

Supplemental Direct Testimony and Schedules
Scott L. Weatherby

Before the Minnesota Public Utilities Commission
State of Minnesota

In the Matter of the Application of Northern States Power Company
for Authority to Increase Rates for Electric Service in Minnesota

Docket No. E002/GR-15-826
Exhibit____(SLW-1)

**Prairie Island Nuclear Generating Plant
Life Cycle Management Capital Expenditures**

January 29, 2016

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1 **I. INTRODUCTION**

2
3 Q. PLEASE STATE YOUR NAME AND OCCUPATION.

4 A. My name is Scott L. Weatherby. I am Vice President of Nuclear Finance and
5 Business Planning for Northern States Power Company (Xcel Energy or the
6 Company).

7
8 Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.

9 A. I have over 35 years of experience with finance, accounting, and auditing, and
10 33 years of experience within the utility industry. I joined the Company in
11 1992, and prior to that I was an audit manager with a national public
12 accounting firm, specializing in the utility and energy industry. In my current
13 role, I am responsible for the financial management functions for all nuclear
14 activities at the Monticello and Prairie Island generating plants, and for
15 common fleet functions serving all Nuclear operations. These functions
16 include budgeting, forecasting, accounting, and reporting. A summary of my
17 qualifications is included as Exhibit___(SLW-1), Schedule 1.

18
19 Q. DID YOU PROVIDE DIRECT TESTIMONY IN THIS PROCEEDING?

20 A. No. However, I have provided testimony in past Company rate cases
21 regarding financial and accounting matters related to the Prairie Island
22 Extended Power Uprate (EPU) program. Specifically, I supported the
23 accounting treatment of the EPU program costs before and after the
24 Certificate of Need for that program was withdrawn. As part of the
25 Company's last electric rate case, the Commission approved recovery of the

1 EPU regulatory asset over the life of the plant, with a debt-only return on the
2 asset.¹

3
4 Q. WHY ARE YOU PROVIDING TESTIMONY IN THIS PROCEEDING?

5 A. I provide testimony in response to Order Point 3 of the Commission's
6 December 22, 2015 Order, which requires the Company to file supplemental
7 testimony and schedules that:

8
9 a) Describe and compare projected and actual Life Cycle Management
10 costs (and, to the extent relevant, Extended Power Uprate costs)
11 from 2008 through 2020 by generating unit and year, including the
12 proposed 2016 test year in this rate case, and the 2017 and 2018
13 plan years. The descriptions and comparisons should include all
14 changes and updates to projected costs from 2008 on and should
15 include all cites to relevant certificate of need, resource plan, and
16 general rate case dockets.

17
18 b) Compare the relevant parts of the proposed 2016 test year, the
19 2017 plan year, and the 2018 plan year to the proposed five-year
20 capital budget in the Company's pending resource plan, docket E-
21 002/RP-15-21.

22
23 My testimony provides the actual and forecasted financial information for
24 Prairie Island Life Cycle Management (LCM) costs required by the December
25 22 Order. As appropriate, my testimony also provides explanations and
26 descriptions of changes to the capital expenditure projections for the LCM
27 projects at Prairie Island. Company witness Mr. Christopher B. Clark
28 introduces and provides the general purpose of the other witnesses submitting
29 supplemental testimony in response to the Commission's Order.

30

¹ *In re the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E002/GR-13-868, FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER at 32-33 (May 8, 2015).

Q. DO YOU HAVE ANY INITIAL OBSERVATIONS ABOUT THE DECEMBER 22 ORDER?

A. Yes. The December 22nd Order requires us to provide LCM project costs for Prairie Island by unit (*i.e.*, Unit 1 and/or Unit 2). Due to the way in which we have set up our capital asset records, we track, report, and depreciate Unit 1 and 2 as a single plant. This is no different than how we have set up our capital asset records for our other multi-unit plants of a similar vintage as Prairie Island Units 1 and 2. Examples include Sherco Units 1 and 2 and the Black Dog units. For this reason, I can provide data specific to Prairie Island LCM as a whole, but cannot provide specific Prairie Island LCM costs by unit.

Q. WHERE IN YOUR TESTIMONY DO YOU PROVIDE INFORMATION REQUIRED BY THE DECEMBER 22ND ORDER?

A. The following summarizes the location in this testimony of the required information.

Table 1

Requirement	Location in Testimony
Descriptions of projected and actual LCM costs from 2008 through 2020 including 2016-18 test years	<ul style="list-style-type: none">• Narrative format – Sections II and III• Table summary – Schedule 2
To the extent relevant, Extended Power Uprate costs from 2008 through 2020 including 2016-18 test years	Not applicable. EPU costs were separated in projections used in various proceedings and are not relevant to LCM comparisons in this case.
Comparisons of projected and actual LCM costs from 2008 through 2020 including 2016-18 test years	<ul style="list-style-type: none">• Schedule 2 – Comparison of LCM projections among 2008 Certificate of Need, 2012 Changed Circumstances, and 2015 Resource Plan filing• Schedules 3-4 – Comparison of LCM projections between 2008 Certificate of Need and 2008 rate case filings
Cites to relevant certificate of need, resource plan, and general rate case dockets.	Docket numbers and page references provided in footnotes throughout testimony
Comparison of the relevant [LCM] parts of the proposed 2016-18 test years in this rate case to the proposed five-year capital budget in the Company's pending resource plan	Schedule 6 - Comparison of LCM projections for 2016-20 in the 2015 rate case filing and the latest projections in pending Resource Plan docket

1 Q. PLEASE SUMMARIZE YOUR SUPPLEMENTAL DIRECT TESTIMONY.

2 A. At the outset, the Company notes that its capital costs for Prairie Island are
3 higher today than the expenditures it forecasted as part of the 2008 Certificate
4 of Need. This is true for the immediate three-to-five-year period beginning in
5 2016, which is the subject of this rate case proceeding, but even more so for
6 the 2021-2034 time period, which is beyond the scope of this rate case. With
7 my testimony, I explain that what is driving the difference between our 2008
8 projections capital expenditures for the years 2016-2020 and our current
9 forecast for that period is (1) performing more mandated compliance capital
10 projects than we expected in 2008, (2) increasing costs for LCM projects.

11
12 My testimony also provides additional data and analysis that support several
13 key conclusions.

14
15 First, for the years 2008 through 2015, total capital expenditures for Prairie
16 Island are lower than the projections for that period included in the 2012
17 Change Circumstance filing.²

18
19 Second, when compared to the total Prairie Island capital expenditures
20 modeled in our 2012 Changed Circumstance filing, our cost projections for
21 the period 2016-2020 are approximately \$175 million higher than our 2012
22 estimates of total plant capital expenditures for that period; half of that
23 overage is for LCM projects, the other half is for mandated compliance work.

24

2 ² Total capital expenditures include all non-fuel capital groupings, as discussed later in this testimony.

1 Third, our actual Prairie Island LCM spend from 2008 to 2015 is
2 approximately \$55 million lower than our cost estimates for that period, as
3 modeled in the 2012 Changed Circumstances filing.

4
5 Fourth, the majority of LCM capital expenditures incurred by Prairie Island –
6 and the largest LCM projects – from 2008 to 2015 have been reviewed and
7 approved by the Commission in the Company's rate cases during that period.

8
9 Finally, we have experienced a shift in our cost structure from that anticipated
10 in our earlier estimates, such that we are now expecting more capital costs for
11 Prairie Island over its life than we anticipated earlier but less fixed operating
12 and maintenance (Fixed O&M) expenses. The lower Fixed O&M costs we are
13 now anticipating relative to our 2008 and 2012 modeling estimates more than
14 offsets the increased capital cost estimates.

15
16 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

17 A. I present my testimony in the sections outlined below:

- 18 • Section II – Overview of Prairie Island Expenditures
- 19 • Section III – Accounting for LCM projects at Prairie Island
- 20 • Section IV – LCM Costs in Prior Regulatory Filings
- 21 • Section V - Comparisons of Estimated and Actual LCM Costs
- 22 • Section VI – Conclusion

23
24 **II. OVERVIEW OF PRAIRIE ISLAND EXPENDITURES**

25
26 Q. HOW DOES THE RESOURCE PLAN DISCUSSION OF INCREASED CAPITAL COSTS
27 AT PRAIRIE ISLAND TIE TO THE RATE CASE?

1 A. In the Company's October 2, 2015 Integrated Resource Plan (IRP) Reply
2 Comments, we told the Commission that we expect Prairie Island's total plant
3 capital expenditures to be higher from 2016 through 2034 when compared to
4 the capital expenditure projections included in the 2012 Changed
5 Circumstance filing. Specifically, we expect capital expenditures to increase by
6 \$175 million for the period from 2016-2020 and \$600 to 900 million for the
7 period 2021 through 2034.³ Since the rate case addresses either three years
8 (2016-2018) or five years (2016-2020), the \$600 to 900 million in projected
9 cost increases for 2021-2034 falls outside the term of the current rate case.

10
11 In the 2015 IRP Reply Comments, we also indicated that we expected capital
12 expenditures to increase by \$175 million for the period from 2016-2020,
13 which are the subject of the current rate case.

14
15 Q. ARE YOU ANTICIPATING SIMILAR INCREASES IN YOUR FIXED OPERATING AND
16 MAINTENANCE EXPENSE COST PROJECTIONS FOR PRAIRIE ISLAND?

17 A. No, just the opposite. Since 2011, we are no longer anticipating the level of
18 escalation in our Fixed O&M costs that we modeled in our 2008 Certificate of
19 Need filing. As a result, while our capital expenditure forecast has increased
20 from earlier estimates, our Fixed O&M cost forecasts in our recent Resource
21 Plan estimates have decreased from earlier estimates in our 2012 Changed
22 Circumstances modeling and our 2008 projections⁴.

23
24 Q. WHY DID THE COMPANY USE THE 2012 CHANGED CIRCUMSTANCE FILING AS
25 THE COMPARISON FOR CAPITAL EXPENDITURES AT PRAIRIE ISLAND?

³ *In re Xcel Energy's 2016-2030 Integrated Resource Plan*, Docket No. E002/RP-15-21, Xcel Energy Reply Comments at 13 (Oct. 2, 2015) (IRP Reply Comments).

1 A. We believe the capital expenditure information included in the 2012 Changed
2 Circumstance filing provided a better benchmark than the financial
3 information included in the 2008 Certificate of Need because it is more
4 current and reflects a better understanding of all of our capital expenditures at
5 Prairie Island, including LCM.

