Direct Testimony of William Storm , at 2.

⁵ MEQB Exhibit 6, Affidavit of Mailing.

⁶ MEQB Exhibit 6.

⁷ MEQB Exhibit 17, at 2.

⁸ MEQB Exhibit 17, at 2-3.

⁹ MEQB Exhibit 3.

¹⁰ *Id.*, at 2.

the notice was published in the Shakopee Daily News on April 29, 2004.¹¹ The notice announced that the MEQB would hold a public hearing in the Scott County Government Services Building in Shakopee on May 17, 2004.¹²

10. On April 30, 2004, Xcel Energy filed copies of the prefiled direct testimony of James Alders, David Eves, Steven Hjermsstad, Stephen LaCasse, and Pamela J. Rasmussen with the Administrative Law Judge. The testimony was also provided to all persons on the service list prepared by the Office of Administrative Hearings for the proceedings relating to the PUC proceeding captioned: In the Matter of Application to the Minnesota Public Utilities Commission for a Certificate of Need – Blue Lake Generating Plant Expansion Project, MPUC Docket No. 04-75-PPS-XCEL ("Certificate of Need Proceeding").

11. The MEQB Staff completed an environmental assessment ("EA"), as required by Minn. Stat. § 116C.575, subd. 5. On May 17, 2004, the MEQB issued its EA and provided notice that the document was available.¹³

12. Pursuant to published notice, a hearing was held on May 17, 2004, as required by Minn. Stat. § 116C.575, subd. 6, and Minn. R. 4400.2850. The hearing on the Site Application was held sequentially with the Certificate of Need Proceeding. Representatives of Xcel Energy and the MEQB attended and were available to respond to questions. Witnesses who submitted prefiled testimony were also available to answer questions. No member of the public posed any questions or offered any statement regarding the Site Application.

13. At the close of the hearings, the Administrative Law Judge established a May 27, 2004 deadline for submission of written comments on the EA.

B. General Description of the Plant and the Project

14. The Blue Lake Generation Plant, located at 1200 79th Street South, Shakopee, Minnesota, currently consists of four simple cycle oil-fired CTGs.¹⁴

15. Xcel Energy proposes to install two new natural gas-fired CTGs adjacent to the existing CTGs within the existing plant area, between the existing turbine building and the fuel oil tanks, on an area that has been previously graded flat and covered with gravel.¹⁵

¹¹ MEQB Exhibit 16.

¹² MEQB Exhibit 17, at 3.

¹³ Transcript, at 83.

¹⁴ MEQB Exhibit 2, at 2-1.

¹⁵ *Id.*

16. In addition to the new CTGs, new Plant equipment will include:

two generator step-up transformers;

a 1,000-foot direct interconnect transmission line from the transformers to the existing Blue Lake Substation;

a gas metering station;

an evaporate cooler; and

an exhaust stack with silencer.¹⁶

17. As part of the Project, Xcel Energy also proposes to construct a 230/115 kV double circuit transmission line approximately 4,000 feet long to connect to an existing 230 kV transmission line that connects the McLeod and Black Dog substations.¹⁷

18. The Project will be interconnected to Xcel Energy's Blue Lake substation located immediately east of the plant with a 115 kV transmission line. Minor modification of the substation will be required, including replacement and addition of various breakers, disconnects, and conductors.¹⁸

19. In its Site Application, Xcel Energy proposes a route for the new 230/115 kV line to exit the Blue Lake substation from the west, then wrap around the substation to the south and east. The route would then parallel an existing 345/115 kV line directly south to the existing 230 kV line.¹⁹ The proposed transmission line would require approximately 45 feet of additional right of way.²⁰

20. The route of the new transmission line preferred by the Company runs along the western edge of property owned by the Minnesota Department of Transportation ("MnDOT") known as Parcel No. 75. The parcel is approximately 50 acres in size and located to the south of the Blue Lake facility. The Minnesota Department of Natural Resources ("DNR") has classified the vegetation on Parcel No. 75 as a Dry Oak Savanna - barrens subtype.²¹ Parcel No. 75 was previously part of the Blue Lake Plant property. Xcel Energy sold the property to MnDOT when Highway 169

¹⁶ MEQB Exhibit 2, at 3-1, 3; MEQB Exhibit 19, at 4.

¹⁷ MEQB Exhibit 2, at 2-1, 2-3; MEQB Exhibit 19, at 9.

¹⁸ MEQB Exhibit 2, at 3-5; MEQB Exhibit 19, at 4 and 9.

