

**STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE PUBLIC UTILITIES COMMISSION**

In the Matter of the Application of
Northern States Power Company for
a Certificate of Need to Increase the
Capacity of Its Black Dog Generating
Facility

**FINDINGS OF FACT,
CONCLUSIONS OF LAW, AND
RECOMMENDATION**

The above-entitled matter came for hearing pursuant to notice before Administrative Law Judge Steve M. Mihalchick on April 27, 2000 at the Burnsville High School in Burnsville, Minnesota and on May 8, 2000 at the small hearing room of the Public Utilities Commission, 121 Seventh Place East, St. Paul, Minnesota. The record was closed on June 1, 2000, upon receipt of a letter from the Department of Commerce supporting NSP's proposed findings.

Michael Connelly, Attorney, 414 Nicollet Mall, Minneapolis, Minnesota 55401 appeared on behalf of Northern States Power Company (Applicant).

Julia E. Anderson, Assistant Attorney General, 525 Park Street, Suite 500, St. Paul, Minnesota 55103, appeared on behalf of the Minnesota Department of Commerce (DOC).

David L. Jacobson, Statistical Analyst, 121 Seventh Place East, Suite 350, St. Paul, Minnesota 55101-2147, appeared on behalf of the staff of the Minnesota Public Utilities Commission (PUC or the "Commission").

NOTICE

Notice is hereby given that, pursuant to Minn. Stat. § 14.61 and the Rules of Practice of the Minnesota Public Utilities Commission and the Office of Administrative Hearings, exceptions to this Report, if any, by any party adversely affected must be filed within 20 days of the mailing date hereof with the Executive Secretary, Minnesota Public Utilities Commission, Suite 350, 121 Seventh Place East, St. Paul, Minnesota 55101-2147. Exceptions must be specific and stated and numbered separately. Proposed Findings of Fact, Conclusions of Law and Order should be included, and copies thereof shall be served upon all parties. If desired, a reply to exceptions may be filed and served within ten days after the service of the exceptions to which reply is made. Oral argument before a majority of the Commission will be permitted to all parties adversely affected by the Administrative Law Judge's recommendation who request such argument. Such request must accompany the filed exceptions or reply, and an original and 15 copies of each document should be filed with the Commission.

The Minnesota Public Utilities Commission will make the final determination of the matter after the expiration of the period for filing exceptions as set forth above, or after oral argument, if such is requested and had in the matter.

Further notice is hereby given that the Commission may, at its own discretion, accept or reject the Administrative Law Judge's recommendation and that said recommendation has no legal effect unless expressly adopted by the Commission as its final order.

STATEMENT OF ISSUE

Has the Company, Northern States Power Company, satisfied the statutory and rule requirements to justify the issuance of a Certificate of Need for its proposed increase in generating capacity associated with repowering Units 1 and 2 of the Black Dog Power Plant?

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

FINDINGS OF FACT

A. Procedural History and the Parties

1. Applicant, Northern States Power Company, is an investor-owned Minnesota corporation. NSP is a vertically integrated electric and natural gas utility. NSP owns electric generation, electric transmission, electric distribution, and natural gas distribution assets.

2. On December 30, 1999, Applicant filed its application for a Certificate of Need for the proposed repowering of Black Dog Units 1 and 2 and associated increase in generating capacity.

3. On February 24, 2000, the Commission issued its Orders Accepting the Application filing, delegating preparation of the Environmental Report, setting fees and ordering hearing.

4. A Petition to Intervene in this matter was timely filed by the DOC and the Petition has been allowed.

5. Notices of the public hearings concerning this matter were published in the following newspapers on the following dates:

Star Tribune	April 12, 2000
St. Paul Pioneer Press	April 12, 2000
Burnsville Sun Current	April 12, 2000
Bloomington Sun Current	April 12, 2000

6. A Notice and Order for Hearing was published in the Minnesota State Register on March 6, 2000 at page 1241.

7. Notice of the hearing schedule, the issuance of the draft Environmental Report and public comment periods was published in the EQB Monitor on April 17, 2000.

