

**STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION**

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In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for Certificate of Need for an Extended Power Uprate at the Prairie Island Nuclear Generating Plant

DOCKET NO. E002/CN-08-509

REPLY OF PINGP STUDY GROUP TO COMMENTS AND XCEL ENERGY PETITION AND NOTICE OF CHANGED CIRCUMSTANCES

SUMMARY

The Prairie Island Nuclear Generating Plant (“PINGP”) Study Group, an informal group of citizens concerned about and potentially affected by health, socioeconomic and environmental risks of the Prairie Island Nuclear Plant, participated in Certificate of Need proceedings in 2009 before the Administrative Law Judge (“ALJ”) and the Public Utilities Commission (“Commission”) pertaining to Xcel Energy’s proposed uprate at the Prairie Island Nuclear Plant. The PINGP Study Group submits this reply to the comments of the Prairie Island Indian Community (“PIIC”) and the two sets of comments (“Cmt 1” on May 31, 2012 and “Cmt 2” on June 12, 2012) filed by the Department of Commerce (“DOC”) and the as well as responding to Xcel’s Petition and Notice of Changed Circumstances (“Petition”).

We appreciate that Xcel Energy has brought this Petition forward and believe that the DOC’s conclusion that “the Prairie Island Uprate continues to be a cost-effective resource addition despite delays in timing and updated assumptions,” (DOC Cmt 1, p. 1) is factually incorrect, inconsistent with applicable law and fails to address the public health, socioeconomic

and environmental risks which are properly before this Commission.

We share the PIIC's conviction that new demand and cost information establish that the uprate does not conform with the requirements of State law for a certificate of need, and that at the very least, a supplemental contested case inquiry would be needed before the uprate could proceed in compliance with Minnesota statutes and rules. In reply to the PIIC's comments, the PINGP Study Group believes that recent contamination of the water at the Nuclear Plant with spills of radioactive tritium, recent release of a National Academy of Sciences report evaluating the potential for cancer risks in populations near nuclear facilities, and recent heightened awareness of risks and regulatory requirements resulting from the Fukushima Daiichi nuclear plant disaster constitute additional changed circumstances requiring the Commission to deny the uprate under applicable rules that would require Xcel to demonstrate that the uprate would provide benefits in a manner compatible with protecting the natural and socioeconomic environments, including human health.

In addition, based on the information in Xcel Energy's Petition and the PIIC's comments, the PINGP Study Group believes that broader public interest and public policy considerations, including environmental justice, require this Commission to determine that the uprate should not proceed. Under various likely conditions pertaining to delayed implementation, reduced size, low demand load, low natural gas prices and failure of regulators to impose costs for carbon dioxide emissions, there would be no benefit to ratepayers from proceeding with the Nuclear Plant uprate. However, there is uncontroverted evidence that the uprate would increase thermal and radioactive emissions from the Nuclear Plant and that any increased risk of radioactive release disproportionately impacts the Plant's nearest neighbors, the Prairie Island Indian Community. Bureaucratic inertia is no justification for the uprate. Environmental justice, as well as

compliance with Minnesota certificate of need statutes and rules, supports a determination that it would not be in the public interest to impose environmental and health risks from the Nuclear Plant uprate on an environmental justice community in order to provide speculative economic benefits.

Finally, although the PINGP Study Group has insufficient resources to challenge the modeling in the DOC's second set of comments in detail, we would express concerns about the lack of justification for changes in modeling and forecasting and the equation of "need" with the presence of a model outcome that finds present value societal cost ("PVSC") reductions. Xcel Energy has demonstrated that the need and value of the uprate are questionable. Should the Commission consider proceeding with the uprate despite pertinent changed circumstances, a new contested case process is necessary to review assumptions and hypothetical scenarios that may or may not support the uprate despite its public health, environmental and economic risks.

DISCUSSION

1. Changed Circumstances Confirm the Uprate Is Not Needed.

As reflected in the PIIC's comments, the underlying certificate of need laws require Xcel to prove by a preponderance of the evidence that the probable result of denial of the uprate would adversely affect the future adequacy, reliability or efficiency of energy supply to Xcel, its customers or the people of Minnesota and neighboring states. Minn. Stat. 216B.243, Subd. 3; Minn. R. 7849.0120, Subp. A. Changed circumstances confirm that the uprate could not meet this test.

