

November 24, 2020

PUBLIC DOCUMENT

Mr. Will Seuffert
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-20-636

Dear Mr. Seuffert:

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 its Consolidated Purchased Gas Adjustment (PGA) area.

The Petition was filed on July 31, 2020 by:

Joylyn Hoffman Malueg
Project Specialist 3
Minnesota Energy Resources Corporation
2685 145th Street West
Rosemount, MN 55068

The Petition was supplemented on October 30, 2020 by Ms. Hoffman Malueg.

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

- **Accept** the Company's proposed level of demand entitlement; and
- **Allow** MERC to recover associated demand costs through the monthly PGA effective November 1, 2020.

Sincerely,

/s/ ADAM J. HEINEN
Rates Analyst
AH/JK/ar
Attachment

/s/ JOHN KUNDERT
Financial Analyst



Before the Minnesota Public Utilities Commission

PUBLIC Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. G011/M-20-636

I. INTRODUCTION

Pursuant to Minnesota Rules 7825.2910, subpart 2,¹ Minnesota Energy Resources Corporation (MERC or the Company) filed a petition on July 30, 2020 requesting a change in demand² units (Petition) for its customers served off the Consolidated Purchased Gas Adjustment (PGA) system (MERC-Consolidated). MERC requested that the Minnesota Public Utilities Commission (Commission) approve changes in the Company's recovery of the overall level of contracted capacity and demand costs. MERC-Consolidated serves customers located along three interstate pipelines: Great Lakes Gas Transmission (Great Lakes or GLGT), Viking Gas Transmission Company (Viking or VGT), and Centra Minnesota Pipelines (Centra).

On October 30, 2020, MERC made its November Supplemental Filing (Supplement) detailing final entitlement levels for the 2020-2021 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 2020-2021 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 283 dekatherms (Dkt) to 57,065 Dkt/day. In terms of capacity, MERC proposed to increase its current design-day deliverability of 57,949 Dkt/day approved for the last heating season, by 700 Dkt to 58,649 Dkt/day for the 2020-2021 heating season. This increase results in an estimated reserve margin of approximately 2.78 percent. MERC proposed no changes to non-design-day deliverable contracts such as storage and balancing contracts.

MERC proposed to decrease the demand cost it charges customers from \$0.8229 per dkt to \$0.8137 per dkt, or a decrease of 1.12 percent, compared to the demand costs recovered in its October 2020 PGA. This decrease is due to lower rates on the VGT pipeline. These lower demand rates are the result of the resolution of Viking's general rate case before the Federal Energy Regulatory Commission (Docket No. RP19-1340-005).

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 ratepayers. The Department's analysis of the Company's request includes the following:

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.

- 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. 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 total entitlement level by 700 Dkt/day from the previous demand entitlement filing.

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.

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.

B. DESIGN-DAY REQUIREMENT

As indicated in Department Attachment 1 and Petition Attachment 3, the Company proposed to increase its total design-day in Dkt as follows:

Table 1: MERC-Consolidated Design-Day Levels

November 1, 2020 Filing	Previous Design Day (Dkt)	Proposed Design Day (Dkt)	Design Day Changes (Dkt)	% Change from Previous Year
Centra	9,464	9,364	(100)	(1.06)%
Great Lakes	30,025	30,279	254	0.85%
Viking	17,293	17,422	129	0.75%
Total Consolidated	56,782	57,065	283	0.50%

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 customer to have daily metered data, the Company no longer estimates the peak-day impact from interruptible customers served on the MERC-Consolidated system. MERC obtained the daily large volume transportation, interruptible, and joint-interruptible volumes by pipeline and weather station. In addition, MERC obtained daily small volume interruptible volumes by pipeline and weather station. MERC then calculated daily firm volumes by subtracting these non-firm data from the total throughput volumes.³ 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 2017 to February 2020. Since MERC's Consolidated PGA service area serves customers on three separate pipelines and separate parts of Minnesota, the Company conducted four separate regression models for the various parts of the Consolidated-PGA area. MERC used Adjusted Heating Degree Days (AHDD)⁴ 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 2018-2019 heating season, MERC's service area, 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.⁵ On an AHDD basis, the cold weather event last heating season was the coldest weather on record for all of MERC's weather stations except Fargo and International Falls.

³ Petition, Attachment 12, Pages 2-3.

⁴ 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.

⁵ Petition, Attachment 12, Pages 3-5.

Table 2: Coldest Weather Conditions

<u>Station</u>	<u>Date</u>	<u>Avg. Temp</u>	<u>Avg. Wind Speed (mph)</u>	<u>HDD65</u>	<u>AHDD65</u>	<u>AHDD65-1⁶</u>
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

* Combined-PGA weather stations.

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. Beginning with last year's demand entitlement filing (covering the 2019-2020 heating season), the Company considered 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:⁷

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.

As a result, the following planning objective data for the various weather stations were used in the Company's design-day analysis.

⁶ AHDD65 conditions on the day prior.

⁷ Petition, Attachment 12, Page 4.

Table 3: MERC Planning Objective Data

<u>Station</u>	<u>Date</u>	<u>Avg. Temp</u>	<u>Avg. Wind Speed (mph)</u>	<u>HDD65</u>	<u>AHDD65</u>	<u>AHDD65-1</u>
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

* Combined-PGA weather stations.

