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

IN THE MATTER OF THE PETITION OF NORTHERN STATES POWER COMPANY D/B/A XCEL ENERGY FOR APPROVAL OF COMPETITIVE RESOURCE ACQUISITION PROPOSAL AND CERTIFICATE OF NEED	**Docket No. E002/CN-12-1240** **OAH Docket No. 8-2500-30760**

REPLY POST-HEARING BRIEF

OF THE

MINNESOTA DEPARTMENT OF COMMERCE,

DIVISION OF ENERGY RESOURCES

December 6, 2013

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I. INTRODUCTION

The Minnesota Department of Commerce, Division of Energy Resources, Energy Regulation and Planning Unit (Department or DOC-DER) respectfully submits this Reply Brief, together with separate Proposed Findings of Fact, to Administrative Law Judge Eric L. Lipman (ALJ) and the Minnesota Public Utilities Commission (Commission) in response to the Initial Briefs of the following parties to this competitive resource acquisition proceeding:

- Northern States Power Company, d/b/a Xcel Energy (Xcel);
- Calpine Corporation (Calpine);
- Invenergy Thermal Development, LLC (Invenergy);
- Great River Energy (GRE);
- Geronimo Wind Energy, LLC, d/b/a Geronimo Energy (Geronimo); and
- The Environmental Interveners (EI);[1]

Because the North Dakota Advocacy Staff did not submit an Initial Brief, they are not included in the list above. In addition to the entities listed above, DOC-DER responds in this Reply Brief to submissions filed by:

- the Xcel Large Industrials (XLI)[2]; and
- Ecos Energy LLC (Ecos).

Having reviewed and considered the briefs and submissions noted above, DOC-DER continues to support its recommendation, as presented in DOC-DER's Initial Brief, as follows:[3]

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[1] The Environmental Intervenors consist of the Izaak Walton League -- Midwest Office, Fresh Energy, the Sierra Club, and the Minnesota Center of Environmental Advocacy. DOC-DER Initial Brief at 44.

[2] XLI consists of Flint Hills Resources, LP, Gerdau Ameristeel US Inc., UNIMIN Corporation, and USG Interiors LLC. XLI Public Comment at 1.

> The Department recommends that the Commission send Calpine's Mankato Project and Invenergy's Cannon Falls project to PPA [Power Purchase Agreement] negotiations such that ratepayers may benefit from parties' incentives to provide favorable terms. Issues regarding use of firm versus interruptible natural gas supply, flexible in-service dates and dual fuel capability, among others, should be addressed in PPA negotiations. Following review of the negotiated PPAs, the Department recommends that the Commission select the two most reasonable and prudent projects of the following three projects: Calpine's Mankato project, Invenergy's Cannon Falls project, and Xcel's Black Dog Unit 6 project. Negotiated PPAs, however, should not put ratepayers at risk for costs that are higher than bid or for benefits assumed in bids that do not materialize. If negotiated PPAs result in costs that are lower than bid, all bidders including Xcel should be allowed to keep those savings. Absent differences negotiated in the PPAs, the Department recommends as the best combination the Black Dog and Calpine projects. The Department also recommends that the Commission consider requiring Xcel to issue an all solar RFP [Request For Proposals] in consideration with other information that is known in the context of Xcel's next IRP [Integrated Resource Plan].

As discussed in greater detail in the Department's Initial Brief, Xcel and the Department did not use identical Strategist inputs but did produce similar Strategist outputs in terms of which bids perform best under a variety of circumstances. Thus, the final recommendations of Xcel and the Department, in terms of which bids should advance to the PPA negotiation stage, were the same.

Lastly, as discussed in detail below, the Department agrees generally with the recitation of applicable law in Xcel's Initial Brief as to the certificate of need (CN) statutes and rules containing a reasonable set of guidelines for making a decision in this proceeding. In Attachment 1 to this Reply Brief the Department provides a guide to each statutory and rule criterion applicable to certificates of need and how they are addressed (or not addressed) in this proceeding.

The Department provides its response in the following order: Geronimo, EI, Xcel, XLI, Calpine, Invenergy, GRE and Ecos Energy.

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[3] DOC-DER Initial Brief at 63.

II. DEPARTMENT'S RESPONSE TO GERONIMO

The ALJ's July 17, 2013 *Second Pre-hearing Order* (2nd PHO) confirmed that Geronimo is an intervener in this proceeding. Pursuant to the ALJ's 2nd PHO Geronimo filed the *Geronimo Energy LLC's Post-Hearing Brief* (Geronimo Initial Brief) on November 22, 2013. The Department discusses below several issues in response to Geronimo's Initial Brief.

A. Strategist Inputs

On page 19 of its Initial Brief, Geronimo stated that:

> Xcel's and the Department's Strategist results are unreliable, however, because they fail to include the following important attributes of the Solar Proposal:
>
> - Transmission Line Losses. Xcel acknowledges that the Solar Proposal will result in a reduction in transmission losses that are not captured in Xcel or the Department's models. Under Geronimo's bundled pricing proposal, this reduces the project's PVSC by approximately $9 million.
> - S-REC Value. Both Xcel and the Department modeled the Solar Proposal in addition to Xcel's obligations to acquire solar energy under the SES. This modeling assumption does not reflect the practical reality that Xcel will use the Solar Proposal to meet its SES obligations and has stated its intent to do so. Even ignoring practical realities and assuming arguendo that Xcel would not use the Solar Proposal to meet its SES obligations, both the Department's and Xcel's Strategist models still fail in that they do not account for the S-REC value that Xcel will obtain. Based on S-REC values in other states that range from between $13/S-REC to over $200/S-REC, Geronimo conservatively estimates that the Solar Proposal will have an S-REC value of between $5/S-REC and $20/S-REC, resulting in a PVSC reduction of $10 and $38 million annually.
> - Avoided Transmission Capacity Costs. Finally, the Strategist results exclude benefits related to avoided transmission capacity costs. The Minnesota Legislature recognized that distributed solar energy projects have the added benefit of avoiding transmission capacity costs. These cost savings reduce the PVSC for the project by approximately $33million.
>   [Footnotes Omitted.]

First, the Department notes that Geronimo raised the three issues above for the first time in its Rebuttal Testimony, despite having an opportunity to provide feedback on the inputs to be used to examine its proposal in this proceeding.[4] Given that Rebuttal Testimony was filed on Friday, October 18, 2013, only days prior to the evidentiary hearing on Tuesday, October 22, no party had an adequate opportunity to examine or provide written testimony in response to the new issues Geronimo raised in its Rebuttal Testimony.

However, none of the issues raised by Geronimo include costs or benefits that should have been incorporated into an appropriate analysis in this proceeding. The Department provides a response to each of these issues below, based on the information available in this record.

1. Transmission Losses

For ease of reference, the Department repeats Geronimo's assertion regarding transmission losses:

> Transmission Line Losses. Xcel acknowledges that the Solar Proposal will result in a reduction in transmission losses that are not captured in Xcel or the Department's models. Under Geronimo's bundled pricing proposal, this reduces the project's PVSC by approximately $9 million.

Regarding transmission losses, first, the Department notes that such benefits were not included in Geronimo's bid. As noted above, the Department appropriately modeled each bid based on the information obtained from the bidder.[5]

Second, any benefits Xcel may receive through a reduction in transmission losses would need to accrue to ratepayers in order to be included in the Department's analysis. Ratepayers should not be at risk for assumed benefits that do not materialize.[6] The Geronimo Initial Brief recognized the importance of this principle when it criticized Xcel's assumptions regarding the

[4] DOC-DER Ex. 83 at 4 (Rakow Public Direct).
[5] DOC-DER Ex. 86 at 13 (Rakow Rebuttal).
[6] DOC-DER Ex. 101 (Shaw Opening Statement).

sale of excess capacity credits at a rate that may not materialize.[7] However, Geronimo did not propose a mechanism whereby Xcel could recover from Geronimo any difference between a $9 million assumed savings and any actual benefit ratepayers may receive.

Third, Xcel provided the Department with an analysis of the locational marginal price (LMP) differentials for all bids but the Geronimo proposal.[8] While the Department did not specifically discuss line losses, based on the analysis provided by Xcel showing a very minimal LMP differential associated with each bid, the Department concluded that no adjustment to any of the bids was necessary.[9]

Fourth, as noted by Xcel, even if the present value of societal cost (PVSC) of Geronimo's bid were reduced by $10 million, which as discussed above would not be appropriate, the reduction would not make the proposal cost-effective.[10]

2. Solar Renewable Energy Credits (S-REC) Value

As noted above, Geronimo stated:

> S-REC Value. Both Xcel and the Department modeled the Solar Proposal in addition to Xcel's obligations to acquire solar energy under the SES. This modeling assumption does not reflect the practical reality that Xcel will use the Solar Proposal to meet its SES obligations and has stated its intent to do so. Even ignoring practical realities and assuming arguendo that Xcel would not use the Solar Proposal to meet its SES obligations, both the Department's and Xcel's Strategist models still fail in that they do not account for the S-REC value that Xcel will obtain. Based on S-REC values in other states that range from between $13/S-REC to over $200/S-REC, Geronimo conservatively estimates that the

[7] Geronimo Initial Brief at p. 22. (The Department did not include any benefit associated with the sale of excess capacity credits in its analysis.)

[8] DOC-DER Ex. 81 at CJS-5, p. 8 (Shaw Direct Attachments). Xcel stated that Geronimo's proposal was not evaluated due to insufficient information on the locations of the various solar sites. Xcel noted that, to the extent some of the solar connected to the transmission system, charges related to the LMP differential will be incurred. DOC-DER Ex. 81 at CJS-5, p. 7 (Shaw Direct Attachments).

[9] DOC-DER Ex. 79 at p. 5 (Shaw Direct).

[10] Xcel Ex. 46 at 35 (Wishart Direct); DOC-DER Ex. 86 at 13 (Rakow Rebuttal).

> Solar Proposal will have an S-REC value of between $5/S-REC and $20/S-REC, resulting in a PVSC reduction of $10 and $38 million annually.

The Department responds as follows. First, similar to transmission losses, the Department notes that solar renewable energy credits (S-REC) benefits were not included in Geronimo's bid. The Department appropriately modeled each bid based on the information obtained from the bidder.