From the start, Xcel's proposal of the power uprate was unrelated to any specific demand for energy. Xcel determined the size of the uprate based on maximizing thermal increase at the

Nuclear Plant, without considering electric demand forecasts or demand deficits in the analysis. Transcript (“Tr.”) Volume (“V”) 3, p. 143 (Carlson).

The PINGP Study Group argued in the prior Certificate of Need hearings that Xcel’s projection of 1.1 percent demand growth each year in its Application for the uprate, Exhibit (“Ex.”) 100, p. 1-6 (CON Application), was unrealistic and that the uprate was not needed for energy supply. Xcel Energy’s Petition for Changed Circumstances confirms that appropriate conservative assumptions regarding energy demand would *not* support the need for the project. As compared to the demand growth forecast (1.1%) upon which the uprate is based, Xcel’s most recent forecast is for 0.7% annual demand growth, more than a 36% reduction in underlying demand. Xcel Petition, p 5.

The Xcel Petition does not argue that the Prairie Island Nuclear Plant uprate is required to prevent adverse impacts to adequacy, reliability or efficiency of energy supply. In fact, Xcel seems to acknowledge that this requirement may no longer be met by the project, “changes in our load forecasts affect the need for the project, as do changes in the costs of alternatives to the project.” Xcel Petition, p. 7.

The DOC comments, even as they urge approval of the uprate, contain no evidence that the nuclear plant uprate is needed. The DOC states that its analysis “used an updated forecast” for demand and energy (DOC Cmt 2, p. 4), but provides no information as to the nature of this forecast or the ways in which its accuracy might be confirmed. Minn. Stat. § 216B.243, Subd. 3(1). To the extent, if any, that this unspecified “updated forecast” sets aside the reduction in demand forecasts as temporary, non-structural or certain to be recovered at some assumed economic upturn, this assumption would contradict the Next Generation Energy Act policy goal of reduction in annual energy savings equal to 1.5 percent of annual retail energy sales of

electricity in Minn. Stat. § 216B.2401 as well as the certificate of need statute, Minn. Stat. §216B.243, Subp. 3(2). State conservation policy would weigh against a presumption that demand reductions are merely temporary and would preclude expanding generation in the face of significant demand forecast reductions.

The DOC's apparent position seems to be that a generation expansion should be approved if a model suggests that present value societal cost (PVSC) for the expansion is less than for other scenarios whether or not denial of a certificate of need would have an adverse effect upon the future adequacy, reliability, or efficiency of energy supply. This approach is not only vulnerable to modeling error, but exceeds the scope of Minnesota statutes and rules.

2. Changed Circumstances Confirm the Uprate Would Not Provide Economic Benefits.

The primary disclosure provided by Xcel in its Petition is that “there are possible combinations of new conditions that could lead to the conclusion that the uprates are no longer cost-effective.” Xcel Petition, p. 2. Xcel noted that the uprate proposed a 164 MW project that would be implemented during 2014 and 2015 refueling outages. *Id.*, p. 4. The uprate has been scaled back to 135 MW, since implementation of a low-pressure turbine was determined not to be cost-effective. *Id.*, p. 5. In addition, due to post-Fukushima work pertaining to safety, Xcel explained that license amendment request review by the Nuclear Regulatory Commission could take from 30-36 months, rather than the historical 12-22 processing time. *Id.* In addition, “natural gas prices have fallen dramatically and are forecasted to remain low.” *Id.*, p. 6. Carbon dioxide regulation has also become less likely. *Id.*, p. 20.

Each of these factors will influence whether implementing the uprate would provide a net economic benefit to ratepayers or a net cost. As Xcel noted in the Petition, “approximately \$232

million can be avoided if the Commission determines it is not in the public interest for the EPU to be implemented.” *Id.*, p. 6, fn. 2.

Under the most aggressive and optimistic assumptions regarding timing of uprate, the net benefit of the Nuclear Plant uprate would be \$50 million. *Id.*, p. 7. Further reduction in the size of the proposed capacity increase by even 10MW would eliminate all ratepayer benefits and would actually result in a net economic loss to ratepayers if implementation were to take place in 2017-2018, consistent with the NRC’s current 36 month review timeline. *Id.*, p. 10.

Even under the most optimistic assumptions regarding the speed of NRC review, low demand load conditions would eliminate 90% of projected economic benefits. *Id.*, p. 11. Various combinations of delayed timing, reduction in proposed capacity increase, lower load growth, and low natural gas prices result in numerous probable scenarios where there is no economic benefit and even a possible economic loss resulting from the proposed Nuclear Plant uprate. *Id.*, p.14.