As noted above, for each of the regression models the planning objective did not occur during the data period (December 2017 through February 2020); 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 54,195 Dkt/day. However, as explained in MERC's filing, the Company modified the analysis such that the ultimate design-day estimate was based on higher throughput estimates that factor in volume risk adjustments. These adjustments resulted in a calculated design-day estimate of 57,065 Dkt/day, which is 283 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.⁸ 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, unlike in last year's demand entitlement, the Department observed a bias in the Company regression results. In particular, the Department observed a bias toward over-estimating daily historical consumption because there were more observations, across all models, where there were instances of predicted consumption greater than actual consumption. From a theoretical perspective it is expected that regression results have an even distribution of under- and over-estimation, which suggests an unbiased analysis from a results perspective. However, the over-estimation bias for daily historical consumption appears minor and does not appear to be a concern at this time. It is not a concern because the bias does not require MERC to procure additional capacity and would not adversely impact firm reliability on a peak day.

⁸ Petition, Attachment 12, Page 6.

Second, using the regression coefficients from the Company's design-day models, the Department estimated firm throughput at both the Company's 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 55,741 Dkt on the 2018-2019 heating season's peak day if the average temperature was at the Company's planning objective and 56,386 Dkt at the former planning objective.⁹ It appears that the Company's planning objective selection provides for less conservative results, from a planning perspective, by estimating lower consumption on a peak day.

As a further check, the Department compared the 55,741 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.

Table 4: MERC Planning Objective Data

	MERC Estimated Design-Day (2019-2020 Heating Season) (Dkt)	Department Estimated Design-Day Throughput for January 29, 2019 based on AHDD65-1 (Dkt)	Difference (Dkt)	Percentage Difference
Throughput (Dkt)	53,663	55,741	2,078	3.87%
	Volume Adjusted MERC Estimated Design-Day (2019-2020 Heating Season) (Dkt)	Department Estimated Design-Day Throughput for January 29, 2019 based on AHDD65-1 (Dkt)	Difference (Dkt)	Percentage Difference
Throughput (Dkt)	56,782	55,741	(1,041)	(1.83)%

Table 4 above compares the Company's estimated design-day consumption of 53,663 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 55,741 Dkt. Since MERC's regression-estimated 2018-2019 design-day figure does not reflect the Company's volume risk adjustment, Table 4 also provides the comparison to the volume-risk-adjusted design day for the 2018-2019 heating season. When the volume risk adjustment is applied to last year's estimated design-day figure of 53,663 Dkt, the Department-estimated firm throughput of 55,741 Dkt is 1,041 Dkt, or 1.83 percent, lower than the adjusted design-day estimate of 56,782 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.

⁹ The peak day on the Northern system occurred on January 29, 2019. The new planning objective calculation is as follows: Fargo 17,000 Dkt + Cloquet 6,613 Dkt + Bemidji 22,782 Dkt + International Falls 9,346 = 55,741 Dkt. The former planning objective calculation is as follows: Fargo 17,916 Dkt + Cloquet 5,720 Dkt + Bemidji 22,550 Dkt + International Falls 10,200 Dkt = 56,386 Dkt.

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 during the 2018-2019 heating season, to ascertain whether the determinant coefficients from the Company's regressions adequately estimated actual historical usage.¹⁰ 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 peak-day consumption 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, it was reasonable for the Company to factor 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 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.

C. RESERVE MARGIN

As indicated in Department Attachment 1 and Petition Attachment 3, and summarized in Table 5 below, the proposed reserve margin is 1,584 Dkt/day, or 2.70 percent.

Table 5--MERC-Consolidated Reserve Margin

Pipeline	Total Entitlement (Dkt)	Design-Day Estimate (Dkt)	Difference (Dkt)	2020/2021 Reserve Margin (%)	2019/2020 Reserve Margin (%)	Percentage Point Change From Prior Year
Centra	9,600	9,364	236	2.53%	0.38%	2.15%
Great Lakes	31,358	30,279	1,079	3.56%	4.44%	(0.88)%
Viking	17,691	17,422	179	1.03%	(1.17)%	2.20%
Total Consolidated	58,649	57,065	1,584	2.70%	2.06%	0.64%

The proposed reserve margin of 2.70 percent represents an increase of 0.64 percentage points compared to last year's reserve margin of 2.06 percent. The small increase in the reserve margin is driven by an increase in capacity on the Centra and Viking pipelines relative to the estimated design-day requirement. The Company's proposed reserve margin is nearly a percentage point greater than the 5-year average of 1.86 percent for the overall Consolidated-PGA system.

¹⁰ Public Department Attachment 2.

In last year's demand entitlement filing, the Department observed and raised concerns regarding a negative reserve margin for customers served by the Viking pipeline. Although MERC's Viking system performed well during the 2018-2019 cold weather event, the Department noted that the result presented by MERC in last year's demand entitlement filing may suggest an issue with its model or model assumptions. In its reply comments, MERC acknowledged the negative reserve margin, but it explained that given the small volume of the shortfall, and uncertainty about future rate structure on Viking, the Company determined that the most appropriate course of action was to use the proposed gas supply. MERC also explained that prior to the 2020-2021 heating season, the Viking rate case would be concluded, and the Company would pursue either a term purchase of delivered natural gas or additional transport capacity.¹¹ The Department is encouraged that the Company responded to the negative reserve margin for the Viking pipeline by procuring additional capacity for the upcoming heating season. The reserve margin on the Viking pipeline, roughly 1 percent, is still relatively low, but the fact that it is positive, and the pipeline performed well during the January 2019 cold weather event, leads the Department to conclude that firm reliability for customer on the Viking pipeline, and the Consolidated PGA in general, is likely assured.