¹⁹ MEQB Exhibit 2, Figure 2-1; MEQB Exhibit 19, at 9 and Figure 3.

²⁰ MEQB Exhibit 2, at 3-10; MEQB Exhibit 19, at 9.

²¹ MEQB Exhibit 19, at 48.

was built and dissected the parcel. Xcel Energy maintains easements for four transmission lines on two sets of structures that currently cross the site, including the existing 345/115 kV line.²²

21. No expansion of the Plant footprint will be required for the Project.²³

C. Alternative Transmission Line Route

22. Prior to the hearings, the DNR, the City of Shakopee, and several members of the public expressed concerns that the Project would adversely affect the oak savanna on Parcel No. 75. To address these concerns, Xcel Energy evaluated the proposed route and three potential alternative routes for the transmission line. Alternative A is a route parallel to the existing 230 kV double circuit line running along the east edge of Parcel No. 75. Alternative B runs westward along the north side of Highway 169, crossing over the highway to connect to an existing line west of Dean's Lake. Alternative C crosses Highway 169 immediately south of the Blue Lake substation and runs eastward along the south side of Highway 169, turning south, parallel to and just west of, County Road 18, terminating at the existing line.²⁴

D. Transmission Interconnection

23. The two CTGs will generate electricity at 18 kV. Two generator step up transformers will increase the voltage to 115 kV. Xcel Energy will construct a 115 kV transmission line approximately 1000 feet long to connect the transformers to the existing 115 kV bus in the Blue Lake substation, east of the Plant. These associated facilities are part of the site permit request for construction of the new turbines.²⁵

E. Fuel Supply

24. The new CTGs will be fueled by natural gas. An 11-mile pipeline with a diameter of 16 inches will be constructed to supply natural gas from the Northern Natural Gas Interstate Pipeline.²⁶

25. The routing of the proposed pipeline is not part of this proceeding. On March 16, 2004, Xcel Energy filed its Application to the MEQB for a Gas Pipeline Route Permit and Partial Exemption from Pipeline Route Selection Procedures. There is no need to make any findings concerning natural gas in this proceeding.

²² PUC Exhibit 8, Direct Testimony of Pamela J. Rasmussen, at 4; MEQB Exhibit 15, at 5.

²³ MEQB Exhibit 2, at 2-1; MEQB Exhibit 19, at 3.

²⁴ PUC Exhibit 8, at 7, 9-10.

²⁵ MEQB Exhibit 2, at 3-3; MEQB Exhibit 19, at 7.

²⁶ MEQB Exhibit 2, at 3-3; MEQB Exhibit 19, at 6.

F. Water Supply

26. Simple cycle combustion turbine technology does not require water to operate. Xcel Energy proposes to include evaporative inlet air cooling to enhance operating efficiency of the units during the warmest days of the year, which will be about 20 percent of the time the units are operating.²⁷

27. The Plant currently obtains water from two-on-site wells. No new source will be required.²⁸

28. The available groundwater may contain high levels of minerals and other undesirable constituents. Therefore, pH adjustment and filtration will be required before the water can be used in the evaporative coolers. Each unit will use about 60 gallons per minute (gpm) of treated makeup water during peak load operation. The two CTGs are estimated to be operational just over 1300 unit-hours per year combined. With the air cooling system in use for 20 percent of that time, the total annual evaporative cooler water requirement is reasonably estimated at about 840 thousand gallons of treated water. A reverse osmosis water treatment system would require about 1 million gallons of raw water to produce 840 thousand gallons of treated water of adequate quality for the evaporative coolers. The water requirement for the coolers is approximately 1 million gallons annually.²⁹

G. Generation and Treatment of Wastewater

29. Approximately 140,000 gallons of water with concentrated minerals would be discharged during the treatment process and half of the evaporative cooler feed water, 420,000 gallons annually, remains after the cooling process and must be discharged as wastewater. The balance is lost through evaporation. These two wastewater sources, plus an estimated 50,000 gallons generated from water treatment filter backwashing results in a total annual wastewater volume of about 600,000 gallons. That wastewater will be temporarily stored on site and then trucked to a regional wastewater treatment plant.³⁰

H. Environmental and Socioeconomic Impacts

Applicable Statutory Considerations

30. In making site and route permit determinations, the MPQB is to be “guided by the state’s goals” to conserve resources, minimize environmental impact, minimize

²⁷ MEQB Exhibit 2, at 3-4; MEQB Exhibit 19, at 5.

²⁸ MEQB Exhibit 2, at 4-4.

²⁹ MEQB Exhibit 2, at 3-4; MEQB Exhibit 19, at 5.

