November 9, 2016

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

Re: Reply Comments from Midwest Cogeneration Association and Fresh Energy
In the Matter of a Commission Inquiry into Standby Service Tariffs
Docket No. E-999/CI-15-115

Dear Mr. Wolf,

The Midwest Cogeneration Association (MCA) and Fresh Energy respectfully submit the following reply comments on the proposed standby service tariffs filed by Xcel Energy, Minnesota Power, Otter Tail Power, and Dakota Electric Association on May 19, 2016. In comments filed on August 19, 2016 in this docket, MCA and Fresh Energy provided analysis done by 5 Lakes Energy examining the impact of each utility's proposed standby tariffs on a hypothetical customer with an onsite cogeneration project. As stated in those comments, we were waiting for responses to Information Requests from each utility to confirm or modify 5 Lakes Energy's analysis.

We appreciate the good faith efforts the utilities have made to update their standby rate tariffs; however, we believe further review and cost justification is necessary. In the following reply comments, we will provide:

1. Response to Energy Resources Center's August 19, 2016 comments in this docket regarding the definition of standby service.

2. Updated information on the impact of each utility's standby tariff on a hypothetical customer with onsite cogeneration, based on the utilities responses to our information requests;

3. A breakdown of each utility's charges into transparent, comparable categories, highlighting some of the significant differences between the tariffs in terms of the charges imposed on standby users in each of the comparable categories and the need for a more robust record regarding the cost drivers underlying these tariffs;

4. A "conceptual model" for uniform standby tariff design that promotes energy and economic efficiency; and

5. Recommendations for the Commission's consideration moving forward on this issue.

I. Response to Energy Resources Center

Fresh Energy and MCA support the position taken by the Energy Resources Center on Xcel Energy's methodology for calculating standby usage. As verified in their response to Fresh Energy Information Request 5, Xcel calculates standby usage based on when a customer's generator operates at less than the contracted capacity. Specifically, Xcel Energy states the following:

> When customer generation is operating below its contract capacity level, the customer is actually using reserved backup capacity. Any variation in the total site load of a standby service customer is comparable to the standard service load variations by a non-standby service customer without their own generation. A "mix and match" perspective that would attribute and assign load variations in standard service to standby service is not analytically sound or appropriate.[1]

We disagree with this assessment and agree with the August 19 comments filed by the ERC, which stated the following:

> The diminished output of a [distributed generation] (DG) unit should not necessarily incur standby usage charges. Standby service should only apply to the capacity and energy provided above the level at which a customer normally takes – and pays for - service from the utility while their generation is operational. For example, if a standby customer were to take a DG/CHP unit offline while at the same time removing equivalent load from the site (through a variety of load reduction measures) – this should not incur standby usage charges since the customer's demand remains within their standard nominated service.[2]

To continue this point, if a customer is paying for an amount of capacity through their supplemental rate it can be assumed that the utility is recovering the cost to provide that level of capacity. Therefore, the cost to provide that amount of capacity is already being recovered no matter the reason why a customer might need that capacity (e.g. a forced CHP outage). To suggest that a standby customer be assessed standby usage charges for a level of capacity that they had previously purchased through their supplemental rate is inconsistent with fair cost allocation principles and might lead to the double charging of capacity. Standby rates should be used to recover the fully allocated embedded costs of providing energy and capacity above that already being recovered through the supplemental rates.

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[1] Xcel Energy response to Fresh Energy Information Request 5. August 29, 2016.
[2] Comments of the Energy Resources Center. In the Matter of a Commission Inquiry into Standby Service Tariffs. Docket No. E999/CI-15-115. Filed August 19, 2016.

Such a methodological approach is already being used by utilities in the Midwest. Below is an excerpt of the standby power definition from DTE Energy in Michigan. We see this definition as providing a good example for how Minnesota utilities could redefine standby usage in their tariff book.

> Standby demand is electric capacity provided by the Company to serve the customer's total internal load which would have been provided by the customer's generation had it operated at its contract capacity **less any reduction the customer can accomplish** by reducing the supplemental demand at the time of the daily on-peak standby demand below the maximum monthly on peak supplemental demand but not less than zero.[3]

The lack of a uniform definition of standby usage may place a financial barrier on developers and operators of combined heat and power and other self-generating resources in Minnesota and may further increase the costs to expand resilient and energy efficient technologies. We believe it would be helpful for the Commission to provide guidance on a uniform definition of standby usage and feel that it should more closely resemble the definition provided by DTE Energy.

II. *5* Lakes Energy Analysis: Apples-to-Apples Comparison of the Utilities' Tariffs

In comments filed on August 19, 2016, in this docket, MCA and Fresh Energy provided initial analysis done by *5* Lakes Energy, a Michigan-based energy policy consulting firm, to determine the impact of the proposed standby service tariffs on a hypothetical customer with an onsite cogeneration project. At the time of that filing, we were waiting on utility responses to Fresh Energy Information Requests 4-7 to verify or correct assumptions made when determining the analysis.

We are happy to provide the following tables reflecting the updated *5* Lakes Energy analysis. Tables 1-*5* below highlight the monthly charges imposed on a hypothetical General Service customer requiring 2,000kW of firm standby service at the Primary Distribution level for each utility's proposed tariff. Given the verification from the utilities in their responses to our information requests, we believe that these are accurate estimations. Information on the analysis is included in Attachment A to these comments.

[3] Rate Book for Electric Service. DTE Electric Company. Issued November 19, 2015. First Revised Sheet No. D-69.00. http://www.dleg.state.mi.us/mpsc/electric/ratebooks/dtee/dteelcur.pdf. (emphasis added)

Table 1. NO OUTAGE SCENARIO

Monthly charge ($)	Xcel Energy	Minnesota Power	Otter Tail Power	Dakota Electric Association
Customer Charge	25.75	0	304.33	34.00
Reservation Fee	4940 (scheduled) 5140 (unscheduled)	1007	428.06	6560
Demand Charge	0	0	0	0
Energy Charge	0	0	0	0
Standby Facilities Charge	0	0	900	0
...				
TOTAL	**$4965.75 (scheduled) $5165.75 (unscheduled)**	**$1007**	**$1632.39**	**$6,594.00**

Table 2. SCHEDULED OUTAGE WITH 16 HOURS ON-PEAK SCENARIO

Monthly charge ($)	Xcel Energy	Minnesota Power	Otter Tail Power	Dakota Electric Association
Customer Charge	25.75	0	304.33	34.00
Reservation Fee	4940	1007	428.06	0
Demand Charge	0	0	0	18,020
Energy Charge	994.56	1692.16	2480.64	2483.20
Standby Facilities Charge	0	0	900	0
...				
TOTAL	**$5960.31**	**$2699.16**	**$4113.03**	**$20,537.20**

Table 3. SCHEDULED OUTAGE WITH 8 HOURS ON-PEAK, 8-HOURS OFF-PEAK SCENARIO

Monthly charge ($)	Xcel Energy	Minnesota Power	Otter Tail Power	Dakota Electric Association
Customer Charge	25.75	0	304.33	34.00

Reservation Fee	4940	1007	428.06	0
Demand Charge	0	0	0	18,020
Energy Charge	994.56	1692.16	2007.52	2483.20
Standby Facilities Charge	0	0	900	0
...				
TOTAL	**$5960.31**	**$2699.16**	**$3639.91**	**$20,537.20**

Table 4. SCHEDULED OUTAGE WITH 32 HOURS ON-PEAK SCENARIO

Monthly charge ($)	**Xcel Energy**	**Minnesota Power**	**Otter Tail Power**	**Dakota Electric Association**
Customer Charge	25.75	0	304.33	34.00
Reservation Fee	4940	1007	428.06	0
Demand Charge	983	0	0	18,020
Energy Charge	1989.12	3384.32	4961.28	4966.40
Standby Facilities Charge	0	0	900	0
...				
TOTAL	**$7937.87**	**$4391.32**	**$6593.67**	**$23,020.40**

Table 5. UNSCHEDULED OUTAGE WITH 8 HOURS ON-PEAK, 8 HOURS OFF-PEAK SCENARIO

Monthly charge ($)	**Xcel Energy**	**Minnesota Power**	**Otter Tail Power**	**Dakota Electric Association**
Customer Charge	25.75	0	304.33	34.00
Reservation Fee	5140	0	428.06	0
Demand Charge	0	21,180	816	18,020
Energy Charge	994.56	hourly incremental energy costs	1959.28	2483.20
Standby Facilities Charge	0	0	900	0

…				
TOTAL	**$6160.31**	**$21,180 plus hourly incremental energy costs**	**$4407.67**	**$20,537.2**

Observations and Comments from Apples-to-Apples Comparisons

As discussed in our initial comments on August 19, these side-by-side comparisons illustrate that the four utilities have structured their proposed standby tariffs differently, and that the charges imposed on the same customer receiving the same level of standby service in different utility territories are dramatically different. While some differences are to be expected, this wide range of Standby Charges imposed under these tariffs should indicate to the Commission that these charges require further review and cost justification.