Based on the Department's review of MERC's historic design-day data and regression results, the Department concludes that MERC's total reserve margin appears acceptable.

D. DISTRIBUTION PLANNING

In recent demand entitlement filings, the Department requested information from MERC, and conducted analysis, regarding the Company's distribution planning and the integration of electric generation onto the MERC system. In last year's demand entitlement proceeding, the Department concluded that the Company's current planning approach is reasonable and does not represent a negative impact to ratepayers or reliability.¹² The Department asked the Company informally during our review of this Petition if it has made any changes to its distribution planning assumptions since its previous demand entitlement filing. MERC responded that it had not. Given that MERC has not suffered from weather-related reliability or deliverability issues on its distribution system, as have other natural gas local distribution companies, the Department concludes that MERC's planning assumptions continue to be acceptable at this time.

E. PGA COST RECOVERY PROPOSAL

In Department Attachment 3, the Department compares MERC's October 2020 PGA to MERC's projected November 2020 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:

¹¹ Docket No. G011/M-19-497, MERC Reply Comments, Pages 1-2.

¹² Docket No. G011/M-19-497, January 3, 2020 Comments, Page 8.

- Annual bill decrease of \$0.79 related to demand costs, or approximately 0.15 percent, for the average General Service customer consuming 86 dekatherms annually.
- Annual bill decrease of \$5.59 related to demand costs, or approximately 0.17 percent, for the average Large Commercial and Industrial customer consuming 608 dekatherms annually; and.
- No demand cost impacts related to MERC's Consolidated interruptible rate classes.

The Department recommends that the Commission approve MERC's demand costs effective November 1, 2020.

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 PGA effective November 1, 2020.

/ar

Department Attachment 1
Docket No. G011/M-20-636
MERC Consolidated 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)
2020-2021	36580	599	1.66%	57065	283	0.50%	58649	700	1.21%	1,584	2.78%
2019-2020	35,981	328	0.92%	56,782	312	0.55%	57,949	0	0.00%	1,167	2.06%
2018-2019	35,653	(312)	-0.87%	56,470	204	0.36%	57,949	0	0.00%	1,479	2.62%
2017-2018	35,965	466	1.31%	56,266	738	1.33%	57,949	3,050	5.56%	1,683	2.99%
2016-2017	35,499	700	2.01%	55,528	2,453	4.62%	54,899	(550)	-0.99%	(629)	-1.13%
2015-2016	34,799	402	1.17%	53,075	4,369	8.97%	55,449	3,990	7.75%	2,374	4.47%
2014-2015	34,397	390	1.15%	48,706	(1,342)	-2.68%	51,459	(1,500)	-2.83%	2,753	5.65%
2013-2014	34,007	377	1.12%	50,048	(2,241)	-4.29%	52,959	(2,000)	-3.64%	2,911	5.82%
2012-2013	33,630			52,289			54,959				
Average			1.06%			1.17%			0.88%		3.16%
5-Year Average			1.01%			1.47%			1.15%		1.86%

Heating Season	Firm Peak-Day Sendout			Per Customer Metrics			
	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	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			0.0324	1.5781	1.6105	unknown
2018-2019	53,653	7,215	15.54%	0.0415	1.5839	1.6254	1.5049
2017-2018	46,438	(2,358)	-4.83%	0.0468	1.5645	1.6113	1.2912
2016-2017	48,796	6,117	14.33%	-0.0177	1.5642	1.5465	1.3746
2015-2016	42,679	(3,072)	-6.71%	0.0682	1.5252	1.5934	1.2264
2014-2015	45,751	6,845	17.59%	0.0800	1.4160	1.4960	1.3301
2013-2014	38,906			0.0856	1.4717	1.5573	1.1441
Average			7.18%	0.0481	1.5291	1.5772	1.2371
5-Year Average			7.18%	0.0342	1.5632	1.5974	1.3454

Date	Throughput	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference Over/Under	ColdAHDD	ColdAHDD Lag
TRADE SECRET DATA BEGINS																
12/1/2017																
12/2/2017																
12/3/2017																
12/4/2017																
12/5/2017																
12/6/2017																
12/7/2017																
12/8/2017																
12/9/2017																
12/10/2017																
12/11/2017																
12/12/2017																
12/13/2017																
12/14/2017																
12/15/2017																
12/16/2017																
12/17/2017																
12/18/2017																
12/19/2017																
12/20/2017																
12/21/2017																
12/22/2017																
12/23/2017																
12/24/2017																
12/25/2017																
12/26/2017																
12/27/2017																
12/28/2017																
12/29/2017																
12/30/2017																
12/31/2017																
1/1/2018																
1/2/2018																
1/3/2018																
1/4/2018																
1/5/2018																
1/6/2018																
1/7/2018																
1/8/2018																
1/9/2018																
1/10/2018																
1/11/2018																
1/12/2018																
1/13/2018																
1/14/2018																
1/15/2018																