³⁰ *Id.*

land use conflicts, and ensure electric energy security.³¹ Minn. Stat. § 116C.57, subd. 4, specifically requires:

- (1) Evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high voltage transmission lines and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;
- (2) Environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;
- (3) Evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;
- (4) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;
- (5) Analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;
- (6) Evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;
- (7) Evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivisions 1 and 2;
- (8) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;
- (9) Evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;
- (10) Evaluation of the future needs for additional high voltage transmission lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of

³¹ Minn. Stat. § 116C.57, subd. 4.

expansion in transmission capacity through multiple circuiting or design modifications;

(11) Evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved; and

(12) When appropriate, consideration of problems raised by other state and federal agencies and local entities.³²

31. Where MEQB's rules are substantially similar to existing applicable federal regulations, such regulations must be applied by the MEQB.³³ Also, no site or route can be designated where such designation would violate state agency rules.³⁴ The application and the Environmental Assessment contain adequate information to allow the MEQB to consider these factors.

Applicable Rule Considerations

32. The MEQB has adopted rules requiring consideration of specific impacts when making decisions on siting and routing of electrical plants and HVTL lines. The specific impacts are:

- A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;
- B. effects on public health and safety;
- C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;
- D. effects on archaeological and historic resources
- E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;
- F. defects on rare and unique natural resources;
- G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;
- H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

³² Minn. Stat. § 116C.57, subd. 4.

³³ *Id.*

³⁴ *Id.*

- I. use of existing large electric power generating plant sites;
- J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;
- K. electrical system reliability;
- L. costs of constructing, operating and maintaining the facility which are dependent on design and route;
- M. adverse human and natural environmental effects which cannot be avoided; and
- N. irreversible and irretrievable commitments of resources.³⁵

Each specific consideration will be assessed in the following Findings.

Effects on Human Settlement

Community Benefits to be Expected from the Proposed Plant

33. The local community will benefit from the generating units and transmission line construction. The Project will generate approximately \$8 million in payroll in the regional economy as a result of construction.³⁶ Operation of the new CTGs is expected to require two to three additional full-time equivalent positions. Xcel Energy expects to contribute property taxes arising from the Project to the City of Shakopee, Dakota County, and the Shakopee School District.³⁷

Displacement

34. The Project utilizes an existing plant site and transmission corridor. The nearest residential area lies approximately 200 feet west of the proposed HVTL route. The Project will not require the displacement of any occupied residences or businesses.³⁸

Noise

35. The Plant is located in an industrial area. The nearest residences, in the Classics at Waybridge Subdivision, are approximately 800 feet south of the Plant's fence line and approximately 1000 feet south of the CTGs. These residences are

³⁵ Minn. Rule 4400.3150

³⁶ MEQB Exhibit 2, at 4-18.

³⁷ *Id.*, at 4-21.

³⁸ MEQB Exhibit 2, at 4-10; MEQB Exhibit 19, at 40, 55-56.

situated on the south side of Highway 169, which runs between them and the Plant. Highway 169 is a well-traveled four-lane freeway that is source of substantial low frequency noise in the residential area.³⁹

36. Noise will be generated by construction and operation of the Project. Potential noise impacts during construction will be mitigated by proper muffling equipment fitted to construction equipment. Construction activities will be restricted during nighttime hours.⁴⁰

37. Noise from the new CTGs is expected to be predominately low frequency noise. Xcel Energy conducted ambient noise level monitoring from the residential area nearest the Project and the industrial area to the west of the Blue Lake substation.⁴¹ Noise from the Project operation will not significantly impact the acoustical environment given the high background noise levels (particularly in low frequencies), from nearby Highway 169 and MN Highway 101, the distance of the CTGs from adjacent properties, and the noise control technology that will be employed at the Plant.⁴²

38. Transmission conductors and transformers at substations produce noise under certain conditions. Noise emission from a transmission line occurs during heavy rain and wet conductor conditions. In foggy, damp, or rainy weather conditions, power lines can create a crackling sound (known as corona noise) due to the small amount of electricity ionizing the moist air near the wires. During heavy rain the general background noise level is usually greater than the corona noise from a transmission line. Accordingly, corona noise is not noticeable during heavy rain. During light rain, dense fog, snow and other times when there is moisture in the air, the proposed transmission line will produce corona noise at a level similar to household background noise levels. During dry weather, audible noise from transmission lines is an imperceptible, sporadic crackling sound.⁴³

39. Operation of the new generation units and the transmission line will result in no perceptible increase in noise levels in nearby residential areas.⁴⁴

³⁹ MEQB Exhibit 2, at 4-7, 4-8.

