

BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
St. Paul, MN 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
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St Paul MN 55101-2147

IN THE MATTER OF A COMMISSION
INVESTIGATION INTO XCEL ENERGY'S
MONTICELLO LIFE CYCLE
MANAGEMENT/EXTENDED POWER UPRATE
PROJECT AND REQUEST FOR RECOVERY OF
COST OVERRUNS

MPUC Docket No. E002/CI-13-754
OAH Docket No. 48-2500-31139

SURREBUTTAL TESTIMONY OF WILLIAM R. JACOBS, JR., PH.D.

ON BEHALF OF

**THE DIVISION OF ENERGY RESOURCES OF
THE MINNESOTA DEPARTMENT OF COMMERCE**

SEPTEMBER 19, 2014

DIRECT TESTIMONY OF WILLIAM R. JACOBS, PH.D
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1 **I. INTRODUCTION**

2 **Q. What is your name and business address?**

3 A. My name is William R. Jacobs, Jr., Ph.D. I am an Executive Consultant with GDS
4 Associates, Inc. My business address is 1850 Parkway Place, Suite 800, Marietta,
5 Georgia, 30067.

6
7 **Q. What is the purpose of your Surrebuttal Testimony?**

8 A. The purpose is to respond to the rebuttal testimony of Timothy J. O'Connor and J.A.
9 Stall filed on behalf of Xcel Energy on August 26, 2014. I respond to
10 misrepresentations of my testimony by Mr. O'Connor, address the Company's
11 attempts to shift costs from Extended Power Uprate (EPU) to Life Cycle Management
12 (LCM), explain my methodology in determining the cost of the EPU project and
13 respond to other non-factual or misleading statements by Mr. O'Connor and Mr. Stall
14 in their rebuttal testimonies.

15
16 **II. CORRECTIONS TO XCEL'S MISREPRESENTATION OF MY TESTIMONY**

17 **Q. Please explain what you mean by the Company's misrepresentation of your**
18 **testimony.**

19 A. In several instances Company witnesses attributed statements to me that were
20 actually not in my testimony. In other cases, Company witnesses incorrectly inferred
21 the meaning of my statements and stated their incorrect inference as my position.
22 As with other DOC witnesses, it is necessary for part of my surrebuttal testimony to
23 help ensure that the Commission has a reasonably accurate record in this
24 proceeding.

1 Q. Please provide specific examples of the Company's misrepresentation and explain
2 why your testimony was misrepresented.

3 A. The following is an example of Mr. O'Connor's misrepresentation of my testimony.
4 On page 31 of Mr. O'Connor's rebuttal testimony, the question states "DEPARTMENT
5 WITNESS DR. JACOBS STATES THAT NO COSTS SPECIFICALLY RELATED TO
6 FUKISHIMA IMPACTED THE LCM/EPU LICENSE EFFORT." Mr. O'Connor's
7 representation of my testimony in his question is incorrect. In fact, in my direct
8 testimony I stated that Fukushima did impact the costs of the licensing for the EPU
9 project, but had little if any effect on capital costs or the overall project schedule, due
10 to Xcel's construction delays:¹

11 While these issues clearly resulted in additional licensing
12 costs for the EPU project, they did not result in
13 significant additional capital costs or impact the overall
14 project schedule.

15
16 DOC Ex. ___ at 15 (Jacobs Public Direct)

17 As I also explained in my Direct Testimony on that same page:

18 While the initial schedule objective of completing the
19 LCM and EPU projects during the 2011 refueling outage
20 was delayed to resolve licensing issues, discussions with
21 Xcel personnel during the Monticello site visit revealed
22 that other issues, including procurement and installation
23 of critical components, would have delayed completion
24 until the 2013 refueling outage even without licensing
25 delays. Discussions with Xcel personnel revealed that
26 there are no costs specifically related to NRC
27 requirement regarding Fukushima impacts in the
28 LCM/EPU project costs.

29 Thus, I was merely providing the results of my assessment after visiting the
30 plant, talking to Xcel personnel and reviewing information in this proceeding.