III. 5 Lakes Energy Analysis: Deeper Dive into Categories of Charges

Importantly, 5 Lakes Energy's analysis provides a framework to assist the Commission's and stakeholders' analyses of otherwise difficult to compare standby service tariffs. Furthermore, it allows parties to drill down into the purpose and effect of each charge in relation to the recovery of utility costs.

To assist in comparing the individual components of the utility standby service tariff proposals, we provide below Tables 6-9 comparing the monthly standby service tariffs across utilities and outage scenarios within each "bucket" of charges analyzed by 5 Lakes: customer charges, reservation fees, demand charges, and energy charges. The tables below compare these charges for the same hypothetical General Service customer requiring 2,000kW of standby service at the Primary Distribution level. After each table, we provide MCA and Fresh Energy's considerations from the information provided and our comments as to how the elements of each tariff do or do not work to achieve the goals articulated by the Department of Commerce, PURPA, and in our initial comments in this docket.

Table 6. Total Customer Charge

Monthly charge ($)	Xcel Energy	Minnesota Power	Otter Tail Power[4]	Dakota Electric Association
No outage	25.75	0	304.33 + 900.00	34.00

[4] Otter Tail's Standby Tariff applies both a fixed Customer Charge ($304.33) and an additional fixed "Standby Facility Charge" ($900).

Scheduled 16 hours	25.75	0	304.33 + 900.00	34.00
Scheduled 8 hours on-peak, 8 hours off-peak	25.75	0	304.33 + 900.00	34.00
Scheduled 32 hours	25.75	0	304.33 + 900.00	34.00
Unscheduled 8 hours on-peak, 8 hours off-peak	25.75	0	304.33 + 900.00	34.00

Observations and Comments on Customer Charges

A fixed customer charge is standard in most tariffs and is generally designed to recover utility customer-related costs specific to serving a standby service customer, above the normal costs of serving a customer on the standard rate. We note the following observations and comments:

- Customer charges may be necessary to recover certain costs to provide standby service, but they should not be duplicative of a charge already imposed on the same customer under the standard tariff for supplemental power.

- Customer charges should be based on the additional customer-related costs a standby customer imposes on the utility.

- Three of the utilities, Xcel Energy, Otter Tail Power, and Dakota Electric Association, impose a fixed customer charge, while Minnesota Power has no customer charge. Otter Tail also imposes a separate fixed Standby Facility Charge. The utilities should explain what costs they are recovering in these fixed charges.

Table 7. Total Reservation Fee

Monthly charge ($)	Xcel Energy	Minnesota Power	Otter Tail Power	Dakota Electric Association
No outage	4940 (scheduled) 5140 (unsched)	1007	428.06	6560
Scheduled 16 hours	4940	1007	428.06	0
Scheduled 8 hours on-peak, 8 hours off-peak	4940	1007	428.06	0
Scheduled 32 hours	4940	1007	428.06	0

Unscheduled 8 hours on-peak, 8 hours off-peak	5140	0	428.06	0

Observations and Comments on Reservation Fees

A reservation fee is not necessarily standard, but when included in a standby tariff it is generally a fixed charge intended to recover the utility's embedded costs for capacity and/or transmission and distribution infrastructure, even when no service is taken. It appears to be based on an assumption that the provision of standby service imposes a cost on the utility regardless of the amount of standby service actually used by the customer during the month. We note the following observations and comments:

- All four tariffs include a fixed reservation fee for scheduled standby service even when no standby service is taken in a month. The charges don't vary based on the quantity of standby service actually taken, except for Dakota Electric which only imposes its reservation fee when no standby service is taken. The utilities should explain the cost basis for their fixed reservation fees and demonstrate that they are not duplicative of costs recovered in customer charges, demand charges, or energy charges.

- Table 7 shows that there is a wide discrepancy in the four utilities' reservation fees. The charges for the same customer range from $6,560 per month in Dakota Electric Association's territory to only $428.06 per month in Otter Tail Power's territory. This wide variation should indicate to the Commission that these charges require further review and cost justification.

- Xcel Energy charges a slightly different fixed reservation fee for scheduled and unscheduled standby service, at $4,940 per month and $5,140 per month, respectively. However, it is unclear in Xcel's tariff filing if a situation may occur where a customer pays both of these fees, for a total of $10,131.50, in months in which no standby power is taken. Xcel should explain the cost basis for these fees and when these fees would apply.

- Otter Tail Power charges the same low fixed reservation fee, $428 per month, for scheduled and unscheduled standby service, regardless of the amount of service taken or not taken. In contrast, Dakota Electric charges a significant fixed reservation fee when no standby service is taken, but does not duplicate that charge when stand service is taken.

- Minnesota Power charges a moderate reservation fee for scheduled standby service, but no demand charges for scheduled service. It charges no reservation fee for unscheduled service and thus is recovering all of its

embedded costs in the variable demand charge.

- Theoretically, when a fixed reservation fee is included in a tariff, it should reflect only embedded costs necessary to "reserve" capacity, transmission and distribution for potential unscheduled outages (e.g. forced outages). Scheduled standby service can be planned and the actual costs recovered in variable demand and energy charges.

Fixed reservation fees are a highly imperfect method of recovering utility embedded costs. They can either impose costs not actually caused by the customer, placing unfair burdens on a self-generating customer, or underestimate the costs imposed by that customer. They also fail to reward customers for reducing standby service usage. For example, a reservation fee based on an anticipated forced outage rate (FOR) that is higher than the actual outage rate for the customer's system will recover costs that the customer does not impose. Furthermore, to the extent that outages can be planned or scheduled, the utility may not incur any additional costs during off-peak times of the day and year.

We recommend that a model standby tariff not include fixed reservation fees, but rather recover a utility's embedded costs through variable demand or energy charges that reflect the utility's actual time-of-use costs. If a reservation fee is included in a tariff, we recommend that it reflect either 1) the monthly average actual standby customer FOR in the preceding 12 months, or 2) the "best in class" FOR for the customer's generation technology. Where that average or "best in class" minimum is exceeded, any additional utility costs can be recovered through variable demand or energy charges.

Table 8. Total Demand Charge

Monthly charge ($)	Xcel Energy[5]	Minnesota Power	Otter Tail Power	Dakota Electric Association[6]
No outage	0	0	0	0
Scheduled 16 hours	0	0	0	18,020
Scheduled 8 hours on-peak, 8 hours off-peak	0	0	0	18,020
Scheduled 32 hours	983	0	0	18,020
Unscheduled 8 hours on-peak, 8 hours off-peak	0	21,180	816	18,020

[5] Excess Energy Usage Charges beyond 20-hour Grace Period
[6] Does not include overall 2% discount for Primary Distribution Service

Observations and Comments on Demand Charges

A demand charge is another means of recovering the utility's embedded infrastructure costs. When based upon the amount of standby service actually taken, reflective of the utility's time-of-use costs, and not duplicative of costs recovered through Reservation Fees or other charges, demand charges can be a transparent way to recover a utility's infrastructure costs proportional to the customer's usage and encourage energy and economic efficiency. We note the following observations and comments:

- As distinguished from a fixed reservation fee, a well-designed demand charge should be variable based on the actual amount of standby service used in a given month. Where a reservation fee is also charged, the demand charge should not be duplicative, but rather should charge only for usage in excess of the minimum use reflected in the reservation fee.

- Table 8 above highlights a wide discrepancy across the utility proposals in the amount of demand charges imposed on the same customer across outage scenarios in the different utility territories. This wide variation should indicate to the Commission that these charges require further review and cost justification.

- Most notably, Dakota Electric Association charges an extremely high fixed demand charge at $18,020 per month for any standby service used in these scenarios. This tariff is not reflective of the amount of standby service taken, whether it is scheduled or unscheduled, or when it is used in relation to the utility's system peak and costs.
- Minnesota Power charges an even higher demand charge at $21,180 per month, but only for unscheduled standby service (i.e., forced outages). In contrast to its high charge for forced outages, Minnesota Power places no demand charges on scheduled standby service. While a model standby tariff should reflect the difference in utility costs for scheduled and unscheduled standby service use, and thereby encourage the customer to use scheduled service for maintenance whenever possible, the extreme difference in the charges imposed in Minnesota Power's standby tariff are unjustly punitive and impose an unwarranted burden on standby customers.