6
7 Q. HOW DO THE COMPANY'S 2015 IRP CAPITAL EXPENDITURES TO DATE
8 COMPARE TO THE CAPITAL EXPENDITURE FORECAST INCLUDED IN THE 2008
9 CERTIFICATE OF NEED?⁵

10 A. In the 2008 Certificate of Need, we expected to spend \$1.2 billion for capital
11 projects at Prairie Island from 2008 through the end of the plant's extended
12 operating license life (i.e., 2034). For the period 2008 through 2015, Prairie
13 Island has spent about \$200 million less than the \$1.2 billion estimate on a
14 total plant basis, which includes all capital expenditures other than EPU.⁶

15
16 Q. WHAT IS DRIVING THE INCREASE IN PRAIRIE ISLAND CAPITAL EXPENDITURES
17 FOR THE YEARS IN THIS RATE CASE, 2016-2020?

18 A. The Company is expecting to spend more on the mandated compliance work
19 required by the NRC, consistent with recent experience, and on LCM work
20 during that period. I discuss the LCM cost increases in the later sections of
21 my testimony.

22
23 Q. WHY HAVE YOU EXPERIENCED AN INCREASE IN YOUR CAPITAL SPEND FOR
24 MANDATED COMPLIANCE?

⁵ Certificate of Need Application at Section 4.7.1.1.

⁶ The \$1.2 billion estimate in 2008 excluded EPU cost projections. As discussed in our rate case filed in 2013, EPU costs actually incurred prior to termination were \$79 million, including expenditures and AFUDC. *See* Docket No. E002/GR-13-868, Weatherby Rebuttal at 3.

1 A. In 2008, our cost modeling was based on Prairie Island's historical experience
2 with mandated compliance costs, which had been fairly small in the prior five
3 years 2003-2007 (generally less than \$1 million per year). Going forward, we
4 expected our mandated compliance spend to consist mainly of about \$13
5 million in costs associated renewing the NRC operating license for Prairie
6 Island. Since that time, NRC mandates have evolved and grown (fire
7 protection, plant security, cybersecurity)—and whole new sets of significant
8 mandates have emerged (Fukushima).

9
10 Q. FROM A FINANCIAL MANAGEMENT PERSPECTIVE, CAN YOU WALK THROUGH
11 THE CHANGES IN YOUR MANDATED COMPLIANCE COST ESTIMATES AS
12 REFLECTED IN YOUR COST PROJECTIONS FROM 2008, 2012, AND TODAY?

13 A. Yes. In 2008, as outlined above, our cost modeling was based on Prairie
14 Island's historical spend which was generally less than \$1 million per year. We
15 increased those estimates based on our understanding that mandated
16 compliance costs would increase somewhat due to costs for the pending
17 license renewal.

18
19 Our 2012 estimates started to reflect the changing regulatory environment
20 which was characterized by an increasing number of NRC plant inspections
21 and evolving regulatory requirements for fire safety and plant security
22 (including cybersecurity). Our 2012 estimates also included placeholders for
23 new regulations growing out of the Fukushima Daiichi nuclear disaster that
24 occurred in March 2011. The NRC did not issue orders on post-Fukushima
25 external event preparedness until spring of 2012, and did not require
26 compliance plans from nuclear operators until 2013.

1 The full scope of the NRC mandates around fire safety, security and
2 Fukushima are reflected in our current budgets for 2016-2020, as included in
3 this rate case and the pending resource plan docket.
4

5 Q. CAN YOU PROVIDE MORE INFORMATION ON THE MANDATED COMPLIANCE
6 PROJECTS YOU HAVE COMPLETED TO DATE?

7 A. For the period 2008-2015 (including the rate case forecast for 2015), Prairie
8 Island incurred capital expenditures for mandated compliance projects of over
9 \$214 million. Of that amount, license renewal requirements and commitments
10 cost \$69 million, fire protection projects cost nearly \$49 million, Fukushima
11 programs cost nearly \$43 million, and security requirements cost about \$30
12 million. A summary of all mandated compliance capital expenditures for
13 Prairie Island for the period 2008-2015 is provided at Exhibit ____ (SLW-1)
14 Schedule 7.
15

16 Q. WHAT ARE THE MANDATED COMPLIANCE PROJECTS FOR WHICH YOU SEEK
17 RECOVERY IN THE CURRENT RATE CASE?

18 A. For the period 2016-2020, our forecast of Prairie Island capital expenditures
19 for mandated compliance projects is \$89 million. Of that amount, complying
20 with NRC requirements for fire protection is expected to cost over \$51
21 million, Fukushima programs are projected to cost over \$10 million, security
22 upgrades are anticipated to cost nearly \$10 million, and tornado protection
23 requirements are forecast to cost \$7 million. A summary of all mandated
24 compliance capital expenditures for Prairie Island for the period 2016-2020 is
25 provided at Exhibit____(SLW-1), Schedule 8.
26

III. ACCOUNTING FOR LCM PROJECTS AT PRAIRIE ISLAND

Q. WHAT CAPITAL BUDGET GROUPINGS ARE USED BY NUCLEAR TO CATEGORIZE AND TRACK ITS CAPITAL PROJECTS AT PRAIRIE ISLAND?

A. As noted in the Direct Testimony of Mr. O'Connor, we currently use six capital budget groupings for project work other than fuel reloadings:

- *Dry Cask Storage* is work associated with on-site dry spent fuel storage and loading campaigns, including the Independent Spent Fuel Storage Installation (ISFSI) and related NRC-mandated aging management programs given the lack of a permanent federal repository for spent fuel.
- *Mandated Compliance* includes regulatory, security, and license commitment activities required by Federal or state regulators (normally the NRC), including industry commitments made to the NRC.
- *Reliability* activities improve equipment reliability or reduce maintenance activities, and include life cycle management programs and projects.
- *Improvements* include activities that improve system and equipment performance and operation (for example, digital upgrades), and can reduce O&M costs.
- *Facilities & General* includes facility work such as building improvements, roof replacements, road repairs and general plant additions such as small tools and equipment.
- *Strategic* work involves large and unique projects intended to support and enhance the operations of our plants over their useful lives. An example of a Strategic project is the Prairie Island Steam Generator replacement.

1 Q. HOW DOES THE COMPANY DEFINE “LCM”?

2 A. As Mr. O’Connor discusses in his Supplemental Direct Testimony in more
3 detail, LCM for a nuclear plant relates to aging management and ensuring that
4 existing systems and equipment can continue to support plant operations even
5 after a plant’s life is extended beyond the term of its initial operating license.
6 LCM does not have its own capital budget grouping, but is included within the
7 Reliability and Improvement groupings as I discuss later.

8
9 Q. DO YOU HAVE ANY PRELIMINARY OBSERVATIONS ABOUT TRACKING LCM
10 PROJECTS?

11 A. Yes, at the outset it is important to keep in mind that LCM projects are part of
12 an overall effort to maintain the reliable, safe and effective operation of plant
13 systems and equipment. LCM projects are usually undertaken as the plant
14 ages, and are a critical part of the comprehensive effort to extend the
15 operational life of a plant to support an extended operating license (e.g.,
16 Prairie Island’s 20-year extension resulted in an extended operating license to
17 2033-2034). LCM may also be completed in conjunction with a power uprate
18 project (*i.e.*, EPU). Generally, speaking, however, LCM work is completed
19 through hundreds of small, medium and large capital projects performed to
20 maintain the material condition of a nuclear generating unit.

21
22 Q. HOW DID THE COMPANY ACCOUNT FOR LCM PROJECTS AT MONTICELLO?

23 A. Given the age of the plant at the time, a large portion of Monticello’s LCM
24 work was done in conjunction with the Monticello EPU project. The purpose
25 of combining the EPU and LCM work at Monticello was to avoid the need to
26 access and repair or replace the same pieces of equipment twice: once to
27 modify the equipment to run at an uprated capacity and again to address aging

1 issues when they arose. Since the EPU/LCM project at Monticello was done
2 on an integrated project basis, we set up work orders by equipment or project
3 type, and did not establish separate EPU versus LCM work orders. We set up
4 individual work orders for EPU/LCM work at Monticello, and then rolled up
5 all of the EPU/LCM work orders to a large, combined EPU/LCM parent
6 work order.

7
8 Q. DID THE COMPANY FOLLOW THE SAME APPROACH FOR PRAIRIE ISLAND?

9 A. Initially, yes, but ultimately, no. Prior to the termination of the EPU at Prairie
10 Island, we had grouped individual EPU/LCM work orders to roll up to a
11 parent work order for the combined EPU/LCM project. After the
12 termination of the project in 2012, however, we segregated EPU related costs
13 from continuing LCM work in separate work orders. Consequently, the
14 Prairie Island LCM work has not been completed as part of a broader EPU
15 project. Instead, Prairie Island's LCM work has proceeded through the
16 completion of hundreds of discrete projects tracked by work orders that stand
17 alone. In other words, Prairie Island LCM work orders do not roll up to a
18 single, overarching parent.

19
20 Q. WHAT ARE THE CAPITAL BUDGET GROUPINGS IN WHICH LCM PROJECTS ARE
21 FOUND FOR PRAIRIE ISLAND?

22 A. LCM projects are typically included in the broader Reliability capital budget
23 grouping, with some in the Improvement capital budget grouping.
24 Accordingly, in referring to our tracking of LCM projects in this Supplemental
25 Testimony, we have used the Reliability and Improvement capital budget
26 groupings to quantify LCM project costs. Additionally, the Unit 2 Steam
27 Generator was an LCM project that, because of its size and scope, was not

1 placed in either the Reliability or Improvements grouping; rather, it was
2 tracked as a standalone Strategic project, consistent with the grouping
3 descriptions I discussed earlier.
4

5 Q. HOW HAS THE COMPANY TRACKED LARGER, SPECIFIC LCM PROJECTS, LIKE
6 THE UNIT 2 STEAM GENERATOR?

7 A. The Unit 2 Steam Generator was identified as a key capital project in our 2008
8 Certificate of Need. The increased cost of the Steam Generator project
9 through its completion in 2013, as compared to earlier estimates, was
10 previously examined by the parties and approved by this Commission in our
11 2013 rate case.⁷ By way of summary, in our 2008 Certificate of Need we
12 initially anticipated the project's capital expenditures (without AFUDC) would
13 be \$259 million in escalated dollars;⁸ we were approved for recovery of capital
14 additions (with AFUDC, excluding RWIP) of \$285 million as set forth in our
15 2013 rate case; we provided updated costs of \$280 million for additions in our
16 2014 rate case;⁹ and the final project additions, net of vendor credits, was \$276
17 million. The project's final capital expenditures (comparable to the 2008
18 estimate) were \$272 million, as shown on Exhibit___(SLW-1), Schedule 2.
19

20 Q. HOW CAN YOU BE CONFIDENT THAT YOU CAPTURED ALL OF THE LCM
21 PROJECTS AT PRAIRIE ISLAND?

⁷ *In re Application of Northern States Power Company for Authority to Increase Rates for Electrical Service in the State of Minnesota.*, Docket No. E002/GR-12-961, ALJ FINDINGS OF FACT, CONCLUSIONS, AND RECOMMENDATION at ¶¶561-564 (July 3, 2013); *In re Application of Northern States Power Company for Authority to Increase Rates for Electrical Service in the State of Minnesota.*, Docket No. E002/GR-12-961, FINDINGS OF FACT, CONCLUSIONS, AND ORDER at Order Point 2 (Sept. 3, 2013) (accepting the ALJ's recommendation).