Second, similar to transmission losses, any benefits Xcel may receive through a sale of S-RECs would need to accrue to ratepayers in order to be included in the Department's analysis. Ratepayers should not be at risk for assumed benefits that do not materialize.[11] As noted above, the Geronimo Initial Brief recognized the importance of this principle when it criticized Xcel's assumptions regarding the sale of excess capacity credits at a rate that may not materialize.[12] However, Geronimo did not propose a mechanism whereby Xcel could recover from Geronimo any difference between the $10 to $38 million assumed savings and any actual benefit ratepayers would receive.

Third, as to the value of solar renewable energy credits, as Dr. Rakow explained in his Direct Testimony, there has been considerable uncertainty in this proceeding about Minnesota policy regarding solar energy; further, solar energy is at a different level of maturity than other kinds of energy:

> This Commission-approved RFP lead to several proposals for the peaking and intermediate need specified by the Commission but did not lead to any solar proposals beyond that provided by Geronimo. That result is not surprising since: 1) the RFP did not mention solar resources, 2) solar resources are currently not as commercially developed as wind proposals, and 3) concurrent with the timing of the decisions noted above, the Minnesota Legislature was discussing what is now the Minnesota SES. Thus, there was a fairly high level of uncertainty about what

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[11] DOC-DER Ex. 101 (Shaw Opening Statement).

[12] Geronimo Initial Brief at p. 22. (The Department did not include any benefit associated with the sale of excess capacity credits in its analysis.)

Minnesota law would become and what the regulatory structure for solar projects would be.[13]

Given this uncertainty, even if it were reasonable to impute revenues for S-RECs (along with ensuring that all such revenues would be returned to ratepayers) it would be unreasonably speculative to do so. Due to the uncertainty of solar resources during this proceeding, the Department recommended the following:[14]

> **Q. Do you have suggestions for ways to address what is now the Minnesota SES?**
>
> A. Yes. Given the difference in the commercial maturity of solar projects compared to other projects, it seems that a more reasonable approach to assess the cost-effectiveness of solar projects would be to direct Xcel to issue a subsequent RFP for solar projects only (an All- Solar RFP, similar to All-Wind RFPs that have been used), at a size and time to be determined in Xcel's next resource plan, which is to be filed in February, 2014. This would allow the RFP to be issued after the solar Effective Load Carrying Capability (ELCC) study is completed, which would give better information regarding the production of solar power compared to Xcel's load. Using this approach would provide better information about Geronimo's bid than is available at this time and would allow Geronimo's bid to be compared on more of an apples-to-apples basis with other solar projects. Finally, this approach would mean that other potential solar bidders would be more widely noticed, allowing better information to be gathered about solar costs and help ensure that the best solar projects are added to Xcel's system.

Second, as to excess capacity, the Commission's March 5, 2013 Order in this proceeding set the scope of the competitive bidding in this proceeding to obtain resources to meet the needs of Xcel's retail customers:

> On November 21, 2012, the Commission issued an order opening this docket to manage the process of selecting the additional resources Northern States Power Company d/b/a Xcel Energy needs to meet the projected *needs of its service area* between now and 2020. (Emphasis added)

[13] DOC-DER Ex. 83 at 11 (Rakow Public Direct).
[14] DOC-DER Ex. 83 at 12 (Rakow Public Direct).

3. Avoided Transmission Capacity Costs

As noted above regarding this issue, Geronimo stated:

> Avoided Transmission Capacity Costs. Finally, the Strategist results exclude benefits related to avoided transmission capacity costs. The Minnesota Legislature recognized that distributed solar energy projects have the added benefit of avoiding transmission capacity costs. These cost savings reduce the PVSC for the project by approximately $33 million.

Geronimo's arguments about avoided transmission capacity costs miss several important points. First, any such benefits were not included in Geronimo's bid. The Department appropriately modeled each bid based on the information obtained from the bidder.

Second, similar to transmission losses and the sale of S-RECs, any benefits Xcel may receive through a reduction in transmission capacity costs would need to accrue to ratepayers in order to be included in the Department's analysis. Geronimo did not propose a mechanism whereby Xcel could recover from Geronimo any difference between a $33 million assumed savings and any actual benefit ratepayers may receive.

Third, while Geronimo estimated a large amount of transmission capacity costs that it believes would be avoided if its project were selected, Geronimo's bid has already benefitted from the assignment of transmission costs to the other bids. Further, DOC-DER Witness Mr. Shaw conducted an analysis to ensure that all costs associated with interconnecting each proposed project were included in the cost of each bid.[15] Thus, if the Commission accepts the Department's recommendation to cap the cost recovery of bids to the levels used in this proceeding, the other bids may not increase the cost to ratepayers associated with interconnecting each project to the transmission system beyond the costs included in the Department's analysis.

[15] Ex. 79 at p. 2-4 (Shaw Direct).

Since all of these transmission costs have already been included in the analyses in this record, it would not be appropriate to impute more avoided transmission capacity costs to Geronimo's bid.

B. Levelized Cost

The Geronimo Initial Brief at page 16 asserted that its solar proposal has the lowest levelized cost of the proposed projects. The Department agrees with Xcel Witness Mr. Wishart that a levelized cost comparison does not provide a meaningful comparison of projects in this proceeding.[16] Specifically, the Department agrees that a levelized cost analysis "is only appropriately used when comparing very similar resources of the same type where cost is the principal, if not only, distinguishing factor between the resources."[17] Further, as cited by Mr. Wishart, the Energy Information Administration (EIA) annually publishes levelized cost estimates for various generation resources for use in its Annual Energy Outlook.[18] The EIA cautions that:

> Since projected utilization rates, the existing resource mix, and capacity values can all vary dramatically across regions where new generation capacity may be needed, the direct comparison of the levelized cost of electricity across technologies is often problematic and can be misleading as a method to assess the economic competitiveness of various generation alternatives. Conceptually, a better assessment of economic competitiveness can be gained through consideration of avoided cost, a measure of what it would cost the grid to generate the electricity that is otherwise displaced by a new generation project, as well as its levelized cost. Avoided cost, which provides a proxy measure for the annual economic value of a candidate project, may be summed over its financial life and converted to a stream of equal annual payments, which may then be divided by average annual output of the project to develop a figure that expresses the "levelized" avoided cost of the project. This levelized avoided cost may then be compared to the levelized cost of the candidate project to provide an indication of whether or not the project's value exceeds its cost. If multiple technologies are available to meet load, comparisons of each project's levelized avoided cost to its levelized project cost may be used to determine which project provides the best net economic value. Estimating avoided costs is more complex than for simple

[16] Xcel Ex. 46 at 15-18 (Wishart Direct).
[17] Id. at 15.
[18] Id. At 16.

levelized costs, because they require tools to simulate the operation of the power system with and without any project under consideration.[19]

While a levelized cost analysis is appropriate to compare generation facilities of the same type, such as comparing the levelized costs of various wind projects, EIA makes clear that a levelized cost analysis is not a reasonable measure to use to compare the costs of different technologies such as solar versus combined cycle versus combustion turbine. As DOC-DER Witness Dr. Rakow demonstrated, Geronimo's solar bid is not one of the lowest cost bids.[20]

B. Environmental Costs

The Geronimo Initial Brief at page 7 stated that its proposal "also provides Xcel with environmental benefits." As cited in the DOC-DER's Initial Brief, Dr. Rakow explained that the Commission's externality values, CO_2 internal cost estimate, and the cost of SO_x and NO_x emissions credits all serve to reward units that are more efficient in terms of environmental impact (i.e., reduced air emissions). Since these emissions costs were all included in Strategist, these benefits have already been appropriately included in the Department's cost comparison in this proceeding.[21]

C. Factors Other than Price

The Geronimo Initial Brief on page 25 stated that factors other than price should be considered.[22] The Department agrees that non-cost factors may be considered when the differing costs of alternatives is fairly close. However, the additional cost of the Geronimo bid as

[19] Id. at 16-17.
[20] DOC-DER Initial Brief at 41-43.
[21] DOC-DER Ex. 86 at 18 (Rakow Rebuttal).
[22] The Geronimo Brief at page 25 states: "Xcel's top 25 bid combination plans are separated by PVSC differences of $34 million or less. This $34 million difference represents a difference of approximately 0.08% of the $45.3 billion total system costs." [footnote omitted] The Department notes that the result from its modeling is that, under base case conditions, Geronimo's bid costs $160 million more (PVSC) than the least cost package; a substantial cost premium. DOC-DER Ex. 84 at SR-5A (Rakow Direct Attachments). Ecos Energy makes a similar argument on pages 2-3 of its Comments.

compared to the costs of the other bids was too great to be overcome by consideration of state policy preferences.[23] As a result, as noted above, the Department recommended that the Commission require an all-solar request for proposals to help implement the state policy preferences regarding solar energy.

D. Meeting Greenhouse Gas Goals

The Geronimo Initial Brief at page 2 stated:

> If Minnesota is to truly move forward with its legislative goals to lower greenhouse gas emissions and acquire 100% of its energy from renewable resources in the future, then renewable resources must be selected through long-term resource acquisition proceedings such as this one, particularly where, as here, they are shown to be the least cost resource and a reliable means of meeting the identified need.

This statement is not supported by the Record. The results from its modeling indicate that, under base case conditions, not only was Geronimo's bid not least cost, it was $160 million more (PVSC) than the least cost package. DOC-DER Ex. 84 at SR-5A (Rakow Direct Attachments).

E. Flexibility in Meeting Needs

The Geronimo Initial Brief at page 3 stated:

> Xcel's need for additional capacity could range from as little as 26 megawatts ("MW") to up to 443 MW in 2019. The resources selected in this docket must be flexible enough to address this wide range of capacity needs. [Footnote omitted]

The Department agrees that flexibility is a factor to be considered. The flexibility provided by Invenergy's bid is an important reason why it was recommended for PPA negotiations.[24] The need for flexibility is driven by several uncertainties; for example, the expected MISO required capacity reserve ratio and Xcel's 125 MW power purchase agreement with Manitoba Hydro.[25]

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[23] Tr. V.2 at 56:22-25 (Rakow).
[24] DOC-DER Ex. 86 at 12 (Rakow Rebuttal).
[25] *Id.*at 7.

In comparison, Geronimo did not provide any flexibility in its proposal at a time in which that flexibility could be taken into consideration.