- Otter Tail Power places no demand charges on scheduled standby service and only a small demand charge ($816) on forced outages. Xcel applies no demand charge on the first 20 hours of standby service, whether the service is scheduled or unscheduled. We interpret Xcel's high reservation fee to be designed to recover its embedded costs for this 20-hour "grace period." That fee acts as a fixed 20-hour outage rate built into the reservation fee. This approach lacks transparency, is unfair to standby customers with a FOR

lower than 20 hours, and fails to incentivize a customer to minimize its standby service use.

Table 9. Total Energy Charge

Monthly charge ($)	Xcel Energy	Minnesota Power	Otter Tail Power	Dakota Electric Association[7]
No outage	0	0	0	0
Scheduled 16 hours	994.56	1692.16	2480.64	2483.20
Scheduled 8 hours on-peak, 8 hours off-peak	994.56	1692.16	2007.52	2483.20
Scheduled 32 hours	1989.12	3384.32	4961.28	4966.40
Unscheduled 8 hours on-peak, 8 hours off-peak	994.56	hourly incremental energy costs	1959.28[8]	2483.20

Observations and Comments on Energy Charges

Energy Charges generally reflect the actual standby service energy used in a given month and are implemented as a $/kWh rate. When cost-justified and not duplicative of costs recovered through other charges, energy charges can encourage economically efficient consumption and promote flexibility regarding when the customer uses standby service, provided that they distinguish utility on-peak/off-peak costs. We note the following observations and comments:

- All four utilities impose an energy charge for all outage scenarios except when no outage occurs.
- Importantly, Otter Tail Power is the only utility with different energy charges to reflect on-peak and off-peak times.
- Both Otter Tail Power and Minnesota Power reflect the difference in scheduled and unscheduled service.
- Xcel Energy and Dakota Electric Association energy charges do not differentiate between on-peak and off-peak usage, or scheduled and unscheduled service.

[7] Does not include overall 2% discount for Primary Distribution Service
[8] Calculated assuming 4 hours on-peak, 4 hours shoulder, and 8 hours off-peak per Otter Tail Power's Response to Fresh Energy Information Request 4 in this docket.

- Minnesota Power's energy charge only refers to "hourly incremental energy costs." This may refer to "real time" energy pricing, but the tariff is not clear on what is meant and therefore lacks transparency.

IV. Need for a well-established record regarding costs

MCA and Fresh Energy believe the Public Utilities Regulatory Policy Act of 1978 (PURPA, amended in 2005 by the Energy Policy Act) and the Federal Energy Regulatory Commission's implementing regulations call for a more robust record regarding utility costs associated with standby service and how the proposed tariffs recover those costs.

PURPA regulations requires the following regarding rates for sales to qualifying cogeneration facilities:

> **18 C.F.R. 292.305**
>
> **Rates for sales.**
>
> **(a)** ***General rules.***
>
> (1) Rates for sales:
>
> (i) Shall be just and reasonable and in the public interest; and
>
> (ii) Shall not discriminate against any qualifying facility in comparison to rates for sales to other customers served by the electric utility.
>
> (2) Rates for sales which are based on accurate data and consistent systemwide costing principles shall not be considered to discriminate against any qualifying facility to the extent that such rates apply to the utility's other customers with similar load or other cost-related characteristics.
>
> ***
>
> **(c)** ***Rates for sales of back-up and maintenance power.*** The rate for sales of back-up power or maintenance power:
>
> (1) Shall not be based upon an assumption (unless supported by factual data) that forced outages or other reductions in electric output by all qualifying facilities on an electric utility's system will occur simultaneously, or during the system peak, or both; and

> (2) Shall take into account the extent to which scheduled outages of the qualifying facilities can be usefully coordinated with scheduled outages of the utility's facilities.[9]

We believe the record to justify the charges in the proposed standby tariffs has not been adequately developed for the Commission to approve or reject the utilities' proposed standby service tariffs consistent with either the principles articulated by the Department or the standards for non-discriminatory standby tariffs under PURPA.

V. A Uniform Standby Tariff Methodology Should Be Adopted

As can be seen from the 5 Lakes Analyses and our comments above, the four proposed utility tariffs differ in substantial ways and result in substantially different charges for standby rate customers in different utility territories without any evident utility cost basis for such differences on the record. While some of these tariffs are more in line with the principles recommended by the Department of Commerce than others, none of them achieve the overarching goal of transparent, proportional, cost-driven standby charges which promote energy and economic efficiency.

We believe the utilities' submission of updated tariffs has been a helpful step in the Commission's "iterative approach" to reviewing existing standby tariffs against best practices.[10] The "apples-to-apples" comparisons have highlighted substantial differences in these updated tariff proposals. This allows stakeholders to begin the discussion of why these differences exist, whether the various charges are cost justified, and where the tariffs as a whole meet or fall short of the objectives articulated by the Department and required by PURPA.

However, to date, stakeholders have lacked a uniform methodology or model with which to prepare and assess these tariffs. MCA and Fresh Energy offer recommendations below on how the Commission and stakeholders can move forward on this issue.

Model Standby Service Tariff

In Table 10, MCA and Fresh Energy offer a framework for designing and assessing utility standby tariffs that achieve the goals outlined by the Department of Commerce and other parties in this docket.

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[9] Federal Code of Regulations. Part 292, Subpart C, section 305. http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=5517216c22de672592192e81dcc97726&rgn=div5&view=text&node=18:1.0.1.11.58&idno=18#se18.1.292_1305

[10] Minnesota Public Utilities Commission. *Order Requiring Tariff Filings.* In the Matter of a Commission Inquiry into Standby Service Tariffs. Docket No. E-999/CI-15-115. Issued November 19, 2015.

	Table 10. Model Standby Service Tariff Template
Customer Charge	Consistent with, but do not duplicate, full-time user tariff charge AND Charge or credit to reflect greater or lesser administrative costs associated with partial use customer.
Reservation Fee	Zero and recover in the demand charge OR Fixed fee to recover utility's embedded costs for capacity, transmission, and distribution based on the forced outage rate of last 12-month usage period or, in the first year of operation, best performing systems in the technology class.
Demand Charge	**Scheduled Outage** Zero OR Variable demand charge proportionate to hours of planned usage and reflecting utility's cost differential due to planning at times that impose zero or low cost to utility. AND Variable demand charge for off-peak usage to reflect utility's cost differential during off-peak hours. **Unscheduled Outage** If no Reservation Fee, variable demand charge designed to recover proportion of utility's embedded costs for capacity, transmission, and distribution based on partial-use customer's hours of unscheduled use. OR If a fixed Reservation Fee is also charged, variable demand charge designed to recover utility's embedded costs for capacity, transmission, and distribution based on partial use customer's proportionate use above Forced Outage Rate assumed in Reservation Fee AND Variable demand charge for off-peak usage to reflect utility's cost differential during off-peak hours.
Energy Charge	If no Reservation Fee and/or Demand Charge, recover proportion of utility's embedded costs for capacity, transmission, and distribution in energy charges based on partial-use customer's hours of use. Pricing should reflect utility's cost differential for scheduled usage and off-peak usage. OR If embedded capacity, transmission, and distribution costs are recovered in Reservation Fee and/or Demand Charge, pricing should reflect utility's energy cost only.

	AND Pricing should reflect peak and off-peak energy prices or real time energy prices.
Transparency	Standby tariffs should be simple and understandable, include all information necessary to calculate total standby charges and the components of standby tariffs imposed on a customer, and follow a uniform format established by the Public Utilities Commission to allow comparison across utility tariffs by all parties and stakeholders.

As stated in our August 19 comments, as well as those of ERC, we believe Minnesota's Value of Solar Tariff and other proceedings provide a precedent for developing a uniform methodology for utility tariffs such as this.

Initial comments from the Department detailed the background on various discussions and issues that led to Commission's Order requiring updated tariff filings from rate-regulated utilities.[11] It is worth noting in the Commission's Order that municipal and cooperative utilities "concurred that rate-regulated utility tariff fillings could guide their own deliberations over developing standby service tariffs."[12] While the rate-regulated utility standby tariff filings are raising important issues for further discussion and justification, the impact of future directions will not only inform the approach of rate-regulated utilities, but all utilities in the state.

VI. Ongoing research on standby rates in the Midwest

MCA and Fresh Energy highlight ongoing research to be published in 2017 examining the real-world impacts of standby tariffs in Michigan and Minnesota. This research from 5 Lakes Energy, with other partners, uses a unique method of analysis that applies each proposed tariff to a common set of outage scenarios to demonstrate how the tariff proposals would compensate utilities and affect customer behavior in divergent ways. This research will build on the analysis provided in this docket, and use analysis and experience from a similar proceeding in Michigan, to provide greater insight into several aspects of utility standby tariffs. The abstract for this research is included as Attachment B.

