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Minneapolis, MN 55401

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January 10, 2019

**—Via Electronic Filing—**

Daniel P. Wolf  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101

RE: RESPONSES TO MPUC INFORMATION REQUEST NOS. 1-5  
ACQUISITION OF THE MANKATO ENERGY CENTER (MEC)  
DOCKET NO. IP6949, E002/PA-18-702

Dear Mr. Wolf:

At the request of Commission staff, we enclose our responses to the referenced Minnesota Public Utilities Commission information requests in the above-noted docket for e-filing.

Please contact me at (612) 337-2268 or [amber.r.hedlund@xcelenergy.com](mailto:amber.r.hedlund@xcelenergy.com) if you have any questions regarding this submission.

Sincerely,

/s/

Amber Hedlund  
Regulatory Case Specialist

Enclosures  
c: Service List

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Xcel Energy	Information Request No.	1
Docket No.:	E002/PA-18-702	
Response To:	MN Public Utilities Commission	
Requestor:	Sean Stalpes	
Date Received:	December 19, 2018	

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Question:

Please provide a table showing the annual capacity factors (in the Strategist modeling) for every existing and generic dispatchable resource over the modeled time horizon (through 2057) for the four expansion plans shown in Tables 15-18 of Attachment F of the Petition. (For comparison purposes, please refer to Xcel's response to PUC Information Request No. 12 in the Dakota Range docket, Docket No. E002/M-17-694.)

Response:

Please see Trade Secret Attachment A for a table showing the annual capacity factors for the four expansion plans shown in Tables 15-18 of Attachment F of the Petition.

Attachment A to this response includes information the Company considers to be trade secret data as defined by Minn. Stat. § 13.37(1)(b). The information derives independent economic value from not being generally known or readily ascertainable by others who could obtain a financial advantage from its use. Thus, Xcel Energy considers this not public data.

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Preparer:	Jon Landrum
Title:	Manager, Resource Planning Analytics
Department:	Resource Planning
Telephone:	303-571-2765
Date:	January 10, 2019

## Capacity Factors

Base PVSC (High Ext Costs thru 2024, High Reg Costs)

**PROTECTED DATA ENDS]**

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Xcel Energy

Information Request No. 2

Docket No.: E002/PA-18-702

Response To: MN Public Utilities Commission

Requestor: Sean Stalpes

Date Received: December 19, 2018

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Question:

Please provide a table showing the actual annual capacity factors for the following thermal units over the 2013-2017 five-year period:

- Mankato I
- Black Dog 5/2
- High Bridge
- Riverside
- LS Power – Cottage Grove

Response:

Please see the table below for actual annual capacity factors for the five-year period between 2013-2017.

Date	Mankato I	Black Dog 5/2	High Bridge	Riverside	LS Power-Cottage Grove
	<b><i>[PROTECTED DATA BEGINS]</i></b>				
2017					
2016					
2015					
2014					
2013					
	<b><i>PROTECTED DATA ENDS]</i></b>				

This response includes information the Company considers to be trade secret data as defined by Minn. Stat. § 13.37(1)(b). The information derives independent economic value from not being generally known or readily ascertainable by others who could obtain a financial advantage from its use. Thus, Xcel Energy considers this nonpublic data.

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Preparer: Keith Howe  
Title: Resource Planning Analyst  
Department: Resource Planning  
Telephone: 612-330-6252  
Date: January 10, 2019



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Xcel Energy Information Request No. 3  
Docket No.: E002/PA-18-702  
Response To: MN Public Utilities Commission  
Requestor: Sean Stalpes  
Date Received: December 19, 2018

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Question:

In the Company's 2015 IRP (in Docket No. E002/RP-15-21), Xcel proposed to add a 230 MW natural gas CT located in North Dakota by the end of 2025. Does Xcel still intend to propose a natural gas facility located in North Dakota in its next resource plan? Please explain.

Response:

Assuming the Mankato acquisition moves forward, the Company still expects to have a capacity need in the 2025 timeframe which will necessitate a resource addition as noted in the petition. A natural gas fired resource located in North Dakota will be considered to meet this need.

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Preparer: P.J. Martin  
Title: Director, Resource Planning  
Department: Resource Planning  
Telephone: 612-321-3065  
Date: January 10, 2019

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Xcel Energy Information Request No. 4  
Docket No.: E002/PA-18-702  
Response To: MN Public Utilities Commission  
Requestor: Sean Stalpes  
Date Received: December 19, 2018

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Question:

Please provide the annual and total CO<sub>2</sub> emissions for each of the four expansion plans shown in Tables 15-18 from Attachment F of the Petition.