F. Need Evaluated in 2019

The Geronimo Initial Brief at page 21 stated: "[B]oth the Department and Xcel only evaluated combinations of plants that exceeded 200 MW of need by 2019." [Footnote omitted] This statement is incorrect. Geronimo referenced a chart which shows the base case forecast. However, the Department also evaluated the projects in the second round under both high and low forecasts of energy and demand (±5 percent and ±2.5 percent).[26] The lowest forecast is about 500 MW lower than the base case in 2019.[27] Therefore, the Department evaluated the projects under a wide variety of potential needs, including needs less than 200 MW.

G. Consideration of Water Usage

The Geronimo Initial Brief at page 26 stated: "[T]he Solar Proposal will not require water for power generation and will not discharge wastewater containing heat or chemicals during operation." [Footnote omitted] The Department does not question Geronimo's statements. However, the cost of water, the cost of containing the heat from water discharges, and the cost of containing chemicals from operations all will have been included in the bids. Thus, these advantages have already been considered by the Department and Xcel.

H. Acquiring Half of Solar Standard

The Geronimo Initial Brief at page 29 stated:

> Xcel forecasts that it will need 455,919 MWh of solar energy annually to meet its solar standard in 2020. Geronimo's project will provide approximately 200,000 MWh annually and help meet a substantial portion of Xcel's solar energy need. [Footnote omitted]

[26] DOC-DER Ex. 83 at 37 (Rakow Direct).
[27] DOC-DER Ex. 76 at 13 (Shah Direct).

At this time the Department does not question Xcel and Geronimo's calculation of the solar energy standard requirement. However, the Department does question the wisdom of acquiring about half of Xcel's Solar Energy Standard requirement without any competing proposals or notice to the public that the Commission and Xcel were seeking energy to meet the solar requirement. It would be much more appropriate for the Commission to require Xcel to issue an all solar RFP in consideration with other information that is known in the context of Xcel's next IRP.[28]

I. PPA Negotiations

On page 33 the Geronimo Initial Brief stated, "Geronimo respectfully asserts that it is critical to the long-term viability of the competitive resource acquisition process that the ALJ and Commission make the final resource selection…." In general, the Department agrees. If no issues arise during PPA negotiation, the Department recommends that the Commission select Xcel's Black Dog 6 and Calpine's Mankato proposal.[29] However, the Department recommends that Invenergy's proposal also proceed to PPA negotiations in the event that significant issues arise with either the Black Dog or Mankato proposals.[30] Further as stated in the Department's Initial Brief, the Department expects terms such as pricing, in-service dates, firm versus interruptible gas supply, duel fuel capability, and interconnection that are negotiated as part of the PPA process must be consistent with the analysis conducted in this matter.[31]

III. DEPARTMENT'S RESPONSE TO THE ENVIRONMENTAL INTERVENERS

The ALJ's July 17, 2013 *Second Pre-hearing Order* (2nd PHO) confirmed that the Environmental Interveners are interveners in this proceeding. Pursuant to the ALJ's 2nd PHO the

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[28] DOC-DER Ex. 83 at 43 (Rakow Direct).
[29] DOC-DER Ex. 86 at 21 (Rakow Rebuttal).
[30] *Id.*
[31] Tr.V.2 at 42-43 (Shaw).

EI filed their *Initial Brief* (EI Initial Brief) on November 22, 2013. Below the Department responds to the EI Initial Brief.

A. Demand Trend

The EI Initial Brief at page 1 stated:

> Given the flattening demand on Xcel's system, the opportunities to select between renewable and non-renewable resources to meet new capacity needs over the near term will be few.[32]

This statement is incorrect. The most recent four forecasts for Xcel's system demand were obtained in Xcel's response to Department Information Request No. 9.[33] Since each forecast shows significant growth in load, it is incorrect to say that load is flattening. Because Xcel's forecasts are continually changing the Department's goal in certificate of need and IRP proceedings of determining a plan that is least cost across a wide range of forecasts is reasonable and important.[34] Furthermore, as explained by Mr. Shah, not all forecasts are created equal. Figure 1 from DOC-DER Witness Mr. Shah's Direct Testimony illustrates the difference between the 2013 and 2011 forecasts.

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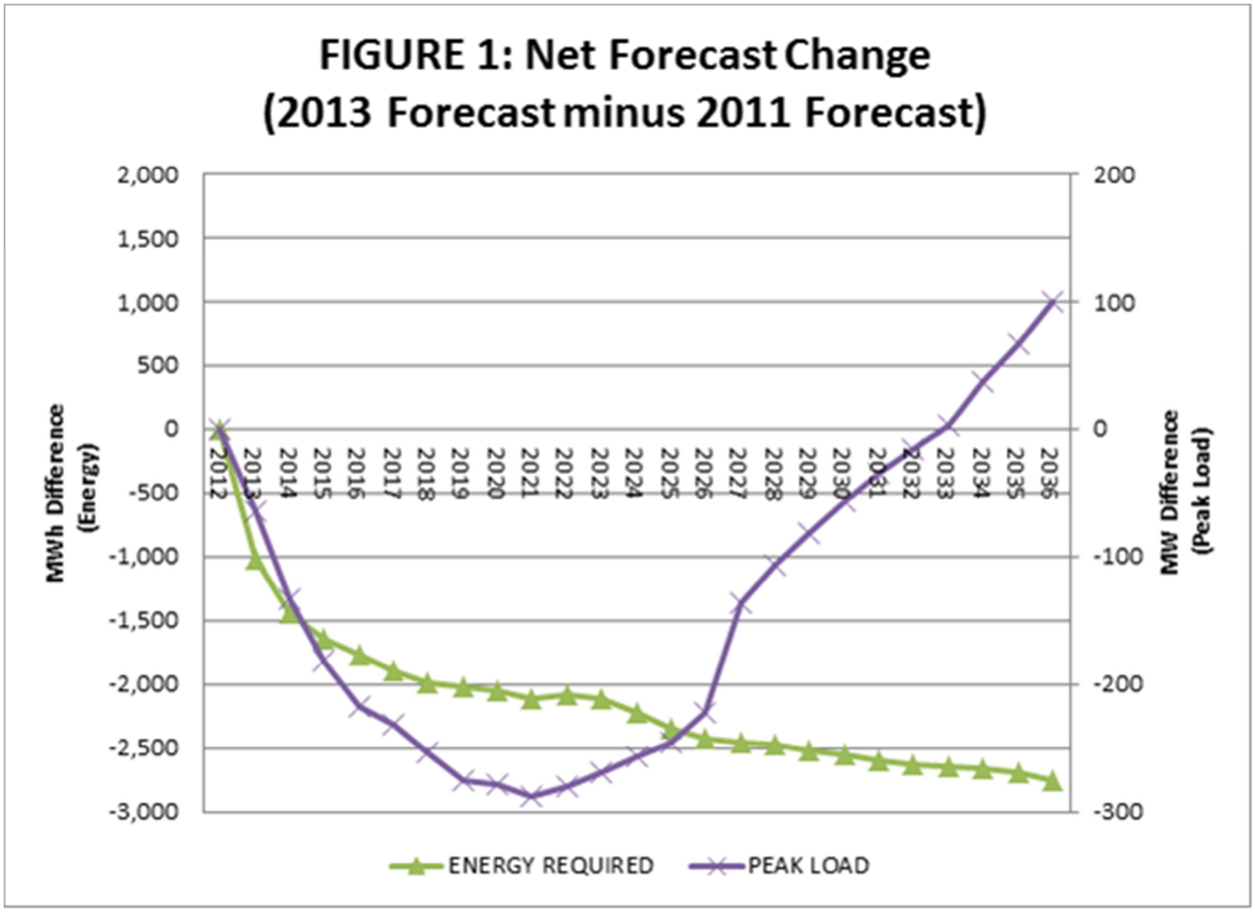
[32] EI Initial Brief at 1.
[33] DOC-DER Ex. 76 at SS-2 p. 5 of 13 (Shah Direct).
[34] DOC-DER Ex. 76 at 14 (Shah Direct).



In reviewing Figure 1 Mr. Shah explained:

Thus, one of my concerns is the different patterns in these two vintages of forecast as presented by Xcel. In particular:

- Why the differences in the two forecasts of peak demand that Xcel prepared a year and a half apart – from fall 2011 to spring 2013 – follows a U-shaped pattern over the forecasted period?
- Why Xcel's spring 2013 forecast predicts that energy sales will be consistently lower over the forecast period, while Xcel's spring 2013 forecast predicts that peak load will decline and then grow to be slightly higher than estimated in the fall 2011 forecast.[35]

[35] DOC-DER Ex. 76 at 9 (Shah Direct).

Thus, the issue is not merely that Xcel's spring 2013 forecast has not been reviewed. The issue also is that there are significant uncertainties surrounding the accuracy of the spring 2013 forecast.[36] As a result, the spring 2013 forecast has not been specifically shown to be a reasonable basis to use in this proceeding. Nonetheless, the results of this forecast are within the various contingencies used in the Department's analysis.[37]

B. Certificate of Need Statutes and Rules as a Guide

With respect to certificate of need statutory and rule criteria, the EI accurately characterized the Department's view that no CN is required for the facilities selected in this proceeding. Specifically, EI stated:

> The Department was asked in discovery whether any of the requirements of Minnesota Statutes Section 216B.243 needed to be proven in this matter. In its response it stated that the process used for this proceeding is modeled after a certificate of need process, but that it is "clear that under Minnesota Statutes no provisions of Minnesota Statutes Section 216B.243 apply to this proceeding."[38]

The EI Initial Brief accurately characterized the Department's position regarding whether the instant proceeding is a CN proceeding, whether the proposals being evaluated in this proceeding require a CN, and whether Minnesota Statutes §216B.243 must be applied to this proceeding. Further, the EI are correct that the Department's position is based upon Minnesota Statutes §216B.2422, subd. 5 which states that a "certificate of need proceeding under section 216B.243 is not required" for a plant selected through a "bidding process approved or established by the commission."

What the EIs did not ask the Department is, given the fact that the proposals being evaluated are exempt from a CN, what evaluation criteria should be used? The Department agrees with the EIs that Minnesota Statutes §216B.2422, subd. 5 in no way precludes the

[36] DOC-DER Ex. 76 at 8-14 (Shah Direct).
[37] DOC-DER Ex. 76 at 13 (Shah Direct).
[38] EI Initial Brief at 2.