⁸ Certificate of Need Application at Section 4.4.1.1.

⁹ Docket No. E002/GR-13-868, O'Connor Direct at Schedule 8.

1 A. The definition of LCM projects provided by Company witness Mr. O'Connor
2 aligns closely with the Reliability and Improvement budget groupings used by
3 Nuclear. As explained by Company witness Mr. Greg Robinson, the
4 Company has a comprehensive budgeting process, in which each business unit
5 establishes the capital groupings that relate to its operations. The Nuclear
6 business unit has selected its six capital project groupings, as I discussed
7 earlier, and our Reliability and Improvements groupings include our LCM
8 work. I would also note that for purposes of our analysis in this testimony we
9 used the *entire* Reliability and Improvement groupings to compare our actual
10 expenditures to forecasted capital spend. By doing so, we believe we have
11 been conservative in our comparative analyses since most, but not all,
12 activities in the Reliability and Improvements fall within the definition of
13 LCM. We are also using those groupings in our rate case budgets for 2016-
14 2020 to track future LCM expenditures.

15 16 IV. LCM COSTS IN PRIOR REGULATORY FILINGS

17 18 A. 2008 Certificate of Need

19 Q. WHY DID THE COMPANY FILE A CERTIFICATE OF NEED IN 2008 FOR PRAIRIE
20 ISLAND?

21 A. The Company had two reasons for filing a Certificate of Need in 2008 for
22 Prairie Island. First, the Company wanted to extend the life of the plant an
23 additional 20 years, which required additional storage of spent fuel. Under
24 Minnesota law, a Certificate of Need is required to store additional spent fuel
25 at the plant. Second, the Company sought to increase the production capacity
26 of the plant through an Extended Power Uprate (EPU). Due to the size of
27 the EPU, the Company needed a Certificate of Need from the Commission to

1 proceed. Therefore, the Company filed the joint Application for Certificates
2 of Need for Additional Dry Cask Storage¹⁰ and for an Extended Power
3 Uprate¹¹ on May 16, 2008.
4

5 Q. DID THE COMPANY SEEK A CERTIFICATE OF NEED FOR LCM PROJECTS?

6 A. No, it is my understanding that a Certificate of Need is not required for LCM
7 work under Minnesota law. We included in our financial modeling in the 2008
8 Certificate of Need high-level cost estimates for capital spend (including LCM
9 spend) through end of life because we were statutorily required to address
10 “the impacts of continued operations.”¹²
11

12 Q. WHY DO YOU DESCRIBE THE COSTS FOR THE LCM PROJECTS AS HIGH-LEVEL
13 ESTIMATES?

14 A. There are several reasons. Long-term capital cost and Fixed O&M projections
15 of the type included in the 2008 Certificate of Need attempt to estimate costs
16 far into the future. Though we leverage our historical experience and utilize
17 our best judgment, we are working with limited information. For example, we
18 cannot predict the precise operational and maintenance or capital needs of a
19 Nuclear plant decades into the future (or when those needs will arise).
20 Second, at the time of a Certificate of Need or Resource Plan, we frequently
21 have not undertaken detailed engineering or planning for individual projects
22 that will be completed several years – even decades – later. Third, even if we
23 could perfectly predict the plant’s long-term aging management needs, we
24 generally cannot predict the precise costs of a construction project in future
25 years, the availability and cost of equipment, the impact of technology

¹⁰ Docket No. E002/CN-08-510.

¹¹ Docket No. E002/CN-08-509.

¹² Minn. Stat. 216.243, subd. 3(b).

1 innovation, future regulatory requirements, and general industry issues like
2 scarcity of resources. As such, we attempt to be clear in each Certificate of
3 Need and Resource Plan filing that we can only estimate future costs based on
4 the information known at the time, typically historical trend estimates, and
5 that our projections are high level.

6
7 By contrast, rate case estimates cost out near-term projects that have the
8 benefit of clearly identified scopes of work, detailed engineering specifications,
9 and – at times – firm vendor contracts.

10
11 Q. WHAT WERE THE 2008-2020 COSTS FOR LCM PROJECTS PRESENTED AND
12 FORECASTED IN THE 2008 CERTIFICATE OF NEED?

13 A. The Certificate of Need discussed LCM in the body of the Application and
14 forecasted it by year in the associated Strategist modeling. I have outlined the
15 cost projections described in the Application and used in modeling below:

16
17 **Table 2**

Categories of LCM Costs Modeled in 2008 CON	LCM Cost estimate described in CON (unescalated unless noted)	Modeled LCM Costs for 2008-2020 (escalated)
Routine Capital - LCM	\$20 million/year (total for both units)	\$317.1 million
Large Capital - Steam Generator	\$259 million (escalated)	\$254.6 million
Non-EPU related LCM included in other Large Capital	Not quantified, but included in remainder of \$600 million Large Capital that was not specified	\$103.8 million
EPU-related LCM	Described but not quantified	\$99.1 million
Total LCM costs		\$774.6 million

25
26 The initial estimate of EPU-related LCM costs for purposes of the Certificate
27 of Need Application in 2008 included LCM work limited to replacement of

1 the high-pressure turbines, rewinding or replacement of the main generators,
2 replacement of the generator step-up transformers, and upgrading of the
3 isophase bus duct cooling system.

4
5 Exhibit___(SLW-1), Schedule 2 provides a summary of the Prairie Island
6 LCM capital expenditure estimates for the periods 2008-2020, including the
7 amounts noted above.

8
9 **B. 2012 Changed Circumstance Filing**

10 Q. WHAT IS THE 2012 CHANGED CIRCUMSTANCE FILING?

11 A. On March 30, 2012, the Company filed a Notice of Changed Circumstances
12 regarding the Prairie Island Extended Power Uprate Petition. In it, the
13 Company informed the Commission of changed circumstances that would
14 likely impact the Commission's previous decision that the Prairie Island EPU
15 was in the public interest.

16
17 Q. WHY DID THE COMPANY FILE THE 2012 CHANGED CIRCUMSTANCE FILING?

18 A. As explained in the filing, the Company submitted the Changed
19 Circumstances petition pursuant to a Minnesota rule¹³ that requires a utility to
20 inform the Commission of changed circumstances that may affect a change in
21 the size, type, timing or ownership of a large generation facility previously
22 certified by the Commission. In the filing, the Company explained that
23 changes in its load forecast, the costs of alternative resource options, federal
24 license uncertainties, and changes in the timing and size of the uprate reduced
25 the potential benefits associated with the project.

26

¹³ Minn. R. 7849.0400, Subp. 2(H).

1 Q. HOW DID THE 2012 CHANGED CIRCUMSTANCE FILING IMPACT THE
2 COMPANY'S EPU AND LCM EFFORTS AT PRAIRIE ISLAND?

3 A. Prior to the filing in March 2012, the Company had suspended work on the
4 combined EPU/LCM project at Prairie Island due to a number of changing
5 circumstances that we felt should be considered by the Commission prior to
6 proceeding further. The 2012 filing included an estimate of LCM work that
7 was previously associated with the EPU project, and that would continue if
8 the EPU was terminated. The 2012 filing also anticipated that, given the delay
9 from suspending the project in 2011 pending a decision on how to proceed
10 given the changed circumstances, LCM work would be done later than the
11 2008 Certificate of Need anticipated.

12
13 In addition, since the 2008 Certificate of Need was filed, the previously EPU-
14 related LCM was more fully scoped. Our estimates also better reflected the
15 evolving needs of the plant's equipment and systems, and the industry as a
16 whole. The 2012 filing therefore included higher EPU-related LCM cost
17 estimates for the period 2008-2012 in comparison to the 2008 filing.

18
19 Accordingly, our 2012 Change in Circumstances update increased the amount
20 of Prairie Island LCM costs we expected to incur, and delayed the periods in
21 which we expected them to be incurred.

22
23 Q. WHAT WAS THE OUTCOME OF THE 2012 CHANGED CIRCUMSTANCE FILING?

24 A. During 2012, the Commission considered the changing circumstances
25 surrounding the Prairie Island EPU project, as presented by the Company,
26 and ultimately approved the termination of the Certificate of Need for the
27 EPU project in December 2012.

Q. AS IT PERTAINS TO LCM PROJECTS, WHAT DID THE COMPANY HAVE TO DO FROM A PROJECT MANAGEMENT PERSPECTIVE TO INCORPORATE THE COMMISSION'S DECISION TO TERMINATE THE CERTIFICATE OF NEED?

A. As I noted in my 2012 rate case testimony, the effect on Prairie Island LCM efforts was to segregate the LCM work from the terminated EPU project, and plan them as separate individual projects over future years. This LCM work was moved from the Strategic capital grouping to the Reliability and Improvements groupings, which also included LCM work not previously associated with the terminated EPU project. As a result, these groupings now capture all LCM work at Prairie Island.

Q. WHAT WERE THE 2008-2020 COSTS FOR LCM PROJECTS PRESENTED AND FORECASTED IN THE 2012 CHANGED CIRCUMSTANCES FILING?

A. The 2012 filing addressed only the EPU-related LCM work in the body of the filing. Although not discussed narratively, LCM costs were forecasted by year in the associated Strategist modeling. I have outlined the cost projections in the following table:

Table 3

Categories of LCM Costs Modeled in 2012 CIC	LCM Cost estimate described in CIC (escalated unless noted)	Modeled LCM Costs for 2008-2020 (escalated)
EPU-related LCM	\$260 to \$300 million	\$268.4 million
Major/Strategic Project - Steam Generator	Not discussed or quantified in filing	\$275.4 million
Other LCM	Not discussed or quantified in filing	\$379.4 million
Total LCM costs		\$923.2 million

1 Q. HOW DO THESE 2012 ESTIMATES OF LCM COSTS FOR 2008-2020 COMPARE TO
2 THE 2008 CERTIFICATE OF NEED FILING?

3 A. Relative to the 2008 Certificate of Need, our 2012 Changed Circumstances
4 filing increased overall expected LCM expenditures for the period 2008-2020
5 by about \$148 million (from approximately \$775 to \$923 million, including the
6 Steam Generator). This increase was due to general industry trends in aging
7 equipment management, increased Company experience with the aging
8 equipment at our Monticello facility, and the cancellation of the EPU that
9 delayed our planned LCM work at Prairie Island.