Date	[Redacted]												Difference Over/Under	ColdAHDD Lag	ColdAHDD		
	Throughput	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday				Predicted	
1/16/2018																	
1/17/2018																	
1/18/2018																	
1/19/2018																	
1/20/2018																	
1/21/2018																	
1/22/2018																	
1/23/2018																	
1/24/2018																	
1/25/2018																	
1/26/2018																	
1/27/2018																	
1/28/2018																	
1/29/2018																	
1/30/2018																	
1/31/2018																	
2/1/2018																	
2/2/2018																	
2/3/2018																	
2/4/2018																	
2/5/2018																	
2/6/2018																	
2/7/2018																	
2/8/2018																	
2/9/2018																	
2/10/2018																	
2/11/2018																	
2/12/2018																	
2/13/2018																	
2/14/2018																	
2/15/2018																	
2/16/2018																	
2/17/2018																	
2/18/2018																	
2/19/2018																	
2/20/2018																	
2/21/2018																	
2/22/2018																	
2/23/2018																	
2/24/2018																	
2/25/2018																	
2/26/2018																	
2/27/2018																	
2/28/2018																	

Date	Throughput	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference Over/Under	ColdAHDD Lag	ColdAHDD
12/1/2018																
12/2/2018																
12/3/2018																
12/4/2018																
12/5/2018																
12/6/2018																
12/7/2018																
12/8/2018																
12/9/2018																
12/10/2018																
12/11/2018																
12/12/2018																
12/13/2018																
12/14/2018																
12/15/2018																
12/16/2018																
12/17/2018																
12/18/2018																
12/19/2018																
12/20/2018																
12/21/2018																
12/22/2018																
12/23/2018																
12/24/2018																
12/25/2018																
12/26/2018																
12/27/2018																
12/28/2018																
12/29/2018																
12/30/2018																
12/31/2018																
1/1/2019																
1/2/2019																
1/3/2019																
1/4/2019																
1/5/2019																
1/6/2019																
1/7/2019																
1/8/2019																
1/9/2019																
1/10/2019																
1/11/2019																
1/12/2019																
1/13/2019																
1/14/2019																
1/15/2019																

Date	Throughput	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference Over/Under	ColdAHDD	ColdAHDD Lag
1/16/2019																
1/17/2019																
1/18/2019																
1/19/2019																
1/20/2019																
1/21/2019																
1/22/2019																
1/23/2019																
1/24/2019																
1/25/2019																
1/26/2019																
1/27/2019																
1/28/2019																
1/29/2019																
1/30/2019																
1/31/2019																
2/1/2019																
2/2/2019																
2/3/2019																
2/4/2019																
2/5/2019																
2/6/2019																
2/7/2019																
2/8/2019																
2/9/2019																
2/10/2019																
2/11/2019																
2/12/2019																
2/13/2019																
2/14/2019																
2/15/2019																
2/16/2019																
2/17/2019																
2/18/2019																
2/19/2019																
2/20/2019																
2/21/2019																
2/22/2019																
2/23/2019																
2/24/2019																
2/25/2019																
2/26/2019																
2/27/2019																
2/28/2019																

Date	Throughput	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference Over/Under	ColdAHDD Lag	ColdAHDD
12/1/2019																
12/2/2019																
12/3/2019																
12/4/2019																
12/5/2019																
12/6/2019																
12/7/2019																
12/8/2019																
12/9/2019																
12/10/2019																
12/11/2019																
12/12/2019																
12/13/2019																
12/14/2019																
12/15/2019																
12/16/2019																
12/17/2019																
12/18/2019																
12/19/2019																
12/20/2019																
12/21/2019																
12/22/2019																
12/23/2019																
12/24/2019																
12/25/2019																
12/26/2019																
12/27/2019																
12/28/2019																
12/29/2019																
12/30/2019																
12/31/2019																
1/1/2020																
1/2/2020																
1/3/2020																
1/4/2020																
1/5/2020																
1/6/2020																
1/7/2020																
1/8/2020																
1/9/2020																
1/10/2020																
1/11/2020																
1/12/2020																
1/13/2020																
1/14/2020																
1/15/2020																

Date	Throughput	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference Over/Under	ColdAHDD	ColdAHDD
																Lag
1/16/2020																
1/17/2020																
1/18/2020																
1/19/2020																
1/20/2020																
1/21/2020																
1/22/2020																
1/23/2020																
1/24/2020																
1/25/2020																
1/26/2020																
1/27/2020																
1/28/2020																
1/29/2020																
1/30/2020																
1/31/2020																
2/1/2020																
2/2/2020																
2/3/2020																
2/4/2020																
2/5/2020																
2/6/2020																
2/7/2020																
2/8/2020																
2/9/2020																
2/10/2020																
2/11/2020																
2/12/2020																
2/13/2020																
2/14/2020																
2/15/2020																
2/16/2020																
2/17/2020																
2/18/2020																
2/19/2020																
2/20/2020																
2/21/2020																
2/22/2020																
2/23/2020																
2/24/2020																
2/25/2020																
2/26/2020																
2/27/2020																
2/28/2020																
2/29/2020																

Observatio 271.00
 Under-Esti 53.00
 Over-Estim 218.00

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	-----------------	----------------