⁴⁰ MEQB Exhibit 2, at 4-6; MEQB Exhibit 19, at 56.

⁴¹ MEQB Exhibit 2, at 4-8, Figure 4-1.

⁴² MEQB Exhibit 2, at 4-6; MEQB Exhibit 19, at 41.

⁴³ MEQB Exhibit 2, at 4-6; MEQB Exhibit 19, at 56.

⁴⁴ MEQB Exhibit 2, at 4-5.

Aesthetics

40. The transmission line will utilize single steel poles that are 110 feet tall. These poles will be placed on concrete footings approximately 600 feet apart and located adjacent to existing structures.⁴⁵ The transmission line will travel within an existing transmission right-of-way. As with the existing lines, the new transmission lines will be visible from a few nearby residences, local roads and Highway 169.⁴⁶

41. The proposed generating addition site is already developed and the Project will not impact the scenic areas to the north of the Plant, along the Minnesota River National Wildlife Refuge because the Project will be within the Plant site and adjacent to existing transmission lines. The new stacks will be about 50-75 feet tall, similar to the height of existing stacks.⁴⁷

42. The design, location, and nature of the Project will result in no significant impact to area aesthetics.

Cultural Values

43. No discernable land use change will occur as a result of the Project.⁴⁸ The Project will cause no impact on cultural values.

Recreation

44. North of the Project area is the Minnesota Valley National Wildlife Refuge.⁴⁹ East of the Project area is the Minnesota Valley State Recreation Area. Approximately two miles Southeast of the Project area are the Savage Fen Scientific Nature Areas. Approximately four miles South of the Project area are Murphy-Hanrehan Park Reserve and the Spring Lake Regional Park. Significant residential and commercial development lies between the Project area and each of these recreational resources. The Project will not adversely impact recreation.

Effects on Public Health and Safety

45. In addition to air and noise impacts, plant security, emergency preparedness, and electromagnetic fields (EMF) are typical health and safety concerns for new generators and transmission lines.

⁴⁵ MEQB Exhibit 2, at 3-10.

⁴⁶ MEQB Exhibit 19, at 56.

⁴⁷ MEQB Exhibit 2, at 4-10.

⁴⁸ MEQB Exhibit 2, at 4-10.

⁴⁹ MEQB Exhibit 2, Figure 4-3.

46. The Plant is surrounded by a six-foot high chain link fence to prevent vandalism and to secure operations on site. During construction, Xcel Energy will employ a security service to guard the equipment and the site. This service will supplement the protection provided by the Shakopee Police Department which has 35 sworn officers and two community officers. The Plant is equipped with a fire protection system supplied by a dedicated fire well on site (separate from the well used for potable water). An electric fire pump supplies water from the dedicated fire well to hydrants situated around the site. The existing fire equipment is designed in accordance with National Fire Protection Association (NFPA) requirements and the additions to the Plant will meet NFPA requirements.⁵⁰

47. Xcel Energy estimated the strength of electric and magnetic fields around the proposed 230/115 kV HVTL.⁵¹ EMF is present around any electrical device. The intensity of the electric fields around HVTL lines is related to the voltage of the line. The intensity of the magnetic field is related to the current flow through the conductors. EMF decreases in intensity with increasing distance from the source.⁵²

48. There is at present insufficient evidence to demonstrate a cause and effect relationship between EMF exposure and any adverse health effects.⁵³ The Interagency Working Group on EMF Issues (Working Group), consisting of the Minnesota Department of Health, Minnesota Department of Commerce, the PUC, the Minnesota Pollution Control Agency and the MEQB, conducted a study and published its findings regarding EMF health effects, stating:

Research on the health effects of EMF has been carried out since the 1970's. Epidemiological studies have had mixed results – some have shown no statistically significant association between exposure to EMF and health effects, some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields cause cancer. A number of scientific panels convened by national and international health agencies and the United States Congress have reviewed the research carried out to date. Most concluded that there is insufficient evidence to prove an association between EMF and health effects; however many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe.⁵⁴

⁵⁰ MEQB Exhibit 2, at 4-12; MEQB Exhibit 19, at 40.

⁵¹ MEQB Exhibit 2, at 4-14, 4-15, Tables 4-5, 4-6.

⁵² MEQB Exhibit 2, at 4-16; MEQB Exhibit 19, at 50.

⁵³ MEQB Exhibit 19, at 50-54.