10
11 Exhibit____(SLW-1), Schedule 2 provides a summary of the Prairie Island
12 LCM capital expenditure estimates for the periods 2008-2020, including the
13 amounts noted above, comparing the 2008 and 2012 projections.

14
15 **C. 2015 Integrated Resource Plan**

16 Q. WHAT IS THE 2015 IRP FILING?

17 A. It is the Company's 2015 Resource Plan that covers the period 2016 to 2030,
18 and identifies how we propose to meet our customers' needs for generation
19 capacity and electrical energy during the planning period.

20
21 Q. WHAT WERE THE MOST RECENT COST ESTIMATES FOR LCM PROJECTS
22 INCLUDED IN THE 2015 IRP REPLY COMMENTS FILING IN OCTOBER 2015?

23 A. The October 2015 IRP Reply Comments addressed total Prairie Island costs
24 over the remaining life of the plant. Although not presented or quantified
25 specifically in the filing itself, LCM costs were forecasted by year in the
26 associated Strategist modeling. I have outlined the cost projections in the
27 following table:

Table 4

Categories of LCM Costs modeled in 2015 IRP Reply Comments	LCM Cost estimate described in IRP (unescalated unless noted)	Modeled LCM Costs for 2008-2020 (escalated)
LCM previously associated with EPU	Not discussed or quantified in filing	\$168.1 million
Major/Strategic Project - Steam Generator	Not discussed or quantified in filing	\$272.1 million
Other LCM	Not discussed or quantified in filing	\$517.5 million
Total LCM costs		\$957.7 million

Q. HOW DO THESE 2015 ESTIMATES OF LCM COSTS FOR 2008-2020 COMPARE TO THE 2012 CHANGED CIRCUMSTANCES FILING?

A. Relative to the 2012 Changed Circumstances filing, our recent IRP estimates increased overall expected Prairie Island LCM expenditures for the period 2008-2020 by about \$35 million (from approximately \$923 to \$958 million, including the previously approved final costs of the Steam Generator). While the effect on the period 2008-2020 is fairly small (less than 4 percent), the impacts of those factors for the remaining license period of 2021-2034 is much larger, as discussed in our October 2015 Reply Comments in the pending IRP docket.

Exhibit___(SLW-1), Schedule 2 provides a summary of the Prairie Island LCM capital expenditure estimates for the periods 2008-2020, including the amounts noted above, comparing the 2012 and 2015 projections.

D. Company Rate Cases

Q. DID THE COMPANY PRESENT ADDITIONAL INFORMATION TO THE COMMISSION ABOUT OVERALL PRAIRIE ISLAND LCM CAPITAL EXPENDITURE ESTIMATES IN OTHER PAST PROCEEDINGS SINCE 2008?

1 A. Yes. We presented additional information on Prairie Island spend in the
2 Company's rates cases, filed in 2008, 2010, 2012, and 2013.

3
4 Q: IS THE RATE CASE FOCUSED ON CAPITAL EXPENDITURES?

5 A: No. As a general matter in rate cases our focus is on capital additions
6 anticipated for the test year or the term of the multi-year rate plan, rather than
7 longer-term, high-level projections. Therefore most rate case information was
8 presented on a capital additions basis for one year, making it challenging to
9 provide overall comparisons between annual rate case numbers and the
10 longer-term LCM capital expenditure projections set forth in our Certificates
11 of Need and Resource Plan dockets.

12
13 Q: GENERALLY SPEAKING, WHAT INFORMATION DID THE COMPANY PROVIDE
14 ABOUT NUCLEAR CAPITAL ADDITIONS IN ITS RATE CASES?

15 A: With respect to capital additions, the Company presented information about
16 the specific projects and costs for which we requested recovery in each rate
17 case. Additionally, larger test year or multiyear rate plan projects were called-
18 out in testimony and explained in detail, including any cost increases for
19 significant LCM projects.¹⁴

20
21 Q. PLEASE SUMMARIZE THE TESTIMONY PROVIDED IN THE COMPANY'S 2008
22 RATE CASE RELATED TO CAPITAL PROJECTS, SPECIFICALLY LCM, AT PRAIRIE
23 ISLAND.

¹⁴ For example, in our rate case filed in 2013, we explained that it was more cost effective to replace the generators because the responses to our request for proposals made clear that replacement pricing was more favorable than rewinding the old generators, and that a new generator has considerably lower O&M costs than a rewound old one. *See* Docket E002/GR-13-868. O'Connor Direct at 74-75.

1 A. In the 2008 case, Company witness Mr. Charles R. Bomberger, NSP Vice
2 President of Nuclear Projects, addressed the Company's total Nuclear capital
3 budget for the 2009 test year.¹⁵ Mr. Bomberger specifically discussed key
4 capital projects at Prairie Island, Prairie Island Life Cycle Management as a
5 whole, and particularly identified the reason for the Prairie Island Unit 2 steam
6 generator project.¹⁶ Finally, Mr. Bomberger presented financial information
7 about expected LCM at Prairie Island through 2016.¹⁷

8
9 Q. PLEASE SUMMARIZE THE FINANCIAL INFORMATION PROVIDED IN THE 2008
10 CASE ABOUT CAPITAL PROJECTS, SPECIFICALLY LCM PROJECTS, AT PRAIRIE
11 ISLAND.

12 A. In his Direct Testimony, Mr. Bomberger provided Exhibit ____ (CRB-1),
13 Schedule 2, page 1 of 2, which presented annual anticipated investments costs
14 for the Prairie Island plant by year. Mr. Bomberger's Schedule 2 is attached to
15 this testimony as Exhibit____(SLW-1), Schedule 3. This information was filed
16 on November 3, 2008, or approximately six months after our 2008 Prairie
17 Island Certificates of Need Application, and included costs for Prairie Island
18 LCM between 2008 and 2016. This schedule also included anticipated costs
19 related to the Prairie Island EPU project, which at that time was combined
20 with some EPU-related LCM work but did not separately identify the LCM
21 portion of the EPU project at the plant.

22
23 Q. HOW DO MR. BOMBERGER'S PRAIRIE ISLAND LCM COST ESTIMATES COMPARE
24 TO THE 2008 CERTIFICATE OF NEED FILING?

¹⁵ Docket No. E002/GR-08-1065, Bomberger Direct.

¹⁶ Docket No. E002/GR-08-1065, Bomberger Direct at 42-44.

¹⁷ Docket No. E002/GR-08-1065, Bomberger Direct at Schedule 2.

1 A. Exhibit____(SLW-1), Schedule 3 compares Mr. Bomberger's anticipated LCM
2 costs by year to our 2008 Certificate of Need modeled costs. The costs for
3 these non-EPU related LCM were within 1 percent of our initial estimates in
4 the Certificate of Need, although estimates for each year shifted slightly to
5 reflect the evolution of project planning.

6
7 Q. PLEASE SUMMARIZE THE TESTIMONY PROVIDED IN THE COMPANY'S 2010
8 RATE CASE RELATED TO CAPITAL PROJECTS, SPECIFICALLY LCM, AT PRAIRIE
9 ISLAND.

10 A. In the 2010 case, Company witness and former Chief Nuclear Officer, Dennis
11 Koehl, addressed our overall capital investments of \$101.5 million at Prairie
12 Island planned for the 2011 test year. Mr. Koehl also discussed new NRC
13 regulatory mandates that had recently been issued, the concept of Life Cycle
14 Management, and the key capital projects included in the 2011 test year to be
15 completed in Prairie Island's 2012 refueling outage.¹⁸ Mr. Koehl further
16 explained that the Prairie Island Unit 2 steam generator, which had operated
17 longer than plants of similar vintage, needed to be replaced in 2013.¹⁹ The
18 balance of the capital addition testimony was dedicated largely to the EPU
19 project and the NRC license amendment it necessitated.

20
21 Q. DID THE COMPANY DISCUSS LONG-TERM EXPECTATIONS FOR NUCLEAR
22 CAPITAL PROJECTS, SPECIFICALLY PRAIRIE ISLAND LCM, IN THE 2010 RATE
23 CASE FILING?

24 A. No. As in most rate cases, our focus was on the test year costs associated with
25 specific projects, including Prairie Island's operating license extension and our

¹⁸ Docket No. E002/GR-10-971, Koehl Direct at 22-25, 26-29, and 31-34.

¹⁹ Docket No. E002/GR-10-971, Koehl Direct at 26.

1 Extended Power Uprate. I would note that, with respect to mandated
2 compliance costs, the testimony in the 2010 case demonstrates that, unlike
3 what we are experiencing today, the regulatory cost drivers expected at that
4 time were license renewals and inspection costs.
5

6 Q. DID THE COMPANY PROVIDE ANY ADDITIONAL INFORMATION REGARDING
7 PRAIRIE ISLAND CAPITAL PROJECTS, SPECIFICALLY LCM, BETWEEN THE 2010
8 RATE CASE AND 2012 RATE CASES?

9 A. Yes. On December 1, 2011, we filed an update to our 2010 Upper Midwest
10 Resource Plan, in which we suggested that it was necessary to revisit whether
11 there was still a need for the Prairie Island EPU in light of (1) delayed project
12 timing; (2) changes in demand; and (3) reduced likely output from the
13 project.²⁰ We provided a preliminary reassessment of the Prairie Island EPU
14 in that 2011 filing, but also informed the Commission that further detail
15 would be provided in a Changed Circumstance filing.²¹ As previously noted,
16 we submitted that filing on March 29, 2012 and updated our LCM and EPU
17 cost expectations in that Changed Circumstances filing.
18

19 Q. PLEASE SUMMARIZE THE TESTIMONY PROVIDED IN THE COMPANY'S 2012
20 RATE CASE RELATED TO RELATED TO CAPITAL PROJECTS, SPECIFICALLY LCM,
21 AT PRAIRIE ISLAND

22 A. The purpose of Company witness Timothy O'Connor's testimony in that case
23 was to support the Company's overall 2013 Nuclear capital budget, which
24 included expenditures of \$311 million for Prairie Island.²² Much of the focus

²⁰ 2010 Resource Plan, Docket No. E002/RP-10-825, Resource Plan Update at 7-8 (Dec. 1, 2011) (2010 Resource Plan Update).