Commission from relying on the CN statutory and rule evaluation criteria for the analysis in this proceeding. The criteria in the CN statutes and rules are not required to be satisfied, but they do provide a reasonable guide as to how to proceed. This observation is wholly consistent with the Department's position, cited by the EIs that "the Department agrees with the Commission Order that the process at hand tracks the framework of, or is modeled upon, that of a certificate of need."[39]

In conclusion, the Department agrees with Xcel and the EIs that, where applicable, the CN statutes and rules provide a reasonable guide for the ALJ and Commission to use when making a determination. As the Commission's Order, cited by Xcel and the EIs, makes clear "The Commission finds that *the two-track, competitive procurement process described in the Department's comments of January 30, 2006*, acceded to by the Company, provides much more certainty, predictability, and accountability than the current process." [Emphasis added] Further, as cited elsewhere in this Reply Brief, Geronimo's proposal was only advanced to the second round out of consideration for Minnesota's renewable preference statutes.[40]

C. Application of Renewable Preference Statutes

Regarding application of Minnesota's Renewable Preference statutes, the EI stated:

> To the degree the Legislature instructed the Department of Commerce to make policy recommendations, it is to offer testimony that encourages conservation and furthers the development of renewable resources. Here, however, the Department essentially made the policy choice to abandon serious consideration of the only renewable proposal offered in this proceeding, Geronimo's solar bid, …. [Footnote omitted][41]

The Department finds it curious that the EIs claim that the Department abandoned serious consideration of the only renewable proposal in this proceeding when the record clearly shows

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[39] EI Initial Brief at Exhibit A.
[40] DOC-DER Ex. 83 at 35 (Rakow Direct).
[41] EI Initial Brief at 6.

that the Department advanced Geronimo's solar proposal to the second round specifically because it was renewable.[42] Further, as noted above, the Department recommended that the Commission require Xcel to conduct an all-solar RFP to advance the solar renewable energy standard. Thus, the Department concludes that the statement above mischaracterizes the Department's analysis and position in this proceeding.

D. Geronimo and the Third Round

The EIs took issue with the Department's third round of Strategist analysis, as follows:

> Geronimo, the only renewable resource bid, however, was excluded from the Department's "third round" evaluation where flexible in-service dates were introduced.[43]

It is true that Geronimo's proposal was not included in the Department's "third round" evaluation where flexible in-service dates and interruptible natural gas were introduced. However, this exclusion was due to facts pertaining to Geronimo's bid. Specifically, these issues (flexible in-service dates and interruptible natural gas) were either not among the two corrections to the initial proposal provided by Geronimo in Direct Testimony or not relevant to Geronimo's proposal.[44] As such, Geronimo's proposal did not demonstrate that, as to cost, these factors warranted further detailed cost evaluation.[45] As noted above, the Department did not impose changes to proposals that were not offered by bidders. Therefore, the second round analysis contains the Department's final evaluation of Geronimo's proposal.

[42] DOC-DER Ex. 83 at 35 (Rakow Direct).
[43] EI Initial Brief at 6.
[44] Geronimo Ex. 57 at 2-3 (Engelking Direct).
[45] DOC-DER Initial Brief at 20-21 and 41-43.

E. Achieving Greenhouse Gas Goals

The EI Initial Brief at page 9 addressed Minnesota's Greenhouse Gas reduction goals, as follows:

> The [Geronimo] proposal has zero greenhouse gas emissions and is therefore the only bid that is consistent with the state's greenhouse gas reduction goals, which require steep reductions in emissions over the lifetime of these proposals.[46]

This statement is misleading. First, the Department agrees that Geronimo's proposal is the only one with zero greenhouse gas emissions. However, this does not mean it is the only one consistent with the state's greenhouse gas reduction goals. Minnesota's goals are emission reductions below 2005 levels of 15 percent by 2015, 30 percent by 2025, and 80 percent by 2040.[47] Thus, the goals require greenhouse gases to be ramped down over an extended duration, but not to be completely eliminated. Adding projects that emit greenhouse gases can be compatible with achieving a ramp down in greenhouse gas emissions.

Second, the Department modeled a scenario where CO_2 emissions are reduced per Minnesota Statutes.[48] A brief review of DOC-DER Ex. 84 at SR-5A (Rakow Direct Attachments) indicates that Strategist was unable to find an expansion plan that complied with the state's goal; the CO_2 emissions reduction scenario failed, in every instance. That is, there are no expansion plans which Strategist considered that resulted in compliance. Further analysis beyond that provided in this proceeding would be required before any potential path consistent with Minnesota's CO_2 emissions reduction goals could be determined.

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[46] EI Initial Brief at 9.
[47] Ex. 38 at 38 (Environmental Report); Minn. Stat. § 216H.02.
[48] DOC-DER Ex. 83 at 36 (Rakow Direct).

F. Xcel's Capacity Needs

The EIs incorrectly characterized Xcel's capacity needs. The EIs stated that "the modeling analyses in the record are based on an exaggerated view of Xcel's likely capacity need."[49] The EIs appears to arrive at this conclusion by selectively adjusting the Commission-determined need (of approximately 150 MW in 2017, increasing to up to 500 MW in 2019) by only two factors:

- Xcel's newer forecast; and
- MISO's newer reserve margin requirements.[50]

The EI's statement is incorrect. The Department reiterates that, as Mr. Shah explained in his Direct Testimony:

> [T]the fundamental goal in certificate of need and resource planning proceedings is not to establish a plan that is least cost under a single forecast but for the plan to be least cost across a wide range of forecasts. Given this goal, the concerns I discuss above, the Commission's decision not to require continual updating of forecasts in the 2010 IRP (i.e. that the need was based on using the fall 2011 forecast), and the fact that the spring 2013 forecast is within the 5 percent contingency modeled, I conclude that Department Witness Dr. Steve Rakow's use of the fall 2011 forecast as a starting point to begin his analysis of assessing the bids is reasonable.[51]

The record shows that things like demand forecasts, energy forecasts, and load and capability reports will continually change. Thus, the issue for the Commission in this proceeding is not to determine with specificity which forecast is correct at a particular point in time or which load and capability report is most up to date, but whether the band analyzed covers a reasonable range of future forecasts and a reasonable range of load and capability reports upon which to make a resource selection.

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[49] EI Initial Brief at 11.
[50] *Id.*at 10.
[51] DOC-DER Ex. 76 at 14 (Shah Direct).

IV. Department's Response to Xcel

The ALJ's July 17, 2013 2nd PHO confirmed that Xcel is an intervener in this proceeding. Pursuant to the ALJ's 2nd PHO the Xcel filed its *Initial Post-Hearing Brief* (Xcel Initial Brief) on November 22, 2013.

A. Decision Criteria

The Xcel Initial Brief at page 6 stated that:

> A resource chosen through a Commission-approved competitive resource acquisition process pursuant to Minn. Stat. § 216B.2422, subd. 5(b) is exempt from the requirement to obtain a certificate of need. But as the Commission explained in its order approving the Track 2 competitive bidding process that is being used in this proceeding, the "certificate of need filing requirements and decision criteria are clear, comprehensive, directly relevant . . . , and easily transferable to th[is] resource procurement process." [Footnote omitted]

The Department agrees generally with Xcel's legal analysis of certificate of need (CN) requirements on pages 6-40 of its Initial Brief. Further, the Department used consistent – but not identical inputs – in its Strategist modeling and reached consistent–but not identical–results as discussed in greater detail in the Department's Initial Brief. The Department responds below to statements in Xcel's Initial Brief.

B. Xcel to File Annual Status Reports

The Xcel Initial Brief at page 13 stated that:

> [T]he Company recommends that the Commission require us to file status reports in the Fall of 2014 and 2015 so that the Commission can assess if changes in resource implementation should be made.

The Department agrees that, given the uncertainty that is always present in such proceedings, it would be reasonable for Xcel to file status reports in the fall of 2014 and 2015.[52] For example, uncertainties were examined by the Department regarding the use of coincident

[52] DOC-DER Ex. 86 at 7 (Rakow Rebuttal).

peak demand rather than the traditional non-coincident peak demand, including related issues such as:

- the required capacity reserve ratio;[53]
- the correct diversity factor to apply to the non-coincident (utility) peak demand forecast; and
- the correct diversity factor to apply to demand side management.[54]

Other factors may also change during this time period, as noted above. Xcel's proposed status reports would enable the Commission to confirm that the initial decision remains reasonable, request further analysis of evolving circumstances, or make changes to the projects approved, as the Commission deems appropriate.

C. Incentive Mechanism for Xcel's Bid

Xcel does not object to the Department's position with respect to a cost recovery mechanism. The Xcel Initial Brief at page 21 stated that:

> [T]he Company continues to support our cost recovery mechanism as the most balanced approach. Nevertheless, based on the unique circumstances in this case and the record developed here, the Company does not object in principle to the Department's proposed alternative.

The Department continues to recommend that the Commission approve a cost recovery mechanism that requires Xcel to absorb any cost increases while allowing Xcel to keep any cost savings below its proposal estimates.[55] Xcel should be able to retain any savings if their actual

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[53] MISO's method for determining the required reserve ratio continues to evolve. While publically available, information available on MISO's website regarding its latest potential requirements is not included in the record of this proceeding:
https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/Workshops%20and%20Special%20Meetings/2013/20130822%20Load%20Forecasting%20Workshop/20130822%20Load%20Forecasting%20Workshop%20Item%2004%20Zonal%20Peak.pdf
[54] DOC-DER Ex. 83 at 25, 39 (Rakow Direct).
[55] DOC-DER Ex. 82 at 3 (Shaw Rebuttal).

costs are lower than the costs they have bid into this process, just as any other bidder would be able to do.

D. Flexible In-Service Dates

Regarding flexible in-service dates to be negotiated, the Xcel Initial Brief at page 2 requested that:

> [T]he Commission direct the parties in the PPA negotiation phase of this proceeding to develop the in-service date(s) for each of the selected resources that best matches the identified need in the 2017-2019 timeframe and provides the maximum value to our customers. The Department agrees that, inclusion of flexible in-service date(s) in the Power Purchase Agreement(s) (PPA) is reasonable. Specifically, the Department expects that any PPA brought to the Commission for approval would have pricing terms consistent with the prices that were used to evaluate the bid.[56]

The Department analyzed flexible in-service date(s) and concluded that such terms might provide a significant cost reduction.[57]

E. Red River Units

Concerning Xcel's proposed Red River Valley Units 1 and 2, the Xcel Initial Brief at page 17-18 stated:

> [T]he Company supports the development of Red River Valley Units 1 and 2 at some point in the future. They could be available as alternatives if PPA negotiations fail with Calpine and Invenergy.