Response:

Please see Attachment A to this response for the annual and total CO<sub>2</sub> emissions for each of the four expansion plans shown in Tables 15-18 from Attachment F of the Petition.

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Preparer: Jon Landrum  
Title: Manager, Resource Planning Analytics  
Department: Resource Planning  
Telephone: 303-571-2765  
Date: January 10, 2019

<b>Annual CO2 Tons - Base PVSC (High Ext Costs thru 2024, High Reg Costs)</b>				
	Continuation of PPA with 2015 IRP Renewables	Continuation of PPA with High Renewables	MEC Ownership with 2015 IRP Renewables	MEC Ownership with High Renewables
2018	19,887,403	19,887,403	19,887,403	19,887,403
2019	20,566,854	20,566,854	20,474,303	20,474,303
2020	18,021,496	18,021,496	17,804,813	17,804,813
2021	16,530,283	16,530,283	16,287,605	16,287,605
2022	16,806,463	16,806,463	16,582,514	16,582,514
2023	16,949,665	15,993,903	16,799,583	15,812,489
2024	13,678,081	12,466,399	13,613,525	12,408,620
2025	12,137,823	11,411,704	12,111,930	11,373,727
2026	11,819,836	10,745,642	11,887,823	10,767,122
2027	10,015,807	8,488,012	10,126,143	8,571,231
2028	9,808,522	6,207,365	9,908,799	6,358,554
2029	9,586,586	6,024,888	9,674,462	6,175,644
2030	9,931,217	6,042,816	10,116,516	6,196,597
2031	11,074,758	6,612,220	11,129,230	6,752,473
2032	10,949,151	6,453,185	10,979,493	6,595,949
2033	11,648,111	6,799,292	11,680,762	6,909,074
2034	13,000,282	7,653,556	13,017,940	7,629,239
2035	13,745,703	7,762,251	13,768,627	7,680,712
2036	13,697,575	7,917,636	13,726,939	7,832,515
2037	14,005,219	8,062,897	14,023,251	7,997,558
2038	11,955,589	7,444,243	11,798,434	7,436,262
2039	12,176,978	7,746,425	12,143,515	7,678,777
2040	12,265,021	7,090,771	12,271,559	7,087,750
2041	10,670,959	5,787,980	10,704,502	5,793,795
2042	10,769,086	5,844,799	10,805,795	5,852,718
2043	10,854,843	5,791,849	10,894,945	5,803,126
2044	11,016,669	5,905,595	11,035,102	5,920,071
2045	11,017,540	5,913,214	11,008,276	6,002,807
2046	11,072,842	6,041,597	11,228,318	6,099,995
2047	11,156,024	6,088,593	11,254,916	6,126,965
2048	11,298,446	6,085,444	11,363,486	6,167,237
2049	11,286,844	6,097,209	11,378,839	6,099,028
2050	11,302,073	6,092,011	11,375,475	6,107,847
2051	11,354,243	6,134,937	11,425,295	6,150,648
2052	11,455,390	6,250,833	11,520,320	6,219,060
2053	11,500,316	6,226,272	11,560,582	6,310,149
2054	11,563,316	6,330,692	11,575,591	6,400,539
2055	11,668,219	6,402,870	11,668,218	6,462,691
2056	11,792,170	6,473,156	11,792,173	6,598,476
2057	11,818,999	6,558,126	11,818,998	6,620,540
Total	501,856,403	346,760,881	502,226,000	347,036,622

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Xcel Energy

Information Request No. 5

Docket No.: E002/PA-18-702

Response To: MN Public Utilities Commission

Requestor: Sean Stalpes

Date Received: December 19, 2018

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Question:

In Tables 6 and 7 on page 28 of the Petition, Xcel compares the Strategist analysis of “Owned MEC” and “Continuation of PPAs.” Attachment F shows that the expansion plans do not extend the MEC PPAs beyond their current terms. To confirm, does “Continuation of PPAs” mean the MEC I and II PPAs will be continued *as* PPAs, but will not be extended beyond the current expiration date?

Response:

Confirmed. “Continuation of PPAs” means the MEC I and II PPAs will be continued as PPAs, but will not be extended beyond the current expiration date. The attached response to DOC IR 7(e) and (f) provides analysis that assumes the PPAs are extended.