²¹ 2010 Resource Plan Update at 8.

²² Docket No. E002/GR-12-961, O'Connor Direct at 1 and 5.

1 in the 2012 capital investment testimony was on the large Monticello EPU
2 project still in process at that time. However, Mr. O'Connor also discussed
3 continuing LCM connected to the Prairie Island EPU,²³ as well as quantifying
4 the 2013 test year capital costs for Reliability and Improvements expenditures
5 of \$20 million.²⁴

6
7 Mr. O'Connor also noted examples of Reliability and Improvements
8 investments at Prairie Island for 2012 and 2013, such as the spare circulating
9 water pump motor and the Foxboro H line protection replacement.²⁵

10
11 Finally, both Mr. O'Connor and I provided testimony explaining what EPU-
12 related LCM work needed to continue at Prairie Island even after the EPU
13 was cancelled and how those LCM costs were tracked.²⁶ Mr. O'Connor also
14 provided detailed updates on the Unit 2 Steam Generator project.²⁷

15
16 Q. PLEASE SUMMARIZE THE FINANCIAL INFORMATION PROVIDED IN THE 2012
17 CASE ABOUT CAPITAL PROJECTS, SPECIFICALLY LCM PROJECTS, AT PRAIRIE
18 ISLAND.

19 A. We filed the 2012 case before the Commission had approved the cancellation
20 of the Prairie Island EPU. After filing, the Commission approved the
21 cancellation and we provided additional testimony regarding LCM work
22 previously associated with the EPU.

23

²³ Docket No. E002/GR-12-961, O'Connor Direct at 24-27.

²⁴ Docket No. E002/GR-12-961, O'Connor Direct at 5.

²⁵ Docket No. E002/GR-12-961, O'Connor Direct at 33.

²⁶ Docket No. E002/GR-12-961, O'Connor Rebuttal at 26-29; Weatherby Rebuttal at 2-14.

²⁷ Docket No. E002/GR-12-961, O'Connor Rebuttal at 30-38.

1 My Rebuttal Testimony in that rate case addressed the EPU-related LCM
2 costs that we previously expected to complete in conjunction with the Prairie
3 Island EPU project. They included replacement of electric generators and
4 GSU transformers at each unit, and several smaller LCM projects that had
5 been completed or commenced at the time of the EPU termination. In my
6 2013 testimony, I noted that authorizations for previously EPU-related LCM
7 projects were \$236 million and that \$28.8 million had been incurred on them
8 through 2012. These LCM projects previously associated with the EPU are
9 segregated for comparisons of cost estimates on Exhibit (SLW-1), Schedule 2.

10
11 Q. IS THERE OTHER 2012 RATE CASE TESTIMONY PERTINENT TO EXPECTED
12 CAPITAL EXPENDITURES AT PRAIRIE ISLAND YOU WOULD LIKE TO DISCUSS??

13 A. Yes. I would note that, with respect to mandated compliance costs, the
14 testimony in the 2012 case discussed new NRC and other regulations that
15 were emerging in response to new technology and security threats, and that we
16 expected increased costs to comply with these new regulations. The 2012
17 testimony of Mr. O'Connor described the various compliance programs going
18 into place for security, fire protection, Fukushima external events
19 preparedness.²⁸

20
21 Q. PLEASE SUMMARIZE THE TESTIMONY PROVIDED IN THE COMPANY'S 2013
22 RATE CASE RELATED TO CAPITAL PROJECTS, SPECIFICALLY LCM, AT PRAIRIE
23 ISLAND.

24 A. In his Direct and Rebuttal Testimony, Mr. O'Connor discussed the
25 Company's Nuclear capital budget for 2014 of \$183 million²⁹ and for 2015

²⁸ Docket No. E002/GR-12-961, O'Connor Direct at 4, and 29-31.

²⁹ Docket No. E002/GR-12-961, O'Connor Direct at 40.

1 Step capital projects. With respect to Prairie Island LCM, Mr. O'Connor
2 more specifically described the costs associated with the installation of the
3 Electric Generators and Generator Step-Up (GSU) Transformers at Prairie
4 Island. We included the costs of the Unit 1 GSU Transformer in our 2014
5 test year, and the costs of the Unit 2 Electric Generator, GSU Transformer,
6 and Baffle Bolt Inspections were included in the 2015 Step year of our 2014
7 rate case.³⁰

8
9 Q. PLEASE SUMMARIZE THE FINANCIAL INFORMATION PROVIDED ABOUT CAPITAL
10 PROJECTS, SPECIFICALLY LCM PROJECTS, AT PRAIRIE ISLAND.

11 A. I provided testimony supporting the final costs of the terminated Prairie
12 Island EPU project, as well as one adjustment to the split between EPU-
13 related LCM and EPU costs.³¹

14
15 Q. IS THERE OTHER 2013 RATE CASE TESTIMONY PERTINENT TO EXPECTED
16 CAPITAL EXPENDITURES AT PRAIRIE ISLAND YOU WOULD LIKE TO DISCUSS?

17 A. Yes. I would note that, with respect to mandated compliance costs, the
18 testimony in the 2013 case provided extensive discussion of the changing
19 NRC regulatory environment for nuclear plants, and several projects which
20 would be necessary to comply with new and evolving regulations. The 2013
21 testimony of Mr. O'Connor described the various mandated compliance
22 projects going into service in 2014 and 2015 for Fukushima external events
23 preparedness, cyber security, reactor coolant pump re-design, and fire
24 protection.

25

³⁰ Docket No. E002/GR-13-868, O'Connor Direct at 74-77.

³¹ Docket No. E002/GR-13-868, Weatherby Direct at 13-19.

1 Q. WHAT INFORMATION DID THE COMPANY PROVIDE REGARDING LCM WORK
2 AT PRAIRIE ISLAND IN ITS CURRENT RATE CASE FILED IN NOVEMBER 2015
3 (DOCKET E-002/GR-15-826)?

4 A. Several large LCM projects are included in Reliability capital groupings in the
5 MYRP for the years 2016 through 2018, as discussed by Mr. O'Connor in his
6 Direct Testimony in the current rate case. The major Prairie Island LCM
7 projects discussed in the Capital Additions-Reliability sections of that
8 testimony include: for 2016, reactor coolant pump replacements, heater drain
9 tank pump speed controls, and motor rewinds and replacements; for 2017 and
10 2018, cooling tower replacements; and for 2018, Unit 1 electric generator
11 replacement. In addition to Mr. O'Connor's Direct Testimony discussing test
12 year additions for those projects, attached as Exhibit____(SLW-1), Schedule 5
13 is a summary of all Reliability and Improvements capital expenditures for the
14 rate case test year period 2016-2018, and also 2019-2020. The annual
15 expenditures for the LCM projects noted above, and all other Reliability and
16 Improvement projects (largely LCM) for the period 2016-2020 are listed on
17 that schedule.

18 19 **V. COMPARISONS OF ESTIMATED AND ACTUAL LCM COSTS**

20 21 **A. Cost Estimates in Certificate of Need, Changed Circumstances, and** 22 **Recent Resource Plan Filings**

23 Q. ON WHAT BASIS WERE PRAIRIE ISLAND'S CERTIFICATE OF NEED, NOTICE OF
24 CHANGED CIRCUMSTANCES, AND RESOURCE PLANNING NUMBERS PRESENTED
25 TO THE COMMISSION?

26 A. For Prairie Island, we modeled Certificate of Need, Changed Circumstances,
27 and Resource Planning information as of the year the filing was made, using

1 estimated future capital expenditures by year with costs escalated over time.
2 Therefore, our comparison of Certificate of Need, Changed Circumstances,
3 and Resource Planning expectations to actual dollars are presented in this
4 Supplemental Testimony on a capital expenditures basis.

5
6 In contrast, in rate cases we seek recovery of capital additions that are used
7 and useful for the test years presented in each case. The Prairie Island capital
8 costs in Company witness Mr. O'Connor's Direct Testimony in this rate case
9 were therefore presented on a capital additions basis. While Mr. O'Connor's
10 discussion of capital additions in rate cases are as placed in service with
11 AFUDC, my supplemental testimony discusses capital expenditures on a cash
12 flow basis without AFUDC.

13
14 Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S CAPITAL EXPENDITURES
15 FOR PRAIRIE ISLAND LCM FROM 2008 THROUGH 2020.

16 A. For the period 2008 through 2015, our actual expenditures have not exceeded
17 our earlier Certificate of Need and Changed Circumstances cost estimates for
18 Prairie Island LCM in that period. In our 2015 Resource Plan update, total
19 actual Prairie Island LCM expenditures from 2008 through 2015 were
20 approximately \$55 million (or 8 percent) lower than we anticipated as of our
21 2012 Change in Circumstances update in the Certificate of Need docket.
22 This change can be attributed in part to the high level nature of Certificate of
23 Need cost estimates, to the need to defer some work due to cancellation of
24 the Prairie Island EPU, and to our dedication of Nuclear resources to other
25 large projects including the mandated compliance work.

26

1 Looking forward, our 2015 Resource Plan update anticipates that Prairie
2 Island LCM capital expenditures for the period from 2016 through 2020 will
3 be higher than anticipated in our 2012 Change in Circumstances filing by
4 approximately \$90 million. As outlined in Mr. O'Connor's Supplemental
5 testimony, these increases in the 2016 through 2020 period reflect both the
6 deferral of projects from earlier timeframes and increasing costs of nuclear
7 aging management across the industry.

8
9 Compared to our Changed Circumstances estimates for Prairie Island LCM
10 expenditures in the period 2008-2020, our 2015 IRP Reply Comments
11 anticipated an increase of approximately \$35 million (4 percent) over the
12 entire 13 years. This reflects both the \$55 million decrease from 2008
13 through 2015 and an offsetting \$90 million increase in 2016 through 2020.

14
15 Exhibit___(SLW-1), Schedule 2 provides a summary of the annual capital
16 expenditures comprising each of the 2008, 2012, and 2015 estimates
17 referenced above.

18
19 Q. HOW DO YOU PRESENT DETAILED COMPARISONS BETWEEN HISTORIC
20 ESTIMATES, CURRENT ESTIMATES, AND ACTUAL PRAIRIE ISLAND LCM COSTS?