The Department notes that Xcel failed to demonstrate the reasonableness of its proposed Red River Valley Units 1 and 2.[58] Thus, the Department continues to oppose Commission selection of these units in this proceeding. The Department takes no position on the selection of the Red River Valley Units 1 and 2 in a future proceeding other than to note that the same

[56] DOC-DER Ex. 82 at 4 (Shaw Rebuttal).
[57] DOC-DER Ex. 86 at 11 (Rakow Rebuttal).
[58] DOC-DER Initial Brief at 41-43.

evaluation principles of cost effectiveness and other typical factors would need to apply in any such proceeding.

F. Firm versus Interruptible Natural Gas

The Xcel Initial Brief at page 27 addressed the issues of firm versus interruptible natural gas, as follows:

> The Cannon Falls project was modeled with interruptible fuel supply contracts that substantially lowered their total costs … If the Cannon Falls project were modeled with firm gas supply as Calpine's Mankato project and Black Dog Unit 6 were, the cost comparison would favor Calpine.[49]
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> [49] Ex. 46 (Wishart Direct) at 30-31; Ex. 86 (Rakow Rebuttal) at 10. We note that the issue of interruptible gas would benefit from negotiation to assess the implications of non-firm gas on our system while also determining options that may be available to mitigate the use of non-firm gas.

As to PPA negotiations in this regard, the Xcel Initial Brief at page 44 stated in part the following:

> The PPA negotiations with Invenergy must resolve (i) the possible need of expanded fuel oil storage at the plant site, and (ii) the lowest cost approach to solution to the transmission needed for the project. The Calpine negotiations must also resolve the impact of its current below investment grade credit rating on its ability to meet our security fund requirements. [Footnote omitted]

In Exhibit 46 (Wishart Direct) at 49-51, Xcel Witness Mr. Wishart, discussing Invenergy's bid that includes interruptible supply, stated:

> [W]e have identified four outstanding issues so far that would have to be resolved before finalizing a contract with Invenergy and other issues could be identified during the course of negotiations. First, the cost of a firm natural gas supply to the Cannon Falls plant is expected to be prohibitive. While Invenergy mentioned in its proposal that the Cannon Falls unit could run on oil, the fuel tank at tanks at the site are barely sufficient to support the operation of a single turbine. For reliable winter operation the amount of on-site fuel storage would need to be expanded. Invenergy has not included these costs in their bid and has not provided supplemental information on the issue.

> …
> Calpine mentioned the possibility of running the second CT at Mankato on fuel oil, but has not proposed any pricing changes associated with that option. This is less of a concern in comparison to the Invenergy project, as we have modeled the Mankato project with year round firm natural gas supply.

The Department discussed the issue of firm and interruptible gas supply in detail noting that for example, it would be necessary for the plants in the bids to have firm natural gas service if the plants were to be counted on to run during the winter months, when the natural gas system typically peaks.[59] Department Witness Mr. Shah had also stated that it was possible that plants could be curtailed or "interrupted" because of natural gas supply issues or for economic reasons related to the generation unit as well.[60] Other issues such as whether the plants have dual fuel capability on Xcel's system also would affect how the particular plants of the bidders would be dispatched in practice.[61] The Department also provided additional scenarios using interruptible gas stating that this additional information could be considered in PPA negotiations to reduce costs for ratepayers.[62] Thus, the Department agrees with Xcel that the issues surrounding firm versus interruptible natural gas and, for example, dual fuel capability must be addressed in PPA negotiations with the bidders.

V. DEPARTMENT'S RESPONSE TO XLI

The ALJ's October 21, 2013 *Eighth Pre-hearing Order* denied XLI's petition to intervene. However, the ALJ's memorandum stated, "The best balancing of the competing equities is to permit XLI to file a brief based upon what it observes at the evidentiary hearing, and its review of the accompanying record, as a public comment, on the same day that formal

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[59] DOC-DER Ex. 76 at 24-28 (Shah Direct); DOC-DER Ex. 100 (Shah Opening Statement).
[60] DOC-DER Ex. 76 at 27 (Shah Direct).
[61] *Id.* at 24-28; DOC-DER Ex. 100 (Shah Opening Statement).
[62] DOC-DER Ex. 86 at 4-7 (Rakow Rebuttal).

parties to this proceeding file their initial briefs: Friday, November 22, 2013." Thus, XLI filed their *Post Hearing Public Comment* (XLI Initial Brief). Below, the Department responds to the XLI Initial Brief.

A. Timing of Solar Additions

Regarding the timing of solar additions and eligibility of the production tax credit (PTC), the XLI Initial Brief stated at page 11:

> The problem with these projections is twofold. First, the projections would leave roughly half of Xcel's total [solar energy standard] obligation ineligible for the 30% federal Investment Tax Credit ("ITC") which expires at the end of 2016. This seems unlikely in light of the very issue that prompted the NoCC [Notice of Changed Circumstances] in this docket: Xcel's rush to acquire 750 MW of wind well ahead of its Renewable Energy Standard obligations in order to capture the value of the expiring federal PTC for wind. XLI believes it is much more likely that the vast majority of the approximately 300 MW of solar energy required of Xcel by statute be in-service by the end of 2017 in order to qualify for the expiring federal ITC.[63] [Footnote omitted]

XLI's statement is incorrect. As explained in the Department's Initial Brief, Mr. Shaw provided the Department's analysis of the 750 MW of wind and recommended approval of Xcel's total request for an additional 750 MW of wind generation in 2015.[64] Thus the 750 MW of wind is being added because it is cost effective at this time. The only solar project proposed in this docket, that of Geronimo, includes the PTC.[65] However, Geronimo's project has been demonstrated not to be cost effective compared to other alternatives in this proceeding, even with the inclusion of the federal PTC.[66]

Thus, unlike wind, solar resources have not been demonstrated to be cost effective at this time. Given this fact, the question becomes: Will the potential loss of the federal PTC (due to delaying the acquisition of solar resources) be offset by future declines in the cost of solar

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[63] XLI Initial Brief at 11.
[64] DOC-DER Initial Brief at 16 (citing DOC-DER Ex. 79 at 6-7 (Shaw Direct)).
[65] Geronimo Ex. 57 at 7 (Engelking Direct).
[66] DOC-DER Ex. 84 at SR-5A, p. 6 of 8 (Rakow Direct Attachments).

projects? The XLI Initial Brief provides no information to draw a conclusion regarding this question nor does the record include such information. The Department's recommendation—that the Commission consider requiring Xcel to issue an all solar RFP in consideration with other information that is known in the context of Xcel's next IRP—is the most appropriate approach for obtaining the necessary analysis of the most cost-effective solar resources.[67]

Lastly, as explained by Dr. Rakow, "it would not be appropriate to award a contract to a proposal that performs poorly for the identified need on the basis that the proposal might fill a need not specified in the original RFP [namely, what is now Minnesota's SES]."[68]

B. A Cap of 700 MW Added in Strategist

The XLI Initial Brief asserted at pages 14-15 that "The strategist modeling done by the Department, for example, delivered packages of resources filling a capacity need set at 700 MW by 2019." This statement is not accurate. Dr. Rakow testified to the contrary in stating that: "I attempted to include all packages that result in less than 700 MW of nameplate capacity being added to Xcel's system."[69] Thus, the 700 MW was a *cap* on the capacity to be added (allowing smaller amounts to be added) rather than a required amount to be added.

C. No Conflict in Forecast Recommendations

On page 14 of its Initial Brief, XLI asserted that "It is not clear why the Department advocated for disregarding Xcel's fall 2011 forecast in a recent resource acquisition docket but appears to be relying on that same forecast for this RAP Docket." Contrary to XLI's claim, the

[67] DOC-DER Ex. 83 at 43 (Rakow Direct). Note that the Department's recommendation in this proceeding was based on the Commission's previous requirement that Xcel file its IRP by February, 2014. On Thursday, December 5, 2013, the Commission granted Xcel an extension to file its IRP. The Department continues to conclude that the Commission should require Xcel to issue the all-solar RFP by February 2014, or as soon as possible subsequent to the instant proceeding.

[68] DOC-DER Ex. 83 at 13 (Rakow Direct).

[69] DOC-DER Ex. 83 at 16 (Rakow Direct).

record is clear that the Department relied on a range around Xcel's fall 2011 forecast in both proceedings and that the range in both proceedings included the results of Xcel's spring 2013 forecast.