VII. Recommendations

MCA and Fresh Energy appreciate the efforts made by parties in this docket to improve standby tariffs in Minnesota. In particular, the Commission's goal of

[11] Comments of the Minnesota Department of Commerce. In the Matter of a Commission Inquiry into Standby Service Tariffs. Docket No. E999/CI-15-115. Filed August 19, 2016.
[12] Minnesota Public Utilities Commission. *Order Requiring Tariff Filings*. In the Matter of a Commission Inquiry into Standby Service Tariffs. Docket No. E-999/CI-15-115. Issued November 19, 2015.

implementing an iterative approach has allowed a comparison of standby tariffs across rate-regulated utilities. However, as outlined in the comments above, cost justification and development of the record is needed. MCA and Fresh Energy recommend that the Commission:

- Consider the DTE Energy definition of standby power to develop a uniform definition of standby usage in Minnesota;
- Adopt the Model Standby Rate Tariff provisions highlighted in Table 10 above, with modifications as needed, as a framework or methodology to develop and assess standby tariffs in Minnesota; and
- Require the rate-regulated utilities participating in this docket to file updated tariffs that reflect that approved methodology and provide justification for the fees and charges proposed on a cost basis.

We appreciate the opportunity to offer comments on this important issue. If you have any questions, please reach us at the contact information below.

Sincerely,

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Attachment A

The following analyses have been revised to reflect clarifications and corrections provided in Minnesota Power's Response to Fresh Energy Information Request #6, Docket No. E-999/CI-15-115, Xcel Energy's Response to Fresh Energy Information Request #5, Docket No. E-999/CI-15-115, Otter Tail Power's Response to Fresh Energy Information Request #4, Docket No. E-999/CI-15-115, and Dakota Electric Association Response to Fresh Energy Information Request #7, Docket No. E-999/CI-15-115.

Minnesota Power

For the following calculations, we built off of Minnesota Power's billing simulations provided in their filing, and adapted each scenario for a General Service customer served at the Primary Distribution level. This analysis has been further revised to reflect clarifications provided in Minnesota Power's Response to Fresh Energy Information Request #6, Docket No. E-999/CI-15-115.

We assumed a General Service customer with 3,000 kW in nominated standard service, 2,000 kW in reserved standby service, and that the customer was served at the primary distribution level.

For calculation of the Standby Reservation Fee, we used a 5% forced outage rate.[1]

Summary:[2]

No Outage = $1007.00 (Standby Reservation Fee)

Scheduled Outage 16 hours on-peak: $2699.16

Scheduled Outage 8 hours on-peak, 8 hours off-peak: $2699.16

Scheduled Outage 32 hours on-peak: $4391.32

Unscheduled Outage 8 hours on-peak, 8 hours off-peak: $20,180 plus hourly incremental energy costs

[1] Forced outage rates experienced by combined heat and power (CHP) systems are approximately 5% overall, with 2.5% during peak periods. See "Distributed Generation Operational Reliability and Availability Database," 2004, https://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/dg_operational_final_report.pdf.

[2] These calculations do not include applicable adjustments on the energy portion for the Renewable Resource Adjustment, Transmission Adjustment, Boswell 4 Plan Adjustment, Rider for Conservation Program Adjustment and Rider for Fuel and Purchased Energy Adjustment.

No Outage

For the "no outage" calculation, we assumed an April peak load of 3,000 kW.

- For standby charges, only the Standby Reservation Fee would apply. Minnesota Power calculates this as:

  Standby Reservation Rate * standby capacity reserved (kW) * forced outage rate

  The Standby Reservation Rate for Primary Distribution Level service is listed in their filing as 10.07 (Exhibit A, page 4 of 15). Standby capacity reserved is 2,000 kW. FOR is .05%.

  10.07*2,000*.05= $1007.00

Total "No Outage" Standby Bill = **$1007.00**

Scheduled Outage – 16 hours on-peak

Note: Per the company's filing, a customer is permitted to schedule an outage that falls during peak times, as long as the outage is to fall in a shoulder month and proper notice is provided.

For this scheduled outage calculation, we assumed a 16-hour outage that took place during Minnesota Power's peak window during one day (6 am to 10 pm) in April. The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- As above, the Standby Reservation Fee is calculated as:

  Standby Reservation Rate * standby capacity reserved (kW) * forced outage rate

  The Standby Reservation Rate for Primary Distribution Level service is listed in their filing as 10.07 (Exhibit A, page 4 of 15). Standby capacity reserved is 2,000 kW. FOR is 5%.

  10.07*2,000*.05= $1007.00

- Due to the outage, the customer may be responsible for standby demand charges, depending on whether they exceed the Standby Reservation Fee.
- In order to calculate Standby Demand Charges during a scheduled outage, we first have to calculate the Standby Billing Demand.
- Per the company's filing: "To determine the standby billing demand, the measured demand will be multiplied by the number of days the Scheduled Outage lasts during the month and divided by the number of days in the billing month." (Exhibit A, page 5)

- Here, we have 2,000 kW in standby capacity used for one day of outage divided by 30 days in April. This yields a Standby Billing Demand of 66.67.
- Standby Demand Charges are calculated by multiplying the Standby Billing Demand by the standard rate schedule. The standard rate for General Service served at the Primary Distribution Level is $5.86/kW, minus a $1.75/kW discount for taking primary distribution service. This yields a standard rate of $4.11/kW (see Rate Book, section V, page 10.1)

  Standby Demand Charges: 66.67 * $4.11=$274

  Here, the Standby Reservation Fee is greater, so the customer would pay the reservation fee instead of the demand charges.

  Energy Charges

  The customer would also be responsible for the energy used during the outage, per their standard rate schedule.

  The standard energy charge for a General Service customer in the Minnesota Power Electric Rate Book, section V, page 10.1 is 5.288 cents/kWh.

  In a 16 hour outage using 2,000 kW of standby capacity, total kWh would be 32,000.

  0.05288*32000 = 1692.16

  Total Energy Charges: $1692.16

When the energy charges are added to the Standby Reservation Fee, the total expected standby bill is **$2699.16**.

Scheduled Outage – 8 hours on-peak, 8 hours off-peak

There is no difference between on-peak and off-peak for scheduled outages. The duration of the scheduled outage, in days, is the key. If the outage stretches into two days, you will see an increase, per the calculation of the Standby Billing Demand described above.

Therefore, the total for a 16-hour scheduled outage in which 8 hours were on-peak and 8 hours were off-peak, would still be **$2699.16** (assuming these hours all fell on the same day).

Because there are only so many off-peak hours in the day, a scheduled outage during off-peak hours that lasted over 8 hours would necessarily stretch into a second day and would likely take in some on-peak time.

Scheduled Outage – 32 hours on-peak

Note: Per the company's filing, a customer is permitted to schedule an outage that falls during peak times, as long as the outage is to fall in a shoulder month and proper notice is provided.

For this scheduled outage calculation, we assumed a 32-hour outage that took place during Minnesota Power's peak window (6 am to 10 pm) over two days in April. The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- As above, the Standby Reservation Fee is calculated as:

  Standby Reservation Rate * standby capacity reserved (kW) * forced outage rate

  The Standby Reservation Rate for Primary Distribution Level service is listed in their filing as 10.07 (Exhibit A, page 4 of 15). Standby capacity reserved is 2,000 kW. FOR is 5%.

  10.07*2,000*.05= $1007.00

- Due to the outage, the customer may be responsible for standby demand charges, depending on whether they exceed the Standby Reservation Fee.
- In order to calculate Standby Demand Charges during a scheduled outage, we first have to calculate the Standby Billing Demand.
- Per the company's filing: "To determine the standby billing demand, the measured demand will be multiplied by the number of days the Scheduled Outage lasts during the month and divided by the number of days in the billing month." (Exhibit A, page 5)
- Here, we have 2,000 kW in standby capacity used for two days of outage divided by 30 days in April. This yields a Standby Billing Demand of 133.33.
- Standby Demand Charges are calculated by multiplying the Standby Billing Demand by the standard rate schedule. The standard rate for General Service served at the Primary Distribution Level is $5.86/kW, minus a $1.75/kW discount for taking primary distribution service. This yields a standard rate of $4.11/kW.

  Standby Demand Charges: 133.33 * $4.11=$548

Here, the Standby Reservation Fee is still greater, so the customer would pay the reservation fee instead of the demand charges.

Energy Charges

The customer would also be responsible for the energy used during the outage, per their standard rate schedule.

The standard energy charge for a General Service customer in the Minnesota Power Electric Rate Book, section V, page 10.1 is 5.288 cents/kWh.

