COMMERCE DEPARTMENT

January 3, 2020 **PUBLIC DOCUMENT**

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

RE: **PUBLIC Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. G011/M-19-496

Dear Mr. Wolf:

Attached are the **PUBLIC** Comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

> Minnesota Energy Resources Corporation's (MERC or the Company) Request for Change in Demand Units (Petition) for the Northern Natural Gas (NNG) Purchased Gas Adjustment) Area.

The Petition was filed on August 1, 2019 by:

> Mary Wolter
> Director—Gas Regulatory Planning & Policy
> 2685 145th Street West
> Rosemount, MN 55068

The Petition was supplemented on November 1, 2019 by:

> Joylyn Hoffman Malueg
> Project Specialist 3
> 2685 145th Street West
> Rosemount, MN 55068

Based on its review, the Department recommends that the Minnesota Public Utilities Commission:

- **Accept** the Company's proposed level of demand entitlement; and
- **Allow** MERC to recover associated demand costs through the monthly Purchased Gas Adjustment effective November 1, 2019.

TRADE SECRET DOCUMENT

The Department is available to answer any questions that the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ ADAM J. HEINEN
Rates Analyst

AH/ja
Attachment

COMMERCE DEPARTMENT

Before the Minnesota Public Utilities Commission

TRADE SECRET Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. G011/M-19-496

I. INTRODUCTION

Pursuant to Minnesota Rules 7825.2910, subpart 2,[1] Minnesota Energy Resources Corporation (MERC or the Company) filed a petition on August 1, 2019 requesting a change in demand[2] units (Petition) for its customers served by the Northern Natural Gas (NNG or Northern) System. MERC requested that the Minnesota Public Utilities Commission (Commission) approve changes in the Company's recovery of the overall level of contracted capacity.

On November 1, 2019, MERC made its November Supplemental Filing (Supplement) detailing final entitlement levels for the 2019-2020 heating season. The Supplement includes final updated demand rates and commodity pricing. The Company did not change its total entitlement level, but the Supplement does reflect updated final futures contracts, storage positions, and call options for the 2019-2020 heating season.

Using a similar design-day calculation methodology as has been used in the past, MERC proposed to increase its total design day by 3,534 Dekatherms (Dkt)/day. In terms of capacity, MERC proposed to increase its entitlement level by 37,093 Dkt/day over the level in place last heating season, resulting in an estimated reserve margin of approximately 13.33 percent. This significant increase in the proposed reserve margin is driven by the second phase of the Company's Rochester Project capacity becoming effective on November 1, 2019. MERC proposed no changes to non-design-day deliverable contracts such as Firm Deferred Delivery (FDD) storage contracts.

MERC's proposed entitlement changes result in an estimated increase in rates for residential customers of $0.3542 per Dkt or approximately $30.84 per year for customers assuming an annual usage of 87 Dkt. These rate increases include changes to both demand and commodity costs. Commodity cost changes are unusual for demand entitlement filings, however, the Commission's May 5, 2017 Order in Docket No. G011/M-15-895 requires the Company to include Rochester Project related capacity costs in the commodity portion of the monthly Purchased Gas Adjustment (PGA). In its July 3, 2019 *Correction Letter and Request for Variance* in Docket No. G011/M-18-526, MERC noted that it incorrectly included Rochester Project capacity solely in the demand portion of the PGA. The Company stated that it corrected this error effective in its July 2019 monthly PGA. The Commission approved MERC's treatment of this error in its November 18, 2019 Order in Docket No. G011/M-18-526. The Company maintained the correct treatment of Rochester Project costs as approved by the Commission in its November 18, 2019 Order in this demand entitlement filing.

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[1] "Filing upon a change in demand. Gas utilities shall file for a change in demand to increase or decrease demand, to redistribute demand percentages among classes, or to exchange one form of demand for another."

[2] Also called entitlement, capacity, or transportation on the pipeline.

II. DEPARTMENT ANALYSIS

The Minnesota Department of Commerce, Division of Energy Resources (Department) provides the following detailed analysis of the Company's Petition and its impact on MERC's rates and ratepayers. The Department's analysis of the Company's request includes the following:

- Rochester Project Compliance;
- MERC's Proposed Changes to the Entitlement Level and to Non-Capacity Items;
- Design-Day Requirements;
- Reserve Margin;
- Distribution Planning; and
- PGA Cost Recovery Proposals.

The Department discusses these topics separately below.

A. ROCHESTER PROJECT COMPLIANCE

In its May 8, 2018 Order in Docket No. G011/M-15-895, the Commission required MERC to provide semi-annual updates regarding capacity release associated with the Rochester Project and a discussion of each capacity substitution in its annual demand entitlement filing on a going-forward basis.

MERC provided information regarding this compliance requirement in its Petition. The Company explained that the second phase of capacity associated with the Rochester Project entered service on November 1, 2019. This second phase resulted in a significant increase in the Company's reserve margin. To address this increase in the reserve margin, MERC stated that it will continue to submit bi-annual compliance filings regarding capacity releases and, specifically, it will address details regarding released capacity stemming from the second phase of the Rochester project in its February 2020 capacity release compliance. The Company also stated that it has used Rochester capacity as a capacity substitution for several previous projects (*i.e.,* Balaton, Esko, Pengilly) and, although no capacity substitutions have occurred recently, MERC will continue to provide updates on future capacity substitutions in future demand entitlement filings.[3]

The Department concludes that MERC complied with the Commission's Rochester Project compliance requirement.

[3] Supplement, Pages 9-11.

B. MERC'S PROPOSED CHANGES TO THE ENTITLEMENT LEVEL AND TO NON-CAPACITY ITEMS

1. Changes to the Entitlement Level

As an initial matter, the Department confirms that, as required by the Commission's Ordering Point No. 9 of its April 28, 2016 Order in Docket Nos. G011/M-15-722, G011/M-15-723, and G011/M-15-724, MERC provided separate data on its summer and winter demand entitlements. As indicated in Department Attachment 1 and noted above, the Company proposed to increase its entitlement level as follows:

Table 1: MERC's Total Entitlement Levels

Previous Entitlement Level (Dkt)	Proposed Entitlement Level (Dkt)	Entitlement Changes (Dkt)	% Change from Previous Year
277,256	314,349	37,093	13.38

Table 2 below provides MERC's specific changes to its overall level of contracted capacity.