8. A draft Environmental Report was issued by the DOC on April 10, 2000.

9. A Final Environmental Report was issued by the DOC on May 12, 2000. No comments of substance were received from the public or state agencies during the comment period.

B. Applicable Statutory and Rule Criteria

10. Minn. Stat. § 216B.243 prohibits siting or constructing a large energy facility in Minnesota without first obtaining a certificate of need from the PUC. Minn. Stat. § 216B.243 and Minn. Rules, parts 7849.0010 through 7849.0400 set forth the criteria which must be met to establish need for proposed large energy facilities. As set forth in Minn. Rule 7849.0120, a certificate of need must be granted to the applicant if:

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 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.

11. In addition, Minn. Stat. § 216B.243, subd. 3(a), establishes two criteria for the Commission to consider regarding alternatives to the Project utilizing renewable resources:

a. Applicant has explored the possibility of generating power by means of renewable energy resources; and

b. that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source.

For purposes of Minn. Stat. § 216B.243, subd. 3(a), hydropower, wind, solar, geothermal, and biomass are considered renewable energy resources.

C. THE PROJECT

12. The Project will consist of installing gas-fired combined cycle electric generating technology in place of the existing coal-fired generating technology in Black Dog Units 1 and 2. The Project will include the removal of the Black Dog Unit 1 coal-fired boiler, precipitators, steam turbine and generator and the decommissioning of the Unit 2 coal-fired boiler. A new natural gas-fired combustion turbine-generator set will be placed on the Unit 1 steam turbine and generator foundation and a new heat recovery steam generator (HRSG) will be placed in the Unit 1 boiler cavity. The Unit 2 steam turbine and generator will be utilized in the combined cycle. The HRSG will have the ability to be fired with supplementary natural gas to provide additional peaking capacity. Exhibit 4, Application at 10.

13. The Black Dog Electric Generating Plant ("Plant") is located in Township 27N, Range 24W, Sections 23 and 24 in Dakota County. Exhibit 4, Application at 15.

14. The Plant consists of four coal-fired steam generation units with a total generating capability of 485 megawatts (MW). The Plant's four units were brought on line between 1952 and 1960. Units 1, 3, and 4 are designed to burn natural gas alone or in combination with coal. Unit 2 can burn natural gas as a start-up ignition fuel only. Units 1 and 2 of the Plant are currently used as peaking facilities; Units 3 and 4 are used as intermediate load facilities. Exhibit 4, Application at 11, 12.

15. The Project's nominal generating capacity is considered to be 290 MW, which is the net capacity during summer conditions (90°F and 60 percent relative humidity) when the combustion turbine is operated at full load and the HRSG is duct-fired with supplementary natural gas to obtain peak output. The maximum Project output of 323 MW occurs when operating in the winter when the combustion turbine is operated at full load and the HRSG is supplementary duct-fired to obtain peak output. The Project will increase the generating capacity of Units 1 and 2 by a nominal 114 MW during summer operating conditions. Exhibit 4, Application at 16.

16. The Project will operate using the combustion turbine without duct firing between 80 and 90 percent of its operating hours. Operating in that mode at yearly average temperature conditions (45°F and 60 percent relative humidity), the Project will have a capacity of 260 MW. The Project operates at maximum efficiency (over 47 percent) without duct firing. Exhibit 4, Application at 16.

17. The Project will be fueled entirely by natural gas with no backup fuel. NSP will secure firm natural gas supply contracts to comply with Mid-Continent Area Power Pool (MAPP) certification requirements. In combustion turbine peak firing mode and with HRSG duct firing during summer conditions (summer peak mode), the Project

will consume 2.2 million standard cubic feet (million SCF) of natural gas per hour. Under the expected annual operating conditions—dispatched 5 days per week, 16 hours per day—the Project could consume up to 9,200 million SCF of natural gas each year. Exhibit 4, Application at 18.