TRADE SECRET DATA ENDS

Date	Throughput	Nonfirm Customers (I	Nonfirm Telemet	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Unde	ColdAHDD	ColdAHDD Lag
	TRADE SECRET	BEGINS																	
12/1/2017																			
12/2/2017																			
12/3/2017																			
12/4/2017																			
12/5/2017																			
12/6/2017																			
12/7/2017																			
12/8/2017																			
12/9/2017																			
12/10/2017																			
12/11/2017																			
12/12/2017																			
12/13/2017																			
12/14/2017																			
12/15/2017																			
12/16/2017																			
12/17/2017																			
12/18/2017																			
12/19/2017																			
12/20/2017																			
12/21/2017																			
12/22/2017																			
12/23/2017																			
12/24/2017																			
12/25/2017																			
12/26/2017																			
12/27/2017																			
12/28/2017																			
12/29/2017																			
12/30/2017																			
12/31/2017																			
1/1/2018																			
1/2/2018																			
1/3/2018																			
1/4/2018																			
1/5/2018																			
1/6/2018																			
1/7/2018																			
1/8/2018																			
1/9/2018																			
1/10/2018																			
1/11/2018																			
1/12/2018																			
1/13/2018																			
1/14/2018																			
1/15/2018																			

Date	Throughput	Nonfirm Customers (Nonfirm Telemet Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under	ColdAHDD	ColdAHDD Lag
1/16/2018																	
1/17/2018																	
1/18/2018																	
1/19/2018																	
1/20/2018																	
1/21/2018																	
1/22/2018																	
1/23/2018																	
1/24/2018																	
1/25/2018																	
1/26/2018																	
1/27/2018																	
1/28/2018																	
1/29/2018																	
1/30/2018																	
1/31/2018																	
2/1/2018																	
2/2/2018																	
2/3/2018																	
2/4/2018																	
2/5/2018																	
2/6/2018																	
2/7/2018																	
2/8/2018																	
2/9/2018																	
2/10/2018																	
2/11/2018																	
2/12/2018																	
2/13/2018																	
2/14/2018																	
2/15/2018																	
2/16/2018																	
2/17/2018																	
2/18/2018																	
2/19/2018																	
2/20/2018																	
2/21/2018																	
2/22/2018																	
2/23/2018																	
2/24/2018																	
2/25/2018																	
2/26/2018																	
2/27/2018																	
2/28/2018																	

Date	Throughput	Nonfirm Customers (Nonfirm Telemet Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under	ColdAHDD	ColdAHDD Lag
12/1/2018																	
12/2/2018																	
12/3/2018																	
12/4/2018																	
12/5/2018																	
12/6/2018																	
12/7/2018																	
12/8/2018																	
12/9/2018																	
12/10/2018																	
12/11/2018																	
12/12/2018																	
12/13/2018																	
12/14/2018																	
12/15/2018																	
12/16/2018																	
12/17/2018																	
12/18/2018																	
12/19/2018																	
12/20/2018																	
12/21/2018																	
12/22/2018																	
12/23/2018																	
12/24/2018																	
12/25/2018																	
12/26/2018																	
12/27/2018																	
12/28/2018																	
12/29/2018																	
12/30/2018																	
12/31/2018																	
1/1/2019																	
1/2/2019																	
1/3/2019																	
1/4/2019																	
1/5/2019																	
1/6/2019																	
1/7/2019																	
1/8/2019																	
1/9/2019																	
1/10/2019																	
1/11/2019																	
1/12/2019																	
1/13/2019																	
1/14/2019																	
1/15/2019																	

Date	Throughput	Nonfirm Customers (Nonfirm Telemet Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under	ColdAHDD	ColdAHDD Lag
1/16/2019																	
1/17/2019																	
1/18/2019																	
1/19/2019																	
1/20/2019																	
1/21/2019																	
1/22/2019																	
1/23/2019																	
1/24/2019																	
1/25/2019																	
1/26/2019																	
1/27/2019																	
1/28/2019																	
1/29/2019																	
1/30/2019																	
1/31/2019																	
2/1/2019																	
2/2/2019																	
2/3/2019																	
2/4/2019																	
2/5/2019																	
2/6/2019																	
2/7/2019																	
2/8/2019																	
2/9/2019																	
2/10/2019																	
2/11/2019																	
2/12/2019																	
2/13/2019																	
2/14/2019																	
2/15/2019																	
2/16/2019																	
2/17/2019																	
2/18/2019																	
2/19/2019																	
2/20/2019																	
2/21/2019																	
2/22/2019																	
2/23/2019																	
2/24/2019																	
2/25/2019																	
2/26/2019																	
2/27/2019																	
2/28/2019																	

Date	Throughput	Nonfirm Customers (Nonfirm Telemet Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under	ColdAHDD	ColdAHDD Lag
12/1/2019																	
12/2/2019																	
12/3/2019																	
12/4/2019																	
12/5/2019																	
12/6/2019																	
12/7/2019																	
12/8/2019																	
12/9/2019																	
12/10/2019																	
12/11/2019																	
12/12/2019																	
12/13/2019																	
12/14/2019																	
12/15/2019																	
12/16/2019																	
12/17/2019																	
12/18/2019																	
12/19/2019																	
12/20/2019																	
12/21/2019																	
12/22/2019																	
12/23/2019																	
12/24/2019																	
12/25/2019																	
12/26/2019																	
12/27/2019																	
12/28/2019																	
12/29/2019																	
12/30/2019																	
12/31/2019																	
1/1/2020																	
1/2/2020																	
1/3/2020																	
1/4/2020																	
1/5/2020																	
1/6/2020																	
1/7/2020																	
1/8/2020																	
1/9/2020																	
1/10/2020																	
1/11/2020																	
1/12/2020																	
1/13/2020																	
1/14/2020																	
1/15/2020																	