⁵⁴ MEQB Exhibit 19, at 53 (quoting *White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*, Minnesota Interagency Working Group on EMF Issues (September 2002); see also MEQB Exhibit 2, at 4-16.

49. In response to the mixed results of studies, the Working Group recommended “prudent avoidance” as the approach to follow in response to EMF concerns. This approach uses passive methods, such as locating HVTL lines away from residential areas, reducing voltage, balancing loads to decrease the intensity of EMF, among other methods.⁵⁵ The siting of the proposed HVTL line is consistent with “prudent avoidance” of EMF.

50. In previous routing proceedings, the MEQB has imposed a permit condition on high voltage transmission line permits limiting electric field exposure to 8 kV per meter at one meter above ground. This permit condition was designed to prevent serious hazard from shocks when touching large objects, such as semi tractor trailers or large farm equipment under extra high voltage transmission lines of 500 kV or greater. The existing line and proposed line would create a maximum electric field of approximately 2.04 kV per meter centered beneath the existing line.⁵⁶ The maximum electric field of the proposed HVTL line meets the standard typically imposed on such facilities.

51. The MEQB has not established similar limits on magnetic field exposure and there are no federal or Minnesota health-based exposure standards for magnetic fields. According to Xcel Energy, the maximum calculated ground level magnetic field expected when the new line and the existing line are both conducting electricity is approximately 50 milligauss (mG) directly below the new line. The only two states that have established standards are Florida (150 mG) and New York (200 mG). The maximum magnetic field expected from the new line proposed here is well within those other states’ limits.⁵⁷ No adverse effects to public health or safety have been shown to arise from the Project.

Effects on Archeological and Historic Resources

52. The Plant additions will be made to a previously graded site and the transmission line is proposed adjacent to transmission rights of ways. There will be no impacts to any buildings or historic resources. The Minnesota State Historic Preservation Office reviewed the records and concluded that the only reported archeological site in the area is approximately 900 feet north of the Project.⁵⁸ The Project will not have negative impacts on archeological or historic resources.

⁵⁵ MEQB Exhibit 19, at 54.

⁵⁶ MEQB Exhibit 19, at 51.

⁵⁷ MEQB Exhibit 19, at 52-54.

⁵⁸ MEQB Exhibit 2, at 4-18; MEQB Exhibit 19, at 39, 50.

Effects on Land-Based Economies, Including Agriculture, Forestry, Tourism and Mining

53. No agricultural land will be used for the Project. No prime farmland will be taken out of production. No forestry-related industry will be adversely impacted by the Project. No tourism areas will be adversely impacted.⁵⁹

Effects of the Project on the Natural Environment, Including Effects on Air and Water Quality Resources and Flora and Fauna

54. The Project is located on a broad flat terrace in the Minnesota River Valley that is approximately 800 feet above mean sea level. The surficial soils at the proposed turbine location consist of about 20 feet of alluvial sands over dolomite bedrock of the Prairie du Chien group. Similar conditions exist along the transmission route, except that the depth to bedrock increases to 80 feet or more. Most of the area disturbed for construction of the generating units has already been graded and covered with gravel. Excavation for the transmission line will be limited to placement of foundations for structures.⁶⁰ Area soil resources will not be significantly impact by the Project.

55. The Project will employ dry low-nitrous oxide (NOx) technology to control NOx emissions. Combustion turbine burners using this technology reduce peak flame temperature and the chemical reaction time available to form NOx. Combined emissions of NOx from the two new CTGs will be kept at or below 38 tons per year (tpy).⁶¹

56. An amended permit from the Minnesota Pollution Control Agency ("MPCA") will be required to accommodate the increased emissions from the Project. On January 19, 2004, the Company submitted an application for the amendment requesting that emissions from the Plant after Project construction be limited to 38 tpy NOx, 99.5 tpy carbon monoxide (CO), 39 tpy sulfur dioxide (SO2), and 14 tpy particulate matter (PM). The terms of the amended permit would effectively limit the operation of the new CTGs to just under 1,300 unit-hours per year.⁶²

57. When the proposed Project is completed, emissions from the Plant will not cause any ambient air quality standards to be exceeded. As a result, there will be no significant impact on air quality.

58. Another potential source of air emissions is fugitive dust from site preparation and construction activities. Xcel Energy will control fugitive dust emissions

⁵⁹ MEQB Exhibit 2, at 4-10, 4-12.

⁶⁰ MEQB Exhibit 2, at 4-21.

⁶¹ MEQB Exhibit 2, at 3-6; MEQB Exhibit 19, at 37; MPCA Comment Letter.