21 A. Exhibit___(SLW-1), Schedule 2 provides the Company's 2008-2020
22 anticipated (and to the extent available, actual) LCM capital expenditures as
23 included in the (i) Certificate of Need Application; (ii) Changed
24 Circumstances filing; and (iii) October 2, 2015 Resource Plan data.
25 Exhibit___(SLW-1), Schedule 2 also provides actual Prairie Island LCM
26 expenditures from 2008 through the end of 2015 to the extent available at
27 the time of each of those filings. As noted above, this data illustrates that

1 the Company has not exceeded Certificate of Need cost projections for
2 Prairie Island LCM through the end of 2015. This is true even including all
3 the costs in our Reliability and Improvements groupings, although some of
4 the smaller costs in those groupings³² are not LCM.
5

6 Q. PLEASE EXPLAIN WHY PRAIRIE ISLAND LCM COSTS ARE INCREASING IN 2016
7 TO 2020 AS COMPARED TO THE EXPECTATIONS INCLUDED IN THE 2012
8 CHANGED CIRCUMSTANCES FILING.

9 A. A portion of this increase reflects that we deferred certain projects we
10 initially anticipated completing in the 2008-2015 timeframe into 2016 and
11 beyond. For example, and as set forth in greater detail in Mr. O'Connor's
12 testimony, in our Certificate of Need Application we noted that we
13 anticipated completing LCM work associated with the Prairie Island EPU in
14 our 2012 and 2015 outages.³³ Our Changed Circumstances filing explained
15 that this schedule was delayed due to the substantially increased length of
16 time the NRC was requiring to review Licensing Amendment Requests,³⁴
17 and refreshed our cost estimates as a result of this new information.³⁵ Our
18 current planning reflects our latest expectations for implementation of LCM
19 projects (both formerly EPU-related and routine LCM). For example, our
20 electric generator work at Unit 2 and our generation step-up transformer
21 work at both units has been completed as of year-end 2015, but we presently
22 do not anticipate installing the electric generator at Unit 1 until 2018.
23

³² Such costs include, for example, capitalized information technology improvements, camera systems, and small tools and equipment that are not intended to address aging management or the life extension of the plant. However, as noted by Mr. O'Connor, we are comparing all of our Reliability and Improvement capital budget groupings to historic cost expectations in an effort to provide a conservative overall view.

³³ Certificate of Need Application at 3B-29.

³⁴ Notice of Changed Circumstances at 14-17.

³⁵ Notice of Changed Circumstances at 18.

1 This increase also reflects the overall rise in nuclear capital program costs we
2 have experienced in recent years. Although the cost increases appear to have
3 leveled off, the accepted industry standard for annual routine capital
4 investment for nuclear plants is now \$20 million per unit rather than \$10
5 million per unit it was in 2008.

6
7 Q. PLEASE RECONCILE THE PROJECTED \$90 MILLION INCREASE IN 2016-2020
8 PRAIRIE ISLAND LCM COSTS WITH THE COMPANY'S OCTOBER 2, 2015
9 RESOURCE PLAN REPLY COMMENT THAT "OUR FIVE-YEAR CAPITAL
10 EXPENDITURE FORECAST FROM 2016 TO 2020 HAS INCREASED BY ROUGHLY
11 \$175 MILLION ABOVE WHAT WAS ANTICIPATED IN 2012."³⁶

12 A. The anticipated \$175 million cost increase related to all anticipated capital
13 expenditures for Prairie Island during this timeframe rather than just Prairie
14 Island LCM. This \$175 million includes the approximately \$90 million
15 increase related to Prairie Island LCM noted above, as well as an
16 approximately \$84 million increase due to regulatory mandates (our
17 Mandated Compliance capital budget grouping) from the NRC. As
18 described in our last two rate cases, these NRC requirements for Fukushima,
19 fire safety, physical security, and cyber security did not exist or were not fully
20 known in 2012. Company witness Mr. O'Connor describes these
21 requirements and the associated costs we are requesting to recover in rates in
22 detail in his Direct Testimony in this rate case. In addition,
23 Exhibit____(SLW-1), Schedule 8 provides a summary of mandated
24 compliance costs budgeted for Prairie Island for the years 2016-2020.

25

³⁶ IRP Reply Comments at 13, Docket No. E002/RP-15-21 (Oct. 2, 2015)

1 **B. 2016-2018 Rate Case/Resource Plan Forecast Comparison**

2 Q. WHAT INFORMATION DID THE COMPANY USE TO PREPARE THE FORECAST
3 FOR ITS PENDING ELECTRIC RATE CASE?

4 A. As discussed in the Direct Testimony of Ms. Anne Heuer, the Company's
5 MYRP capital rate case budget is based on our forecast as of the summer of
6 2015. It includes in rate base the actual capital expenditures through April
7 2015, and forecast projections for capital expenditures for the remainder of
8 2015.³⁷

9
10 Q. IS THIS THE SAME INFORMATION USED TO PREPARE THE PROPOSED FIVE-
11 YEAR CAPITAL BUDGET IN THE COMPANY'S PENDING RESOURCE PLAN
12 (DOCKET E-002/RP-15-21)?

13 A. No, the IRP used a more recent forecast. Although our IRP Reply
14 Comments were filed before our initial rate case filing, we were able to
15 assemble numbers for the Resource Plan that reflected more recent forecasts
16 due to the complexity of information required for a rate case filing. The
17 October 2, 2015 IRP Reply Comments are based on an update to the five-
18 year capital budget for 2016-2020 arising from our September 2015 forecast.
19 In accordance with the Commission's December 2, 2015 Order,
20 Exhibit____(SLW-1), Schedule 6 provides a comparison between the rate
21 case MYRP forecast for Prairie Island LCM and the resource plan five-year
22 forecast (2016-2020) for Prairie Island LCM.

23
24 Q. HOW DO THE COMPANY'S PROPOSED 2016 TEST YEAR AND 2017-2018 PLAN
25 YEAR COSTS FOR PRAIRIE ISLAND LCM IN THE CURRENT RATE CASE

³⁷ Heuer Direct at 18.

1 COMPARE TO THE PROPOSED FIVE-YEAR CAPITAL BUDGET IN THE
2 COMPANY'S PENDING RESOURCE PLAN?

3 A. As shown on Exhibit___(SLW-1), Schedule 6, 2016-2018 capital
4 expenditures in the Company's Resource Plan are unchanged for
5 Improvement projects, but are approximately \$4 million higher for
6 Reliability projects than the expenditures included in the pending rate case.
7 This difference is due to revised cost estimates based on additional project
8 scoping and revised timeframes for several Reliability projects. These
9 updates to project scope, cost and timing reflect updated assessments to
10 address emergent and evolving equipment issues such as reactor coolant
11 pumps and cooling towers, as discussed in Mr. O'Connor's Direct
12 Testimony on capital additions for the years 2016-2018.

13
14 Q. WHAT DO YOU CONCLUDE ABOUT THE COMPARISON BETWEEN PRAIRIE
15 ISLAND LCM COST PROJECTIONS IN PAST DOCKETS AND ACTUAL OR
16 PRESENTLY FORECASTED COSTS FROM 2008 THROUGH 2020?

17 A. The Company's capital expenditures on Prairie Island LCM through 2015
18 have been within the levels reflected in our 2012 Prairie Island EPU
19 Changed Circumstances filings, and were incorporated into final customer
20 rates only to the extent previously reviewed and approved by the
21 Commission. Over the next few years, we do anticipate that our Prairie
22 Island LCM investments will exceed our projections in our 2012 Changed
23 Circumstances filing; however, Mr. O'Connor presents the support for those
24 costs and the reasonableness of including those costs in rates in his Direct
25 and Supplemental Direct Testimony.

26

1 **VI. CONCLUSION**

2

3 Q. PLEASE SUMMARIZE YOUR TESTIMONY.

4 A. My testimony illustrates that the Company's capital costs to date for Prairie
5 Island have been within our expectations for this timeframe, and that the 2016
6 through 2020 Prairie Island LCM capital forecasts underpinning our current
7 rate case and recent resource plan update are very similar (within about 2% of
8 each other). Finally, I provide additional detail regarding expected Prairie
9 Island LCM capital expenditures for the 2016 to 2020 timeframe, supporting
10 the work Mr. O'Connor describes in his Direct and Supplemental Direct
11 Testimony in this rate case.

12

13 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

14 A. Yes, it does.

Statement of Qualifications

Scott L. Weatherby

Vice President, Nuclear Finance and Business Planning

Scott Weatherby is currently Vice President of Nuclear Finance and Business Planning for Northern States Power Company – Minnesota (NSP), leading the Nuclear business unit's financial management functions, including budgeting, forecasting, accounting and reporting. In this role, which he has held since 2011, he also oversees financial governance and controls for Nuclear activities, and serves as a key liaison with Xcel Energy management in that regard. He also oversees Nuclear's business planning and regulatory policy functions.

Mr. Weatherby was previously the Vice President and Chief Audit Executive for Xcel Energy, where he led the internal audit function from 2004-2011, and Assistant Controller of Xcel Energy, where he led the corporate accounting, external reporting, management reporting and corporate budgeting functions of Xcel Energy since the merger in 2000. Prior to the merger, he was Assistant Controller for NSP where he held a number of management positions in financial accounting, reporting and budgeting.

Prior to joining NSP in 1992, Mr. Weatherby worked in the Audit group of Deloitte Haskins & Sells (now Deloitte & Touche) from 1980-1991. His clients at Deloitte included many local and regional utilities, including NSP where he served as audit manager for several years. In addition to being an industry specialist at Deloitte for utility and energy companies, Scott worked with audit clients in the manufacturing, communications, real estate, and financial services industries, including several Fortune 500 companies.

Scott is a Certified Public Accountant (inactive) with 35 years of business experience in finance, accounting and auditing, and 33 years of experience with the utility industry. He received a Bachelor's degree, summa cum laude, in Accounting at the University of Minnesota-Duluth.

