



414 Nicollet Mall
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September 18, 2017

—Via Electronic Filing—

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

RE: RESPONSES TO MPUC INFORMATION REQUEST NOS. 1-3
STANDBY SERVICE TARIFFS
DOCKET NO. E999/CI-15-115

Dear Mr. Wolf:

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

Please contact me at (612) 337-2268 or 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

Docket No.: E999/CI-15-115

Response To: MN Public Utilities Information Request No. 1
Commission

Requestor: Susan Mackenzie

Date Received: September 8, 2017

Question:

Please confirm that: Xcel can, under current MISO rules, aggregate and register for resource adequacy (MISO Module E) small customer-owned distributed generators (i.e. small generators that are in the distribution system, including both those behind the retail meter and those in front of the retail meter), as long as Xcel has some type of contractual rights with each of the generators (e.g. a PPA or some other type of a contract).

Response:

Yes, under current MISO rules, the Company can register small customer owned distributed generators as a capacity resource as long as the Company owns or has the contractual rights to the output and operation of the generation. However, the Company cannot register an asset for capacity that is directly used by a customer to offset customer load. If it did so, the Company would be double counting the capacity value from the asset: once as a reduction to its planning reserve margin requirement (PRMR), and a second time by utilizing the same asset as additional capacity to meet the Company's PRMR as accredited capacity.

Preparer: Tom McDonough

Title: Manager, Transmission Access

Department: Market Operations

Telephone: 612.337.2258

Date: September 18, 2017

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Xcel Energy

Docket No.: E999/CI-15-115

Response To: MN Public Utilities Information Request No. 2
Commission

Requestor: Susan Mackenzie

Date Received: September 8, 2017

Question:

Regarding the Solar PV Capacity Credit, please provide current input values for the capacity value stack methodology, as described in Section 1.A. of the August 19, 2016 Sundial Solar comments in this docket, and in Section II.B. (Estimating Avoided Costs) of the March 17, 2014 Department comments in docket M-13-315, and in Section V. (The Recommended Steps for Determining Capacity Credits in Relationship to Xcel's Standby Service Rider) of the December 3, 2012 Solar Rate Reform Group comments in docket GR-10-971. Specifically:

- a) Please confirm that \$60.07/kW-year, starting in 2017, is the current avoided cost of generating capacity that Xcel proposed, and that was approved, in the 2017-2019 Conservation Improvement Program Triennial Plan.
- b) What is the current Network Integrated Transmission Service (NITS) or comparable transmission rate recovered in Xcel's retail service rates, in total dollars of annual transmission-related revenue requirements, and, in terms of \$ per kW-month for all demand-metered customers? Are losses stated separately? Please explain.
- c) What is the current loss factor, in percent, on Xcel's transmission and distribution systems for a primary voltage customer?
- d) Please confirm that the MISO 2016-2017 planning year solar capacity credit class average is 50% of nameplate rating of the solar generating facility for the first year. What will be the MISO process to decide the capacity credit for subsequent years?
- e) Please provide an updated PV capacity credit, using the capacity value stack methodology referenced above, and the component inputs from responses to (a) through (d) above: $PV \text{ capacity credit} = ((a + b) \times (1 + c)) \times d$

Response:

- a) Yes, the \$60.07/kW-year avoided cost of generating capacity is a 2017 value that was filed in the 2017-2019 Conservation Improvement Program Triennial Plan (Docket No. E,G002/CIP-16-115). This figure is based on Combustion Turbine cost modeling included in an update to the 2015 Integrated Resource Plan and escalated at an annual rate of 2.24%.

The Avoided Cost in this filing reflects a value weighted by the impact of a portfolio of DSM measures, differing from an average cost across all hours which is represented in the Annual Cogeneration and Small Power Producer filing.

- b) The current NSP Zonal Transmission rate is \$4.1452/kw-month, as posted in Attachment O on the MISO's site here:
<https://www.misoenergy.org/Library/Pages/ManagedFileSet.aspx?SetId=259>. The transmission cost in demand-metered rates, which is an embedded cost, is \$2.74 per kW per month in current rates and \$3.47 per kW per month in pending compliance rates proposed to be effective October 2017. In retail rates, losses are not stated separately, but differences by voltage level are recognized through demand and energy voltage discounts.
- c) The average transmission and distribution loss factor at primary voltage is 6.65 percent for demand and 6.19 percent for energy.
- d) For the 2016-2017 and 2017-2018 planning years, new solar PV resources received a first year capacity accreditation of 50%. MISO current Resource Adequacy Business Practice Manual (BPM-011-r17) Effective Date: August 25, 2017 provides that solar photovoltaic (PV) resources will have their annual UCAP value determined based on the 3 year historical average output of the resource for hours ending 15, 16, and 17 EST for the most recent Summer months (June, July, and August). Resources with less than 30 days of metered values would receive the class average of 50% for its Initial Planning Year.

MISO staff has verbally stated in stakeholder meetings that once the MISO footprint has additional PV penetration and historical data they will likely change its PV capacity calculation based on the Effective Load Carrying Capability (ELCC). ELCC is how wind resource accreditation is determined each planning year.

- e) The calculation below represents the capacity value stack methodology, with former and current input values.