¹ I note that effects on scheduling matter since, as DOC Witness Ms. Campbell discussed in her direct testimony at page 12, "[t]he longer it takes for a plant to be constructed and placed in service, the higher total AFUDC becomes."

1 Q. What is another example of where your testimony was inaccurately represented?

2 A. On page 57 of Mr. O'Connor's rebuttal testimony, the question states that I "take
3 issue with the scope changes that were made throughout the project". Again, Mr.
4 O'Connor is incorrect. I do not discuss "scope changes" in my testimony.

5
6 Q. Are there instances where your analysis was inaccurately represented?

7 A. Yes. On page 88 of his rebuttal testimony Mr. O'Connor stated:

8 Finally, the letter actually does contain some
9 descriptions of work that we specifically recognized were
10 needed for LCM purposes. These include:

- 11 • 13.8 kV system;
- 12 • Main exciter
- 13 • M-G set point motors
- 14 • Reactor feed pump discharge check valves

15
16 While Dr. Jacobs says he prefers to rely on
17 contemporaneous documents in his assessment, he
18 ignores the content of the NRC Letter for these
19 modifications.
20

21 I did not ignore the content of Mr. O'Connor's letter to the NRC in which he listed the
22 EPU modifications. I address these four items individually:

- 23 • **13.8 kV system** - The reasons I included the 13.8kV project as an EPU are
24 discussed in my direct testimony at some length (DOC Ex. ___ at 11, 16
25 (Jacobs Public Direct). As I discuss below, Mr. O'Connor discussed this
26 item in his rebuttal, which supports my classification of the 13.8 kV
27 distribution project as an EPU cost. Certainly, neither he nor I have
28 ignored the 13.8 kV system.
- 29 • **Main Exciter** – Since the Main Exciter is listed in Mr. O'Connor's NRC letter
30 identifying EPU projects, in Mr. O'Connor's Schedule 30 showing LCM and

1 EPU project costs and in my direct testimony Exhibit WRJ-3 showing my
2 development of EPU costs, I do not understand his criticism that the Main
3 Exciter was ignored.

- 4 • **M-G Set Point Motors** –I believe Mr. O’Connor is referring to the M-G Set
5 Motors as the term “M-G Set Point Motors,” which is clearly an error.

6 These motors are discussed in Mr. O’Connor’s NRC letter, but he did not
7 separately include these costs in his Schedule 30 as part of the \$664.9
8 million LCM / EPU costs. Therefore I could not specifically allocate these
9 costs to M-G Set Motors in my Exhibit WRJ-3. To be included my Exhibit
10 WRJ-3, an item must be listed in the NRC letter and be priced out in Mr.
11 O’Connor’s Schedule 30.

- 12 • **Reactor Feedpump Discharge Check Valves** - These check valves are listed
13 in Mr. O’Connor’s NRC letter but are not a separate listing in his Schedule
14 30 and thus must be included in his \$664.9 million as part of another
15 item. This is essentially the same as the set point motor issue above.

16
17 **Q. Did Xcel misstate other aspects of your testimony?**

18 **A.** Yes. While I do not intend to list every misstatement of my testimony in Xcel’s
19 rebuttal testimony, I note that several Xcel witnesses misstated my testimony in a
20 similar manner, so I would like the record to be clear about what I did and did not
21 say. On page 118 of his rebuttal testimony Mr. O’Connor stated that I used the
22 example of a steam generator replacement as an “easy” like-for-like exchange. Mr.
23 O’Connor places the word “easy” in quotes indicating that I used the word in my

1 testimony. In fact, I never said that steam generator replacements were easy. In fact
2 they are very technically challenging.