Table 2: Comparison of MERC's Current and Proposed Entitlements

Contract Type	Previous Entitlement Level (Dkt)	Proposed Entitlement Level (Dkt)	Proposed Change in Entitlement Level (Dkt)
TFX-12	48,236	85,329	37,093
TF-12B (Base)	51,706	51,780	74
TF-12V (Variable)	33,003	32,929	(74)

MERC proposed two changes in entitlement, by contract type, for the 2019-2020 heating season. The first involves an increase in TFX-12 capacity, which is a 12-month negotiated contract. This increase in capacity is related to the second phase of Rochester Project that was approved by the Commission in its May 5, 2017 Order in Docket No. G011/M-15-895. The second change involves Northern's annual reallocation of TF-12B and TF-12V services. This change is in accordance with Northern's tariff approved by the Federal Energy Regulatory Commission (FERC). Usually there is no deliverability difference between TF-12B and TF-12V services, but TF-12B service is less expensive than TF-12V service. As shown in Table 2 above, there was no change in the aggregate volume of Northern capacity year-over-year.

Based on its design-day and reserve margin analyses in Sections II.C and II.D below, the Department concludes that MERC's proposed level of demand entitlement is appropriate and is likely sufficient to ensure firm reliability on a peak day.

2. Changes to Non-Capacity Items

MERC did not propose changes to its non-capacity items in this demand entitlement filing. The Department notes that storage can be used as part of an integrated hedging plan to reduce baseload winter gas purchases and potentially lower the number of hedging instruments.

C. DESIGN-DAY REQUIREMENT

As indicated in Department Attachment 1, the Company proposed to increase its total design day in Dkt as follows:

Table 3: MERC's Northern Design-Day Levels

Previous Design Day (Dkt)	Proposed Design Day (Dkt)	Design Day Changes (Dkt)	% Change from Previous Year
273,842	277,376	3,534	1.29

MERC used a similar approach to what it used in last year's filing for its design-day analysis. As a result of MERC's telemetry program making it possible for all interruptible customers to have daily metered data, the Company no longer estimates peak-day impact from interruptible customers in the Company's former MERC-NNG PGA service area save for the former MERC-Albert Lea service area.

In 2014, MERC purchased the Albert Lea service territory from Interstate Power and Light (IPL). At the time of the purchase, IPL had not installed telemetry for its interruptible customers. In its April 28, 2016 Order in Docket Nos. G011/M-15-722, G011/M-15-728, and G011/M-15-724, the Commission directed MERC to work with the Department to develop an appropriate design-day regression methodology for its subsequent demand entitlement petitions until MERC has three years of daily interruptible data available for all interruptible customers in the new consolidated (MERC-NNG and MERC-Albert Lea), NNG PGA area. The Department and MERC worked together in past demand entitlement filings and reached an agreement on an appropriate design-day method.

In its 2017-2018 demand entitlement filing,[4] MERC explained that it completed installation of telemetry for its former MERC-Albert Lea customers and anticipated having sufficient data for these customers in approximately two years to use in MERC's design-day analysis. The Company explained in its Petition that it anticipates having sufficient data in approximately one year to utilize in its design-day analysis;[5] as such, MERC continues to estimate the impact of interruptible customer consumption for the former IPL service territory. The Company estimated non-firm consumption based on an analysis of daily transport, interruptible, and joint interruptible throughput data and daily weather data. After estimating non-firm sales for the former Albert Lea PGA, the Company subtracted these estimates from total throughput for this area to determine historical firm consumption.

[4] Docket No. G011/M-17-588.
[5] Petition, Attachment 12, Page 10.

After estimating daily firm data for the former Albert Lea PGA area, MERC had daily firm data in the correct format to estimate peak-day consumption. The design-day analysis employed by MERC, as described in the Petition,[6] is similar to what was used by the Company in recent demand entitlement filings. The Company's design-day analysis is based Ordinary Least Squares (OLS) regression and daily heating season (December, January, February) data over the period from December 2016 to February 2019.

Given the disparate nature of MERC's service territory, the Company conducted five separate regression models for the various parts of the Northern PGA area. MERC used Adjusted Heating Degree Days (AHDD)[7] and various other determinants (*e.g.,* month, day of the week, holiday) to estimate daily heating season consumption for each weather station area. The Department reviewed each of MERC's design-day regression models, and concluded that the signs of the determinant coefficients are appropriate and the scale of the coefficients appear reasonable. The Department also notes that the Commission required MERC in past demand entitlement orders to verify and make various necessary adjustments to its regression analyses. The Department reviewed the Company's models and supporting information and confirms that MERC complied with the Commission's various orders.

During the last heating season, MERC's service territory, and the entire state of Minnesota, experienced a significant cold weather outbreak in late January and early February. This cold weather event marked the coldest conditions since the 1995-1996 heating season, and the Company included information and a discussion regarding this event in its Petition.[8] On an AHDD basis, the cold weather event last heating season was the coldest weather on record for all of MERC's Northern PGA system weather stations.

Table 4: January 2019 Cold Weather Data

Station	Date	Avg. Temp	Avg. Wind Speed (mph)	HDD65	AHDD65	AHDD65-1
Bemidji	1/29/2019	-32	14	97	110	84
Cloquet	1/29/2019	-24	16	89	103	74
Fargo	1/18/1996	-16	34	81	109	85
International Falls	2/2/1996	-34	8	99	107	107
Minneapolis	1/29/2019	-20	17	85	100	71
Rochester	1/29/2019	-20	21	85	104	76
Worthington	1/29/2019	-20	21	85	103	81
Ortonville	1/29/2019	-23	14	88	101	77

[6] Petition, Attachment 12.
[7] AHDD incorporates the impacts of wind into the weather determinant used to estimate peak day consumption. MERC has historically used AHDD in its design-day analysis.
[8] Petition, Attachment 12, Pages 3-5.