Date	Throughput	Nonfirm Customers (I	Nonfirm Telemet	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Unde	ColdAHDD	ColdAHDD Lag
1/16/2020																			
1/17/2020																			
1/18/2020																			
1/19/2020																			
1/20/2020																			
1/21/2020																			
1/22/2020																			
1/23/2020																			
1/24/2020																			
1/25/2020																			
1/26/2020																			
1/27/2020																			
1/28/2020																			
1/29/2020																			
1/30/2020																			
1/31/2020																			
2/1/2020																			
2/2/2020																			
2/3/2020																			
2/4/2020																			
2/5/2020																			
2/6/2020																			
2/7/2020																			
2/8/2020																			
2/9/2020																			
2/10/2020																			
2/11/2020																			
2/12/2020																			
2/13/2020																			
2/14/2020																			
2/15/2020																			
2/16/2020																			
2/17/2020																			
2/18/2020																			
2/19/2020																			
2/20/2020																			
2/21/2020																			
2/22/2020																			
2/23/2020																			
2/24/2020																			
2/25/2020																			
2/26/2020																			
2/27/2020																			
2/28/2020																			
2/29/2020																			

Observations 271.00
 Under-Estim: 52.00
 Over-Estimat 219.00

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	Dec	Feb	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	Dec_Impact	Feb_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	Dec	Feb	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	Dec_Impact	Feb_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	------------	------------	-----------------	----------------

MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Differ		AHDD	AHDDLag					MERC	MERC	DOC	DOC	Sat_Impac	Sun_Impa	Dec_Impa	Feb_Impa		MERC	DOC
nning	nning_Lag	ning	ning_Lag	ence	rence	ence	ence	Intercept	Coefficien	Coefficien	Sat	Sun	Dec	Feb	AHDD	AHDD-1	AHDD	AHDD-1	t	ct	ct	ct		Design	Design
									t	t					Impact	Impact	Impact	Impact						Day	Day

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	Dec	Feb	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	Dec_Impact	Feb_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	Dec	Feb	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	Dec_Impact	Feb_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	------------	------------	-----------------	----------------

MERC_Planning	MERC_Planning_Lag	DOC_Planning	DOC_Planning_Lag	MP_Difference	MPL_Difference	DP_Difference	DPL_Difference	Intercept	AHDD Coefficient	AHDDLag Coefficient	Sat	Sun	Dec	Feb	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Sat_Impact	Sun_Impact	Dec_Impact	Feb_Impact	MERC Design Day	DOC Design Day
---------------	-------------------	--------------	------------------	---------------	----------------	---------------	----------------	-----------	------------------	---------------------	-----	-----	-----	-----	------------------	--------------------	-----------------	-------------------	------------	------------	------------	------------	-----------------	----------------