Xcel concluded regarding likely economic benefits to ratepayers from the uprate:

We believe the risk factors discussed above are likely to occur in combination and magnitude. While we cannot anticipate what combination of risk factors may occur or to what degree, clearly a combination of risk factors amplifies the likelihood that the benefits of proceeding with the EPU could be lost due to circumstances beyond our control. *Id.*, p. 21.

The DOC’s comments suggest that the Prairie Island Uprate “provides somewhat more benefits to ratepayers than Xcel’s analysis.” (DOC Cmt 2, p. 6). However, the Department admits that most of the difference between its model results and Xcel’s are “due to the Department’s inclusion of a CO₂ cost in all scenarios.” (DOC Cmt 2, p. 6). This alleged cost is not justified by the DOC.

In fact, *none* of the changes made by the DOC to Xcel’s Strategist model assumptions are explained in the DOC’s comments. Without clarity and transparency, it is not possible to assess

whether changes represent improved information or various Department preferences and policies that may distort the prediction of economic risk and uncertainty for ratepayers.

3. Changed Circumstances Confirm the Uprate Would Not Protect the Environment.

Xcel's Petition did not discuss circumstances that may affect whether the Nuclear Plant uprate is compatible with protecting natural and socioeconomic environments including human health, as required under Minnesota certificate of need rules, Minn. R. 7849.0120, Subp. C. The DOC also declined to discuss protection of natural and socioeconomic environments in either of its comments. However, this issue was of paramount importance in the comments of the Prairie Island Indian Community, the nearest neighbors to the Nuclear Plant.

The original Certificate of Need record demonstrated certain risks of the uprate to the natural environment and to public health. The uprate would require a change in the type of nuclear fuel used and an increase in the amount of uranium to maintain the fuel cycle length. Tr. V. 3, p. 96 (Carlson). The fuel would change to a "heavy bundle fuel," where each fuel rod is larger in diameter so that it can contain more uranium. *Id.*, pp. 96-97. The power uprate would operate the reactor at higher temperatures by using more uranium in the reactor core to maintain the same fuel cycle length. Ex. 64, Ch. 1, p. 2, Final Environmental Impact Statement ("FEIS"). The uprate would also cause an increase in steam pressure in the second loop of the reactor that converts energy into electricity. Ex. 64, Ch. 1, p. 2 (FEIS) p. 4. The consequences of the increased uranium, heat and pressure resulting from the Nuclear Plant uprate would include:

- Increased use of surface and groundwater by 10 percent. Tr. V. 3, pp. 96, 127 (Carlson).
- Increase in liquid and radioactive waste by 10 percent. Tr. V. 3, pp. 96, 127 (Carlson).
- Temperature increase of 10 percent. Tr. V. 6, p. 191 (Flowers).

- Possible increase in reactor vessel embrittlement from neutron bombardment and higher operating temperatures. Tr. V. 2, pp. 151-153 (Bomberger).
- Hotter spent fuel, with higher enrichment requiring more years in the spent fuel pool. Tr. V. 4, pp. 213-214. (Carlson).
- Increase in the level of radioactive liquid waste discharge from 626 Curies to 689 Curies. Ex. 3, p. 4-12, Table 4-1 (Site Permit Application); Tr. V. 6, pp. 280-281 (Pickens).
- Increasing waste heat discharged to the Mississippi River by as much as three degrees Fahrenheit at both ends of the discharge canal under certain conditions. Tr. V. 3, pp. 136,146 (Carlson).
- Increase of 10 percent in direct gamma radiation exposure to members of the public from spent fuel casks. Tr. V. 3, p. 146 (Carlson) p. 153.
- Incremental involuntary cancer risk to the public from spent fuel cask gamma radiation at a level (3.5 in 100,000) that exceeds the Minnesota Health Department level of concern for cancer (1 in 100,000). Ex. 64, Ch. 1, p. 78 and Ch. 2, p. 27, Table 5A-2 (FEIS).
- Incremental increased lifetime cancer risk to plant personnel from spent fuel cask gamma radiation (9.8 in 100,000) nearly an order of magnitude higher than the Minnesota Health Department level of concern. Ex. 64, Ch. 2, Table 5A-2 (FEIS).

Comments of the Prairie Island Indian Community suggest that changed circumstances have also increased the likelihood that the proposed uprate would be incompatible with protecting the environment and public health. In the prior contested case, Xcel represented that tritium contamination of ground water resulted from historic practices that had been discontinued. *See* Tr. V. 6, pp. 161-163 (Flowers), Tr. V. 6, p. 223 (Brown). However, the PIIC noted that two unpermitted releases of excess radioactive tritium to groundwater occurred recently -- in November 2011 and February 2012. PIIC Reply Comments, pp. 8-9.