Prairie Island Nuclear Plant Capital Expenditure Projections
Comparison of Latest Resource Plan Update to 2008 CON & 2012 Chg in Circumstance Filing

Dollars in Millions

Prairie Island LCM Capital Expenditures - Model Inputs used for 2008 Certificate of Need Filing - EPU & Extended Cask Storage (Escalated)									Total						Total 2016	Total 2008
	2008	2009	2010	2011	2012	2013	2014	2015	2008-15	2016	2017	2018	2019	2020	20	20
Routine capital including LCM (\$20M per year, escalated)	23.8	24.7	21.4	22.0	22.6	23.2	23.8	24.4	185.8	25.0	25.6	26.2	26.9	27.6	131.3	317.1
Large Capital - Steam Generator (considered LCM)	4.8	6.1	22.6	34.7	36.1	149.7	0.6		254.6						-	254.6
LCM projects included in \$600M large investments, not EPU related	3.3	2.1	15.0	14.5	23.0	8.2	10.7	27.0	103.8						-	103.8
Major Project - LCM Associated w/ EPU	1.1	6.4	7.6	23.1	22.8	25.4	4.0	8.7	99.1						-	99.1
Total LCM Capital expenditures	33.0	39.2	66.6	94.2	104.5	206.5	39.1	60.1	643.3	25.0	25.6	26.2	26.9	27.6	131.3	774.6
								Rounded	643						131	775

Prairie Island LCM Capital Expenditures - Model Inputs used for 2012 Chg in Circ Filing (escalated from 2012 forward)																				Total 2016	Total 2008
	Actuals*								Total	2016	2017	2018	2019	2020		20				20	
	2008	2009	2010	2011	2012	2013	2014	2015	2008-15												
Major Project - LCM Associated w/ EPU	0.0	0.0	0.2	7.9	18.7	43.2	43.3	57.6	170.9	96.3	1.2	-	-	-		97.5				268.4	
Steam Generator (considered LCM)	4.8	6.4	29.2	30.8	45.2	156.4	2.6		275.4							-				275.4	
Reliability- Routine capital including LCM (not EPU related)	31.2	24.6	13.9	27.9	18.1	18.9	37.0	47.7	219.5	39.1	48.6	29.4	20.7	22.1		159.9				379.4	
Total LCM Capital expenditures	36.0	31.1	43.3	66.6	82.0	218.5	83.0	105.3	665.7	135.4	49.8	29.4	20.7	22.1		257.4				923.2	
									Rounded											257	923
Difference - 2012 Change in Circumstance Higher (Lower) than 2008 CON									22							126				148	

Prairie Island LCM Capital Exp- Sept 2015 Resource Plan Inputs																				Total 2016	Total 2008
	Actuals*								Sept Fcst	Total	5-Year Budget (Sept 2015 Fcst)					20				20	
	2008	2009	2010	2011	2012	2013	2014	2015**	2008-15		2016	2017	2018	2019	2020						
Reliability - Board-authorized LCM previously associated w/EPU	0.1	0.5	0.3	0.2	27.6	28.4	18.1	27.6	102.9	1.8	0.9	62.4	0.1	-		65.2				168.1	
Steam Generator (considered LCM)	4.8	6.4	29.2	30.8	41.8	158.9	4.3	(4.1)	272.1							-				272.1	
Reliability other - including routine capital/LCM	31.1	24.2	13.8	27.4	17.9	12.8	27.3	50.6	205.1	65.6	72.5	64.0	47.9	27.7		277.8				482.8	
Improvements - including some LCM	incl above	incl above	incl above	incl above	10.3	9.3	8.8	2.5	30.8	0.9	0.5	1.7	0.4	0.4		3.9				34.7	
Total LCM Capital expenditures	36.0	31.1	43.3	58.4	97.5	209.4	58.5	76.6	610.9	68.4	73.9	128.1	48.4	28.1		346.8				957.7	
									Rounded											347	958
Difference - 2015 Resource Plan Projection Higher (Lower) than 2012 CIC									(55)							90				35	
									-8%							35%				4%	

* At the time of the 2012 Change in Circumstance Filing, EPU-related LCM was still being separated between EPU and LCM work orders. Reclassifications were made in 2012 between EPU and LCM, which are reflected retroactively in actuals for all periods in the Sept 2015 Projection used for the Resource Plan docket.

** 2015 Actuals for LCM capital expenditures for Prairie Island included:

	Actual 2015	Total Actual 2008-2015
Reliability - LCM previously associated w/EPU	33.1	108.5
Steam Generator	(4.1)	272.1
Reliability other - including routine capital/LCM	45.9	200.4
Improvements - including some LCM	4.1	32.4
Total Actual 2015 Reliability & Improvement Cap Ex - PI	79.1	613.4

Investment Costs by Project and Year

	Monticello				
	Life Extension	Dry Cask Storage	Power Uprate	Life Cycle Management	Annual Monticello Capital Spending
2008		9,308,000	63,918,000	25,789,000	99,015,000
2009		769,540	89,202,009	16,874,083	106,845,632
2010		3,404,085	71,862,269	19,771,249	95,037,603
2011		7,611,662	64,344,104	21,324,200	93,279,966
2012		9,321,053		21,900,000	31,221,053
2013				31,800,000	31,800,000
2014				12,000,000	12,000,000
2015				12,000,000	12,000,000
2016				12,000,000	12,000,000
2017					
2018					
2019					
2020					

	Prairie Island					
	Life Extension	Dry Cask Storage	Power Uprate	Life Cycle Management	Steam Generator Replacement	Annual Prairie Island Capital Spending
2008	6,973,340	6,486,000	6,614,075	31,809,515	4,847,000	56,729,930
2009	7,287,003	10,244,360	37,683,119	33,618,637	5,666,881	94,500,000
2010	676,146	9,394,083	75,428,159	41,540,022	23,461,590	150,500,000
2011		9,965,368	87,514,163	42,301,270	29,719,199	169,500,000
2012		9,014,694	108,777,394	48,516,551	38,791,361	205,100,000
2013		6,740,766	53,514,284	35,789,788	177,755,162	273,800,000
2014		6,889,743	33,053,295	29,335,000	3,756,932	73,034,970
2015		7,582,841	92,894,552	27,045,000		127,522,393
2016		3,451,067	2,880,289	27,995,000		34,326,356
2017						
2018						
2019						
2020						

Investment Costs by Project and Year

Annual Spending Both Plants						
	Life Extension	Dry Cask Storage	Power Uprate	Life Cycle Management	Steam Generator Replacement	Annual Capital Spending
2008	6,973,340	15,794,000	70,532,075	57,598,515	4,847,000	155,744,930
2009	7,287,003	11,013,900	126,885,128	50,492,720	5,666,881	201,345,632
2010	676,146	12,798,168	147,290,428	61,311,271	23,461,590	245,537,603
2011		17,577,030	151,858,267	63,625,470	29,719,199	262,779,966
2012		18,335,747	108,777,394	70,416,551	38,791,361	236,321,053
2013		6,740,766	53,514,284	67,589,788	177,755,162	305,600,000
2014		6,889,743	33,053,295	41,335,000	3,756,932	85,034,970
2015		7,582,841	92,894,552	39,045,000		139,522,393
2016		3,451,067	2,880,289	39,995,000		46,326,356
2017						
2018						
2019						
2020						

Cumulative Capital Spending Both Plants						
	Life Extension	Dry Cask Storage	Power Uprate	Life Cycle Management	Steam Generator Replacement	Annual Capital Spending
2008	6,973,340	15,794,000	70,532,075	57,598,515	4,847,000	155,744,930
2009	14,260,343	26,807,900	197,417,203	108,091,235	10,513,881	357,090,562
2010	14,936,489	39,606,068	344,707,631	169,402,506	33,975,471	602,628,165
2011	14,936,489	57,183,098	496,565,898	233,027,976	63,694,670	865,408,131
2012	14,936,489	75,518,845	605,343,292	303,444,527	102,486,031	1,101,729,184
2013	14,936,489	82,259,611	658,857,576	371,034,315	280,241,193	1,407,329,184
2014	14,936,489	89,149,354	691,910,871	412,369,315	283,998,125	1,492,364,154
2015	14,936,489	96,732,195	784,805,423	451,414,315	283,998,125	1,631,886,547
2016	14,936,489	100,183,262	787,685,712	491,409,315	283,998,125	1,678,212,903
2017						
2018						
2019						
2020						

Prairie Island Nuclear Plant
Comparison of Life Cycle Management Capital Expenditure Projections

(\$ in millions)

	<i>Projected</i> <u>2008</u>	<i>Projected</i> <u>2009</u>	<i>Projected</i> <u>2010</u>	<i>Projected</i> <u>2011</u>	<i>Projected</i> <u>2012</u>	<i>Projected</i> <u>2013</u>	<i>Projected</i> <u>2014</u>	<i>Projected</i> <u>2015</u>	<i>Projected</i> <u>2016</u>	Total <u>2008-16</u>
LCM per May 2008 Certificate of Need filing (excluding EPU related) <i>(non-EPU related LCM inputs to model per SLW-1 Schedule 2)</i>										
LCM projects included in \$600M large investments, not EPU related	3.3	2.1	15.0	14.5	23.0	8.2	10.7	27.0	-	103.8
Routine capital including LCM (\$20M per year, escalated)	23.8	24.7	21.4	22.0	22.6	23.2	23.8	24.4	25.0	210.7
Total LCM Capital Expenditures - non EPU related	27.1	26.8	36.4	36.5	45.6	31.4	34.5	51.4	25.0	314.6
LCM per November 2008 Rate Case filing (excluding EPU related)										
Life Cycle Management Column per SLW-1 Schedule 3	31.8	33.6	41.5	42.3	48.5	35.8	29.3	27.0	28.0	318.0
Difference - 2008 Rate Case projection higher (lower) than 2008 Certificate of Need projection	4.7	6.9	5.1	5.8	2.9	4.4	(5.1)	(24.4)	3.0	3.4 1.1%

Prairie Island Nuclear Plant Capital Expenditures - Reliability & Improvement Groupings including LCM EXCLUDES AFUDC Forecast Estimate Used for 2016 Test Year Rate Case