3 My point, as I stated on page 13 of my direct testimony, was that it should be
4 no surprise that the majority of the costs of changes to the Monticello plant were due
5 to the EPU rather than the LCM:

6 ...it is important to recognize that costs of “like-for-like”
7 replacements are typically significantly less costly than
8 replacements with larger components. Larger, new
9 components often require strengthened foundations,
10 new increased size piping, more building space,
11 increased electrical capacity, wiring, and switchgear (*i.e.*,
12 the \$119.5 million 13.8kv electrical system). I saw
13 numerous examples of such circumstances at the
14 Monticello plant. For example, I learned during my visit
15 to the plant that extensive foundation modifications
16 [were needed] requiring excavation to bedrock in some
17 cases to install larger equipment for the increased
18 capacity of the plant due to the EPU.

19
20 **Q. Please respond to Mr. Stall’s statement on page 14, lines 9 – 10 that “Dr. Jacobs**
21 **testifies that major construction projects are easier only when the update is a like-**
22 **for-like project”.**

23 **A.** Although Mr. Stall’s testimony contains a citation to my direct testimony at page 13,
24 lines 18-19, again I note that I did not state that major construction projects at
25 nuclear generation plants are “easy.” To be clear, nothing in the nuclear power
26 industry is “easy” or “easier.” I did state that the nuclear industry has shown that it
27 is able to perform well on major projects such as steam generator replacements
28 when the update is a “like-for-like” project. Further, as noted above, when a utility is
29 attempting to retrofit a nuclear generation facility with a small footprint, it is clear

1 that the utility needs to think through the process carefully in deciding whether or not
2 to proceed.

3
4 **Q. Please respond to Mr. Stall's statement on page 14, lines 21 – 22 that "like-for-like
5 replacements are rarely used."**

6 A. Mr. Stall has taken the term "like-for-like" in a literal sense that is not the general
7 understanding in the nuclear power industry. "Like-for-like" does not mean using the
8 exact same equipment made by the same manufacturer with performance inferior to
9 today's modern equipment. It does not require, as Mr. Stall states, extensive reverse
10 engineering. Instead, this term means replacing equipment with new equipment with
11 similar performance specifications and physical characteristics.

12
13 **Q. Please respond to Mr. Stall's Rebuttal Testimony that you implied that Xcel should
14 have continued a "piecemeal approach" and a "minimalist approach" to aging
15 management.**

16 A. First I note that the words "piecemeal" and "minimalist" are Mr. Stall's words not
17 mine. These words clearly have a negative connotation as used by Mr. Stall and
18 misrepresent my position on an approach to managing aging issues. To be clear, my
19 opinion is that the operator of a nuclear power plant should make decisions to repair
20 or replace aging equipment based first on nuclear safety considerations and second
21 on a thorough analysis of the various options based on technical and economic
22 factors. This was the approach taken at the Duane Arnold Energy Center in
23 managing their aging equipment issues and I consider this approach to be
24 appropriate and neither "piecemeal" nor "minimalist."

1 **Q. Please explain how the Company has misrepresented NRC costs**

2 A. On page 13, lines 1 – 2 of his rebuttal testimony Mr. Stall asked the question, “Do
3 you agree with the Department’s consultants’ suggestion that the NRC licensing
4 process did not contribute to the costs?” In fact, as discussed above, my direct
5 testimony on page 15, lines 12 – 13 stated that the Fukushima accident and the
6 NRC’s decision to review the methodology for Containment Accident Pressure
7 analysis “clearly resulted in additional licensing costs for the EPU project...” I further
8 stated that this review did not result in additional capital costs or impact the overall
9 project schedule. By “additional capital costs” I mean costs related to specific LCM /
10 EPU projects implemented at Monticello.

11
12 **Q. Please respond to Mr. Stall’s comments regarding your testimony in Florida on EPU
13 projects which, under Mr. Stall’s direction, also greatly exceeded the original budget.**

14 A. On page 16 of his rebuttal testimony Mr. Stall included a quote from testimony that I
15 filed before the Florida Public Service Commission in 2013. This testimony was in
16 relation to EPU projects at four nuclear units in Florida. Under Mr. Stall’s direction,
17 the Turkey Point 3 & 4 EPU projects exceeded the original budget by
18 \$1,450,000,000, or nearly 3 times the original budget. The quote from my
19 testimony that he referenced is:

20 To avoid a case of runaway spending resulting in a
21 project that is harmful to ratepayers, it is clear that a
22 utility contemplating a project having the magnitude and
23 complexity of the Turkey Point EPU project must either
24 perform a level of engineering sufficient to provide a
25 grasp on overall costs, or must incorporate a level of
26 contingency adequate to reflect the uncertainty of not
27 having performed the engineering at the outset.