Regarding the recent wind docket, MPUC Docket Nos. E-002/M-13-603 and E-002/M-13-716, XLI quoted the Department's procedural comments that "Xcel should not rely on the analysis in the 2010 IRP to support its acquisition of the specific resources requested in the instant docket. *This approach is consistent with the Commission's 2010 IRP Order which approved the IRP for planning purposes only* . . . ."[70] (emphasis by XLI). XLI compared this quoted statement to Mr. Shah's testimony in the instant proceeding that "only Xcel's fall 2011 forecast has been reviewed in detail by the Department and approved by the Commission. The Department has not verified the accuracy of Xcel's spring 2013 sales forecast."[71]

XLI's statement above misconstrues the Department's analyses for the following reasons. First, while the XLI asserts that the Department "advocated for disregarding" the 2011 forecast in the wind acquisition docket, the Department, in fact, relied on the 2011 forecast for its conclusions based on same rationale the Department used to rely on the 2011 forecast in this proceeding. Second, even if the Department had relied on different forecasts in the two sets of proceedings, the Department's comments in the recent wind dockets speak to the analysis as a whole, not to Xcel's forecast in particular. Third, the Department's position in the wind dockets was simply that Xcel should support its acquisition of the specific wind resources with analysis of those specific projects rather than attempt to justify the acquisition of specific wind resources by reference to analysis of generic resources in the IRP. Finally, the Department's testimony in this proceeding clarifies which Xcel demand forecast has been reviewed and is part of the base

[70] XLI Initial Brief at 7.
[71] XLI Initial Brief at 14 (citing Tr.V. 2 at 30 (Shah)).

case and which forecast has not been reviewed and should be considered as part of the contingency analysis—it is within the forecast band modeled by Dr. Rakow. As noted above, this fact can be seen in Mr. Shah's testimony that:

> [T]he fundamental goal in certificate of need and resource planning proceedings is not to establish a plan that is least cost under a single forecast but for the plan to be least cost across a wide range of forecasts. Given this goal, the concerns I discuss above, the Commission's decision not to require continual updating of forecasts in the 2010 IRP (i.e. that the need was based on using the fall 2011 forecast), and the fact that the spring 2013 forecast is within the 5 percent contingency modeled, I conclude that Department Witness Dr. Steve Rakow's use of the fall 2011 forecast as a starting point to begin his analysis of assessing the bids is reasonable.[72]

D. Analysis of Proposals Bid

Regarding reasonableness of analyzing proposals not bid, the XLI Initial Brief asserted at page 15 that:

> [I]f capacity bids like Great River Energy's ("GRE") or smaller projects like Geronimo's were allowed to be added by Strategist in incremental phases, perhaps a lower-cost and smaller portfolio could delay a much more substantial acquisition until the decision is more ripe for the making.[73]

Essentially, XLI claimed that it is possible that analysis of alternatives not proposed would result in a lower cost portfolio. In response the Department notes that it would not be appropriate to analyze variations on a bid that were not proposed. The Department's analysis covered all variations of the bids that were proposed through Direct Testimony. Moreover, GRE's proposal did not perform well enough even to get to a second round and Geronimo's proposal only was advanced to the second round out of consideration for Minnesota's renewable preference statutes.[74] Thus, the concern is without merit.

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[72] DOC-DER Ex. 76 at 14 (Shah Direct).
[73] XLI Initial Brief at 15.
[74] DOC-DER Ex. 83 at 35 (Rakow Direct).

E. Natural Gas Proposals in a Separate Process

The XLI Initial Brief asserted at page 15 that it is not clear "why both the Department and Xcel recommend pushing the natural gas bidders into a separate process in an effort to obtain "maximum flexibility" when arguably the most flexible options are left behind." The statement is inaccurate for the following reasons.

First, as explained above, the Department analyzed all variations on the proposals that were made through Direct Testimony. Second, the Department did not recommend pushing the natural gas bidders into a separate process. Rather, the Department recommended the least cost bidders be advanced to the next stage in the current process. Such negotiations towards a PPA must be a part of the process since the only way shown in this proceeding to proceed with successful bids that are not from Xcel is to direct Xcel to negotiate a power purchase agreement with bidder(s).

VI. DEPARTMENT'S RESPONSE TO CALPINE

Calpine is an intervener in this proceeding. Pursuant to the ALJ's 2nd PHO Calpine filed its *Initial Brief of Calpine Corporation* (Calpine Initial Brief) on November 22, 2013. The Calpine Initial Brief agreed that its Mankato combined cycle (CC) expansion proposal is one of the lowest cost proposals, but argued that its levelized cost of electricity (LCOE) analysis demonstrated that it is the least-cost bid.[75] Calpine also argued that Strategist modeling of the Department and Xcel understated the value of Calpine's bid by failing to consider qualitative or non-price benefits.[76] It is Calpine's view that Invenergy's Cannon Falls combustion turbine (CT) proposal should not proceed to PPA negotiations.[77] Calpine states that its Mankato proposal should be selected, and that it is unnecessary to inject a PPA process into this proceeding that

[75] Calpine Initial Brief at 2-3.
[76] *Id.* at 3.
[77] *Id.* at 4-5.

may defeat the purpose of competitive bidding by possibly allowing parties to ignore or discount the record.[78]

A. Levelized Cost

To be clear, Calpine offered its Levelized Cost of Electricity (LCOE) analysis as a tool to be used in addition to Strategist modeling.[79] The Department appreciates Calpine's initiative, and acknowledges that the results of Calpine's LCOE analysis are consistent with the results of the Department's Strategist results. That is, absent terms that may be more favorable to ratepayers (that are yet to be negotiated), Dr. Rakow concluded in part: "[T]he best combination is Black Dog and Calpine. But that can change during the PPA negotiations."[80]

Similar to the Department's discussion above regarding Geronimo, the Department notes that the LCOE analysis is not a method that is superior to that of Strategist for analyzing bids in this matter. The Department agrees with the discussion by Xcel Witness Mr. Wishart[81] that the levelized avoided costs are not included in Calpine's LCOE analysis such that bids might be compared on an avoided cost basis.[82] Moreover, the Department agrees with Xcel that Strategist modeling rather than a levelized cost analysis is a superior method for evaluating and comparing bids which differ in many respects: peaking and intermediate resources, dispatchable and nondispatchable resources, and fuel differences such as solar, natural gas or no fuel at all (capacity credits).[83] For these reasons, the Department does not recommend that the Commission rely on Calpine's LCOE in this matter.

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[78] *Id.*
[79] *Id.*at 9.
[80] Tr.V. 2 at 50 (Rakow).
[81] Xcel Initial Brief at 23
[82] Xcel Ex. 47 at 16-17 (Wishart Rebuttal).
[83] Xcel Initial Brief at 23.

B. Strategist Results

The Department's Initial Brief discussed Calpine's criticisms of the Department's Strategist analysis[84] and provided considerable discussion of the reasons supporting the Department's use in its third round of Strategist modeling of interruptible gas supply and Invenergy's later in-service date.[85] The Department's discussion will not be repeated in this Reply Brief.

C. Qualitative Assessment

Calpine argued that the claimed non-price, or qualitative, benefits of its combined cycle proposal such as reliability, environmental performance, operational flexibility and hedging against future market uncertainty should be considered by the Commission separate from PPA negotiations.[86]

The Department agrees that non-price factors are within the Commission's purview to consider, but disagrees that such factors are somehow incapable or inappropriate for the Commission to consider as a part of its evaluation of negotiated PPAs. Negotiated terms are likely to reflect the different attributes of the technologies proposed, combined cycle and combustion turbine, and the Commission is free to consider those factors as part of its evaluation and final selection in this proceeding. Further, the environmental performance of each bid is accounted for by the Commission's externality values and CO_2 internal cost value while future market uncertainty is simulated through the wide range of contingencies modeled by the Department in the Strategist analysis.

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[84] DOC-DER Initial Brief at 59-60

[85] DOC-DER Initial Brief at 48-53.

[86] *See* Calpine Initial Brief at 20-32.

D. PPA Process

The Department does not agree with Calpine that sending three proposals to PPA negotiations for the Commission's ultimate selection of two out of the three proposals is unnecessary or inappropriate. Dr. Rakow explained that PPA negotiations were appropriate because the three proposals are reasonably close in economic performance and that PPA negotiations may work to keep competitive pressure on Xcel as well as Calpine and Invenergy.[87] The purpose of PPA negotiations is to encourage reasonable terms with respect to ratepayers; it is important that negotiated terms do not put ratepayers at risk for costs that are higher than bid or for benefits assumed in bids that do not materialize.[88]

E. Firm versus Interruptible Natural Gas

Regarding the issue of using firm versus interruptible natural gas, the Calpine Initial Brief at page 17 stated:

> Specifically, both Xcel and the Department's recommendations assume that Invenergy's pricing for natural gas will be based on interruptible natural gas transportation service, with no cost adjustment for sufficient alternative fuel storage capability needed to ensure reliable, year-round operations. [Footnote omitted]

The Calpine Initial Brief at page 18 stated the following:

> Nevertheless, if the Commission were to determine that Invenergy's Cannon Falls proposal should be allowed to be considered based on operation on interruptible fuel, it should also ascribe greater value to Calpine's and Xcel's proposals from a reliability perspective.[44] As Invenergy Witness Ron Norman conceded, a resource's availability could impact its capacity accreditation by the Midcontinent Independent System Operator, Inc. ("MISO"). [Footnote omitted]. In Invenergy's case, if served by interruptible fuel the proposed Cannon Falls CT "…will not be available on many winter days"[46] potentially decreasing the value of the CT's capacity. [footnote omitted]. As Xcel Witness Wishart confirmed, the greater possibility that Cannon Falls will be interrupted in the winter

[87] DOC-DER Initial Brief at 57.
[88] *Id.* at 63.

> would result in a "lower level of certainty of service" and other units on the system needing to pick up the slack. [Footnote omitted].
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> 44 Xcel Witness James Alder testified at hearing that if Xcel pursues "interruptible gas [for Cannon falls] there would some discussion about whether or not fuel back up would be advantageous to the proposal or not. And so there could be some adjustments, I presume, for providing fuel oil backup." Hearing Transcript, Volume 1 (October 22, 2013) at p. 134, line 20 through p. 135, line 10.
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> 46 Exhibit No. 77, Attachments to the Direct Testimony of Mr. Sachin Shah at DOC Attachment __ at (SS-5), pp. 30 and 31 of 32 ("Shah Direct Attachments"). Indeed, in response to Department of Commerce Information Request No. 42, Xcel provided cost estimates to "provide firm year-round transportation service to Hampton and Cannon Falls to make the plants' fuel supply highly reliable." *Id.*

While there are disagreements between Xcel, Calpine and Invenergy on the issue of firm versus interruptible natural gas and on dual fuel capabilities, as explained in detail elsewhere in this Reply Brief, the Department agrees with Xcel that the issues surrounding firm versus interruptible natural gas and, for example, dual fuel capability must be addressed in their PPA negotiations with the bidders.

The Department discussed this issue in detail noting that for example, that it would be necessary for the plants in the bids to have firm natural gas service if the plants were to be counted on to run during the winter months, when the natural gas system typically peaks.[89] Department Witness Mr. Shah had also stated that it was possible that plants could be curtailed or "interrupted" because of natural gas supply issues or for economic reasons related to the generation unit as well. Other issues such as whether the plants have dual fuel capability also would affect how the particular plants of the bidders would be dispatched in practice.[90]

89 DOC-DER Ex. 76 at 26 (Shah Direct).
90 *Id*. at 24-28 (Shah Direct) and DOC-DER Ex. 100 (Shah Opening Statement).

VII. DEPARTMENT'S RESPONSE TO INVENERGY

Invenergy is an intervener in this proceeding. Pursuant to the ALJ's 2nd PHO Invenergy filed its *Initial Brief of Invenergy Thermal Development LLC* (Invenergy Initial Brief) on November 22, 2013. The Invenergy Initial Brief requires little response in that Department's Initial Brief discussed Invenergy's Cannon Falls CT proposal in significant detail.[91] The Department briefing addresses several issues.