18. NSP is conducting a competitive bidding process to secure natural gas supply services for the Project. Exhibit 4, Application at 19.

19. The Project components will be located primarily within the existing Plant. New components that will be located outside of the Plant are the combustion turbine step-up transformer, the HRSG exhaust stack and the air inlet filter. The exhaust stack will be approximately 230 feet tall and will be located in the footprint of the existing 292-foot Unit 1 retired flue gas chimney. The existing building height will be modified in an approximately 58-foot by 77-foot area. The roof will be raised by about 58 feet in this section, from a height of about 67 feet to a height of 125 feet. The new elevation is consistent with the current elevation of the adjacent boiler area roof. A gas compressor building approximately 20 feet by 40 feet will be added. Exhibit 4, Application at 15.

20. No new transmission lines will be necessary as the result of the Project, however, reconductoring of two existing 115 kV lines between Black Dog Substation and Wilson Substation, located 4 1/2 miles north of the Plant, will be necessary. Reconductoring consists of replacing the conducting cables currently on the line with new cables capable of higher current. The new cable would be strung on existing tangent structures without changes. Up to 7 structures, at locations where the transmission line changes direction (i.e., locations that carry the tension loading of the line) may be replaced with single pole steel structures. Exhibit 5, Hjermstad Direct at 2.

D. APPLICATION OF CRITERIA—RESULT OF DENIAL

21. The evidence presented in the record of this proceeding demonstrates that the probable result of denial of the Certificate of Need to Northern States Power Company will be an adverse effect upon the future adequacy, reliability and efficiency of energy supply to their customers, or to the people of Minnesota and neighboring states.

Accuracy of Forecast Demand for the Type of Energy To Be Supplied By the Facility

22. NSP prepared a long-range forecast of energy sales, native energy requirements, and peak demand for the period of 1998-2013 as part of the 1998 Resource Plan proceeding. That forecast estimated 1.7 percent average annual growth in native energy and peak demand requirements. The forecast was bound by a more optimistic and pessimistic set of economic forecasts to project a range of possible future capacity requirements. The 1998 Resource Plan forecasts predicted customer system peak demand will increase at a rate of between 1.3 to 2.2 percent per year with a base of 7,880 to 8,217 MW of predicted demand in 1998. NSP's 1998 resource plan forecast was accepted by the Commission. Exhibit 4, Application at 37.

23. NSP updated its forecasts since the 1998 Resource Plan cycle and included in its application a forecast of energy and peak capacity requirements for the years 1999 to 2020. The new system peak demand forecast predicts a median growth rate of 1.6 percent. That estimate is bounded by a semi-low and semi-high estimate of 1.1 and 2.0 percent, respectively. However, the starting level of the system peak demand to which the growth rate is applied has increased. Exhibit 4, Application at 37.

24. NSP's forecasting methodology is consistent with those accepted in the 1998 Resource Plan proceeding. The DOC while not in complete agreement with NSP's forecasting methodology concluded the differences do not warrant rejection of the forecast. Exhibit 11, Rakow Direct at 34.

Promotional Practices

25. The record provides no evidence that promotional practices of the applicant have given rise to the forecasted increase in the energy demand. NSP has not conducted promotional and other marketing practices that significantly contribute to the need for this Project. The DOC states NSP has been successful in marketing its CIP projects, the implementation of which diminishes the need for additional generating capacity. Exhibit 12, Valley Direct at 5.

Conservation and Other Demand Side Management Programs

26. In 1998 NSP conserved approximately 258,683 MWh of energy savings and 114 MW of demand savings through new and existing energy-efficiency and energy-conservation projects. NSP's current goal is to achieve 2,468 GWh of energy savings and 896 MW of demand savings between 1998 and 2012. The need for the Project would be much greater if it were not for NSP's energy and demand savings achieved through conservation and load management efforts and incorporated in forecasts. Exhibit 12, Valley Direct at 4.