In previous demand entitlement filings, the Company's planning objective was based on the coldest day in AHDD for each of MERC's regional regression models. The Company also included weather on the day prior to the coldest day in its design-day regression analysis. It appears that MERC slightly modified its planning objective in this demand entitlement filing by considering the day prior to the coldest day (AHDD65-1) when determining whether a specific date represents the planning objective for a weather station. MERC provided the following explanation in its Petition: [9]

> While the January 2019 cold weather outbreak was significant, it was not considered to be as severe as the weather conditions experienced in 1996. With the exception of Worthington, the 1996 weather conditions overall were colder when considering both the current day and the prior day weather conditions.

The Company's modification results in the following planning objective data for the various weather stations used in its design-day analysis.

Table 5: MERC Planning Objective Data

Station	Date	Avg. Temp	Avg. Wind Speed (mph)	HDD65	AHDD65	AHDD65-1[10]
Bemidji	2/1/1996	-34	8	99	107	94
Cloquet	2/2/1996	-31	7	96	103	100
Fargo	1/18/1996	-16	34	81	109	85
International Falls	2/2/1996	-34	8	99	107	107
Minneapolis	2/2/1996	-25	8	90	97	92
Rochester	2/2/1996	-27	10	92	101	94
Worthington	1/29/2019	-20	21	85	103	81
Ortonville	1/14/2009	-21	11	86	96	86

MERC's decision to modify its planning objective suggests that it is important to consider the entirety of a cold weather event as opposed to a single date in time. The Department discusses this modification and analyzes peak day use under both planning objectives below.

As noted above, for each of the regression models, except Worthington, the planning objective did not occur during the data period (2016 through 2019); as such, MERC adjusted the results to approximate usage at the planning objective. The Company's combined regression analyses resulted in a design-day estimate of 267,600 Dkt/day. However, as explained in MERC's filing, the Company modified the analysis such that the ultimate design-day estimate was based on a higher throughput estimate that factors in a volume risk adjustment. This adjustment resulted in a calculated design-day estimate of

[9] Petition, Attachment 12, Page 4.
[10] AHDD65 conditions on the day prior.

277,376 Dkt/day, which is 3,534 Dkt/day greater than the design-day estimate in last year's demand entitlement filing. The Company stated that volume risk adjustments were incorporated into the forecast to provide a confidence level that the daily metered load under design conditions would not exceed the daily-metered regression estimate.[11] In other words, the volume risk adjustment is meant to modify the results to ensure a bias toward reliability since this adjustment places the design-day estimate at the top end of expected design-day conditions based on the regressions. This post-regression adjustment is similar to what the Company used in previous demand entitlement filings.

The Department reviewed MERC's analysis and was able to replicate the Company's results. In addition to this review, the Department conducted further analysis to determine whether MERC's peak-day calculations were reasonable. First, the Department observed that the Company's regression results do not exhibit a bias either toward under-estimating or over-estimating daily historical consumption; namely, there is a relatively equal distribution between days where the model results were above actual consumption and below actual consumption.[12] This is the expected result if a regression analysis is unbiased from a results perspective.

Second, using the regression coefficients from the Company's design-day models, the Department estimated firm throughput at both the Company's new planning objective and a planning objective based solely on the coldest AHDD value. Based on this analysis, the Department determined that firm throughput would have been approximately 262,580 Dkt on last heating season's peak day if the average temperature was at the Company's new planning objective and 258,009 Dkt if the former planning objective were used.[13] It appears that the Company's slight modification in its planning objective selection provides for more conservative results, from a planning perspective, by estimating greater consumption on a peak day.

As a further check, the Department compared the 262,580 Dkt throughput estimate (using the regression coefficients from this year's design-day models and at the average temperatures assumed by the new planning objective) to the results of MERC's regression-estimated design day in its last demand entitlement filing.

[11] Petition, Attachment 12, Page 6.
[12] [**Trade Secret data has been excised]** Department Attachment 2.
[13] The peak day on the Northern system occurred on January 29, 2019 last heating season. The new planning objective calculation is as follows: Minneapolis-St. Paul 77,665 Dkt + Cloquet 35,978 Dkt + Albert Lea 16,206 Dkt + Rochester 104,038 + Worthington 28,693 Dkt = 262,580 Dkt. The former planning objective calculation is as follows: Minneapolis-St. Paul 76,016 Dkt + Cloquet 34,297 Dkt + Albert Lea 16,209 Dkt + Rochester 102,794 Dkt + Worthington 28,693 Dkt = 258,009 Dkt.

Table 6: MERC Planning Objective Analysis

	MERC Estimated Design-Day (2018-2019 Heating Season) (Dkt)	Department Estimated Design-Day Throughput for January 29, 2019 based on AHDD65-1 (Dkt)	Difference (Dkt)	Percentage Difference
Throughput (Dkt)	261,634	262,580	946	0.36%
	Volume Adjusted MERC Estimated Design-Day (2018-2019 Heating Season) (Dkt)	Department Estimated Design-Day Throughput for January 29, 2019 based on AHDD65-1 (Dkt)	Difference (Dkt)	Percentage Difference
Throughput (Dkt)	267,783	262,580	(5,203)	1.98%

Table 6 above compares the Company's estimated design-day consumption of 261,634 Dkt in last year's demand entitlement filing to the Department's estimated firm throughput on January 29, 2019 (peak throughput for the 2018-2019 heating season) of 262,580 Dkt. Further, since MERC's regression-estimated 2018-2019 design-day figure does not reflect the Company's volume risk adjustment, Table 6 also provides the comparison to the volume-risk-adjusted design day for 2018-2019. When the volume risk adjustment is applied to last year's estimated design-day figure of 261,634 Dkt, the Department-estimated firm throughput of 262,580 Dkt is 5,203 Dkt, or 1.98 percent, lower than the adjusted design-day estimate of 267,783 Dkt that was used by the Company to determine its total entitlement level (*i.e.,* actual planning threshold) in last year's demand entitlement filing. This analysis suggests that MERC's approach to calculating its design-day is likely sufficient to ensure reliability.