Capacity Value Stack Methodology (CVSM)			CVSM As Previously Requested	CVSM As Requested, Updated for 2017
((A+B)*(1+C))*D			2013	2017
A	Avoided Capacity	\$/kW-month	\$7.25 (1)	\$5.01 (1)
B	Avoided Transmission	\$/kW-month	\$2.81	\$3.47 (2)
C	Line Loss	%	5.68% (3)	6.65% (3)
D	MISO ELCC	%	48.60%	50%
Calculated Value			\$5.17	\$4.52

- (1) CIP Weighted Avoided Capacity Value (2016 Triennial filing).
(2) Embedded Transmission from 2015 rate case (2017 Test Year).
(3) MN State Demand Loss Factors at Primary Voltage (2017).

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Xcel Energy

Docket No.: E999/CI-15-115

Response To: MN Public Utilities Information Request No. 3
Commission

Requestor: Susan Mackenzie

Date Received: September 8, 2017

Question:

Regarding the Solar PV capacity credit, please provide the likely pros and cons for each of the following two possible methodologies for valuing PV capacity, at each of (a) low penetration of PV, (b) medium penetration of PV, and (c) high penetration of PV (i.e. for six cases):

- 1) A capacity value stack methodology, as in Section 1.A. of the August 19, 2016 Sundial Solar comments in this docket, and in Section II.B. (Estimating Avoided Costs) of the March 17, 2014 Department comments in docket M-13-115, and in Section V. (The Recommended for Determining Capacity Credits in Relationship to Xcel's Standby Service Rider) of the December 3, 2012 Solar Rate Reform Group comments in docket GR-10-971.
- 2) A net demand methodology based on the difference between the level of the customer's non-coincident (billing) peak and the customer's demand net of solar generation during Xcel's system planning peak.

Please discuss the potential differences of the two possible approaches including any related to visibility of distributed PV for planning and operations.

Response:

- 1) A capacity value stack methodology, as represented in earlier filings, utilized inputs based on peak hour capacity value and transmission losses. The input values used in 2013, and same input context updated for 2017 is presented below. The Company also provides inputs representing system average values as represented in the Annual Cogeneration and Small Power Producer filing.

Capacity Value Stack Methodology (CVSM)			CVSM As Previously Requested	CVSM As Requested, Updated for 2017	CVSM with System Inputs (0)
((A+B)*(1+C))*D			2013	2017	2017
A	Avoided Capacity	\$/kW-month	\$7.25 (1)	\$5.01 (1)	\$3.78 (4)
B	Avoided Transmission	\$/kW-month	\$2.81	\$3.47 (2)	\$3.47 (2)
C	Line Loss	%	5.68% (3)	6.65% (3)	3.22% (5)
D	MISO ELCC	%	48.60%	50%	50%
Calculated Value			\$5.17	\$4.52	\$3.74

- (0) Inputs represent average system costs, rather than demand based inputs.
(1) CIP Weighted Avoided Capacity Value (2016 Triennial filing).
(2) Embedded Transmission from 2015 rate case (2017 Test Year).
(3) MN State Demand Loss Factors at Primary Voltage (2017).
(4) Cogeneration Small Power Producer Avoided Capacity Value (2017).
(5) MISO Transmission Loss Value PY 2017/18.

See Part 2 of this response for discussion regarding impacts of varying penetration levels of distributed generation.

- 2) A net demand methodology recognizes that the non-coincident billing demand of a customer with solar generation is likely be set at a time of low solar generation, which would not fully recognize the lower load requirements of the customer during typical system peak times when the customer's solar generation is at a higher level. This methodology works through a rate provision that reduces billing demand quantities to recognize solar contribution to system peak requirements, or through comparable tariff provision that provides a comparable result. The objective is to recognize the impact on monthly customer billing demand quantities more than the system planning peak, to provide equitable and comparable billing of all customers, although the two are related. The Company's proposed PV capacity credit accomplishes this result in a simplified and direct process that provides a solar production incentive during typical system peak hours, by using an energy rate equivalent to the current \$5.15 per kW credit.

The current credit is significantly above an embedded cost basis, which provides a greater credit to PV customers. The Company considers an embedded cost basis for a PV capacity credit as necessary for the equitable and comparable treatment of PV customers with other customers, but proposed the current \$5.15 per kW credit as an initial basis to maintain rate continuity, with the recommendation of further evaluating the appropriate credit level. A credit level that is fully or partially based on avoided costs that are greater than

embedded costs produces an incompatibility with the established demand charges in retail demand-metered tariffs, and results in incompatible cost responsibilities of customers with and without solar PV generation. To the extent a PV capacity credit is established at a level that is higher than an embedded cost basis used for retail demand-metered tariffs, an unsupported incremental credit will transfer to solar PV customers. This incremental credit will not be initially recovered through retail rates and will ultimately increase the cost to customers without solar PV generation. This result will increase as the penetration levels of solar PV increases. Although avoided costs can serve as a helpful reference value for certain rate design considerations, it is important that the actual use of avoided cost valuations and applicable rates be associated with a real and measurable cost-reduction, especially within a reasonable timeframe.

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Date: September 18, 2017

CERTIFICATE OF SERVICE

I, Lynnette Sweet, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

Docket No. E999/CI-15-115

Dated this 18th day of September 2017

/s/

Lynnette Sweet
Regulatory Administrator

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