⁶² MEQB Exhibit 2, at 4-2; MEQB Exhibit 19, at 37; MPCA Comment Letter.

to reduce their impact on area residents by watering or applying dust suppressants to exposed soil surfaces as necessary.⁶³

59. Surface water run off will follow existing drainage patterns to the drainageway paralleling Highway 169.⁶⁴ The Project will not significantly impact area water bodies.

60. The preferred route would cross Parcel No. 75, classified as a Dry Oak Savanna - barrens subtype. Deciduous savannas are plant communities found in the transition between prairie and deciduous forest-woodland zones in Minnesota. These plant communities are composed primarily of oak trees (sometimes with aspen trees, or both) with a ground layer of prairie grass and forb species.⁶⁵ The oak and aspen trees are distributed either evenly or in scattered groves smaller than 1 to 2 acres with tree canopy cover typically being less than 70 percent. Dry oak savannas have an undulating to rough topography with slopes of various degrees; the habitat is dry to dry-mesic; the sites are well drained to excessively drained; and have herbaceous ground layer vegetation in open areas similar to that of dry prairie – barrens subtype. Savanna and woodland plant communities historically were found in the eastern one-third of Scott County, and were intermixed within the hardwood forest matrix in the southern and central parts of the county.⁶⁶

61. The primary focus of an oak savanna is the savanna. A savanna consists of large grassy areas with few trees. In a dry oak savanna, the primary plants are ground layer species such as leadplant, little bluestem, big bluestem. In Minnesota 99.9% of the oak savanna communities has been lost to urban development, agriculture or successional degradation to oak forest. Parcel No. 75 is one of the few remaining oak savanna areas.⁶⁷

62. Parcel No. 75 has been impacted and ecologically isolated by urban developments on the east, west and south, and the Highway 169 transportation corridor to the north. The tree canopy is composed primarily of pin oaks with a few chokecherry and some stands of sumac. The oak canopy has closed in many areas so that coverage is nearly 100%, which limits growth of the savanna grass species.⁶⁸ In other areas, red cedar, large numbers of aspen, and common buckthorn have overtaken the

⁶³ MEQB Exhibit 19, at 38.

⁶⁴ MEQB Exhibit 2, at 4-23.

⁶⁵ Forb species are non-woody flowering plants that are not grasses.

⁶⁶ PUC Exhibit 8, at 4-5.

⁶⁷ PUC Exhibit 8, at 5.

⁶⁸ See, MEQB Exhibit 2, Figure 2-1. Parcel No. 75 is visible, bordered by Highway 169, a parkway, and developed land on both the east and west sides of the parcel. Only the western portion of Parcel No. 75 visibly exhibits the characteristics of a savanna.

site, further increasing the shading of the ground layer. The site has been and continues to be impacted by invasive species, erosion due to ATV and vehicular traffic, and illegal dumping. The age of the fire intolerant trees on the site indicates that natural burning has not occurred there in the last twenty years.⁶⁹

63. Xcel Energy's clearing practices, including removal of trees that would interfere with the transmission lines, has resulted in the maintenance of a relatively open landscape on Parcel No. 75. Such open conditions support the growth of ground layer plants in oak savanna landscapes. In the remainder of Parcel No. 75, trees have overtaken the site, reducing the diversity of plant and animal species present and more closely resembling an oak woods setting.⁷⁰

64. To minimize impacts to Parcel No. 75, Xcel Energy committed to limit significant disturbance during construction of the structure foundations. In addition to the measures described in the PUC and MEQB Applications to minimize construction impacts, Xcel Energy stated its willingness to develop a construction and maintenance plan for the transmission line corridor on this site to enhance the oak savanna resource. The proposed plan would include the following activities:

Qualified biologists would assess the site in the spring and fall of this year to review the flora and fauna of the site. Should any endangered or threatened species be identified, the areas would be mapped and efforts to minimize impacts would be incorporated into the design, construction and maintenance of the line, as well as the clearing of the right-of-way.

Xcel Energy would develop a vegetation clearing plan with construction, maintenance and vegetative management staff that would selectively clear the site in order to retain some of the oak savanna community plants. All tree management decisions would still need to be within the constraints of maximum tree height requirements for the transmission lines. As many oak trees can sprout from cut stumps, short oak trees may be allowed to remain until they reach approximately 15 feet. This would allow for regeneration and management that would benefit the savanna community.

Measures would be set up prior to construction at the site to minimize impact to the vegetation on the site. Sensitive plant areas would be marked prior to construction and the construction crews would be provided information and direction to minimize impacts. We would construct the line between October and May, when plants have gone to seed and prior to new growth.