In a 32 hour outage using 2,000 kW of standby capacity, total kWh would be 64,000.

0.05288*64000 = 3384.32

Total Energy Charges: $3384.32

When the energy charges are added to the Standby Reservation Fee, the total expected standby bill is **$4391.32**.

Unscheduled Outage

The company's filed simulation is based on a Large Light & Power customer being served at the Transmission Level, and provides the following for an unscheduled outage calculation:

April Peak Load (on-peak) = 4,000 kW

April Peak Load (off-peak) = 5,000 kW

For our calculations, we assumed a General Service customer being served at the Primary Distribution level. We assumed a 4,000 kW on-peak April peak load, and a 5,000 kW off-peak April peak load. The duration of the outage is assumed to be 16 hours total, with 8 hours falling during peak times and 8 hours falling off-peak.

Therefore, standby capacity used would be:

- 1,000 kW on-peak
- 2,000 kW off-peak

The on-peak and off-peak unscheduled demand charges from the company's filing are:

- 10.68 on-peak demand charge rate (primary distribution)
- 9.50 off-peak demand charge rate (primary distribution)

On-peak demand charges are calculated by multiplying 10.68 by the on-peak standby capacity used, which is 1,000 kW in this example.

Off-peak demand charges are calculated by multiplying 9.50 by the difference between on-peak and off-peak standby capacity used, which is 1,000 kW in this example.

Total Standby Demand Charges = **$20,180.**

Energy Charges

"Energy usage during an Unscheduled Outage, the customer shall pay the Company's hourly incremental energy costs during the time of the sale including third-party transmission costs incurred by the Company plus an energy surcharge of $0.02 per kWh (kilowatt hour). Incremental energy costs are determined after assigning lower cost energy to all firm retail and firm wholesale customers including all inter-system pool sales which involve capacity on a firm or participation basis and to all interruptible sales to Large Power, Large Light and Power, and General Service customers." (p.16)

Xcel Energy

For the following calculations, we built off of Minnesota Power's billing simulations provided in their filing, and adapted each scenario for a General Service customer served at the Primary Distribution level. This analysis has been further revised to reflect clarifications provided in Xcel Energy's Response to Fresh Energy Information Request #5, Docket No. E-999/CI-15-115, and reflects the following for purposes of reasonable simplification:

a. The energy charges correspond to the General Service tariff rather than the General Time of Day Service tariff that is normally required for customer loads over 1000 kW, and;

b. The Interim Rate Adjustment was not considered.

We assumed a General Service customer with 3,000 kW in nominated standard service, 2,000 kW in reserved standby service, and that the customer was served at the primary distribution level.

Summary:

No Outage = $4940.00 for scheduled; $5140 for unscheduled (Standby Reservation Fee)

Scheduled Outage 16 hours on-peak: $5934.56

Scheduled Outage 8 hours on-peak, 8 hours off-peak: $5934.56

Scheduled Outage 32 hours on-peak: $7958.24

Unscheduled Outage 8 hours on-peak, 8 hours off-peak: $6134.56

No Outage

For the "no outage" calculation, we assumed an April peak load of 3,000 kW.

- For standby charges, only the Standby Reservation Fee would apply. Xcel Energy calculates this as:

  Reservation demand charge * standby capacity reserved (kW)

- The company offers a different demand charge for reserving "scheduled" and "unscheduled" standby service.
- For a customer served at the primary distribution level, the demand charge for reserving scheduled standby service is $2.47/kW of standby capacity reserved.
- For a customer served at the transmission level, the demand charge for reserving unscheduled standby service is $2.57/kW of standby capacity reserved.

  Total reservation fee for scheduled: **$4940.00**

  Total reservation fee for unscheduled: **$5140.00**

Scheduled Outage – 16 hours on-peak

Note: Per the company's filing, a customer is permitted to schedule an outage that falls during peak times, as long as the outage is to fall in a shoulder month and proper notice is provided.

For this scheduled outage calculation, we assumed a 16-hour outage that took place during Xcel Energy's peak window of 1 pm-7 pm over several days in April. Xcel Energy offers customers a grace period of 20 hours per month on standby demand charges (called "Excess Standby Energy Usage" charges), so the number of days of the outage is not important – rather, it is the total number of outage hours that make the difference in the calculations. This grace period is available for both scheduled and unscheduled outages.

The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- Reservation Fee - The company offers a different demand charge for reserving "scheduled" and "unscheduled" standby service.
- For a customer served at the primary distribution level, the demand charge for reserving scheduled standby service is $2.47/kW of standby capacity reserved.

  Total reservation fee for scheduled: **$4940.00**

- Due to the outage, the customer may also be responsible for standby demand charges, whether or not the demand charges exceed the reservation fee – if the outage exceeds the 20 hour/month grace period.
- Xcel's standby demand charges are tied to energy used, and are the result of multiplying the appropriate Excess Standby Energy Charge rate to the total kWh used during an outage (after you take the 20 hour grace allowance off the top).
- In this example, the standby demand charge (a.k.a, Excess Standby Energy Usage charge) rate is $0.04096/kWh.
- The total energy used by 2,000 kW of standby capacity over 16 hours is 32,000 kWh.
- The grace period is calculated as 2,000 kW of standby capacity over 20 hours, which is 40,000 kWh.
- In this example, we are within the 20 hour grace period, so the Excess Standby Energy Usage charges do not apply.

Total reservation fee for scheduled: **$4940.00**

Standby Demand Charges = **$0.**

Energy Charges

The customer would also be responsible for the energy used during the outage, per their standard rate schedule.

The standard energy charge for General Service in the Xcel Energy Electric Rate Book, section 5, sheet 26 is 3.201 cents/kWh. Customers served at the primary distribution level receive a discount of .093 cents/kWh, which results in a standard rate of 3.108 cents/kWh for the purposes of this scenario.

In a 16 hour outage using 2,000 kW of standby capacity, total kWh used would be 32,000.

0.03108*32000 = 994.56

Total Energy Charges: $994.56

When the energy charges are added to the Standby Reservation Fee for scheduled service, the total expected standby bill is **$5934.56.**

Scheduled Outage – 8 hours on-peak, 8 hours off-peak

There is no difference between on-peak and off-peak for scheduled outages. The duration of the scheduled outage, in hours, is the key. If the outage stretches past the 20 hour/month grace period, Excess Standby Energy Usage charges begin to add up.

Therefore, the total for a 16-hour scheduled outage in which 8 hours were on-peak and 8 hours were off-peak, would still be **$5934.56**.

Scheduled Outage – 32 hours on-peak

Note: Per the company's filing, a customer is permitted to schedule an outage that falls during peak times, as long as the outage is to fall in a shoulder month and proper notice is provided.

For this scheduled outage calculation, we assumed a 32-hour outage that took place during Xcel Energy's peak window of 1 pm-7 pm over several days in April.[3] Xcel Energy offers customers a grace period of 20 hours per month on standby demand charges (called "Excess Standby Energy Usage" charges), so the number of days of the outage is not important – rather, it is the total number of outage hours that make the difference in the calculations. This grace period is available for both scheduled and unscheduled outages.

The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- Reservation Fee - The company offers a different demand charge for reserving "scheduled" and "unscheduled" standby service.
- For a customer served at the primary distribution level, the demand charge for reserving scheduled standby service is $2.47/kW of standby capacity reserved.

Total reservation fee for unscheduled: **$4940.00**

[3] Per Xcel's IR Response of 8/29/2016, "Also, under this scenario, the on-peak period is assumed to correspond with the 1:00 p.m. to 7:00 p.m. definition for the proposed Excess Standby Energy Usage Charge, rather than that used for the General Time of Day Service tariff."

- Due to the outage, the customer may also be responsible for standby demand charges, whether or not the demand charges exceed the reservation fee – if the outage exceeds the 20 hour/month grace period.
- Xcel's standby demand charges are tied to energy used, and are the result of multiplying the appropriate Excess Standby Energy Charge rate to the total kWh used during an outage (after you take the 20 hour grace allowance off the top).
- In this example, the standby demand charge (a.k.a, Excess Standby Energy Usage charge) rate is $0.04096/kWh.
- The total energy used by 2,000 kW of standby capacity over 32 hours is 64,000 kWh.
- The grace period is calculated as 2,000 kW of standby capacity over 20 hours, which is 40,000 kWh.
- After you take the grace period off the top, you are left with 24,000 kWh of Excess Standby Energy Usage.

  24,000 * 0.04096 = $983.00

  Total reservation fee for scheduled: **$4940.00**

  Standby Demand Charges = **$983.00**

Energy Charges

The customer would also be responsible for the energy used during the outage, per their standard rate schedule.