Third, the Department reviewed historical weather and throughput data for dates in which the average temperature was below zero (65 AHDD), including the cold weather event last heating season, to ascertain whether the determinant coefficients from the Company's regressions adequately estimated actual historical usage.[14] Based on this review, the Department determined that the Company's model coefficients and results did not exhibit bias toward over- or under-estimating sales on a peak day.

Based on these analyses, the Department recommends that the Commission approve the Company's peak-day analysis. The Department's analysis of use on a peak day shows that MERC's decision to use a volume risk adjustment to modify its regression estimates is reasonable and necessary to ensure firm reliability. The Department also concludes that the Company's planning objective is reasonable at this time. Since each of MERC's regression models suggests that weather on the previous day, in addition to weather on the current day, impacts consumption on the current day, the Company was correct in factoring this into its planning objective. Although January 29, 2019 marked the coldest day, on an AHDD basis, for most of the Company's weather stations, the weather conditions on January 28, 2019 were much warmer, on a comparative basis, than during the 1996 cold weather event. The Company's

[14] [**Trade Secret data has been excised]** Department Attachment 2.

approach results in a slight bias toward reliability, namely that it estimates greater firm consumption on a peak day, and is a reasonable approach at this time.

D. RESERVE MARGIN

As indicated in Department Attachment 1 and summarized in Table 7 below, the proposed reserve margin is 36,973 Dkt/day, or 13.33 percent.

Table 7--MERC-Northern Reserve Margin

Total Entitlement (Dkt)	Design-Day Estimate (Dkt)	Difference (Dkt)	Reserve Margin (%)	Percentage Point Change From Prior Year
314,349	277,376	36,973	13.33%	12.08%

The proposed reserve margin of 13.33 percent represents an increase of 12.08 percentage points as compared to last year's reserve margin of 1.25 percent. The significant increase in the reserve margin is the result of the second phase of MERC's Rochester Project capacity coming online November 1, 2019. The Company's proposed reserve margin is higher than the Commission typically approves but is driven by the Rochester Project and the nature of large natural gas projects. The Commission was aware of these facts when it approved the Rochester Project and required MERC, as discussed in Section II.A above, to explore methods such as capacity release to mitigate higher reserve margins.

Based on the Department's review of MERC's historic design-day data, regression results, and the nature of its Rochester Project and associated capacity expansions, the Department concludes that MERC's reserve margin is acceptable. The proposed reserve margin is higher than levels typically approved by the Commission, but the Company already has procedures in place to help mitigate the impacts of potential excess capacity. The Department will continue to monitor this in future demand entitlement filings and capacity release compliance filings.

E. DISTRIBUTION PLANNING

In recent demand entitlement filings, the Department requested information from MERC, and conducted analyses, regarding the Company's distribution planning and the integration of electric generation onto the MERC system. In last year's demand entitlement, the Department concluded that the Company's current planning approach is reasonable.[15] In response to the cold weather event in January 2019, the Commission opened an investigation in Docket No. E,G999/CI-19-160 that also reviewed utility responses to cold weather and system reliability. As noted above, and discussed at length in Docket No. E,G999/CI-19-160, the Company did not experience reliability or deliverability issues during the cold weather event in late January 2019.

[15] Docket No. G011/M-18-526, May 21, 2019 Response Comments, Page 7.

Although not typically discussed in demand entitlement filings, distribution planning is an important part of providing reliable service to ratepayers. The procurement of capacity, as reflected in the demand entitlement proceedings, is meant to satisfy total daily firm need on a peak day, while distribution system planning is intended to ensure sufficient capacity is available to meet maximum gas need at a particular time and location. Given the potential for reliability issues during an extreme cold event, the Department issued new discovery in an effort to understand MERC's distribution planning assumptions. In its response to Department Information Request No. 1, the Company provided an explanation of its distribution planning method and various assumptions built into its analysis.[16] MERC stated that its distribution planning incorporates weather assumptions along with system information and customer specific information at various geographic locations to determine peak throughput. In terms of weather assumptions, the Company stated that it applies an average daily temperature, based on geographic location, of between 85HDD (-20F) and 105HDD (-40F) to its distribution assumptions. Although MERC uses an average daily temperature in its distribution model, it noted that its other planning assumptions (*i.e.,* customer flow, piping coefficients) are based on conservative estimates in an effort to ensure reliable natural gas service.

The Department appreciates the Company's explanation and clarification of its distribution planning assumptions. Based on this information, the Department concludes that MERC's planning assumptions continue to be acceptable at this time.

F. PGA COST RECOVERY PROPOSAL

In Department Attachment 4, the Department compares MERC's October 2019 PGA to MERC's projected November 2019 PGA rates to highlight the changes in demand costs. According to the Department's calculations, the Company's demand entitlement proposal would result in the following annual demand cost impacts:

- Annual bill increase of $30.84, or approximately 5.59 percent, for the average General Service Residential customer consuming 87 Dkt annually;
- Annual bill increase of $243.20, or approximately 6.37 percent, for the average Small Volume Firm customer consuming 687 Dkt annually;
- Annual bill increase of $6,355.83, or approximately 6.92 percent, for the average Large Volume Firm customer consuming 17,946 Dkt annually;
- Annual bill increase of $1,500.80, or approximately 9.60 percent, for the average Small Volume Interruptible customer consuming 3,942 Dkt annually; and
- Annual bill increase of $9,779.07, or approximately 9.85 percent, for the average Large Volume Interruptible customer consuming 25,685 Dkt annually.

[16] Department Attachment 3. The Department notes that Department Information Request No. 1 is a new request for information that has not been asked in previous reliability, integration, or distribution planning analyses.