⁶⁹ MEQB Exhibit 8, at 6.

⁷⁰ *Id.*

Once construction is complete, areas disturbed by construction would be graded and re-seeded with a mixture of native plants that are typically found in an oak savanna.

The site would be posted with signs indicating the significance of the site and noting that any management on the site should not be done without reviewing the site construction and maintenance plan for the area.⁷¹

65. The DNR expressed concern about the location of the new transmission line through Parcel No. 75 and its potential impact on the oak savanna. The DNR stated its preference for the proposed route to minimize impacts to the oak savanna community.⁷²

66. MEQB staff assessed the potential impact of the proposed route and the alternative HVTL routes (described at Finding 22, above). The EA also noted that the proposed route has more open areas than the proposed route along the eastern edge of the parcel (Alternative A) and therefore, lesser direct impact of tall trees is achieved through use of the proposed route. Construction of the new transmission line along the eastern edge (using Alternative A) would also open up that area to invasive species.⁷³

67. The constructing the transmission line on the proposed route along the western edge of Parcel No. 75 is likely to result in the least adverse impact on that area under the circumstances of this Application.

68. With respect to fauna, the Project is not expected to impact the Minnesota National Wildlife Refuge located approximately one mile from the Project.⁷⁴ No other potential wildlife impacts have been identified.

69. Transmission structure locations will be finalized after wetland review work at which time wetland sites will be precisely delineated and applications for the wetland permits will be submitted, if necessary.⁷⁵ There are no wetlands located within the Plant site. There is no evidence that the Project will adversely impact any nearby wetlands.

Effect on Rare and Unique Natural Resources

70. The Project will not adversely impact threatened or endangered species.⁷⁶ The DNR stated that three species of special concern, a primrose, the Plains pocket

⁷¹ PUC Exhibit 8, at 7-8.

⁷² MEQB Exhibit 17, DNR e-mail, May 10, 2004, from Hannah Dunevitz on Parcel No. 75.

⁷³ MEQB Exhibit 19, at 49.

⁷⁴ MEQB Exhibit 2, at 4-27, 4-28

⁷⁵ MEQB Exhibit 2, at 4-31.

⁷⁶ MEQB Exhibit 2, at 4-34.

mouse, and the Gopher snake, have been documented on or near Parcel No. 75.⁷⁷ As noted, however, the Project will impact the oak savanna on Parcel No. 75. As a transitional natural resource, Xcel Energy's ability to preserve the oak savanna is severely limited.

Design Options that Maximize Energy Efficiencies, Mitigate Adverse Environmental Effects, and Could Accommodate Expansion of Transmission or Generating Capacity

71. The Blue Lake Generating Plant was designed to accommodate expansion. The proposed Project takes advantage of this expansion possibility. Additionally, the route minimizes resources by utilizing an existing transmission corridor. These design options mitigate adverse environmental effects and utilize expansion opportunities.⁷⁸

Use or Paralleling of Existing Rights-of-Way, Survey Lines, Natural Division Lines, and Agricultural Field Boundaries

72. The transmission line route alternatives (other than the preferred route) would follow existing property division lines.

Use of Existing Large Electric Generating Plant Sites

73. The two new CTGs will be located on the existing Blue Lake Generation Plant site.

Use of Existing Transportation, Pipeline, and Electric Transmission Systems Rights-of-Way

74. The preferred transmission line route would follow and overlap an existing 345/ 115 kV transmission line right-of-way. The natural gas pipeline needed to supply the new CTGs is not part of this proceeding.

Electrical System Reliability

75. The two new generators will help Xcel Energy to continue to reliably deliver electricity to its customers in Minnesota and neighboring communities. All options under consideration for the new transmission line would reliably transmit electricity.

⁷⁷ DNR Comment Letter.

⁷⁸ MEQB Exhibit 2, at 4-27, 4-28.

Costs of Constructing, Operating, and Maintaining the Facilities Which are Dependent on Design and Route

76. The Project costs for the CTGs are estimated at \$100 million for the CTGs. The preferred transmission line is 4,000 feet in length and will cost approximately \$1.5 million. Blue Lake Substation modifications and additions are estimated to cost \$4.5 million.⁷⁹

77. Different routes for the 230 /115 kV transmission line require different estimates for the costs of construction and maintenance. The routes vary significantly in length and that difference directly affects the cost to build each line. Transmission Alternative A (3,400 feet) will cost approximately \$1.3 million to construct. Alternative B (12,000 feet) would cost approximately \$4.5 million. Alternative C (6,300 feet) would cost approximately \$2.5 million.⁸⁰

Adverse Human and Natural Environmental Effects Which Cannot be Avoided and Mitigation Strategies

78. There are few adverse human and environmental effects arising from the Project. Xcel Energy's proposed mitigation strategies adequately mitigate the enumerated impacts from the Project.