27. NSP's demand side management goals were found reasonable by the Commission in their February 17, 1999 Order approving the 1998 Resource Plan. Exhibit 4, Application at Appendix G.

28. Because conservation effects accumulate slowly over time, it is unlikely that additional conservation could be used to eliminate the need for new generating resources associated with this proposal. Exhibit 11, Rakow Direct at 17.

Ability of Current or Planned Facilities to Meet Future Demand

29. NSP does not have current or planned facilities to meet the projected demand for electricity. NSP projects a deficit between its forecast of peak demand and its committed resources of nearly 300 MW in 2002. The identified deficit which increases in subsequent years is in excess of nearly 1200 MW currently being pursued in an all source bidding process approved by the Commission. Exhibit 4, Application at 35, 36.

30. NSP may be able to purchase additional capacity and energy on the short-term market. However relying on short-term power purchases presents considerable risk of much higher costs to NSP's customers. During periods of high demand, the price of short-term purchases has risen to as much as \$7000 per MWh. Exhibit 4, Application at 43. The cost of electricity from the proposed facility is estimated to cost on the order of \$40 per MWh. Exhibit 4, Application at 22.

Making Efficient Use of Resources

31. The Project will make efficient use of resources to generate electricity. The Project is expected to operate with an efficiency of 44 to 47 percent. That compares to a maximum of 30 percent operating efficiency of the current facility. The Project is well suited to NSP's intermediate load-following and supplemental peaking needs because of the ability of combined-cycle technology to be operated at less than full capacity at relatively high efficiency. The Project will operate at an average annual capacity factor of approximately 45 percent. Exhibit 4, Application at 4, 12.

32. The Project efficiently utilizes an existing power plant site with its associated support infrastructure. Exhibit 4, Application at 6.

E. Renewable Alternatives to the Proposed Facility

33. Minn. Stat. § 216B.243, subd. 3(a) establishes two criteria for the Commission to consider regarding renewable resources:

- a. that applicant has explored the possibility of generating power by means of renewable energy resources; and
- b. that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy resource.

For purposes of the statute, hydropower, wind, solar, geothermal and biomass are considered renewable energy resources. In addition, NSP presented testimony concerning the resource of landfill gas.

34. NSP has explored the possibility of generating power by means of renewable energy sources.

35. In its application, NSP presented evaluations of hydro, wind, solar, and biomass renewable alternatives. NSP addressed the viability of geothermal energy in response to DOC Information Request No. 2 (see DOC Exhibit No. (SRR-4)) There are no utility-scale geothermal sites in Minnesota or the MAPP region. Therefore, geothermal energy fails as an alternative to the Project. Exhibit 11, Rakow Direct at 10.

36. There are five principal project objectives that must be addressed by any alternative:

- a. Applicability-the project addresses NSP's capacity and energy requirements for intermediate service and provides an additional plant within the NSP portfolio of assets that has load following and daily dispatch capability,
- b. Availability-the project is commercially proven at the several hundred MW scale, can meet a commercial in-service date target of summer 2002, and can be available for nearly continuous service,
- c. Reliability-the project enhances the reliability of the bulk electric system where reliability means reducing the frequency, duration, and magnitude of potential adverse effects on the electric supply,
- d. Environmental Impacts-the project minimizes environmental and community impacts, and
- e. Economic Effects-the project enhances ratepayer value, reduces ratepayer risk, increases NSP asset value, and provides economic benefit to the Black Dog area community.

Exhibit 11, Rakow Direct at 11.

37. Each of the renewables alternatives fails to meet one or more of the reasonable project objectives, is more expensive or both. Exhibit 11, Rakow Direct 12-15. In addition the selection of a renewables alternative to meet the 114 MW of additional system capacity would result in the continued operation of Black Dog Units 1 and 2 using coal. Therefore selecting a renewables alternative would forego the environmental benefits associated with conversion from coal to natural gas at the Plant. Exhibit 4, Application at 61-65.