The Department notes that MERC appropriately included Rochester related costs in the commodity portion of the PGA, as required by the Commission's May 5, 2017 Order in Docket No. G011/M-15-895. For this reason, the Department included commodity related bill impacts from the Rochester Project in its calculations. Although the rate impacts appear large, 5.59 to 9.85 percent, it is important to note that the majority of these rate changes are within the commodity portion of the PGA. It is not unusual for the commodity portion of the PGA to change, on a percentage basis, at levels greater than the rate impacts related to the Rochester Project. For example, without the impact of the Rochester Project, the commodity portion of the MERC PGA increased 12.45 percent between October 2019 and November 2019.[17]

Based on its analysis, the Department recommends that the Commission approve the proposed demand costs with effective date of November 1, 2019.

III. DEPARTMENT CONCLUSIONS AND RECOMMENDATIONS

Based on its review, the Department recommends that the Commission:

- Accept the Company's proposed level of demand entitlement; and
- Allow MERC to recover associated demand costs through the monthly Purchased Gas Adjustment (PGA) effective November 1, 2019.

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[17] October 2019 Northern PGA, Docket No. G011/AA-19-604 and November 2019 Northern PGA, Docket No. G011/AA-19-672.

Department Attachment 1
Docket No. G011/M-19-496
MERC NNG Demand Entitlement Analysis*

	Number of Firm Customers			Design-Day Requirement			Total Entitlement Plus Peak Shaving			Reserve Margin	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Heating Season	Number of Customers	Change from Previous Year	% Change From Previous Year	Design Day (Dth)	Change from Previous Year	% Change From Previous Year	Total Design-Day Capacity (Dth)	Change from Previous Year	% Change From Previous Year	Reserve (7) - (4)	% Reserve [(7)-(4)]/(4)
2019-2020	201,190	2,562	1.29%	277,376	3,534	1.29%	314,349	37,093	13.38%	36,973	13.33%
2018-2019	198,628	11,434	6.11%	273,842	7,017	2.63%	277,256	10,939	4.11%	3,414	1.25%
2017-2018	187,194	2,617	1.42%	266,825	18,029	7.25%	266,317	14,190	5.63%	(508)	-0.19%
2016-2017	184,577	3,251	1.79%	248,796	3,533	1.44%	252,127	0	0.00%	3,331	1.34%
2015-2016	181,326	2,938	1.65%	245,263	(15,739)	-6.03%	252,127	(14,258)	-5.35%	6,864	2.80%
2014-2015	178,388	(190)	-0.11%	261,002	15,124	6.15%	266,385	10,000	3.90%	5,383	2.06%
2013-2014	178,578	1,641	0.93%	245,878	19,995	8.85%	256,385	22,900	9.81%	10,507	4.27%
2012-2013	176,937	1,696	0.97%	225,883	(9,172)	-3.90%	233,485	(12,500)	-5.08%	7,602	3.37%
2011-2012	175,241	(786)	-0.45%	235,055	16,842	7.72%	245,985	(15,690)	-6.00%	10,930	4.65%
2010-2011	176,027	799	0.46%	218,213	(9,827)	-4.31%	261,675	7,000	2.75%	43,462	19.92%
2009-2010	175,228	1,266	0.73%	228,040	(19,148)	-7.75%	254,675	4,227	1.69%	26,635	11.68%
2008-2009	173,962	1,846	1.07%	247,188	23,434	10.47%	250,448	0	0.00%	3,260	1.32%
2007-2008	172,116	7,063	4.28%	223,754	1,635	0.74%	250,448	2,036	0.82%	26,694	11.93%
2006-2007	165,053			222,119			248,412			26,293	11.84%
Average			1.55%			1.89%			1.97%		6.40%

	Firm Peak-Day Sendout**			Per Customer Metrics			
	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Heating Season	Firm Peak-Day Sendout (Dth)	Change from Previous Year	% Change From Previous Year	Excess per Customer [(7) - (4)]/(1)	Design Day per Customer (4)/(1)	Entitlement per Customer (7)/(1)	Peak-Day Send per Customer (12)/(1)
2019-2020	unknown			0.1838	1.3787	1.5624	unknown
2018-2019	268,848	34,903	14.92%	0.0172	1.3787	1.3959	1.3535
2017-2018	233,945	21,292	10.01%	-0.0027	1.4254	1.4227	1.2497
2016-2017	212,653	8,209	4.02%	0.0180	1.3479	1.3660	1.1521
2015-2016	204,444	10,596	5.47%	0.0379	1.3526	1.3905	1.1275
2014-2015	193,848	(18,958)	-8.91%	0.0302	1.4631	1.4933	1.0867
2013-2014	212,806			0.0588	1.3769	1.4357	1.1917
2012-2013				0.0430	1.2766	1.3196	
2011-2012				0.0624	1.3413	1.4037	
2010-2011				0.2469	1.2397	1.4866	
2009-2010				0.1520	1.3014	1.4534	
2008-2009				0.0187	1.4209	1.4397	
2007-2008				0.1551	1.3000	1.4551	
2006-2007				0.1593	1.3457	1.5050	
Average			5.10%	0.0843	1.3535	1.4378	1.1935

*Increases to the 2017-2018 Number of Firm Customers, Design-Day, and Total Entitlement were largley attributed the Albert Lea PGA.

**Effective 7/1/13 MERC PGAs were consolidated from four down to two (NNG and Consolidated). Prior to 2013, no Peak-Day was calculated for only the NNG PGA.