Our response to DOC IR No. 7, Attachment A, provided with the Not Public version of this response contain data classified as trade secret pursuant to Minn. Stat. §13.37 and are marked as “Not Public” in their entirety. Pursuant to Minn. R. 7829.0500, subp. 3, the Company provides the following description of the excised material:

1. **Nature of the Material:** Annual cost impact outputs of Strategist modeling.
2. **Authors:** The model was prepared by the Resource Planning Analytics group with inputs provided by multiple areas across the Company.
3. **Importance:** The model contains competitively sensitive data related to PPAs and project costs.
4. **Date the Information was Prepared:** The model was prepared during the fourth quarter of 2018.

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Preparer: Jon Landrum

Title: Manager, Resource Planning Analytics

Department: Resource Planning

Telephone: 303-571-2765

Date: January 10, 2019

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Xcel Energy

Docket No.: E002/M-18-702

Response To: MN Department of Commerce Information Request No. 7

Requestor: Nancy Campbell, Mark Johnson, Steve Rakow

Date Received: December 13, 2018

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Question:

Topic: Incremental Revenue Requirement Impact of MEC Ownership

Reference(s): Table 8 of Xcel's petition

- (a) Please provide supporting calculations for “Fixed Savings of Mankato PPA”.
- (b) Please provide a breakout of individual items that make up the “VOM/Fuel/Market Costs Savings” and explain for each item why this is a benefit or savings as a result of changing from Purchase Power Agreement (PPA) to Revenue Requirement ownership.
- (c) Please explain why the “VOM/Fuel/Market Costs Savings” should be included in the incremental revenue requirement impact, since these appear to be broader market savings using Strategist.
- (d) Please identify any higher costs as a result of Xcel owning and using a revenue requirement method compared to the current PPA method.
- (e) Please provide the incremental revenue requirements for the PPA method vs the revenue requirement ownership method for the **entire life of MEC I & MEC II** (similar to the first two lines of Table 8 – which uses Attachment G for Revenue Requirements). For both the PPA and revenue requirements methods, please assume full use of MEC 1 & MEC II for life of the plants to allow for an apple to apple comparison of the PPA vs revenue requirement methods. The Department notes that for the PPA assumptions the Company could consider using Schedule 13 in Heuer Direct in Docket E002/GR-15-826 to determine an inflation rate for extending the PPA for the full life of MEC I & II. Please provide actual information from the existing MEC 1 & MEC II PPAs and assumed data after the current MEC 1 & MEC II PPAs terminates on separate lines.

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- (f) Does the incremental revenue requirements requested in part (e) above show a net benefit over the life of MEC I & II, as a result of the revenue requirement – ownership method?

Response:

- (a) The “Fixed Savings of Mankato PPA” is the avoided capacity payments due to the termination of the PPAs. For 2019, it is assumed 5 months of capacity payments for MEC I would be incurred under the PPA with Company ownership beginning in June 2019. The fixed savings are shown in the table below:

	2019	2020	2021	2022	2023	2024
MEC I PPA through May 2019	15.83	0.00	0.00	0.00	0.00	0.00
Less: Capacity Payment-MEC I and II PPAs	(54.75)	(67.27)	(68.24)	(69.22)	(70.19)	(71.21)
Fixed Savings of Mankato PPA	(38.92)	(67.27)	(68.24)	(69.22)	(70.19)	(71.21)
<i>Rounded</i>	(39)	(67)	(68)	(69)	(70)	(71)

- (b) Please see Attachment A to this response which provide the breakdown of individual cost categories through 2057 on the “Breakdown of Savings” tab. The table below provides a brief summary of the impact of each category:

Cost/(Savings) Category	Explanation
Capital Cost of Mankato Purchase	Costs expected to be incurred due to the purchases of MEC. This amount corresponding to Line 21 on Attachment G.
Fixed Savings of Mankato PPA	Fixed PPA costs avoided due to the termination of the existing PPAs
Fixed Cost/Expansion Plan Cost/(Savings)	Saving due to avoid capacity costs. These benefits are due to the longer lives of the resources under the ownership option as compared to the current PPA terms.
VOM Cost/(Savings)	Some variable O&M costs are avoided due to the structure of the PPA compared to expected costs under company ownership.
Fuel Cost/(Savings)	Fuel cost increase slightly due to higher reliance on MEC to offset market purchases or make sales.
Market Cost/(Savings)	Market savings increase due to increase energy output from MEC under ownership and avoided market purchases or increased sales.
CO2 Cost/(Savings)	CO2 costs reflect the regulatory cost of CO2 after 2024. There are slightly higher CO2 costs due to the increased energy output from MEC.
Externalities Cost/(Savings)	Until 2024, CO2 costs are shown as an externality. Externality savings in the near term are due to the higher energy output of MEC expected under ownership.
PPA Starts/Own Start Fuel Cost/(Savings)	We expect start costs to be lower under ownership compared to the start costs under the existing PPAs.