38. Hydropower can not meet the Project's availability, timing, and cost-effectiveness objectives. Undeveloped hydro sites in Minnesota and neighboring states are limited and small. Over one hundred megawatts of hydropower could not be developed cost effectively nor could it be placed in service in the 2002 time frame. While substantial hydro capacity potential exists in Manitoba it could not be developed by the 2002 time frame and would require substantial transmission additions to implement. Therefore, hydropower is not a reasonable alternative. Exhibit 11, Rakow Direct at 12-13.

39. Any solar alternative will not meet the Project's cost-effectiveness objectives. For example, in NSP's last biennial Conservation Improvement Program (CIP) petition (Docket No. E002/CIP-99-1057) NSP proposed a solar-power demonstration project. The proposed project was to result in 250 kW of renewable capacity. NSP estimated that the project cost per kWh would be about 36.1¢. This is compared to the Project's 4.0¢ per kWh. NSP's proposed 250 kW project failed a societal cost-benefit test with a ratio of only 0.14. Furthermore, the technical viability of large-scale solar power has not been proven in the upper Midwest. Solar power fails the Project's availability criteria as well. Exhibit 11, Rakow Direct at 14.

40. Any biomass alternative will not meet the Project's cost-effectiveness objectives. For example, Kevin R. Craig and Margaret K. Mann of the National Renewable Energy Laboratory studied the cost-effectiveness of 6 different biomass technologies. The Craig and Mann report was published by the DOE in August 1996. Craig and Mann calculated that a 122 MW biomass facility would have a cost of electricity of 5.1¢ (1990\$) per kWh; this can be compared to the Project's 4.0¢ (1999\$) per kWh. Even without accounting for 9 years of inflation, the biomass facility is more expensive. The 5.1¢ cost for the most cost-effective biomass facility, indicates that biomass can not meet the Project's cost-effectiveness objective. In addition, NSP has had substantial difficulties in obtaining 125 MW of cost-effective, reliable biomass capacity to fulfill its statutory biomass mandate. It is unlikely a biomass facility could be in service by 2002. Considering all the above biomass is not a reasonable alternative. Exhibit 11, Rakow Direct at 14, 15.

41. Any wind power alternative will not meet the Project's availability criteria. NSP's most recently completed RFP process was the Wind Phase III bid. This bid resulted in the Commission approving a contract for 104.25 MW of nameplate wind capacity. However, the duration of the process was about 21 months from NSP filing a petition for approval of the RFP to Commission issuing an Order approving the contract. Only after completing the bid process could construction begin on new wind capacity. A new wind project could not take 21 months for a bidding process if it is to meet NSP's availability criteria of being in-service in the summer of 2002. Exhibit 11, Rakow Direct at 15.

42. The largest of NSP's successful wind bids resulted in awarding a contract for 107.25 MW of nameplate wind capacity. The Project will provide 114 MW of accredited capacity in the summer. NSP would need to seek about 844 MW of nameplate wind capacity to obtain 114 MW of accredited summer wind capacity. It is unlikely that 844 MW of nameplate wind capacity could be placed in-service by summer 2002. Exhibit 11, Rakow Direct at 15.

43. Wind is not a dispatchable resource because of the intermittent nature of wind availability and therefore cannot be used to follow instantaneous changes in electricity demand as the Project will. Exhibit 4, Application at 52.

F. Has a More Reasonable and Prudent Alternative to the Facility Been Demonstrated by a Preponderance of the Evidence on the Record?

44. A Certificate of Need cannot be issued if a more reasonable and prudent alternative to the proposed Facility is demonstrated by a preponderance of the evidence on the record. Minn. Rule 7849.0120(b). The factors to be considered in assessing alternatives are:

- a. Appropriateness of the size, type and timing of the proposed Facility;
- b. Cost of the proposed Facility and cost of the energy to be supplied by the Facility;

- c. Effects on the natural and socioeconomic environments; and
- d. Reliability.