Source: MERC's Attachment 1

Albert Lea Regression

Date	Total Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
[TRADE SECRET DATA BEGINS																				
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Albert Lea Regression

Date	Total Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
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Albert Lea Regression

Date	Total Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
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Observations	270.00
Under-Estimate	135.00
Over-Estimate	135.00

Albert Lea Regression

MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	MERC Design Day	DOC Design Day

Albert Lea Regression

MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

Albert Lea Regression

MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

TRADE SECRET DATA ENDS]

	Cloquet Regression																				
Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	First two Years	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
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	Cloquet Regression																				
Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	First two Years	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
TRADE SECRET DATA BEGINS																					
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	Cloquet Regression																			
Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	First two Years	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
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														Observations	248.00						
														Under-Estimate	132.00						
														Over-Estimate	116.00						

Cloquet Regression													
MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	MERC Design Day	DOC Design Day

Cloquet Regression													
MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	MERC Design Day	DOC Design Day

Cloquet Regression												
MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	MERC Design Day	DOC Design Day
													TRADE SECRET DATA ENDS

	Minneapolis Regression																			
Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
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	Minneapolis Regression																			
Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
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	Minneapolis Regression																			
Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under Estimate	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag
TRADE SECRET DATA BEGINS																				
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Observations	270.00
Under-Estimate	136.00
Over-Estimate	134.00

Minneapolis Regression														
MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

Minneapolis Regression														
MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

Minneapolis Regression														
MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

TRADE SECRET DATA ENDS

Rochester Regression

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Under/Over Recovery	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag
TRADE SECRET DATA BEGINS																					
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Rochester Regression

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Under/Over Recovery	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag
TRADE SECRET DATA BEGINS																					
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Rochester Regression

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Under/Over Recovery	ColdAHDD	ColdAHDDLag	MERC_Planning	MERC_Planning_Lag
TRADE SECRET DATA BEGINS																					
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Observations	270.00
Under-Estimate	137.00
Over-Estimate	133.00

DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact		MERC Design Day	DOC Design Day

TRADE SECRET DATA ENDS

Worthington Regression

Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Last Year	Predicted	Difference	Over/Under Estimate	ColdAHDD
TRADE SECRET DATA BEGINS																
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Worthington Regression

Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Last Year	Predicted	Difference	Over/Under Estimate	ColdAHDD
TRADE SECRET DATA BEGINS																
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Worthington Regression

Date	Throughput	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Last Year	Predicted	Difference	Over/Under Estimate	ColdAHDD
TRADE SECRET DATA BEGINS																
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Observations	270.00
Under-Estimate	129.00
Over-Estimate	141.00

Worthington Regression

ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	MP_Difference	MPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Fri	Sat	Sun	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	MERC Design Day

Worthington Regression

ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	MP_Difference	MPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Fri	Sat	Sun	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	MERC Design Day

Worthington Regression

ColdAHDDLag	MERC_Planning	MERC_Planning_Lag	MP_Difference	MPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Fri	Sat	Sun	Dec	MERC AHDD Impact	MERC AHDD-1 Impact	MERC Design Day

TRADE SECRET DATA ENDS

Minnesota Department of Commerce
Division of Energy Resources
Information Request

Docket Number:	G011/M-19-496 and G011/M-19-497	☐Nonpublic ☒Public
Requested From:	Minnesota Energy Resources Corp.	Date of Request: 9/25/2019
Type of Inquiry:	General	Response Due: 10/7/2019

Requested by: Adam Heinen
Email Address(es): adam.heinen@state.mn.us
Phone Number(s): 651-539-1825

Request Number: 1
Topic: Distribution Planning
Reference(s): Click or tap here to enter text.

Request:

Please fully explain how the utility arrives at its weather assumption (*e.g.,* HDD, temperature) for distribution system planning purposes. As part of this explanation, please also identify the weather assumption used for each Town Border Station or City Gate on the utility's system.

If this information has already been provided in initial petition or in response to an earlier Department-DER information request, please identify the specific cite(s) or Department-DER information request number(s).

MERC Response:

MERC utilizes distribution system flow modeling in conjunction with other tools such as pressure monitoring and engineering analysis and expertise to plan its distribution system and identify the need for any distribution reinforcement projects to address system pressure or other operational issues and to ensure adequate distribution capacity to reliably serve firm customers in the event of a distribution system peak. MERC designs its distribution system (and any upgrades) to serve projected firm load and does not design the system for interruptible load. This is because MERC is able to call geographic and customer-class specific curtailments of its interruptible service customers to ensure continued reliable service to firm customers.

Distribution planning models incorporate geographic data related to customers, usage, pressure data, system details (including pipe size, route, and length of distribution pipes), and weather, and are calibrated based on regularly conducted pressure testing (both through supervisory control and data acquisition (SCADA) equipment and routine manual pressure testing). These models are also scalable, such that MERC is able to evaluate a range of potential

planning assumptions based on various system-specific considerations. MERC applies different usage factors for residential and commercial customer load since the profile of natural gas usage is much different for different types of customers when the model is scaled to colder temperatures. For larger customers MERC evaluates how their load is affected by temperature. If they are not a heat load, the modeling utilizes their peak hourly usage, regardless of temperature. This information is pulled from the hourly information we pull based on telemetry. Customer usage data is input based on the type of scalability that is needed for customer usage that is weather dependent and scaled for temperature.

Distribution flow modeling analyzes peak hour requirements based on the specific area of the distribution system being served. These models are designed to analyze the capability of the distribution system to maintain adequate pressure at the furthest point of the system, considering variables such as the distance of the furthest customer from a main supply pipe and whether there is a second source of supply from a different part of the system.

When MERC evaluates a portion of its distribution system for new load or potential system improvements, the models are scaled to a HDD day, which is determined based on average daily temperature, not peak temperature. Dependent on geographic location, MERC applies an average ranging from 85HDD to 105HDD. The average preliminary HDD by model area are provided in Attachment A to this response. The models are then reviewed using a range of -20 to -40 average daily temperature assumptions.

Various inputs and assumptions into the distribution flow model ensure these models are sufficiently conservative to ensure reliable firm natural gas service. In particular,

- Larger customers are entered with highest hourly flow, not necessarily the peak hour when it is cold;
- The roughness factor coefficient on piping is set to a more conservative factor;
- The models are scaled to the highest flow on a peak day, which in reality may not be temperature related, due to non-heat load and other considerations.