1 I stand by this statement and note its similar application here. More
2 importantly, I note that Mr. Stall misses the point; it is not that understanding the
3 scope of the project at the outset and including a reasonable contingency will always
4 reduce the final costs (although it may) but instead that a reasonable estimate of the
5 final project costs must be the starting point in determining whether or not to begin
6 the project. As explained by Mr. Shaw on page 32 of his direct testimony and in his
7 surrebuttal testimony, that was an important question to ask on behalf of ratepayers
8 regarding the EPU project.
9

10 **III. ATTEMPTS TO SHIFT COSTS FROM EPU TO LCM**

11 **Q. Please explain how you identified that projects were necessary for the EPU.**

12 A. Mr. O'Connor submitted a list to the NRC, under oath, dated November 5, 2008
13 listing all the projects to be accomplished for the EPU. I included these projects from
14 Mr. O'Connor's letter to the NRC as necessary for EPU. In addition, as explained in
15 my direct testimony (DOC Ex. ___ at 10-11 (Jacobs Public Direct)), I included the
16 costs for EPU license development and the cost for the 13.8 kV distribution system
17 upgrade as EPU costs.
18

19 **Q. Regarding the 13.8 kV distribution system, you noted above that Mr. O'Connor's**
20 **rebuttal testimony helps support your conclusion that this component properly**
21 **belongs as an EPU component. Please explain your statement.**

22 A. On page 89 of his rebuttal testimony, Mr. O'Connor stated:

23 During our interview, Dr. Jacobs asked me a question
24 similar to the following: "Was it necessary to upgrade to

1 **13.8 kV voltage if you had not done the uprate?” My**
2 **answer was that a higher voltage may not be required**
3 **without the uprate.** This was an acknowledgment that
4 the decision in 2007 to install 13.8 kV system was
5 **precipitated by the need to provide additional electricity**
6 **to run the larger pumps and motors that were being**
7 **installed for the uprate.** However, this does not negate
8 the longer term need that Monticello had for additional
9 distribution capacity and to replace the aging distribution
10 equipment. **It is possible that, absent the uprate, we**
11 **may have decided to add distribution capacity at a**
12 **different voltage. Strictly speaking, 13.8 kV was not**
13 **required absent the uprate** but additional distribution
14 capacity whether at 4 kV, 6.9 kV, or 13.8 kV was needed
15 without the uprate. But Dr. Jacobs, for some reason,
16 disregards the contemporaneous information provided
17 to him regarding the need for enhanced distribution
18 margin as well as the fact that space limitations in the
19 existing power block would have required locating the
20 additional bus in the same location. These same space
21 constraints would drive the requirement to run many
22 miles of cable and raceway to accommodate the new
23 system. Thus, the cost of new distribution capacity
24 would not have been avoidable absent the EPU.
25 (Emphasis added)

26 The highlighted statements in Mr. O’Connor’s testimony support my conclusion that
27 the costs of the 13.8 kV distribution system are properly classified as EPU costs.

28 Thus, as I stated on page 11 of my direct testimony:

29 I conclude that, but for the EPU, this upgrade would not
30 have been needed. That is, this modification was
31 needed only to provide the power to the larger reactor
32 feedwater and condensate pumps necessitated by the
33 increased secondary side flow rates. In addition, none of
34 the EPU projects with which I am familiar, including the
35 similar DAEC uprate, required this type of modification.
36 Absent the EPU requirements, this \$119.5 million
37 project cost was not necessary.

1 Q. How do you respond to Mr. O'Connor's statement that "additional distribution
2 capacity whether at 4 kV, 6.9 kV, or 13.8 kV was needed without the uprate"?