Minn. Rule 7849.0120(B).

45. No party presented evidence in support of an alternative. Both parties presented evidence only in support of the proposed project.

Appropriateness of the Size, Type and Timing of the Non-Renewable Alternatives

46. In addition to the renewable resources discussed above, the alternatives examined in the record included demand-side management (DSM); a dual-fuel combustion turbine facility; purchased power; a new coal-fired facility; a refurbished, coal-fired facility; a landfill gas facility; a fuel cell facility; and energy storage devices. Exhibit 11, Rakow Direct at 16

47. The Commission has already determined an optimal level of DSM relative to new supply for NSP. This is done through the resource planning process (most recently Docket No. E002/RP-98-32). Any cost-effective expansion beyond this level would be difficult to achieve. Furthermore, DSM is a resource, which accumulates slowly. While obtaining an additional 114 MW would be possible, it would take considerable time. Thus, DSM would be unlikely to meet the timing criteria. Exhibit 11, Rakow Direct at 17.

48. A dual-fuel combustion turbine facility could be built in a short time frame. However, combustion turbine units are typically operated at peaking (0 to 20 percent) rather than intermediate (20 to 50 percent) capacity factors because they typically have lower capital costs and higher energy costs than intermediate facilities. Therefore, while a dual-fuel combustion turbine could meet the size and timing criteria, it could not meet the type criteria of the proposed project. Exhibit 11, Rakow Direct at 17, 18.

49. Purchased power may be available in the MAPP region on the wholesale market. NSP may be able to purchase 114 MW of capacity. Therefore, the question is not the size, type, and timing, but the economics of purchased power. Purchased power from an existing facility can meet the proposed projects size, type, and timing criteria. Exhibit 11, Rakow Direct at 18.

50. New coal-fired facilities typically have high capital costs and low energy costs. Therefore, they normally operate at capacity factors well above either peaking or intermediate units. New coal units require in excess of three years to construct. In addition, regulatory approval of a new coal-fired facility would be controversial, requiring a longer duration for regulatory review. New coal could not meet a summer 2002 start-up date. A new coal facility will not be able to meet either the type or timing criteria. Exhibit 11, Rakow Direct at 18.

51. A refurbished coal-fired facility would upgrade the existing Black Dog Units 1 and 2 for intermediate service with additional capacity purchased on the

wholesale market. Because only a few upgrades would be required, rather than constructing an entire facility, this alternative could meet the type and timing criteria. With additional purchased power for peaking needs, it could meet the size criteria. Therefore, a refurbished coal-fired facility can meet the proposed projects size, type, and timing criteria. Exhibit 11, Rakow Direct at 17, 18.

52. A landfill gas facility would capture the gas emitted by landfills and use the gas to generate electricity. A landfill gas facility, with on-site storage and generation controls may be able to meet the type and timing criteria. However, because of the limited number of landfills available and gas to be captured, this alternative could not meet the project's size criteria. Exhibit 11, Rakow Direct at 18.

53. Fuel cells convert energy into electricity through electrochemical processes rather than combustion. Currently, fuel cells are used as distributed generation and are installed near the end user. Therefore, several installations, when combined would meet the type and size criteria. However, the large number of sites required indicates that it would be difficult to meet the timing criteria. Exhibit 11, Rakow Direct at 18.

54. There are many ways to store the energy needed to make electricity. Among these are batteries, compressed air, flywheels, and pumped-storage hydro. In each case, existing plants are run during off-peak hours and the resulting energy is stored. Then, during peak hours the energy is released, resulting in additional peaking capacity and energy. Therefore, these systems are all suited only to peaking rather than intermediate needs and would not meet the type of criterion. Exhibit 11, Rakow Direct at 18.