In addition to distribution flow modeling, MERC utilizes data from regular pressure testing to identify any potential problem areas that could require system reinforcement. Pressure checks are completed manually for points on the system not directly tied to the electronic pressure recorders. Remote and manual pressure data are utilized in determining areas to watch or that require system reinforcement. In general, MERC monitors system pressure to ensure no portion of the system drops more than 50%, at which point the need for system reinforcements is evaluated. Lesser drops in pressure (30% or greater) also trigger areas to be monitored to more closely evaluate the potential need for system upgrades.

The combination of distribution flow modeling assumptions, pressure checks, and ongoing engineering evaluation, ensure that MERC is able to provide reliable service to firm customers in the event of temperatures that are colder than normal.

Model area	Region	Initial Model Input *
Camp Ripley	Central	90HDD
Cannon Falls	Central	85HDD
Castle Rock	Central	85HDD
Eagan	Central	85HDD
Finlayson	Central	90HDD
Hinckley	Central	90HDD
Lakeville/New Market/Rosemount/Spring Lake	Central	85HDD
Mayhew Lake	Central	90HDD
Mora	Central	90HDD
North Branch/Harris	Central	90HDD
Pine City	Central	90HDD
Pokegama Lake	Central	90HDD
Rosemount/Farmington	Central	85HDD
Rush City	Central	90HDD
Sandstone	Central	90HDD
Scandia	Central	90HDD
Willow River	Central	90HDD
Aurora	Northeast	95HDD
Barnum	Northeast	95HDD
Biwabik	Northeast	95HDD
Buhl	Northeast	95HDD
Calumet/Marble	Northeast	95HDD
Carlton	Northeast	95HDD
Chisholm	Northeast	95HDD
Cloquet	Northeast	95HDD
Coleraine/Bovey	Northeast	95HDD
Crosby/Ironton	Northeast	95HDD
Deer River/Zemple	Northeast	95HDD
Deerwood/Aitkin	Northeast	95HDD
Esko	Northeast	95HDD
Eveleth	Northeast	95HDD
Floodwood	Northeast	95HDD
Gilbert	Northeast	95HDD
Grand Rapids	Northeast	95HDD
Hermantown	Northeast	95HDD
Hoyt Lakes	Northeast	95HDD
International Falls	Northeast	95HDD
Keewatin	Northeast	95HDD
Kettle River	Northeast	95HDD
Moose Lake	Northeast	95HDD
Mountain Iron	Northeast	95HDD
Nashwauk	Northeast	95HDD
Pengilly	Northeast	95HDD
Proctor	Northeast	95HDD
Silver Bay	Northeast	95HDD
Ada	Northwest	90HDD

Model area	Region	Initial Model Input *
Audubon	Northwest	90HDD
Baudette	Northwest	105HDD
Bemidji	Northwest	95HDD
Bertha/Hewitt/Verndale	Northwest	90HDD
Detroit Lakes	Northwest	90HDD
Frazee	Northwest	90HDD
Roseau	Northwest	100HDD
Staples/Motley	Northwest	90HDD
Thief River Falls	Northwest	100HDD
Wadena/Menahga/Sebeka/Park Rapids	Northwest	90HDD
Warroad	Northwest	105HDD
Altura	Southeast	85HDD
Brownsdale	Southeast	85HDD
Byron	Southeast	85HDD
Caldeonia	Southeast	85HDD
Canton	Southeast	85HDD
Chatfield	Southeast	85HDD
Claremont	Southeast	85HDD
Dodge Center	Southeast	85HDD
Dover	Southeast	85HDD
Elgin	Southeast	85HDD
Eyota	Southeast	85HDD
Fountain	Southeast	85HDD
Harmony	Southeast	85HDD
Hayfield	Southeast	85HDD
Hayward	Southeast	85HDD
Houston	Southeast	85HDD
Kasson	Southeast	85HDD
Kenyon	Southeast	85HDD
LaCrescent	Southeast	85HDD
Lanesboro	Southeast	85HDD
Lansing	Southeast	85HDD
Lewiston	Southeast	85HDD
Lyle	Southeast	85HDD
Mabel	Southeast	85HDD
Peterson	Southeast	85HDD
Pine Island	Southeast	85HDD
Plainview	Southeast	85HDD
Preston	Southeast	85HDD
Rochester	Southeast	85HDD
Rose Creek	Southeast	85HDD
Rushford	Southeast	85HDD
Spring Grove	Southeast	85HDD
Spring Valley/Wykoff	Southeast	85HDD
St Charles	Southeast	85HDD
Stewartville	Southeast	85HDD

Model area	Region	Initial Model Input *
Utica	Southeast	85HDD
Viola	Southeast	85HDD
Waltham	Southeast	85HDD
Wanamingo	Southeast	85HDD
West Concord	Southeast	85HDD
Zumbrota	Southeast	85HDD
Adams/LeRoy/Taopi	Southesat	85HDD
Albert Lea	Southwest	85HDD
Alden	Southwest	85HDD
Appleton	Southwest	85HDD
Blooming Prairie	Southwest	85HDD
Brewster	Southwest	85HDD
Canby/Hendrick/Ivanhoe	Southwest	85HDD
Clarks Grove	Southwest	85HDD
Conger	Southwest	85HDD
Cottonwood	Southwest	85HDD
Dunnell	Southwest	85HDD
Ellendale	Southwest	85HDD
Emmons	Southwest	85HDD
Fairmont	Southwest	85HDD
Freeborn	Southwest	85HDD
Hollandale	Southwest	85HDD
Jackson	Southwest	85HDD
Lakefield	Southwest	85HDD
Madison	Southwest	85HDD
Marshall	Southwest	85HDD
Mountain Lake	Southwest	85HDD
New Richland	Southwest	85HDD
Northrop	Southwest	85HDD
Oakland	Southwest	85HDD
Ortonville	Southwest	85HDD
Revere	Southwest	85HDD
Sanborn	Southwest	85HDD
Sherburn	Southwest	85HDD
Tracy	Southwest	85HDD
Trimont	Southwest	85HDD
Truman	Southwest	85HDD
Twin Lakes	Southwest	85HDD
Walnut Grove	Southwest	85HDD
Welcome	Southwest	85HDD
Wells	Southwest	85HDD
Windom	Southwest	85HDD
Worthington	Southwest	85HDD

* as discussed in MERC's Response to Department Information Request No. 1,
each model is reviewed using a range of -20 to -40 average daily temperature.