The standard energy charge for General Service in the Xcel Energy Electric Rate Book, section 5, sheet 26 is 3.201 cents/kWh. Customers served at the primary distribution level receive a discount of .093 cents/kWh, which results in a standard rate of 3.108 cents/kWh for the purposes of this scenario.

In a 32 hour outage using 2,000 kW of standby capacity, total kWh used would be 64,000.

0.03108*64000 = 1989.12

Total Energy Charges: $1989.12

When the energy charges are added to the Standby Reservation Fee for scheduled service, the total expected standby bill is **$7912.16.**

Unscheduled Outage

Xcel Energy differentiates between scheduled and unscheduled only in the Standby Reservation Fee. All other calculations would be the same between a scheduled and unscheduled outage.

For this unscheduled outage calculation, we assumed a 16-hour outage that took place during Xcel Energy's peak window of 1 pm-7 pm over several days in April. Xcel Energy offers customers a grace period of 20 hours per month on standby demand charges (called "Excess Standby Energy Usage" charges), so the number of days of the outage is not important – rather, it is the total number of outage hours that make the difference in the calculations. This grace period is available for both scheduled and unscheduled outages.

The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- Reservation Fee - The company offers a different demand charge for reserving "scheduled" and "unscheduled" standby service.

  For a customer served at the primary distribution level, the demand charge for reserving unscheduled standby service is $2.57/kW of standby capacity reserved.

  Total reservation fee for unscheduled: **$5140.00**

- Due to the outage, the customer may also be responsible for additional standby demand charges (a.k.a, Excess Standby Energy Usage charges), whether or not the standby demand charges exceed the reservation fee – if the outage exceeds the 20 hour/month grace period.
- Xcel's standby demand charges (a.k.a, Excess Standby Energy Usage charges) are tied to energy used, and are the result of multiplying the appropriate Excess Standby Energy Usage rate to the total kWh used during an outage (after you take the 20 hour grace allowance off the top).
- In this example, the standby demand charge (a.k.a, Excess Standby Energy Usage charge) rate is $0.04096/kWh because our sample outage takes place in April, a shoulder month.
- The total energy used by 2,000 kW of standby capacity over 16 hours is 32,000 kWh.
- The grace period is calculated as 2,000 kW of standby capacity over 20 hours, which is 40,000 kWh.
- In this example, we are within the 20 hour grace period, so the additional standby demand charges (a.k.a, Excess Standby Energy Usage charges) do not apply.

  Total reservation fee for unscheduled: **$5140.00**

Standby Demand Charges = **$0.**

Energy Charges

The customer would also be responsible for the energy used during the outage, per their standard rate schedule.

The standard energy charge for General Service in the Xcel Energy Electric Rate Book, section 5, sheet 26 is 3.201 cents/kWh. Customers served at the primary distribution level receive a discount of .093 cents/kWh, which results in a standard rate of 3.108 cents/kWh for the purposes of this scenario.

In a 16 hour outage using 2,000 kW of standby capacity, total kWh used would be 32,000.

0.03108*32000 = 994.56

Total Energy Charges: $994.56

When the energy charges are added to the Standby Reservation Fee for unscheduled service, the total expected standby bill is **$6134.56**.

Otter Tail Power

For the following calculations, we built off of Minnesota Power's billing simulations provided in their filing, and adapted each scenario for a General Service customer served at the Primary Distribution level. This analysis has been further revised to reflect clarifications provided in Otter Tail Power's Response to Fresh Energy Information Request #4, Docket No. E-999/CI-15-115.

We assumed a General Service customer with 3,000 kW in nominated standard service, 2,000 kW in reserved standby service, and that the customer was served at the primary distribution level.

Summary:[4]

No Outage = $1328.06

Scheduled Outage 16 hours on-peak: $3808.70

Scheduled Outage 8 hours on-peak, 8 hours off-peak: $3335.58

Scheduled Outage 32 hours on-peak: $6289.34

Unscheduled Outage 4 hours on-peak, 4 hours shoulder, 8 hours off-peak: $4103.34

No Outage

For the "no outage" calculation, we assumed an April peak load of 3,000 kW. April is considered a "Winter" month.

- Otter Tail differentiates between firm and non-firm standby service. Here we assume firm standby service.
- For standby charges, only the Standby Reservation Fee and Facilities Charge would apply. Otter Tail Power calculates this as:

  Winter Reservation Charge * standby capacity reserved (kW)

- For a customer served at the primary distribution level, according to Otter Tail's proposed standby rate changes in its pending rate case, the winter reservation charge is $0.21403/kW of standby capacity reserved.

  0.21403* 2000 = **$428.06**

- There is another fixed charge for Primary and Secondary customers, called the "Standby Facilities Charge" which is a fixed amount charged per month per kW of contracted standby demand.
- The Standby Facilities Charge for a customer on primary distribution service is 45.00 cents/kW.

  0.45 * 2000 = **$900.00**

Standby Reservation Fee = $428.06

Standby Facilities Charge = $900.00

[4] Customer charge of $304.33 not included in these calculations.

Total = $1328.06[5]

Scheduled Outage – 16 hours on-peak

Note: Per the company's filing, a customer is permitted to schedule an outage that falls during peak times, as long as the outage is to fall in a shoulder month and proper notice is provided.

For this scheduled outage calculation, we assumed a 16-hour outage that took place during Otter Tail's peak window over four days in April. Note that Otter Tail offers customers a waiver for the daily on-peak backup charge for scheduled maintenance during the shoulder months (April, May, October, and November), as long as the outage is shorter than 30 continuous days.

The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- Reservation Fee - Otter Tail Power calculates this as:

  Winter Reservation Charge * standby capacity reserved (kW)

- For a customer served at the primary distribution level, the winter reservation charge is $0.21403/kW of standby capacity reserved.

  0.21403* 2000 = **$428.06**

- There is another fixed charge for Primary and Secondary customers, called the "Standby Facilities Charge" which is a fixed amount charged per month per kW of contracted standby demand.
- The Standby Facilities Charge for a customer on primary distribution service is 45.00 cents/kW.

  0.45 * 2000 = **$900.00**

- For standby demand charges, there is daily on-peak backup charge (Winter) that is charged per kW of standby capacity used.
- The daily on-peak backup charge (Winter) for customers served at the primary distribution level is 0.408/kW. For a one day outage, this calculates as:

  0.408 * 2000 = **$816.00**

- However, Otter Tail offers customers a **waiver** for the daily on-peak backup charge for scheduled maintenance during the shoulder months (April, May, October, and November) as long as the outage is shorter than 30 continuous days.
- Therefore, there would be no daily on-peak backup charge under this scenario.

[5] Customer charge of $304.33 not included in these calculations.

Standby Reservation Fee = $428.06
Standby Facilities Charge = $900.00
Standby Demand Charges = $0

Energy Charges

The customer would also be responsible for the energy used during the outage. Energy charges differ in the summer and winter months, and depending on whether energy use occurs on-peak or off-peak.

The Winter on-peak energy charge for primary distribution level customers is 7.752 cents/kWh.

In a 16 hour outage using 2,000 kW of standby capacity, total kWh used would be 32,000.

0.07752*32000 = $2480.64 (on-peak)

Total Energy Charges: $2480.64

Standby Reservation Fee = $428.06

Standby Facilities Charge = $900.00

Energy Charges = $2480.64

Total = $3808.70[6]

When the energy charges are added to the Standby Reservation Fee, the Standby Facilities Charge, and the expected standby demand charges (which are zero), the total expected standby bill is **$3808.70.**

Scheduled Outage – 8 hours on-peak, 8 hours off-peak

The Reservation Fee would be the same as above: $428.06.

[6] Customer charge of $304.33 not included in these calculations.

Because this is still a scheduled outage in a shoulder month, it would also qualify for the waiver of the daily backup charge/standby charges.

Therefore, the only difference would be in the energy charges, which would reflect on-peak and off-peak.

The Winter on-peak energy charge for primary distribution level customers is 7.752 cents/kWh. The Winter off-peak energy charge for primary distribution level customers is 4.795 cents/kWh.

In a 16 hour outage using 2,000 kW of standby capacity, total kWh used would be 32,000. Half of these are peak, half are off-peak.

0.07752*16000 = $1240.32 (on-peak)

0.04795*16000 = $767.20 (off-peak)

Total Energy Charges: $2007.52

Standby Reservation Fee = $428.06

Standby Facilities Charge = $900.00

Energy Charges = $2007.52

Total = $3335.58[7]

When the energy charges are added to the Standby Reservation Fee, the Standby Facilities Charge and the expected standby demand charges (which are zero), the total expected standby bill is **$3335.58.**

Scheduled Outage – 32 hours on-peak

Note: Per the company's filing, a customer is permitted to schedule an outage that falls during peak times, as long as the outage is to fall in a shoulder month and proper notice is provided.