3 A. I note that the statement above that an upgrade to the distribution system was
4 needed absent the EPU is not confirmed by Xcel's January 18, 2005 Application to
5 the Minnesota Public Utilities Commission for a Certificate of Need to Establish an
6 Independent Spent Fuel Storage Installation at the Monticello Generating Plant
7 (2005 CN), where Xcel mentioned only an "electrical breaker *replacement*" as a
8 "potential capital improvement" – the Company did not mention an upgrade to the
9 distribution system:

10 Potential capital improvements included in the Resource
11 Plan model include:

- 12 • Cable replacement;
- 13 • Implementing Improved Technical
- 14 Specifications;
- 15 • Future possible security upgrades;
- 16 • New steam dryer;
- 17 • Electrical breaker replacement;
- 18 • Repairs to cooling towers;
- 19 • Constructing or re-licensing ISFSFs;
- 20 • Repair or replacement of Main Steam and
- 21 Feedwater piping;
- 22 • Upgrading to a next generation process
- 23 computer and IT improvements;
- 24 • Replacing primary containment bellows;
- 25 • Replace/rebuild main control room
- 26 instrumentation and control equipment due
- 27 to obsolescence;
- 28 • Replace feedwater heaters;
- 29 • Replace generator rotor and
- 30 rewind/refurbish generator stator;
- 31 • Replace static exciters; and,
- 32 • Complete under vessel cable replacement.²
- 33

² Pages 5-12, 5-13 of Xcel's January 18, 2005 Application to the Minnesota Public Utilities Commission for a Certificate of Need to Establish an Independent Spent Fuel Storage Installation at the Monticello Generating Plant.

1 **Q. Please describe your methodology for identifying costs related to the EPU project.**

2 A. Mr. O'Connor, in his direct testimony, supplied a table, Exhibit ____ (TJO-1), Schedule
3 30 that lists every project that makes up the entire \$664.9 million costs of the
4 combined LCM/EPU projects through August 2013. I selected every item necessary
5 for the EPU from his schedule 30, and then totaled up his own numbers up to arrive
6 at the \$569.5 million for the EPU in my direct testimony. DOC Ex. ____ at 12 (Jacobs
7 Public Direct). The results of my analysis are displayed on my Attachment WJR-3 to
8 my direct testimony.

9
10 **Q. Please provide guidance to assist the Commission to distinguish between EPU
11 projects and LCM project.**

12 A. The fundamental difference is that the Monticello plant could have continued
13 operating at the pre-EPU power level with implementation of the LCM projects listed
14 in Xcel's 2005 certificate of need discussed above. The plant was operating at that
15 power level before the EPU project was undertaken and could have continued
16 operating with the existing equipment. However, the plant could not operate at the
17 EPU power level without implementation of the EPU projects.

18
19 **Q. The Company claims that the plant could not have operated for the license renewal
20 period without implementation of the projects it has identified as LCM. Please
21 comment.**

22 A. All nuclear power plants and especially older nuclear power plants require on-going
23 maintenance for a number of reasons including equipment obsolescence and normal
24 degradation of performance over time. Utilities operating nuclear power plants make

1 routine decisions on whether to repair or replace equipment, on the timing of the
2 repair or replacement, and on the specific approach to take. Some, but not all, of the
3 equipment at Monticello replaced to support the EPU would likely have needed repair
4 or replacement during the extended license period just as some of it required repair
5 and replacement during the first 40 years of operation. However, the specific repair
6 or replacement decision would have been different in many cases absent the need to
7 support the power uprate.

8 The only information known about the actual decisions that would have been
9 in the LCM-only situation is the list of components above from Xcel's 2005 CN
10 petition, in which Xcel identified the potential capital costs to allow the plant to
11 operate until 2030 at the 600 MWe level. As discussed in more detail later in my
12 testimony, the cost and timing of specific repair or replace decisions would clearly
13 have been different if the Company had decided not to pursue the EPU.