MINNESOTA ENERGY RESOURCES - NNG

RATE IMPACT OF THE PROPOSED DEMAND CHANGE
NOVEMBER 1, 2019

All costs in $/Dth	Base Cost of Gas G011/MR-17-564 1-Jul-19	Demand Charge Oct 1, 2018	Demand Charge Demand Filing Nov 1, 2018 (as revised 7/2/19)	Most Recent PGA Oct-19	Proposed Effective Nov 1, 2019	Result of Proposed Change: Change from Last Rate Case	Change from Nov 1, 2018 Demand Filing	Change from Last PGA %	Change from Last PGA $
1) General Service Residential: Avg. Annual Use:			**87**	**Dth**					
Commodity Cost	$3.6673	$3.4787	$3.9141	$2.9213	$3.3020	($0.3653)	($0.6121)	13.03%	$0.3807
Demand Cost	$0.9363	$0.9367	$0.9493	$0.9493	$0.9227	($0.0136)	($0.0266)	-2.80%	($0.0266)
Commodity Margin	$2.4116	$2.4116	$2.4116	$2.4686	$2.4686	$0.0570	$0.0570	0.00%	$0.0000
Total Cost of Gas	$7.0152	$6.8270	$7.2750	$6.3392	$6.6934	($0.3218)	($0.5816)	5.59%	$0.3542
Avg Annual Cost	$610.78	$594.39	$633.40	$551.92	$582.76	($28.02)	($50.64)	5.59%	$30.83
Effect of proposed commodity change on average annual bills:									$33.15
Effect of proposed demand change on average annual bills:									($2.31)
2) Small C&I Firm, Class 2: Avg. Annual Use:			**687**	**Dth**					
Commodity Cost	$3.6673	$3.4787	$3.9141	$2.9213	$3.3020	($0.3653)	($0.6121)	13.03%	$0.3807
Demand Cost	$0.9363	$0.9367	$0.9493	$0.9493	$0.9227	($0.0136)	($0.0266)	-2.80%	($0.0266)
Commodity Margin	$1.6885	$1.6885	$1.6885	$1.6857	$1.6857	($0.0028)	($0.0028)	0.00%	$0.0000
Total Cost of Gas	$6.2921	$6.1039	$6.5519	$5.5563	$5.9105	($0.3816)	($0.6414)	6.37%	$0.3542
Avg Annual Cost	$4,320.83	$4,191.59	$4,499.23	$3,815.55	$4,058.75	($262.08)	($440.48)	6.37%	$243.20
Effect of proposed commodity change on average annual bills:									$261.45
Effect of proposed demand change on average annual bills:									($18.25)
3) Large C&I Firm Class 3: Avg. Annual Use:			**17,946**	**Dth**					
Commodity Cost	$3.6673	$3.4787	$3.9141	$2.9213	$3.3020	($0.3653)	($0.6121)	13.03%	$0.3807
Demand Cost	$0.9363	$0.9367	$0.9493	$0.9493	$0.9227	($0.0136)	($0.0266)	-2.80%	($0.0266)
Commodity Margin	$1.6885	$1.6885	$1.6885	$1.2453	$1.2453	($0.4432)	($0.4432)	0.00%	$0.0000
Total Cost of Gas	$6.2921	$6.1039	$6.5519	$5.1159	$5.4701	($0.8220)	($1.0818)	6.92%	$0.3542
Avg Annual Cost	$112,920.62	$109,543.11	$117,583.10	$91,812.05	$98,167.88	($14,752.74)	($19,415.22)	6.92%	$6,355.83
Effect of proposed commodity change on average annual bills:									$6,832.80
Effect of proposed demand change on average annual bills:									($476.97)
4) Small C&I Interruptible, Class 2: Avg. Annual Use:			**3,942**	**Dth**					
Commodity Cost	$3.6673	$3.4787	$3.9141	$2.9213	$3.3020	($0.3653)	($0.6121)	13.03%	$0.3807
Commodity Margin	$0.9740	$0.9740	$0.9740	$1.0453	$1.0453	$0.0713	$0.0713	0.00%	$0.0000
Total Cost of Gas	$4.6413	$4.4527	$4.8881	$3.9666	$4.3473	($0.2940)	($0.5408)	9.60%	$0.3807
Avg Annual Cost	$18,295.41	$17,551.97	$19,268.26	$15,635.83	$17,136.63	($1,158.78)	($2,131.63)	9.60%	$1,500.80
Effect of proposed commodity change on average annual bills:									$1,500.80
5) Large C&I Interruptible, Class 3: Avg. Annual Use:			**25,685**	**Dth**					
Commodity Cost	$3.6673	$3.4787	$3.9141	$2.9213	$3.3020	($0.3653)	($0.6121)	13.03%	$0.3807
Commodity Margin	$0.5329	$0.5329	$0.5329	$0.9453	$0.9453	$0.4124	$0.4124	0.00%	$0.0000
Total Cost of Gas	$4.2002	$4.0116	$4.4470	$3.8666	$4.2473	$0.0471	($0.1997)	9.85%	$0.3807
Avg Annual Cost	$107,881.42	$103,037.26	$114,220.44	$99,312.96	$109,092.04	$1,210.61	($5,128.40)	9.85%	$9,779.07
Effect of proposed commodity change on average annual bills:									$9,779.07

Note: Average Annual Use based on new class structure found in 2018 MERC Gas Rate Design in Docket GR-17-563
Note: Rates do not include the ACA adjustment.

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Public Comments

Docket No. G011/M-19-496

Dated this **3rd** day of **January 2020**

/s/Sharon Ferguson

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