			<u>2016</u>		<u>2017</u>		<u>2018</u>		<u>2019</u>		<u>2020</u>		<u>5 Year Total</u>
<u>LCM Projects Discussed in O'Connor Testimony</u>	<u>System</u>												
Reactor Coolant Pumps (RCP) rebuilds	Generation	\$	12,191,554	\$	10,000,000	\$	10,000,000	\$	10,000,000	\$	-	\$	42,191,554
Heater Drain Tank Speed Controls upgrade	Control Systems	\$	5,847,713	\$	4,858,424	\$	141,336	\$	-	\$	-	\$	10,847,473
Motor Rewinds & Replacements	Aging Mgmt-Multiple	\$	6,740,774	\$	7,031,787	\$	4,293,568	\$	3,473,581	\$	-	\$	21,539,710
Cooling Tower/Water system replacements	Cooling Systems	\$	7,420,300	\$	15,436,256	\$	19,086,256	\$	15,086,256	\$	10,360,956	\$	67,390,024
Electric Generator Replacement	Generation Systems	\$	1,524,004	\$	940,488	\$	62,364,739	\$	60,000	\$	-	\$	64,889,231
Subtotal - LCM Projects Discussed in Testimony		\$	33,724,345	\$	38,266,955	\$	95,885,899	\$	28,619,837	\$	10,360,956	\$	206,857,992
			51%		52%		78%		66%		29%		60%
<u>Other Reliability Projects - Mainly LCM</u>	<u>System</u>												
Transformer replacements	Electrical Systems	\$	2,700,004	\$	6,000,002	\$	11,500,000	\$	8,484,716	\$	12,000,000	\$	40,684,722
Foxboro Control Module replacement	Control Systems	\$	3,420,063	\$	12,339,278	\$	6,755,613	\$	2,210,041	\$	8,100,000	\$	32,824,995
Battery Room & Feedwater Pump Room Cooling	Cooling Systems	\$	7,710,185	\$	886,547	\$	-	\$	-	\$	-	\$	8,596,732
Plant Process Computer System upgrade	Control Systems	\$	150,000	\$	5,000,000	\$	2,850,000	\$	-	\$	-	\$	8,000,000
Screenhouse header pipe replacement	Cooling Systems	\$	1,500,000	\$	3,614,031	\$	-	\$	-	\$	-	\$	5,114,031
Fan Coil Unit replacement	Cooling Systems	\$	5,000,000	\$	-	\$	-	\$	-	\$	-	\$	5,000,000
Change Fuel Cycle to 24 months	Fuel Systems	\$	1,365,000	\$	1,396,250	\$	1,150,000	\$	428,750	\$	-	\$	4,340,000
Radiation Monitor upgrade	Control Systems	\$	2,438,187	\$	499,995	\$	-	\$	-	\$	-	\$	2,938,182
Safeguard pump redesign	Cooling Systems	\$	2,395,487	\$	-	\$	-	\$	-	\$	-	\$	2,395,487
Voltage Regulator replacement - Diesels	Control Systems	\$	-	\$	-	\$	-	\$	1,000,000	\$	1,000,000	\$	2,000,000
Voltage Regulator replacement - Generator	Generation Systems	\$	133,802	\$	61,382	\$	1,235,047	\$	9,000	\$	-	\$	1,439,231
Other Reliability projects:													
Various Cooling System upgrades & replacements	Cooling Systems	\$	1,318,000	\$	1,000,000	\$	850,003	\$	700,000	\$	2,350,000	\$	6,218,003
Various Control System replacements	Control Systems	\$	1,232,999	\$	1,456,348	\$	454,039	\$	-	\$	-	\$	3,143,386
Emergent Work	Various	\$	1,000,000	\$	1,000,000	\$	1,000,000	\$	1,000,000	\$	1,000,000	\$	5,000,000
Minor System Improvements - capital	Various	\$	974,722	\$	974,722	\$	974,722	\$	500,000	\$	400,000	\$	3,824,166
Minor Tools & Equipment - capital	Various	\$	574,722	\$	574,722	\$	574,722	\$	600,000	\$	600,000	\$	2,924,166
All Other Reliability	Various	\$	943,996	\$	300,000	\$	-	\$	-	\$	300,000	\$	1,543,996
Total PI Capital Expenditures - Reliability Grouping		\$	66,581,512	\$	73,370,232	\$	123,230,045	\$	43,552,344	\$	36,110,956	\$	342,845,089
<u>Improvement Projects</u>	<u>System</u>		<u>2016</u>		<u>2017</u>		<u>2018</u>		<u>2019</u>		<u>2020</u>		<u>5 Year Total</u>
Information Technology capital improvements	Control Systems & Other	\$	575,000	\$	400,000	\$	400,000	\$	400,000	\$	400,000	\$	2,175,000
Vibration Monitoring Upgrades - Turbine/generator	Gen/Control Systems	\$	338,610	\$	60,675	\$	1,277,386	\$	15,000	\$	-	\$	1,691,671
Total PI Capital Expenditures - Improvements Grouping		\$	913,610	\$	460,675	\$	1,677,386	\$	415,000	\$	400,000	\$	3,866,671

**Prairie Island Nuclear Generating Plant
Capital Expenditure Estimates (excludes Nuclear Fuel)**

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Total 2016-18</u>	<u>2019</u>	<u>2020</u>	<u>Total 2016-20</u>
Prairie Island Cap Ex: MN Rate Case file							
Dry Cask Storage	6,857,128	9,991,775	13,669,441	30,518,344	15,943,758	181,300	46,643,402
Mandated Compliance	31,336,378	22,790,291	19,444,816	73,571,485	5,966,243	2,260,100	81,797,828
Reliability	66,581,512	73,370,232	123,230,045	263,181,789	43,552,344	36,110,956	342,845,089
Improvements	913,610	460,675	1,677,386	3,051,671	415,000	400,000	3,866,671
Facilities & General	3,154,495	524,722	524,622	4,203,839	600,000	500,000	5,303,839
Steam Generator Replacement	45,000			45,000			45,000
Total MN Rate Case	\$108,888,123	\$107,137,695	\$158,546,310	\$374,572,128	\$66,477,345	\$39,452,356	\$480,501,829
Prairie Island Cap Ex: September 2015 Forecast							
Dry Cask Storage	6,872,128	9,991,775	13,669,441	30,533,344	15,943,758	181,300	46,658,402
Mandated Compliance	32,039,585	26,060,240	21,117,792	79,217,617	7,093,731	2,760,008	89,071,356
Reliability	67,454,955	73,417,751	126,395,017	267,267,723	47,960,193	27,724,566	342,952,482
Improvements	913,610	460,675	1,677,386	3,051,671	415,000	400,000	3,866,671
Facilities & General	3,154,495	524,722	524,622	4,203,839	600,000	500,000	5,303,839
Steam Generator Replacement				-			-
Total Sept. Forecast - Resource Plan	\$110,434,773	\$110,455,163	\$163,384,258	\$384,274,194	\$72,012,682	\$31,565,874	\$487,852,750
Prairie Island Cap Ex : INCREASE (DECREASE) in September 2015 Forecast vs MN Rate Case file							
Dry Cask Storage	15,000	-	-	15,000	-	-	15,000
Mandated Compliance	703,207	3,269,949	1,672,976	5,646,132	1,127,488	499,908	7,273,528
Reliability	873,443	47,519	3,164,972	4,085,934	4,407,849	(8,386,390)	107,393
Improvements	-	-	-	-	-	-	-
Facilities & General	-	-	-	-	-	-	-
Steam Generator Replacement	(45,000)	-	-	(45,000)	-	-	(45,000)
Total Change - Sept Forecast vs Rate Case	\$1,546,650	\$3,317,468	\$4,837,948	\$9,702,066	\$5,535,337	(\$7,886,482)	\$7,350,921

Increase - Resource Plan forecast higher than Rate Case

2.6%

1.5%

Prairie Island Nuclear Plant

Mandated Compliance Capital Expenditures (excluding AFUDC)

		Actual	Actual	Actual	Actual	Actual	Actual	Actual	Rate Case	Total
		2008	2009	2010	2011	2012	2013	2014	Forecast	2008-2015
Mandated Project	Requirement Being Met								2015	
License Renewal	NRC License Requirements & Commitments	9,062,523	8,818,732	3,282,427	925,612	10,827,900	15,039,020	15,667,211	5,017,103	68,640,528
Fire Protection	NFPA 805 Requirements	1,931,774	3,713,940	5,983,036	4,410,005	4,959,816	4,588,656	8,369,194	14,873,100	48,829,521
External Events - Fukushima Requirements	NRC 2011 & Related Orders					753,124	1,515,891	10,162,080	30,432,153	42,863,248
RCP Seal Re-Design	NRC fire protection and Fukushima requirements					-	8,547,927	7,715,896	245,835	16,509,657
Physical Protection & Plant Security	NRC 10 CFR 73 Requirements	-	414,144	8,391,750	6,143,058	199,768	-	-		* 15,148,720
Security - Force on Force	NRC Security Inspections	-	-	1,951,859	9,112,779	653,723	209	-		* 11,718,570
Steam Generator Water levels	NRC Regulatory Guide Section 1.97					-	-	5,173	3,839,154	3,844,327
Cyber Security	NRC 10 CFR 73.74 Requirements	-	803,182	321,963	(7,764)	-	387,799	238,040	256,313	* 1,999,533
Emergency Requirements - Security & Diesel Backup	NRC B.5.b Regulations	141,520	-	-	269,982	538,108	83,245	9,256		* 1,042,111
Spent Fuel Pool Protection	NRC 10 CFR 50.54(f) Letter Requirements	-	-	-	778,777					778,777
Gas Venting	NRC Generic Letter 2008-01					1,887	515,159	114,110	18,387	649,542
Battery Chargers	NRC inspection finding					892,468	759	-	-	893,228
4KV Bus Modifications	Commitment made in 2/3/14 response to NRC Request for Additional Information								795,788	795,788
Diesel Room venting	NRC inspection finding								570,000	570,000
Diesel Transient	Commitment made to NRC as part of License amendment for Tech Specs on voltage and frequency					68,778	297	-		69,074
Emergency Siren Narrowband	FCC requirement - compliance due by Dec. 2012	-	-	-	58,716					58,716
Total Prairie Island Mandated Compliance Capital Expenditures		\$11,135,817	\$13,749,998	\$19,931,036	\$21,691,165	\$18,895,572	\$30,678,961	\$42,280,959	\$56,047,833	\$214,411,340

*Security related \$29,908,934

Prairie Island Nuclear Plant

Mandated Compliance Capital Expenditures (excluding AFUDC)

Mandated Compliance Projects	Requirement Being Met	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Total 2016-2020
Fire Protection	NFPA 805 Requirements	\$16,794,494	\$18,180,245	\$11,210,953	\$4,386,364	\$760,008	\$51,432,064
External Events - Fukushima Requirements	NRC 2011 & Related Orders	\$9,000,000	\$940,000	\$200,000			\$10,140,000
Security Upgrades including Cybersecurity	NRC 10 CFR 73 & Inspection Requirements	\$1,572,989	\$2,530,000	\$5,750,000			\$9,852,989
Tornado Missile/Projectile Protection	NRC Regulatory Issue 2015-06		\$1,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$7,000,000
16 KV Bus Modification	Commitment made in 2/3/14 response to NRC Request for Additional Information	\$2,122,102	\$3,359,995	\$1,856,839	\$707,367		\$8,046,303
Steam Generator Water Level	NRC Regulatory Guide Section 1.97	\$2,550,000	\$50,000				\$2,600,000
Total Prairie Island Mandated Compliance Capital Expenditures		\$32,039,585	\$26,060,240	\$21,117,792	\$7,093,731	\$2,760,008	\$89,071,356