TRADE SECRET DATA ENDS

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	FirstTwoYePredicted	Difference	Over/Under Estimate
TRADE SECRET DATA BEGINS																	
12/1/2017																	
12/2/2017																	
12/3/2017																	
12/4/2017																	
12/5/2017																	
12/6/2017																	
12/7/2017																	
12/8/2017																	
12/9/2017																	
12/10/2017																	
12/11/2017																	
12/12/2017																	
12/13/2017																	
12/14/2017																	
12/15/2017																	
12/16/2017																	
12/17/2017																	
12/18/2017																	
12/19/2017																	
12/20/2017																	
12/21/2017																	
12/22/2017																	
12/23/2017																	
12/24/2017																	
12/25/2017																	
12/26/2017																	
12/27/2017																	
12/28/2017																	
12/29/2017																	
12/30/2017																	
12/31/2017																	
1/1/2018																	
1/2/2018																	
1/3/2018																	
1/4/2018																	
1/5/2018																	
1/6/2018																	
1/7/2018																	
1/8/2018																	
1/9/2018																	
1/10/2018																	
1/11/2018																	
1/12/2018																	
1/13/2018																	
1/14/2018																	
1/15/2018																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	FirstTwoYe Predicted	Difference	Over/Under Estimate
1/16/2018																	
1/17/2018																	
1/18/2018																	
1/19/2018																	
1/20/2018																	
1/21/2018																	
1/22/2018																	
1/23/2018																	
1/24/2018																	
1/25/2018																	
1/26/2018																	
1/27/2018																	
1/28/2018																	
1/29/2018																	
1/30/2018																	
1/31/2018																	
2/1/2018																	
2/2/2018																	
2/3/2018																	
2/4/2018																	
2/5/2018																	
2/6/2018																	
2/7/2018																	
2/8/2018																	
2/9/2018																	
2/10/2018																	
2/11/2018																	
2/12/2018																	
2/13/2018																	
2/14/2018																	
2/15/2018																	
2/16/2018																	
2/17/2018																	
2/18/2018																	
2/19/2018																	
2/20/2018																	
2/21/2018																	
2/22/2018																	
2/23/2018																	
2/24/2018																	
2/25/2018																	
2/26/2018																	
2/27/2018																	
2/28/2018																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	FirstTwoYePredicted	Difference	Over/Under Estimate
12/1/2018																	
12/2/2018																	
12/3/2018																	
12/4/2018																	
12/5/2018																	
12/6/2018																	
12/7/2018																	
12/8/2018																	
12/9/2018																	
12/10/2018																	
12/11/2018																	
12/12/2018																	
12/13/2018																	
12/14/2018																	
12/15/2018																	
12/16/2018																	
12/17/2018																	
12/18/2018																	
12/19/2018																	
12/20/2018																	
12/21/2018																	
12/22/2018																	
12/23/2018																	
12/24/2018																	
12/25/2018																	
12/26/2018																	
12/27/2018																	
12/28/2018																	
12/29/2018																	
12/30/2018																	
12/31/2018																	
1/1/2019																	
1/2/2019																	
1/3/2019																	
1/4/2019																	
1/5/2019																	
1/6/2019																	
1/7/2019																	
1/8/2019																	
1/9/2019																	
1/10/2019																	
1/11/2019																	
1/12/2019																	
1/13/2019																	
1/14/2019																	
1/15/2019																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	FirstTwoYe Predicted	Difference	Over/Under Estimate
1/16/2019																	
1/17/2019																	
1/18/2019																	
1/19/2019																	
1/20/2019																	
1/21/2019																	
1/22/2019																	
1/23/2019																	
1/24/2019																	
1/25/2019																	
1/26/2019																	
1/27/2019																	
1/28/2019																	
1/29/2019																	
1/30/2019																	
1/31/2019																	
2/1/2019																	
2/2/2019																	
2/3/2019																	
2/4/2019																	
2/5/2019																	
2/6/2019																	
2/7/2019																	
2/8/2019																	
2/9/2019																	
2/10/2019																	
2/11/2019																	
2/12/2019																	
2/13/2019																	
2/14/2019																	
2/15/2019																	
2/16/2019																	
2/17/2019																	
2/18/2019																	
2/19/2019																	
2/20/2019																	
2/21/2019																	
2/22/2019																	
2/23/2019																	
2/24/2019																	
2/25/2019																	
2/26/2019																	
2/27/2019																	
2/28/2019																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	FirstTwoYePredicted	Difference	Over/Under Estimate
12/1/2019																	
12/2/2019																	
12/3/2019																	
12/4/2019																	
12/5/2019																	
12/6/2019																	
12/7/2019																	
12/8/2019																	
12/9/2019																	
12/10/2019																	
12/11/2019																	
12/12/2019																	
12/13/2019																	
12/14/2019																	
12/15/2019																	
12/16/2019																	
12/17/2019																	
12/18/2019																	
12/19/2019																	
12/20/2019																	
12/21/2019																	
12/22/2019																	
12/23/2019																	
12/24/2019																	
12/25/2019																	
12/26/2019																	
12/27/2019																	
12/28/2019																	
12/29/2019																	
12/30/2019																	
12/31/2019																	
1/1/2020																	
1/2/2020																	
1/3/2020																	
1/4/2020																	
1/5/2020																	
1/6/2020																	
1/7/2020																	
1/8/2020																	
1/9/2020																	
1/10/2020																	
1/11/2020																	
1/12/2020																	
1/13/2020																	
1/14/2020																	
1/15/2020																	

ColdAHD D	ColdAHD DLag	MERC_Pla nning	MERC_Pla nning_Lag	DOC_Plan ning	DOC_Plan ning_Lag	MP_Differ ence	MPL_Diffe rence	DP_Differ ence	DPL_Diffe rence	Intercept	AHDD Coefficient	AHDDLag Coefficient	Dec	Feb	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Dec_Impa ct	Feb_Impa ct	MERC Design Day	DOC Design Day
--------------	-----------------	-------------------	-----------------------	------------------	----------------------	-------------------	--------------------	-------------------	--------------------	-----------	---------------------	------------------------	-----	-----	------------------------	--------------------------	-----------------------	-------------------------	----------------	----------------	-----------------------	----------------------

ColdAHD	ColdAHD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Dec	Feb	MERC	MERC	DOC	DOC	Dec_Impa	Feb_Impa	MERC	DOC
D	DLag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien			AHDD	AHDD-1	AHDD	AHDD-1	ct	ct	Design	Design
											t	t			Impact	Impact	Impact	Impact			Day	Day

ColdAHD	ColdAHD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Dec	Feb	MERC	MERC	DOC	DOC	Dec_Impa	Feb_Impa	MERC	DOC
D	DLag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien			AHDD	AHDD-1	AHDD	AHDD-1	ct	ct	Design	Design
											t	t			Impact	Impact	Impact	Impact			Day	Day

ColdAHD	ColdAHD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Dec	Feb	MERC	MERC	DOC	DOC	Dec_Impa	Feb_Impa	MERC	DOC
D	DLag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien			AHDD	AHDD-1	AHDD	AHDD-1	ct	ct	Design	Design
											t	t			Impact	Impact	Impact	Impact			Day	Day

ColdAHD	ColdAHD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Dec	Feb	MERC	MERC	DOC	DOC	Dec_Impa	Feb_Impa	MERC	DOC
D	DLag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien			AHDD	AHDD-1	AHDD	AHDD-1	ct	ct	Design	Design
											t	t			Impact	Impact	Impact	Impact			Day	Day

ColdAHD	ColdAHD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Dec	Feb	MERC	MERC	DOC	DOC	Dec_Impa	Feb_Impa	MERC	DOC
D	DLag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien			AHDD	AHDD-1	AHDD	AHDD-1	ct	ct	Design	Design
											t	t			Impact	Impact	Impact	Impact			Day	Day