Irreversible and Irretrievable Commitments of Resources

79. The Project will not require the irreversible or irretrievable commitment of resources.

Prohibited and Excluded Sites

80. Minn. Rule 4400.3450, subs. 1 and 3 and Minn. Rule 4400.3350 identify sites where siting of new facilities is prohibited or excluded. The proposed site for the plant additions and the proposed routes for the transmission line are not located in a prohibited or excluded area.

⁷⁹ MEQB Exhibit 2, at 2-4; MEQB Exhibit 8, Attachment 2.

⁸⁰ PUC Exhibit 8, Attachment 2.

Comparison of Transmission Routes

81. Xcel Energy summarized the impact of the proposed transmission route and the alternative routes as follows.⁸¹

| | Proposed Route | Alternative A | Alternative B | Alternative C |
|--|----------------|---------------|---------------|---------------|
| Length (feet) | 4,000 | 3,400 | 12,000 | 6,300 |
| Approx. required additional ROW (acres) (excluding Xcel Energy property and U.S. Hwy 169 ROW) | 2-3 | 2-3 | 10-20 | 4-6 |
| Approx. property parcels crossed (excluding Xcel Energy properties and road ROW) | 1 | 1 | 10 | 4 |
| Approx. length through Parcel No. 75 | 1,200 | 1,500 | 0 | 200 |
| Residences within 200 feet | 0 | >10 | 0 | >10 |
| Commercial buildings within 200 feet | 0 | 0 | 4 | 1 |
| Estimated construction cost (\$ million) | 1.5 | 1.3 | 4.5 | 2.5 |

82. Alternative A and Alternative C have more significant impacts on residences than the proposed route. At least 10 homes are within 200 feet of those two routes. Alternative B is located within 200 feet of four commercial buildings. While Alternative A is slightly less costly to construct, that alternative would have similar impacts to Xcel Energy's proposed route. More large trees would need to be cleared under Alternative A. Xcel Energy's proposed route has no homes within 200 feet. Alternative B is less desirable because it is three times the length of the proposed route and crosses 10 parcels. Only a limited amount of property available for the transmission line between the affected businesses and Highway 169 under Alternative B. These factors will result in more significant right-of-way acquisition requirements and construction access to the sites is likely to be difficult. The cost for Alternative B is three times the construction cost as the proposed route.

83. Xcel Energy's preferred route is the most prudent alternative for construction of the HVTL line. The route would place the new line adjacent to the existing 345/115kV transmission line consistent with the State's nonproliferation policy for selecting transmission line routes. The proposed route also has the fewest overall environmental impacts.

84. The site and route proposed by the Applicant for construction of two new CTGs and a new 230 kV transmission lines are acceptable under the provisions of Minn. Stat. § 116C.575 and Minn. R. Chap. 4400. Xcel Energy's proposed transmission route is preferable to the alternative transmission routes.

⁸¹ PUC Exhibit 8, Attachment 2.

Based on the foregoing Summary of Evidence, the Administrative Law Judge makes the following:

RECOMMENDATION

That the MEQB issue a site permit to Xcel Energy for construction of the two proposed 162 megawatt, natural gas fueled, combustion turbine generating units at the Blue Lake electric generating plant in Shakopee, Minnesota and for a new double circuit 230/115 kV high voltage transmission line approximately 4,000 feet long between the Plant and an existing 230 kV transmission line that passes the Plant site to the south and connects with the Blue Lake Substation as proposed in the Site Application, and subject to such conditions as the MEQB determines are reasonable and appropriate.

Dated this 11th day of June, 2004.

/s/ Raymond R. Krause
Raymond R. Krause
Chief Administrative Law Judge

MEMORANDUM

No specific conditions have been recommended for inclusion in the permit to be issued for the Project. Xcel Energy has committed to engage in vegetation management practices (set out in Finding 64, above), in an effort to preserve the characteristics of Parcel No. 75 as an oak savanna. The record in this matter shows that the resource is transitional by nature. Further, the parcel is bounded by substantial development. While the Company's commitment could reasonably be included as a permit condition, any such inclusion should reflect the existing condition of the parcel and the likely natural transition of the savanna into oak forest.

R.R.K.