14
15 **Q. How did the Company allocate costs between EPU and LCM?**

16 **A.** Mr. O'Connor discussed his methodology at page 83 of his rebuttal testimony. He
17 stated that his process was an "avoided cost analysis." His testimony stated that he
18 is "...focusing on costs that could be avoided if we did not undertake the EPU".

19 My understanding of his method is that he starts with the assumption that
20 everything is necessary for Monticello to operate until 2030 at the 600 MWe level
21 (i.e., LCM), and then pares out costs that might not be required if the EPU had not
22 also been accomplished. His methodology seems to assume that, unless a
23 component can be shown as totally not required for the LCM, then the component's

1 cost is for the LCM. That is, he assumed that cost components are LCM until proven
2 EPU.

3 In some cases, he tried to allocate costs between the EPU and the LCM. This
4 process, if done properly, would require detailed estimates for each project with and
5 without the requirements imposed by the EPU. The cost difference between the
6 project needed to support the EPU and the hypothetical LCM project assuming no
7 EPU could then be used to allocate costs between LCM and EPU. However, Mr.
8 O'Connor did not undertake this analysis.

9
10 **Q. What do you conclude about Xcel's approach to estimate LCM and EPU costs?**

11 A. I conclude that Xcel's approach is not reasonable. The Company did not estimate the
12 LCM-only costs of the components as needed to determine a proper allocation. It did
13 not determine which components would be required for the LCM-only scenario and
14 did not determine when certain components would be needed. Finally Xcel's
15 approach of allocating costs for some components to the EPU based on the ratio of
16 EPU capacity to total plant capacity does not adequately reflect the higher costs due
17 of Xcel's difficulties in installing larger equipment in a facility with a small footprint.

18
19 **Q. What would be required to estimate the LCM-only costs?**

20 A. Estimating the LCM-only costs for each project would be a challenging task. First it
21 would need to be determined if the existing component could support operation
22 during the LCM period of operation. If not, the next decision would be to determine
23 whether repair, refurbishment or replacement would be the best option and when the
24 repair, refurbishment or replacement would be done. If replacement was determined

1 to be the best option the availability of an appropriate replacement component would
2 need to be evaluated based on the performance, physical characteristics and safety
3 requirements. If repair or refurbishment was determined to be the best option, the
4 costs of these activities would need to be estimated. Finally the total project cost
5 including engineering, procurement, removal and installation costs would need to be
6 estimated. This approach would be a lengthy and time consuming exercise.

7
8 **Q. Please provide some examples in which the Company has inappropriately shifted**
9 **costs from the EPU to LCM.**

10 A. The following are examples where the Company attempted to inappropriately shift
11 significant costs from EPU to LCM:

- 12 • **13.8 KV distribution system** - I classified the \$119.5 million, 13.8 kV
13 distribution project as an EPU cost as discussed in my direct testimony at
14 page 11. The larger distribution system was installed to power the larger
15 feedwater and condensate pumps and confirmed to be an EPU project by
16 Mr. O'Connor during discussion at the Monticello plant and in his rebuttal
17 testimony, both as discussed above and where he stated that if the EPU
18 were not accomplished, "...we may have chosen to stay with the 4kv
19 voltage and added capacity to the existing system..." Xcel Ex. ___ at 96
20 (O'Connor Rebuttal). These facts simply do not support Xcel's proposal to
21 allocate the entire \$119.5 million for the 13.8 kV distribution plant to the
22 LCM project without an analysis or an idea of what the alternative LCM
23 project would have been or cost.