A. Energy versus Capacity Resources

Invenergy characterized Calpine's combined cycle proposal as proposed "energy resources" in contrast to Invenergy's combustion turbine proposals which it considers to be "capacity resources."[92] The Department agrees with Calpine that Invenergy mischaracterized Calpine's proposals.[93] The Commission determined Xcel's capacity need, and the proposals of all parties other than GRE's capacity-only bid are expected to provide capacity as well as energy.

B. Flexible In-Service Dates

With respect to flexible in-service dates, Invenergy noted that its witness, Mr. Ewan, who offered in Rebuttal not only additional, later, in-service dates but also an additional PPA term giving Xcel the option to extend the PPA in five year increments.[94] Invenergy stated that no Strategist modeling of these proposals occurred other than of modeling a 2019 in-service date for the Invenergy Cannon Falls proposal.[95] As discussed in greater detail as to GRE's Rebuttal proposal, the Department performed no Strategist modeling as to new proposals offered in Rebuttal Testimony. As indicated in the Commission's March 5, 2013 Order in this proceeding, the deadline for bids was April 15, 2013. Material factors such as allowing the resource to be

[91] DOC-DER Initial Brief at pages 25, 60-62.
[92] Invenergy Initial Brief at 17.
[93] Calpine Initial Brief at 29-31.
[94] Invenergy Initial Brief at 11.
[95] *Id.* at n.27.

available in five-year additional increments should have been identified up-front in the bid. Irrespective of the appropriateness of considering new proposals, there was not time within the schedule of this proceeding to perform any such modeling on specific bids.

The Department performed a third round of Strategist modeling in response to Xcel's Direct Testimony that identified potential uncertainties that warranted consideration of flexible options such as delayed in-service dates in order to adjust to changed circumstances.[96] For this third round, the Department modeled a delayed in-service date of 2019 for Calpine's Mankato and Invenergy's Cannon Falls proposals; this modeling allowed Strategist to assess the effects of later in-service dates for all three of the lowest cost alternatives as identified from the Department's second round of Strategist analysis.[97]

Finally, Invenergy argued that its Cannon Falls and Hampton proposals should be selected, such that both proposals would proceed to PPA negotiations.[98] The Department disagrees; its first round Strategist modeling of Invenergy's Hampton bid produced a result that showed the Hampton proposal did not warrant further detailed cost analysis.[99]

C. Firm versus Interruptible Natural Gas

The Invenergy bid included reliance on interruptible natural gas supply together with dual fuel capability (fuel oil). The Invenergy Initial Brief at page 11-12 in part stated the following:

> Additionally, the Expansion [the Cannon Falls proposal] will be located just south of the Twin Cities metropolitan region, providing geographic diversity relative to other Xcel generation resources yet also utilizing existing infrastructure such as the operations and maintenance building, fuel oil unloading and storage facilities, transmission system and natural gas pipeline facilities and other equipment.

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[96] DOC-DER Initial Brief at 50.
[97] *Id.* at 50-51.
[98] Invenergy Initial Brief at 56.
[99] DOC-DER Initial Brief at 41.

Xcel's witness Mr. Wishart questioned the adequacy of the existing fuel oil infrastructure referenced above. Xcel Exhibit 46 (Wishart Direct) at 49-50. The Invenergy Initial Brief at pages 23-24 in relevant part stated the following:

> In a misguided attempt to raise doubts regarding the reliability of Invenergy's proposals, Calpine questioned Invenergy's plan to procure interruptible gas supply for its facilities, hypothesizing that the facilities may not be available when needed due to a lack of gas supply. In fact, operating a peaking facility such as the Expansion or Hampton facility with interruptible gas supply makes sense and saves ratepayers significant expense. As both Invenergy and Xcel explained, the Xcel system peaks in the summer when gas supply is readily available. Both companies also explained that the existing Cannon Falls facility operated by Invenergy has historically seen the vast majority of its operating hours in the summer, to meet those peak needs, with only forty hours of operation in the past four winters combined. In addition, both the Expansion and Hampton will have a back-up supply of fuel oil in the unlikely event that the facilities will be called upon when natural gas is not available.
>
> The current Cannon Falls facility operates with an interruptible gas supply and the record is devoid of evidence indicating that this has created concerns. As Xcel testified, it currently has other peaking plants on its system that use an interruptible gas supply and the company has always found itself "to have more than sufficient resources during the winter months. We've always found ourselves to have plenty of capacity in the winter and having those units on interruptible gas has not been a problem."
> [Footnotes omitted]

As stated in its Initial Brief, the Department agrees with Xcel that the issues surrounding firm versus interruptible natural gas, and others such as dual fuel capability should be addressed in PPA negotiations. DOC-DER Initial Brief at 2 and 13. To the extent that Invenergy is confident regarding the benefits of its proposal, as stated in its Initial Brief, the Department expects that negotiated terms reflect those benefits and that ratepayers would not be at risk either for costs higher than bid or for benefits claimed that do not materialize.

For example, Mr. Shah testified that it would be necessary for the plants in the bids to have firm natural gas service if the plants were to be counted on to run during the winter months, when the natural gas system typically peaks. Department Witness Mr. Shah had also stated that it was possible that plants could be curtailed or "interrupted" because of natural gas supply issues or for economic reasons related to the generation unit as well. Other issues such as whether the plants have dual fuel capability on Xcel's system also would affect how the particular plants of the Bidders would be dispatched in practice.[100] The Department also provided additional scenarios using interruptible gas stating that this additional information could be considered in PPA negotiations to reduce cost for ratepayers.[101]

Thus, the Department recommends that all issues related to firm versus interruptible natural gas, and for example, dual fuel capability must be addressed in Xcel's PPA negotiations with the Bidders.

D. Declining Load Factor

Invenergy claims that its combustion turbine proposal is the superior type of resource to meet Xcel's capacity need due in part to its belief that Xcel's load factor is declining, and due to increasing penetration of wind and solar resources.

The Invenergy Initial Brief at page 17 stated in relevant part the following:

> As discussed below, the record developed in this proceeding shows two significant developments since the Commission Order that the ALJ and Commission must consider in selecting an appropriate resource or resources – the addition of significantly greater Intermittent Resources to the Xcel system and Xcel's continually declining load factor.

The Invenergy Initial Brief at pages 22-23 in part stated:

> Xcel's forecasts, and its continually declining load factor, further lead to the conclusion that Capacity Resources [Invenergy's CT proposals] best match Xcel's current need. As the Department noted, in Xcel's most recent (2013) forecast:
>
> > Xcel predicts a significant change in the overall load factor of its system. Specifically, Xcel's prediction that customers will use less energy overall while making higher demands on Xcel's peak means that Xcel predicts that its load factor will decrease

[100] DOC-DER Ex. 76 at 24-28 (Shah Direct), and DOC-DER Ex. 100 (Shah Opening Statement).
[101] DOC-DER Ex. 86 at 4-7 (Rakow Rebuttal).

> significantly over time, with customers demanding ever more from Xcel's peak while using less energy overall.
>
> In fact, Xcel's September 2013 update to its forecast showed a capacity need of just 93 MW in 2017, as compared to the 2010 IRP Docket forecast showing a 150 MW need. Moreover, the declining load factor in this most recent update continues a trend for Xcel dating back to 2004 and mirrors the trend seen nationwide over that same time span. No modeling is necessary to discern that a utility system needing greater capacity at peak, while requiring less energy overall, requires Capacity Resources, not Energy Resources to best fit its customers' needs and ensure customers a continued adequate electric supply. [Footnotes omitted]

The Department does not agree with Invenergy's assessment of Xcel's future capacity needs and the record is inadequate to reach such conclusions. As explained previously in this Reply Brief, there are significant uncertainties surrounding the accuracy of Xcel's spring 2013 forecast.[102] While Xcel claimed that its load forecasts have been reduced and that there were changes in their usage patterns, the Department questioned the basis of that claim of a declining load factor. In reviewing Figure 1 Mr. Shah explained:

> Thus, one of my concerns is the different patterns in these two vintages of forecast as presented by Xcel. In particular:
>
> - Why the differences in the two forecasts of peak demand that Xcel prepared a year and a half apart – from fall 2011 to spring 2013 – follows a U-shaped pattern over the forecasted period?
> - Why Xcel's spring 2013 forecast predicts that energy sales will be consistently lower over the forecast period, while Xcel's spring 2013 forecast predicts that peak load will decline and then grow to be slightly higher than estimated in the fall 2011 forecast.[103]
> - These changes in peak and energy forecasts, together, mean that Xcel predicts a significant change in the overall load factor of its system. Specifically, Xcel's prediction that customers will use less energy overall while making higher demands on Xcel's peak means that Xcel predicts that its load factor will decrease significantly over time, with

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[102] DOC-DER Ex. 76 at 8-14 (Shah Direct).
[103] DOC-DER Ex. 76 at 9 (Shah Direct).

> customers demanding ever more from Xcel's peak while using less energy overall. What is the basis for this prediction?[104]

The Xcel demand forecast that has been reviewed by the Department for accuracy and approved by the Commission is the fall 2011 forecast, which is part of the Department's Strategist base case. Nonetheless, the spring 2013 forecast has been considered by the Department to be part of the contingency analysis—meaning that it is within the forecast band modeled by Dr. Rakow. This fact can be seen in Mr. Shah's testimony, quoted elsewhere in this brief but repeated here for ease of reference, that:

> [T]he fundamental goal in certificate of need and resource planning proceedings is not to establish a plan that is least cost under a single forecast but for the plan to be least cost across a wide range of forecasts. Given this goal, the concerns I discuss above, the Commission's decision not to require continual updating of forecasts in the 2010 IRP (i.e. that the need was based on using the fall 2011 forecast), and the fact that the spring 2013 forecast is within the 5 percent contingency modeled, I conclude that Department Witness Dr. Steve Rakow's use of the fall 2011 forecast as a starting point to begin his analysis of assessing the bids is reasonable.[105]

For these reasons, the record does not support Invenergy's claims of a declining load factor for Xcel.