For this scheduled outage calculation, we assumed a 32-hour outage that took place during Otter Tail's peak window over several days in April. Note that Otter Tail offers customers a waiver for the daily on-peak backup charge for scheduled maintenance during the shoulder

[7] Customer charge of $304.33 not included in these calculations.

months (April, May, October, and November), as long as the outage is shorter than 30 continuous days.

The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard nominated service and 2,000 kW in reserved standby capacity.

- Reservation Fee - Otter Tail Power calculates this as:

  Winter Reservation Charge * standby capacity reserved (kW)

- For a customer served at the primary distribution level, the winter reservation charge is $0.21403/kW of standby capacity reserved.

  0.21403* 2000 = **$428.06**

- There is another fixed charge for Primary and Secondary customers, called the "Standby Facilities Charge" which is a fixed amount charged per month per kW of contracted standby demand.
- The Standby Facilities Charge for a customer on primary distribution service is 45.00 cents/kW.

  0.45 * 2000 = **$900.00**

- For standby demand charges, there is daily on-peak backup charge (Winter) that is charged per kW of standby capacity used.
- The daily on-peak backup charge (Winter) for customers served at the primary distribution level is 0.408/kW. For a one day outage, this calculates as:

  0.408 * 2000 = **$816.00**

- However, Otter Tail offers customers a **waiver** for the daily on-peak backup charge for scheduled maintenance during the shoulder months (April, May, October, and November) as long as the outage is shorter than 30 continuous days.
- Therefore, there would be no daily on-peak backup charge under this scenario.

  Standby Reservation Fee = $428.06
  Standby Facilities Charge = $900.00
  Standby Demand Charges = $0

Energy Charges

The customer would also be responsible for the energy used during the outage. Energy charges differ in the summer and winter months, and depending on whether energy use occurs on-peak or off-peak.

The Winter on-peak energy charge for primary distribution level customers is 7.752 cents/kWh.

In a 16 hour outage using 2,000 kW of standby capacity, total kWh used would be 32,000.

0.07752*64000 = $4961.28 (on-peak)

Total Energy Charges: $4961.28

When the energy charges are added to the Standby Reservation Fee, the Standby Facilities Charge, and the expected standby demand charges (which are zero), the total expected standby bill is **$6289.34.**[8]

Unscheduled Outage

For this calculation, we assumed a one-day unscheduled outage that took place in April. The duration of the outage is assumed to be 16 hours total, with 4 hours falling during peak times, 4 hours falling during shoulder times, and 8 hours falling off-peak. The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard service and 2,000 kW in reserved standby capacity.

For an unscheduled outage, the major difference is that the additional daily backup demand charge will apply.

- Reservation Fee - Otter Tail Power calculates this as:

  Winter Reservation Charge * standby capacity reserved (kW)

- For a customer served at the primary distribution level, the winter reservation charge is $0.21403/kW of standby capacity reserved.

  0.21403* 2000 = **$428.06**

- There is another fixed charge for Primary and Secondary customers, called the "Standby Facilities Charge" which is a fixed amount charged per month per kW of contracted standby demand.
- The Standby Facilities Charge for a customer on primary distribution service is 45.00 cents/kW.

[8] Customer charge of $304.33 not included in these calculations.

0.45 * 2000 = **$900.00**

- The daily on-peak backup charge (Winter) for customers served at the primary distribution level is 0.408/kW. For a one day outage, this calculates as:

  0.408 * 2000 = **$816.00**

Standby Reservation Fee = $428.06
Standby Facilities Charge = $900.00
Standby Demand Charges (a.k.a. Daily On-Peak Backup Service Charges) = $816.00

Energy Charges

The customer would also be responsible for the energy used during the outage. Energy charges differ in the summer and winter months, and depending on whether energy use occurs on-peak or off-peak.

The Winter on-peak energy charge for primary distribution level customers is 7.752 cents/kWh.
The Winter off-peak energy charge for primary distribution level customers is 4.795 cents/kWh.
The Winter shoulder energy charge for primary distribution level customers is 7.149 cents/kWh.

In a 16 hour outage using 2,000 kW of standby capacity, total kWh used would be 32,000. 8,000 of these are peak, 8,000 of these are shoulder, and 16,000 of these are off-peak.

0.07752*8000= $620.16 (on-peak)

0.04795*16000 = $767.20 (off-peak)

0.07149*8000 = $571.92 (shoulder)

Total Energy Charges: $1959.28

Standby Reservation Fee = $428.06
Standby Facilities Charge = $900.00
Standby Demand Charges (a.k.a. Daily On-Peak Backup Service Charges) = $816.00
Energy Charges = $1959.28

When the energy charges are added to the Standby Reservation Fee, the Standby Facilities Charge and the expected standby demand charges, the total expected standby bill is **$4103.34.**[9]

Dakota Electric

For the following calculations, we adapted Minnesota Power's billing simulations per Dakota Electric's response to Fresh Energy's Information Request dated August 5, 2016. This analysis has been further revised to reflect clarifications provided in Dakota Electric Association Response to Fresh Energy Information Request #7, Docket No. E-999/CI-15-115.

The following key adaptations have been made:

- Clarification that the standby service is fully backing up the capacity of the on-site generation – which is designed and anticipated to operate 100% of the time.
- Firm utility service would be provided under Schedule 46 which does not have on-peak and off-peak demand.
- We have assumed distribution primary level service.

The customer is signed up for 3,000 kW in standard service and has reserved 2,000 kW in standby capacity.

Summary:

No Outage = $6560 (Standby Reservation Fee)

Scheduled Outage 16 hours on-peak: $20,093.14

Scheduled Outage 8 hours on-peak, 8 hours off-peak: $20,093.14

Scheduled Outage 32 hours on-peak: $22,526.67

Unscheduled Outage 8 hours on-peak, 8 hours off-peak: $20,093.14

No Outage

For the "no outage" calculation, we assumed an April peak load of 3,000 kW.

- For standby charges, only the Standby Reservation Fee would apply. Dakota Electric calculates this as:

  Standby Reservation Rate * standby capacity reserved (kW)

[9] Customer charge of $304.33 not included in these calculations.

The Standby Reservation Rate for distribution level (primary) is listed in their filing as 3.28 (section V, sheet 31.1). Standby capacity reserved is 2,000 kW.

3.28 * 2,000 = $6560.00

Total "No Outage" Standby Bill = **$6560.00**

Note: There would be direct pass-through of wholesale charges for generation and transmission as an additional part of the standby reservation fee.

Scheduled Outage – 16 hours on-peak

Note: There is no difference between scheduled and unscheduled for Dakota Electric's standby billing. There is also no difference between on-peak and off-peak in Dakota Electric's standby billing (other than any differences reflected in the direct pass-through of wholesale charges).

For this scheduled outage calculation, we assumed a 16-hour outage that took place during Dakota Electric's peak window over several days in April. The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard service and 2,000 kW in reserved standby capacity.

- Per DEA IR Response 8/23/2016, if standby demand occurs in a given month, then the equivalent amount of demand is subtracted from the billing units applied to the standby reservation fee. For this outage scenario, the generator is not operating and the usage provided by the utility is 2,000 kW, which is the same amount as the reserved standby amount, resulting in a standby reservation fee of zero. (See also "Billing Demand" clause of proposed revision to Standby Rider.)
- Due to the outage, the customer is responsible for standby demand charges.
- The non-Summer demand charge is $9.16 (see Exhibit B), minus a $0.15 per kW primary service demand discount (see DEA IR Response 8/23/2016; see also DEA Rate Book Schedule 46, section V, sheet 16, revision 3). The net demand charge is $9.01 per kW of standby capacity used.
- In order to calculate Standby Demand Charges, we multiply the net non-Summer demand charge of 9.01 by the total kW of standby capacity used:

  Standby Demand Charges: 9.01 * 2000 = **$18,020**

  Standby Reservation Fee = **$0**

  Energy Charges

  From DEA IR Response 8/23/2016 (see also DEA Rate Book Schedule 46, section V, sheet 16, revision 3):

The Schedule 46 energy charges are based on load factor. That is, the energy billed in each block is determined in relationship to the monthly demand. The blocks are measured as 200 kWh per kW.

For example, if a consumer has a monthly demand of 100 kW, then the first 20,000 kWh (200 kWh x 100 kW) are billed in the first block. The next 20,000 kWh (200 kWh x 100 kW) are billed in the second block. All monthly kWh over 40,000 kWh (400 kWh x 100 kW) is billed in the third block. For the scenarios provided all energy falls in the first block since the monthly kWh is less than 400,000 (200 kWh x 2,000 kW).