Cost

55. Applicant conducted an analysis of the cost of feasible alternatives. NSP's system power supply costs with the Project are substantially lower than with the alternatives NSP examined. The Project remains the most economical choice when the Commission approved environmental cost values are incorporated into the analysis. Exhibit 4, Application at 58-63.

Natural and Socioeconomic Environments

56. Any alternative to the Project would result in continued operation of Black Dog Units 1 and 2 using coal for fuel. Exhibit 4, Application at 61, 65.

57. Air emissions of SO₂, NO_x, PM, CO₂, and CO associated with the combustion of natural gas are generally less than those associated with coal combustion. Project specific analysis demonstrates that air emissions of SO₂, NO_x, PM, CO₂, and CO will be less for the Project than with any of the reasonable alternatives. Exhibit 11, Rakow Direct at 23.

58. A second well, capable of pumping at 125 gallons per minute will be installed at the Plant. However, annual water appropriations will remain within annual

limits currently in DNR appropriation permits for the Plant. Exhibit 12, Valley Direct at 22.

59. Wastewater discharges will meet the requirements of existing National Wastewater Discharge Elimination System (NPDES) permits issued by the Minnesota Pollution Control Agency. Exhibit 12, Valley Direct at 22, 23.

60. The Project requires no conversions in land use. The Project redevelops an existing power plant site. Exhibit 12, Valley Direct at 23.

61. Property taxes from the Black Dog Power Plant to all taxing jurisdictions after the Project is implemented are estimated to be approximately \$3.5 million per year, a reduction from the estimated year 2000 property tax level of \$4.2 million. Exhibit 12, Valley Direct at 15.

62. The Project would create up to 205 construction jobs and an additional 15 full time operating positions at the Plant. The feasible alternatives would result in fewer positions at the Plant. Exhibit 11, Rakow direct at 27.

63. The socioeconomic impacts of jobs and taxes associated with a purchase of the 114 MW of additional power are unknown since location and generation type are unknown. Exhibit 11, Rakow Direct at 28.

Reliability of the Proposed Facility Compared to Reasonable Alternatives.

64. A more reasonable and prudent alternative to the Project has not been demonstrated by a preponderance of the evidence on the record, considering size, type, timing, cost, environmental and socioeconomic effects and reliability of the Project and the alternatives. Exhibit 12, Rakow Direct at 31.

G. The Benefit of the Proposed Facility to Society in a Manner Compatible with Protecting the Natural and Socioeconomic Environments, Including Human Health

65. The Assessment of Need Criteria set forth in Minn. Rules part 7849.0120(C) requires a determination that, by a preponderance of the evidence on the record, the Project will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including health, and specifically considering the following:

- a. The relationship of the Facility to overall state energy needs;
- b. Comparison of the effects of the Facility on the natural and socioeconomic environments to the effect of not building the Facility;
- c. Effects of the Facility on inducing future development;

d. Socially beneficial uses of the output of the Facility, including the protection or enhancement of the environment.

The Relationship of the Project to Overall State Energy and Capacity Needs

66. The deficits forecast by NSP are set forth above in paragraphs 22 to 24. The Project represents an important source of new capacity for Minnesotans and, combined with other new resources, will help ensure that Minnesotans' growing demand for electricity is met. The Project also reduces the risk of extremely high costs for power supply during periods of high demand. Exhibit 4, Application Chapter 4.

67. Absent the Project, Black Dog Units 1 and 2 would continue to operate using coal as fuel. The Project incorporates state of the art pollution control equipment and results in a substantial improvement in production efficiency. Without the Project, fuel consumption and air emissions associated with electricity production will be greater. Exhibit 4, Application Chapter 5.

68. Negative effects on the natural environment include traffic and noise pollution during construction, noise emissions and air emissions during operation, and the potential construction of a gas pipeline. The environmental effects of the Project are subject to the permitting activity of various governmental agencies. Exhibit 4, Application Chapter 3.