VIII. DEPARTMENT'S RESPONSE TO GRE

GRE is an intervener in this proceeding. Pursuant to the ALJ's 2nd PHO GRE filed its *Great River Energy Initial Brief* (GRE Initial Brief) on November 22, 2013.

A. GRE's Proposal Is Not Least Cost

The GRE Initial Brief stated that when its bid is considered as a three-year package, together with Xcel's Black Dog unit 6 and Xcel's Red River Valley unit 1, it has the third lowest cost among the twenty alternatives identified in Xcel Witness Mr. Wishart's Direct Testimony at

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[104] DOC-DER Ex. 76 at 10 (Shah Direct).
[105] DOC-DER Ex. 76 at 14 (Shah Direct).

26.[106] Moreover, GRE stated that if its bid were considered as a single-year proposal, then it would be one of the two least cost proposals. GRE also noted that its bid could be evaluated as a two-year proposal.[107] GRE emphasized the flexibility of its bid, and urged the Commission to include the GRE bid as part of the PPA negotiations in the next phase of this proceeding.[108]

For the following reasons, the Department disagrees that GRE's bid has been shown to be a least-cost proposal or that it is reasonable to include the bid in PPA negotiations. First, GRE initially offered a three-year bid, with two different capacity credit levels at varying prices.[109] GRE Witness Mr. Selander explained the proposal in his Direct Testimony, as follows in relevant part:

> GRE submitted a proposal for capacity only for the MISO planning years of 2016/17, 2017/18 <u>and</u> 2018/19. . . . . <u>Our proposal is for two different capacity levels</u> in the timeframe of Northern States Power Co/Xcel Energy's ("NSP") identified resource needs. The proposal is intended to offer NSP the opportunity to defer adding new capacity resources for a short period of time.

Second, Department Witness Dr. Rakow confirmed with GRE the accuracy of the Department's intended inputs for Strategist modeling and, in fact, GRE identified an error that the Department corrected prior to running Strategist.[110]

Third, GRE's three-year bid was not one of the three least-cost proposals identified by the Department's first round results of Strategist modeling.[111] The purpose of the first round of Strategist modeling was to reduce the potential packages to a manageable number.[112] Thus, the

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106 GRE Initial Brief at 5-6.
107 *Id.*at 6-7.
108 *Id.*
109 *See, e.g.,* GRE Ex. 18 at 2 (Highly Trade Secret; filed in 13-606). GRE Ex. 63 at 3 (Selander Direct) (Emphasis added).
110 DOC-DER Initial Brief at 25.
111 *Id.*at 42-43.
112 *Id.* at 41.

Department did not continue to evaluate GRE's proposal as part of the Department's second round results.[113]

B. GRE and the Third Round

GRE's Direct Testimony reiterated its initial bid. The additional limited Strategist modeling performed by the Department between the dates for Direct and Rebuttal Testimony was focused on evaluating information provided largely in Direct Testimony of parties other than GRE such as the use of interruptible gas supplies and in-service dates.[114]

In its Rebuttal Testimony, GRE proposed for the first time that its three-year package bid could be considered as a one, two or three-year package and, apparently, that the yearly prices initially bid for the three-year package would remain unchanged if one or two years were selected.[115] Mr. Selander characterized GRE's bid in his Rebuttal Testimony as "providing two alternative levels of capacity during a three year period: 2016/2017; 2017/2018 <u>and or</u> 2018/2019 (based on MISO planning years, which run June-May)."[116] While it is understandable that GRE wished to include in its Rebuttal Testimony additional alternatives for consideration, the new alternatives were just that -- new proposals that did not meet the Commission's deadline of April 15, 2013 in this proceeding.

Finally, aside from the issue of the appropriateness of new proposals, the time constraints of this proceeding did not allow for further Strategist modeling of new proposals during the few days between Rebuttal Testimony and the evidentiary hearing dates. To evaluate GRE's Rebuttal proposals, the Department might have re-run its first round of Strategist modeling and, if GRE had emerged as one of the lowest-cost proposals, then the Department would have re-run

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[113] *Id.* at 41-48.
[114] *Id*. at 48-53.
[115] *See* GRE Ex. 64 at 2-3 (Selander Rebuttal).
[116] *Id*.at 2 (Selander Rebuttal) (Emphasis added).

its second as well as third round modeling. In any event, the second and third round of Strategist runs would have been performed with GRE's new proposals. Strategist modeling is time-consuming, and in this case the first round alone involved thousands of Strategist runs.[117] The Commission noted its expected time frame[118] which is consistent with the schedule established by the Commission and ALJ for this proceeding. Clearly, time was inadequate in this proceeding for the Department to evaluate GRE's new proposals made for the first time in its Rebuttal Testimony.

For these reasons, the record does not support the least-cost ranking that GRE claims and, thus, the Department recommends that Commission exclude GRE's bid proposal from the PPA negotiation phase of this proceeding.

IX. DEPARTMENT'S RESPONSE TO ECOS ENERGY

Ecos Energy LLC (Ecos) submitted a petition to intervene. The ALJ's Third Prehearing Order denied Ecos' petition to intervene. In addition, the ALJ's October 21, 2013 *Eighth Pre-hearing Order* denied Eco's petition to intervene. However, the ALJ's memorandum stated:

> The best balancing of the competing equities is to permit XLI to file a brief based upon what it observes at the evidentiary hearing, and its review of the accompanying record, as a public comment, on the same day that formal parties to this proceeding file their initial briefs: Friday, November 22, 2013… Because Ecos Energy, LLC and other commentators might also wish for such an opportunity, the deadline for all public comments is adjusted outward so as to coincide with the filing of initial briefs. Responses to those comments can be addressed by the formal parties in their later responsive pleadings, on December 6, 2013."

Given this opportunity, Ecos filed its *Comments of Ecos Energy LLC* (Ecos Comment). The Department notes that the Ecos Comment does not raise any new issues that were not

[117] DOC-DER Initial Brief at 30, 37 n.48.
[118] Order Closing Docket, Establishing New Docket, and Schedule for Competitive Resource Acquisition Process, MPUC Dockets E-002/CN-11-184, E-002/CN-12-1240 (November 21, 2012).

already addressed elsewhere in this Reply Brief. Thus, the Department does not provide any additional response to the Ecos Comments.

X. CONCLUSION

Based on the Department's testimony in this matter, its Initial Brief, and the discussion included above, the Department continues to supports its recommendation, as set forth in the introduction to this Reply Brief.

Dated: December 6, 2013

Respectfully submitted,

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Attachment 1: Rules and Statutes Addressed in the Record

CN Statutory or Rule Citation	Department Position	Record Location
7849.0120 CRITERIA. A certificate of need must be granted to the applicant on determining that:		
A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:	NA. The Commission established the need (size, type and timing) in Xcel's last resource plan.	
(1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;	Xcel's fall 2011 forecast is the appropriate forecast to use; Xcel's spring 2013 forecast is within the forecast band.	**Shah Direct at 29**
(2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;	Not studied in detail, but considered as part of the forecast band.	**Rakow Direct at 24-25**
(3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;	The Department is not aware of any promotional activities that may have triggered the need.	**Rakow Direct at 42**
(4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and	The proposed projects do not require certificates of need.	**Rakow Direct at 3**
(5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;	Addressed in the environmental report.	**Environmental Report, throughout**
B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:	NA. The process employed in this proceeding allowed for parties to make specific proposals, and for all of those options to be evaluated.	

CN Statutory or Rule Citation	Department Position	Record Location
(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;	Size, type and timing were determined by the Commission in Xcel's last resource plan.	**Rakow Direct at 10**
(2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;	The internal costs of the proposed Projects were not studied without externalities by the Department (Externalities were included in the base case).	**Rakow Direct at 19**
(3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and	All Department analysis included externalities; Calpine-Mankato, Invenergy-Cannon Falls, and Xcel-Black Dog were least cost.	**Rakow Rebuttal at 12**
(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;	No information in the record that demonstrates one alternative is more reliable than all the others.	
C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:		
(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;	The proposed Projects are not directly related to overall state energy needs, they are necessary to maintain reliable service on Xcel's system.	**Rakow Direct at 10**
(2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;	The Department relies on the ER for its analysis of impacts on the socioeconomic and natural environments.	**Environmental Report, throughout**

CN Statutory or Rule Citation	Department Position	Record Location
(3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and	The Department relies on the ER for its analysis of impacts on the socioeconomic and natural environments.	**Environmental Report, throughout**
(4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and	The Department relies on the ER for its analysis of impacts on the socioeconomic and natural environments.	**Environmental Report, throughout**
D. the record does not demonstrate that the design construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.	The record does not demonstrate that Xcel or the bidders will fail to comply.	
Minnesota Statutes §216B.243, subd. 3 (9)	Xcel did not propose a transmission line.	**Xcel petition**
Minnesota Statutes §§216B.243 subd. 3a & 216B.2422, subd. 4	Geronimo's project is substantially more expensive; the renewable proposal is not in the public interest.	**Transcript (Rakow to Geronimo).**
Minnesota Statutes §216B.2426	DG compliant with 216B.169 were allowed to be bid; no proposal claimed such compliance.	**Xcel's petition page 5-10**
Minnesota Statutes §216B.1694, subd. 2 (a) (4)	An Innovative Energy Project was allowed to be bid; none was offered.	**Xcel's petition page 5-10**
Minnesota Statutes §216B.243 subd. 3 (10) Compliance with §216B.1691	Xcel has complied with the Renewable Energy Standard.	**Xcel's petition page 5-7**
Minnesota Statutes §216B.1612, subd. 5	C-BED projects were allowed to be bid; Xcel has several C-BED projects under contract.	**Xcel's petition page 5-7**
Minnesota Statutes §216B.243, subd. 3 (12)	Xcel considered the Commission's environmental cost values.	**Xcel's petition pages 5-6 to 5-7**
Minnesota Statutes §216B.243, subd. 3 (10) Compliance with §216B.2425, subd. 7	Xcel is compliant.	**Xcel's petition page 5-7**
Minnesota Statutes §§216H.03	The proposed projects either do not emit CO_2 (Geronimo), are exempt due to burning natural gas (Calpine, Invenergy, and Xcel), or do not provide energy (GRE).	