The rate for the first block is:

0.0776 per kW for the first 200 kWh * 2,000kW

In a 16 hour outage, using 2,000 kW of standby capacity, 32,000 kWh would be used.

Therefore, in this scenario, the energy charge calculation would be:

(0.0776*32000) = **$2483.20**

Finally, as noted in DEA IR Response 8/23/2016, there is a 2% discount applied to the consumption for Schedule 46 primary service (discount does not apply to the standby reservation fee). (See also DEA Rate Book Schedule 46, section V, sheet 16, revision 3.)

Reservation Fee = 0

Demand Charges = 18,020

Energy Charges = 2483.20

Total of Demand plus Energy = 20,503.20

2% Discount Applied = 20,093.14

When the energy charges are added to the Standby Reservation Fee and Standby Demand Charges, and the discount is applied, the total expected standby bill is **$20,093.14.**

Scheduled Outage – 8 hours on-peak, 8 hours off-peak

Note: There is no difference between scheduled and unscheduled for Dakota Electric's standby billing. There is also no difference between on-peak and off-peak in Dakota Electric's standby billing (other than any differences reflected in the direct pass-through of wholesale charges).

The total kW of reserved standby capacity is the key factor, as that – and the high standby demand charge rate – drive the costs under all outage scenarios.

Therefore, the total for a 16-hour scheduled outage in which 8 hours were on-peak and 8 hours were off-peak, would still be **$20,093.14**.

Because there are only so many off-peak hours in the day, a scheduled outage during off-peak hours that lasted over 8 hours would necessarily stretch into a second day and would likely take in some on-peak time.

Scheduled Outage – 32 hours on-peak

Note: There is no difference between scheduled and unscheduled for Dakota Electric's standby billing. There is also no difference between on-peak and off-peak in Dakota Electric's standby billing (other than any differences reflected in the direct pass-through of wholesale charges).

For this scheduled outage calculation, we assumed a 32-hour outage that took place during Dakota Electric's peak window over several days in April. The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard service and 2,000 kW in reserved standby capacity.

- Per DEA IR Response 8/23/2016, if standby demand occurs in a given month, then the equivalent amount of demand is subtracted from the billing units applied to the standby reservation fee. For this outage scenario, the generator is not operating and the usage provided by the utility is 2,000 kW, which is the same amount as the reserved standby amount, resulting in a standby reservation fee of zero.
- Due to the outage, the customer is responsible for standby demand charges.
- The non-Summer demand charge is $9.16 (see Exhibit B), minus a $0.15 per kW primary service demand discount (See DEA IR Response 8/23/2016). The net demand charge is $9.01 per kW of standby capacity used.
- In order to calculate Standby Demand Charges, we multiply the net non-Summer demand charge of 9.01 by the total kW of standby capacity used:

  Standby Demand Charges: 9.01 * 2000 = **$18,020**

  Standby Reservation Fee = **$0**

Energy Charges

From DEA IR Response 8/23/2016 (see also DEA Rate Book Schedule 46, section V, sheet 16, revision 3):

> *The Schedule 46 energy charges are based on load factor. That is, the energy billed in each block is determined in relationship to the monthly demand. The blocks are measured as 200 kWh per kW.*
>
> *For example, if a consumer has a monthly demand of 100 kW, then the first 20,000 kWh (200 kWh x 100 kW) are billed in the first block. The next 20,000 kWh (200 kWh x 100 kW) are billed in the second block. All monthly kWh over 40,000 kWh (400 kWh x 100 kW) is billed in the third block. For the scenarios provided all energy falls in the first block since the monthly kWh is less than 400,000 (200 kWh x 2,000 kW).*

The rate for the first block is:

0.0776 per kW for the first 200 kWh * 2,000kW

In a 32 hour outage, using 2,000 kW of standby capacity, 64,000 kWh would be used. Therefore, in this scenario, the energy charge calculation would be:

(0.0776*64000) = **$4966.40**

Finally, as noted in DEA IR Response 8/23/2016, there is a 2% discount applied to the consumption for Schedule 46 primary service (discount does not apply to the standby reservation fee).

Reservation Fee = 0

Demand Charges = 18,020

Energy Charges = 4966.40

Total of Demand plus Energy = 22,986.40

2% Discount Applied = 22,526.67

When the energy charges are added to the Standby Reservation Fee and Standby Demand Charges, and the discount is applied, the total expected standby bill is **$22,526.67.**

Unscheduled Outage

Note: There is no difference between scheduled and unscheduled for Dakota Electric's standby billing. There is also no difference between on-peak and off-peak in Dakota Electric's standby billing (other than any differences reflected in the direct pass-through of wholesale charges).

For this calculation, we assumed an unscheduled outage that took place over several days in April. The duration of the outage is assumed to be 16 hours total, with 8 hours falling during peak times and 8 hours falling off-peak. The assumed peak load was 5,000 kW. We are still assuming 3,000 kW in standard service and 2,000 kW in reserved standby capacity.

- Per DEA IR Response 8/23/2016, if standby demand occurs in a given month, then the equivalent amount of demand is subtracted from the billing units applied to the standby reservation fee. For this outage scenario, the generator is not operating and the usage provided by the utility is 2,000 kW, which is the same amount as the reserved standby amount, resulting in a standby reservation fee of zero.
- Due to the outage, the customer is responsible for standby demand charges.
- The non-Summer demand charge is $9.16 (see Exhibit B), minus a $0.15 per kW primary service demand discount (See DEA IR Response 8/23/2016). The net demand charge is $9.01 per kW of standby capacity used.
- In order to calculate Standby Demand Charges, we multiply the net non-Summer demand charge of 9.01 by the total kW of standby capacity used:

  Standby Demand Charges: 9.01 * 2000 = **$18,020**

  Standby Reservation Fee = **$0**

  Energy Charges

  From DEA IR Response 8/23/2016 (see also DEA Rate Book Schedule 46, section V, sheet 16, revision 3):

  > *The Schedule 46 energy charges are based on load factor. That is, the energy billed in each block is determined in relationship to the monthly demand. The blocks are measured as 200 kWh per kW.*
  >
  > *For example, if a consumer has a monthly demand of 100 kW, then the first 20,000 kWh (200 kWh x 100 kW) are billed in the first block. The next 20,000 kWh (200 kWh x 100 kW) are billed in the second block. All monthly kWh over 40,000 kWh (400 kWh x 100 kW) is billed in the third block. For the scenarios provided all energy falls in the first block since the monthly kWh is less than 400,000 (200 kWh x 2,000 kW).*

The rate for the first block is:

0.0776 per kW for the first 200 kWh * 2,000kW

In a 16 hour outage, using 2,000 kW of standby capacity, 32,000 kWh would be used. Therefore, in this scenario, the energy charge calculation would be:
(0.0776*32000) = **$2483.20**

Finally, as noted in DEA IR Response 8/23/2016, there is a 2% discount applied to the consumption for Schedule 46 primary service (discount does not apply to the standby reservation fee).

Reservation Fee = 0

Demand Charges = 18,020

Energy Charges = 2483.20

Total of Demand plus Energy = 20,503.20

2% Discount Applied = 20,093.14

When the energy charges are added to the Standby Reservation Fee and Standby Demand Charges, and the discount is applied, the total expected standby bill is **$20,093.14.**

Attachment B

Abstract Title: Reforming utility standby rate tariffs for cost effective cogeneration projects

Abstract: Poorly designed Standby Rate (SBR) tariffs are a significant impediment to the development of otherwise economically viable cogeneration projects in Midwestern states. Minnesota and Michigan each have regulatory proceedings that are examining SBR tariff proposals from rate-regulated utilities. As part of those proceedings, 5 Lakes Energy, along with our partners, have developed a unique method of analysis that applies each proposed tariff to a common set of outage scenarios to demonstrate how the tariff proposals would compensate utilities and affect customer behavior in divergent ways. The apples-to-apples comparison generated by this approach provides a window into the real-world effects of SBR tariff design, and serves as a valuable resource for regulators wishing to ensure standby rates are transparent, efficient, and appropriately correlated to cost of service.

5 Lakes Energy and partners have used this analysis to argue that the lack of a uniform approach to standby service compensation creates a barrier to the expansion of resilient and energy efficient technologies. In Minnesota and Michigan, we have emphasized that regulatory bodies should provide guidance on a uniform definition of standby service and develop a model SBR tariff.

The paper and presentation for the American Council for an Energy Efficient Economy (ACEEE) Summer Study on Energy Efficiency in Industry will describe our method of analysis and summarize the current status of proceedings in Minnesota and Michigan. Presenting this information at the Summer Study could serve as a model for examining rules in other states to reduce regulatory barriers to cost-effective cogeneration projects.

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