

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

**Northern States Power Company
Advanced Determination of Prudence
Prairie Island Nuclear Plant – Life Extension &
Extended Power Uprate
Application**

Case No. PU-10-127

**STAFF RESPONSE TO NORTHERN STATES POWER COMPANY'S
APPLICATION FOR ADVANCED DETERMINATION OF PRUDENCE**

Staff Conclusion

Staff believes NSP's proposal to extend the life of its Prairie Island Unit 2 nuclear generator is reasonable and agrees that continuing to operate Prairie Island for another 20 years is in the best interest of North Dakota ratepayers. The steam generator replacement of Unit 2 is scheduled to occur in 2013 and the commission should grant an Advance Determination of Prudence (ADP).

Background Information

NSP has operated its 600 megawatt Monticello nuclear unit since 1970 and its two Prairie Island nuclear units of 550 megawatts each since 1973 in a safe and reliable manner. The average capacity factor for these nuclear facilities is 90%; providing approximately 28% of NSP's electrical energy needs for its Upper Midwest operations.

On April 19, 2010, Northern States Power Company (NSP) filed an application for ADP for two significant investments in its Prairie Island Nuclear Generating Plant (Prairie Island) located near Red Wing, Minnesota. The plan includes replacing the

steam generator for Unit 2 (\$259 million) and expanding capacity by a total of 164 megawatt's for Units 1 and 2 (\$330 million) referred to as an Extended Power Uprate (EPU). Prairie Island's Unit 1 steam generator was replaced in 2004.

On January 31, 2012, NSP requested that the application be suspended so it could provide an update to its original application and a more complete evaluation of the prudence of going forward with the EPU portion of the application.

On June 5, 2012, NSP provided an update requesting that the consideration of ADP move forward for the replacement of the Unit 2 steam generator and postpone consideration of the EPU. The request to postpone the EPU portion was predicated on a number of factors including additional design and development work now required by the Nuclear Regulatory Commission (NRC) prior to filing a license amendment request; uncertainty regarding when the NRC would approve the license amendment; smaller capacity needs; higher cost estimates for the project; lower forecasts for load growth; and more competitive alternatives due to lower forecasted natural gas prices. The update also included a new cost estimate adding \$29 million to the initial estimate for replacing the Unit 2 steam generator or a total cost of \$288 million.

On October 23, 2012, NSP filed with the commission its Supplemental Filing that it made with the Minnesota Public Utilities Commission (MPUC) suggesting that the EPU not go forward because the added risks of doing so outweighed the expected benefits. NSP has already invested \$71 million towards the EPU project and recognizes that the MPUC may account for various risks and benefits differently requiring them to proceed with the project anyway. Because NSP's North Dakota ADP

application has been reduced to only include the life extension project of Prairie Island's Unit 2, further consideration of what the Minnesota commission does or doesn't do with the EPU is of no concern at this time.

Staff's Review

While NSP is only asking for an ADP for its Unit 2 steam generator replacement, it should be noted that other significant costs will be incurred throughout the next 20 years of the generator's life. The total cost of the steam generator replacement is estimated to cost \$288 million whereas the total Prairie Island life extension plan will cost nearly a billion dollars. These other costs include additional dry cask storage for spent fuel, routine capital improvements and life cycle management over the life of the plant. While the application only requests an ADP for the more fixed certain cost of steam generator replacement, the full extent of the project should be recognized.

The estimated cost of the Prairie Island life extension project results in a levelized cost of 7 cents per kWh for Prairie Island compared to 9 cents per kWh for the next lowest alternative of a new generic coal plant without CO₂ sequestration. NSP's cost estimates for a green field coal plant are comparable with those of Big Stone 2; a brown field site familiar to the commission. Finally, the infrastructure already in place (including a relatively new steam generator in Unit 1) at Prairie Island clearly argues for life extension of Prairie Island's Unit 2.

As the commission considers this ADP application, it should weigh the risks inherent in operating a nuclear power plant before granting an advance determination of prudence. These risks include structural safety, environmental concerns, regulatory

uncertainty, waste storage, financial risks, delays that add to capital carrying costs and so on. These risks are tightly interconnected and one failure in any area can be expensive or even lead to a cancelled project.

Under North Dakota's ADP Statute, a commission decision to grant an advance determination of prudence places the Company's North Dakota ratepayers at risk for the cost of a failed project. In this case, NSP has already received the critical licenses needed to proceed and so staff believes that the risk of cancellation is small.

According to past testimony before the commission, the granting of an ADP improves access to lower cost of capital and therefore results in lower costs to ratepayers. In this case, North Dakota's allocation of the plant investment is less than 5% and NSP's other jurisdictions do not have similar ADP statutes. Staff requested that NSP provide savings estimates that will accrue to North Dakota ratepayers in the event ADP is granted by the commission. NSP responded that the inherent savings of an approved ADP application does not lend itself to an empirical calculation. However, it argues that the regulatory climate and the decisions of the various state and federal regulatory authorities it is subject to are significant factors considered by credit agencies when determining credit risk and the rating of a utility. The commission will need to decide if the value of granting an ADP exceeds the downside of granting it.

There has been a renewed interest in building nuclear generation facilities over the last decade. However, the recent catastrophe in Japan has resulted in a call for more reviews of the structural safety of nuclear plants.

According to the U.S. Nuclear Regulatory Commission's (NRC) website, the September 11, 2001 terrorist attacks resulted in changes in plant designs and operating practices in the U.S. to mitigate severe scenarios including a direct hit by a large commercial aircraft. In addition, potential seismic, tsunami and hurricane events are planned for in nuclear designs including the complete loss of offsite power and all on-site emergency power sources. Given the stringent U.S. nuclear designs, Prairie Island's location in the middle of the country and the low probability of seismic activity; the structural safety of Prairie Island is about as good as it gets. While the U.S. nuclear community is reviewing the Japanese crisis for applicability to U.S. nuclear facilities, staff believes the additional review and scrutiny will not become a problem for Prairie Island.

Given our past experience with Big Stone 2 and the regulatory opposition that ensued, staff's primary concern from the start was whether or not NSP could gather the necessary approvals from the MPUC and the NRC to facilitate the completion of these projects. Since the filing of its application, these approvals have been attained.

The ADP law requires annual reporting requirements until commercial operation of the resource addition. The annual reports should notify the commission of any significant developments during construction and provide explanations for any significant cost deviations and time delays.



Mike Diller, Director of Economic Regulation
November 8, 2012