The prior record assumed that cancer increase in persons living in the vicinity of a nuclear power plant could not be demonstrated, based in part on a 1990 National Cancer Institute survey. However, as noted in the PIIC's comments, a report recently prepared by the National Academy of Sciences ("NAS") at the request of the Nuclear Regulatory Commission concluded

that the previous cancer survey study method had “several limitations” that might prevent detection of cancer morbidity resulting from radiation exposures.¹ The NAS report recommended additional study of cancer risks in the vicinity of nuclear plants using better estimates of exposures and more sophisticated incidence measures.

The Fukushima incident also constitutes a changed circumstance requiring a hard look at the compatibility of the uprate with protecting the natural and socioeconomic environments. The increased temperature of fuel for the proposed uprate and the requirement that such fuel spend a longer time in the spent fuel pool highlight incremental additional risks posed by the Nuclear Plant uprate.

4. Changed Circumstances Confirm the Uprate is Not in the Public Interest.

No need has been demonstrated for an uprate at the Prairie Island Nuclear Plant, any economic benefit to ratepayers is uncertain and the uprate poses an increased risk to the natural and socioeconomic environments, including human health. In addition, it is contrary to the public interest to impose disproportionate health risks on an environmental justice community. The DOC comments did not consider any public interest issues not already captured in the PVSC. However, in its Petition, Xcel suggested that Commission review was needed to confirm that the project remains in the public interest. Xcel Petition, cover letter and pp. 7, 21.

Both federal and state environmental justice policies prohibit actions placing a disproportionate share of the negative consequences of industrial activities on low-income and minority groups, including Tribes. See Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994); Minnesota

¹ National Academy of Sciences, *Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase I* (National Academic Press; 2012), p. 1.2

Pollution Control Agency, *Incorporating Environmental Justice Principles and Practices into Minnesota Pollution Control Agency Operations* (2008);² Minnesota Department of Transportation, *Mn/DOT's Environmental Justice Draft Guidance* (1998)³.

The FEIS recognized that “the Prairie Island Indian Community (PIIC) is a community of persons for whom there are environmental justice concerns.” Ex. 64, Ch. 2, p. 44 (FEIS). The FEIS also recognized that under normal operations radioactive exposures at the Nuclear Plant “create a small incremental risk that the PIIC will bear differently from other communities.” *Id.* Although the FEIS, prepared prior to the Fukushima incident, perceived that the probability of an incident at the Nuclear Plant or spent fuel storage facility was expected to be very low, the uncertainty of risk is “most directly felt” by those communities surrounding the Plant – the PIIC and the City of Red Wing. The FEIS acknowledged, “this uncertainty may be associated with socio-psychological impacts.” *Id.*

In light of the recent NAS report, incremental involuntary lifetime cancer risks resulting from the proposed Nuclear Plant uprate should be viewed with more concern. In addition, after the Fukushima Daiichi radiation releases, socio-psychological impacts to communities surrounding the Nuclear Plant have certainly been exacerbated.

CONCLUSION

The PINGP Study Group appreciates Xcel Energy’s effort in filing its Petition for Changed Circumstances and the Company’s willingness to consider that a variety of changes in timing, expected output, load forecasts, the costs of alternative resources and uncertainties in federal licensing “could combine to lead to a determination that the uprate program is not cost-

² Available at <http://www.pca.state.mn.us/publications/p-gen5-01.pdf> (last visited July 12, 2012).

³ Available at <http://www.pca.state.mn.us/publications/p-gen5-01.pdf> (last visited July 12, 2012).

effective for our customers and should not be further pursued.” Xcel Petition, p. 1. From the perspective of the PINGP Study Group and the citizens we represent, the Nuclear Plant uprate is not needed, is of questionable economic benefit to ratepayers, would create certain incremental adverse impacts on the environment and human health and would impose a disproportionate adverse impact on an environmental justice community. For all of these reasons, the uprate is contrary to applicable statutes and rules, is contrary to the broader public interest and should be rejected.

If the Commission is considering approving the uprate despite significant and pertinent public interest risks, the PINGP Study Group believes that a contested case proceeding is necessary to evaluate modeling assumptions as well as changed forecasts and changed circumstances.

Dated: July 18, 2012

Respectfully submitted,

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