Effects on the Socioeconomic Environment

69. The Project is expected to have socioeconomic benefits from investment of the construction cost of approximately \$156 million, gross sales tax revenue in Minnesota of about \$3.9 million and \$200,000 net of rebates, and property taxes in Dakota County of \$3.5 million annually. The Project will provide 205 temporary jobs during peak construction periods. Fifteen full time equivalent jobs over a 30-year life will produce wages totaling a present value of \$16.6 million. Exhibit 12, Valley Direct at 16.

Induced Development

70. The Project is not expected directly to induce future development. However, by helping to meet the state's growing demand for electricity, and by helping to ensure an economic and reliable source of electricity, the Project will support future economic growth in Minnesota by contributing to a stable infrastructure. Exhibit 12, Valley Direct at 13.

71. In summary, the Project will provide benefits to society in a manner compatible with protecting natural and socioeconomic environments including human health. Valley Direct at 32

Socially Beneficial Uses

72. As noted herein, the Project will provide valuable energy services by making available generation capacity and energy. At the same time it will improve the economic and environmental performance of existing generating infrastructure.

H. COMPLIANCE WITH POLICIES, RULES AND REGULATIONS

73. Applicant presented evidence in its application discussing in some detail how it intends to meet permitting requirements of the various agencies with jurisdiction or permitting authority over the proposed facility. Exhibit 4, Application at Chapter 3. Minnesota Statutes 216B.243 Subd. 7 requires permitting agencies to participate in these Certificate of Need hearings and present their view on issues before the Commission. No state agency other than the DOC presented testimony in this proceeding. No state agency presented issues that would prevent the Project from complying all applicable regulations.

74. The record does not demonstrate that the design, construction, or operation of the Project will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

Based on the foregoing findings, the Administrative Law Judge makes the following:

CONCLUSIONS OF LAW

1. Any of the Findings, which more properly should be designated as Conclusions, are adopted as such. Similarly, any of the Conclusions, which more properly should be designated as Findings, are adopted as such.

2. The Commission has jurisdiction over this matter.

3. All relevant substantive and procedural requirements of law and rule have been fulfilled.

4. The forecasts presented in this proceeding have been prepared in a reasonable manner, are reasonably reliable, and are appropriate for determining the need for the Project.

5. Based on the forecasts, there is a need for the Project.

6. Increasing planned conservation efforts is not a cost-effective alternative to the Project.

7. NSP does not promote electricity consumption in Minnesota or elsewhere.

8. Current and planned facilities, including purchased power, not requiring certificates of need are not adequate to meet projected needs.

9. The Project will make efficient use of resources.

10. Denial of the certificate of need to NSP will likely have an adverse effect upon the future adequacy, reliability, and efficiency of energy supply to the utilities in Minnesota, to the people of Minnesota and neighboring states.

11. Considering size, type, timing, cost, natural and socioeconomic environmental effects, and reliability, a more reasonable and prudent alternative to the Project has not been demonstrated by a preponderance of the evidence on the record.

12. The record establishes that there is a growing demand for electricity in Minnesota, and that additional sources of generation are necessary.

13. The Project is needed to meet the growing electricity demands of Minnesotans.

14. The Project will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health.

15. The record does not demonstrate that the design, construction, or operation of the Project will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

16. Applicant has demonstrated that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the Project is less expensive (including environmental costs) than power generated by a renewable energy source.

17. The requirements for a certificate of need set forth in Minn. Stat. § 216B.243 and Minn. Rules, part 7849 have been satisfied.

Based on the foregoing Findings of Fact and Conclusions of Law, the Administrative Law Judge issues the following:

RECOMMENDATION

IT IS RESPECTFULLY RECOMMENDED that the Public Utilities Commission issue the requested Certificate of Need to applicant Northern States Power Company without condition.

Dated June 7th , 2000

STEVE M. MIHALCHICK
Administrative Law Judge