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Please note that for each category, the impacts of ownership are compared to the existing PPAs during each PPA term, which expire in 2026 and 2039.

Comparison of the impacts of ownership of MEC after those date are based on the generic resources selected by the Strategist model.

- (c) The savings associated with Xcel Energy’s purchase of the Mankato Energy Center—including the “VOM/Fuel/Market Costs Savings” identified in the Company’s petition—will be realized on the NSP system and passed on to our customers. As benefits of the transaction, they are appropriately incorporated into our analysis.

Table 8 from our petition provides a summary of the incremental impacts to system costs of the ownership of MEC compared to the existing PPAs.

Attachment A provides the detailed breakdown of the system impacts.

- (d) Attachment A provides the detailed breakdown of costs. The cost deltas between ownership and PPAs are shown graphically in Figure 1 and 2 of the petition.

Xcel’s ownership of Mankato Energy Center will result in higher capital costs, higher fuel costs, and an increase in CO2 regulatory costs due to the increased output of the plant.

- (e) We conducted a Strategist run in which the Mankato I and II PPAs were extended through the life of the plants; through June 2046 and March 2054. We assumed that the operations of each plant remain the same as the current contracts, and escalated the costs by 2% per year after the PPAs expiration dates in 2026 and 2039. The escalated fixed PPA payments are shown in the “Fixed Savings of Mankato PPA” line on the “Own vs. MEC PPA Ext” tab of Attachment A.

A summary of the incremental revenue requirements of owning Mankato Energy Center in comparison to an extension of the Mankato Energy Center PPAs is shown below. Please refer to the “Own vs. MEC PPA Ext.” tab of Attachment A for an annual breakdown.

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**Incremental RR Impact**

	<b>2018 PVRR</b>
Capital Cost of Mankato Purchase	915
Fixed Savings of Mankato PPA	(981)
Fixed Cost/Expansion Plan	(84)
Cost/(Savings)	
VOM Cost/(Savings)	(44)
<i>Coal</i>	(2)
<i>Gas</i>	(31)
Fuel Cost/(Savings)	(61)
<i>Coal</i>	(26)
<i>Gas</i>	(33)
<i>Other</i>	(2)
Market Cost/(Savings)	150
CO2 Cost/(Savings)	(34)
Externalities Cost/(Savings)	(63)
PPA Starts/Own Start Fuel Cost/(Savings)	(52)
Total Cost/(Savings)	(255)



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**Incremental RR Impact High Renewables**

	<b>2018 PVRR</b>
Capital Cost of Mankato Purchase	915
Fixed Savings of Mankato PPA	(571)
Fixed Cost/Expansion Plan	(364)
Cost/(Savings)	
VOM Cost/(Savings)	(32)
<i>Coal</i>	(3)
<i>Gas</i>	(29)
Fuel Cost/(Savings)	28
<i>Coal</i>	(41)
<i>Gas</i>	72
<i>Other</i>	(2)
Market Cost/(Savings)	(28)
CO2 Cost/(Savings)	5
Externalities Cost/(Savings)	(65)
PPA Starts/Own Start Fuel Cost/(Savings)	(48)
<b>Total Cost/(Savings)</b>	<b>(162)</b>

- (f) Extending the PPAs for the entire life of MEC I & MEC II results in a net cost of \$255MM in comparison to the MEC ownership case. The high renewables scenario with the PPA extensions results in a net cost of \$162MM when compared to the MEC Ownership option with the high renewable tail.

Attachment A provided with the Not Public version of this response contain data classified as trade secret pursuant to Minn. Stat. §13.37 and are marked as “Not Public” in their entirety. Pursuant to Minn. R. 7829.0500, subp. 3, the Company provides the following description of the excised material:

1. **Nature of the Material:** Annual cost impact outputs of Strategist modeling.
2. **Authors:** The model was prepared by the Resource Planning Analytics group with inputs provided by multiple areas across the Company.
3. **Importance:** The model contains competitively sensitive data related to PPAs and project costs.
4. **Date the Information was Prepared:** The model was prepared during the fourth quarter of 2018.

Preparer: Jon Landrum  
Title: Manager  
Department: Resource Planning Analytics  
Telephone: 303-571-2765  
Date: January 3, 2019

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Attachment A provided with the Not Public version of this response contain data classified as trade secret pursuant to Minn. Stat. §13.37 and are marked as “Not Public” in their entirety. Pursuant to Minn. R. 7829.0500, subp. 3, the Company provides the following description of the excised material:

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**TRADE SECRET ENDS]**