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- **Condensate demineralizer replacement** - I allocated these costs to the EPU in my direct testimony because it was classified as such in Mr. O'Connor's NRC letter. In addition I was told during a tour of Monticello that the demineralizer tanks were only replaced because of the higher flow due to the EPU. Contrary to these facts, Xcel allocated the cost of this system primarily to the LCM project. Mr. O'Connor and Mr. Stall attributed the need for replacement of the entire demineralizer tanks to the outmoded system controls. However, controls can be replaced without replacing tanks, valves and piping. Contrary to Xcel's proposal in this proceeding to allocate all of the costs of replacing the condensate demineralizers to the LCM, the fact is that tanks, piping and valves had to be replaced because of the higher flows required by the EPU, not the LCM. This conclusion reflects what Mr. O'Connor told the NRC.
 - **New turbine** - Despite the component's name, Xcel proposes to classify the EPU Turbine Replacement as almost entirely LCM costs. The prior turbine was new in 1998, as part of an earlier uprate. The original turbine lasted for 25 years and it is not uncommon for turbines to last for the life of the plant. This turbine was replaced "...to accommodate increased steam flow under EPU conditions" as stated by Mr. O'Connor's letter to the NRC.
 - **Reactor Feedwater Pumps** - The component, MNGP EPU Replacement of Reactor Feedwater Pumps/Motors, was described by Mr. O'Connor to the NRC as "...Replace the existing reactor feedwater pumps with new pumps sized for EPU conditions." Yet Mr. O'Connor inappropriately charged this project almost entirely to the LCM.

1 **IV. ALLOCATING 58.4% OF THE COSTS TO THE LCM**

2 **Q. On pages 122 and 123 of his rebuttal testimony, Mr. O'Connor suggested that the**
3 **Company would not object if 58.4%, rather than 78%, of the costs were allocated to**
4 **the LCM. How do you respond?**

5 A. While I agree that this approach reflects the relative amounts of costs that Xcel
6 initially indicated that the LCM and EPU projects would cost, an important fact is that
7 this recommended split is based on a much lower total cost estimate and does not
8 consider the impact of the final cost of major EPU components such as the \$121
9 million 13.8 kV distribution system modification which greatly shifted the cost ratio to
10 the EPU projects. As noted throughout my testimonies, the appropriate split of costs
11 between the LCM and EPU is the 15 (LCM)/85 (EPU) split that I recommend. The
12 split I recommend recognizes, for example, that the EPU resulted in costs such as the
13 modifications requiring excavation to bedrock to install the EPU, that Xcel would not
14 have incurred with the LCM alone.

15
16 **V. CONCLUSIONS**

17 **Q. Do you have any closing remarks?**

18 A. Yes. The Company's rebuttal testimony is voluminous, but simply does not support
19 its recommended cost split. Mr. O'Connor's rebuttal testimony and schedules alone
20 encompassed 612 pages in addition to the rebuttal testimony of Mr. Stall, Mr.
21 Sparby, Mr. Alders and Mr. Sieracki. I note that volume of testimony alone cannot
22 bolster a lack of defense for the huge cost overruns.

23 I also note that, in reviewing the Company's rebuttal testimony and attempts
24 to ascribe to the LCM costs that the Company indicated previously were needed for

1 the EPU, I am reminded why it is so important to use the approach I described in my
2 direct testimony:

3 **Q. Why did you use the identification of projects to**
4 **EPU or LCM presented in enclosure 8 to the**
5 **November 5, 2008 NRC letter as the basis for**
6 **assigning costs between EPU and LCM?**

7 **A.** It is my experience and practice to use
8 contemporaneous documentation when
9 evaluating utility expenses or operating
10 performance rather than subsequent analyses
11 prepared by the utility for testimony in regulatory
12 proceedings regarding cost recovery. A
13 contemporaneous description of projects as EPU
14 or LCM submitted to the NRC under oath and
15 penalty of perjury provides the best source of the
16 Xcel's determination of the need for each project.

17
18 **Q. Please provide your conclusions regarding the appropriate split of costs for the LCM**
19 **and EPU.**

20 **A.** Xcel has not shown that its proposed split of costs is reasonable. Based on my
21 review, I continue to conclude that the appropriate split of costs between the LCM
22 and EPU is the 15% for the LCM and 85% for the EPU as I concluded in my direct
23 testimony. This approach is consistent with Xcel's representations to the NRC and
24 reflects the realities of Xcel's experience with the LCM and EPU for this facility.

25
26 **Q. Does this conclude your Surrebuttal Testimony?**

27 **A.** Yes, it does.