TRADE SECRET DATA ENDS

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under
TRADE SECRET DATA BEGINS																	
12/1/2017																	
12/2/2017																	
12/3/2017																	
12/4/2017																	
12/5/2017																	
12/6/2017																	
12/7/2017																	
12/8/2017																	
12/9/2017																	
12/10/2017																	
12/11/2017																	
12/12/2017																	
12/13/2017																	
12/14/2017																	
12/15/2017																	
12/16/2017																	
12/17/2017																	
12/18/2017																	
12/19/2017																	
12/20/2017																	
12/21/2017																	
12/22/2017																	
12/23/2017																	
12/24/2017																	
12/25/2017																	
12/26/2017																	
12/27/2017																	
12/28/2017																	
12/29/2017																	
12/30/2017																	
12/31/2017																	
1/1/2018																	
1/2/2018																	
1/3/2018																	
1/4/2018																	
1/5/2018																	
1/6/2018																	
1/7/2018																	
1/8/2018																	
1/9/2018																	
1/10/2018																	
1/11/2018																	
1/12/2018																	
1/13/2018																	
1/14/2018																	
1/15/2018																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under
1/16/2018																	
1/17/2018																	
1/18/2018																	
1/19/2018																	
1/20/2018																	
1/21/2018																	
1/22/2018																	
1/23/2018																	
1/24/2018																	
1/25/2018																	
1/26/2018																	
1/27/2018																	
1/28/2018																	
1/29/2018																	
1/30/2018																	
1/31/2018																	
2/1/2018																	
2/2/2018																	
2/3/2018																	
2/4/2018																	
2/5/2018																	
2/6/2018																	
2/7/2018																	
2/8/2018																	
2/9/2018																	
2/10/2018																	
2/11/2018																	
2/12/2018																	
2/13/2018																	
2/14/2018																	
2/15/2018																	
2/16/2018																	
2/17/2018																	
2/18/2018																	
2/19/2018																	
2/20/2018																	
2/21/2018																	
2/22/2018																	
2/23/2018																	
2/24/2018																	
2/25/2018																	
2/26/2018																	
2/27/2018																	
2/28/2018																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Unde
12/1/2018																	
12/2/2018																	
12/3/2018																	
12/4/2018																	
12/5/2018																	
12/6/2018																	
12/7/2018																	
12/8/2018																	
12/9/2018																	
12/10/2018																	
12/11/2018																	
12/12/2018																	
12/13/2018																	
12/14/2018																	
12/15/2018																	
12/16/2018																	
12/17/2018																	
12/18/2018																	
12/19/2018																	
12/20/2018																	
12/21/2018																	
12/22/2018																	
12/23/2018																	
12/24/2018																	
12/25/2018																	
12/26/2018																	
12/27/2018																	
12/28/2018																	
12/29/2018																	
12/30/2018																	
12/31/2018																	
1/1/2019																	
1/2/2019																	
1/3/2019																	
1/4/2019																	
1/5/2019																	
1/6/2019																	
1/7/2019																	
1/8/2019																	
1/9/2019																	
1/10/2019																	
1/11/2019																	
1/12/2019																	
1/13/2019																	
1/14/2019																	
1/15/2019																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Under
1/16/2019																	
1/17/2019																	
1/18/2019																	
1/19/2019																	
1/20/2019																	
1/21/2019																	
1/22/2019																	
1/23/2019																	
1/24/2019																	
1/25/2019																	
1/26/2019																	
1/27/2019																	
1/28/2019																	
1/29/2019																	
1/30/2019																	
1/31/2019																	
2/1/2019																	
2/2/2019																	
2/3/2019																	
2/4/2019																	
2/5/2019																	
2/6/2019																	
2/7/2019																	
2/8/2019																	
2/9/2019																	
2/10/2019																	
2/11/2019																	
2/12/2019																	
2/13/2019																	
2/14/2019																	
2/15/2019																	
2/16/2019																	
2/17/2019																	
2/18/2019																	
2/19/2019																	
2/20/2019																	
2/21/2019																	
2/22/2019																	
2/23/2019																	
2/24/2019																	
2/25/2019																	
2/26/2019																	
2/27/2019																	
2/28/2019																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Unde
12/1/2019																	
12/2/2019																	
12/3/2019																	
12/4/2019																	
12/5/2019																	
12/6/2019																	
12/7/2019																	
12/8/2019																	
12/9/2019																	
12/10/2019																	
12/11/2019																	
12/12/2019																	
12/13/2019																	
12/14/2019																	
12/15/2019																	
12/16/2019																	
12/17/2019																	
12/18/2019																	
12/19/2019																	
12/20/2019																	
12/21/2019																	
12/22/2019																	
12/23/2019																	
12/24/2019																	
12/25/2019																	
12/26/2019																	
12/27/2019																	
12/28/2019																	
12/29/2019																	
12/30/2019																	
12/31/2019																	
1/1/2020																	
1/2/2020																	
1/3/2020																	
1/4/2020																	
1/5/2020																	
1/6/2020																	
1/7/2020																	
1/8/2020																	
1/9/2020																	
1/10/2020																	
1/11/2020																	
1/12/2020																	
1/13/2020																	
1/14/2020																	
1/15/2020																	

Date	Throughput	Nonfirm Customers (DeMaxx)	Nonfirm Telemetry	Total Nonfirm	Net Throughput	AHDD65	AHDD65-1	Fri	Sat	Sun	Dec	Feb	Weekday	Adjusted Weekday	Predicted	Difference	Over/Unde
1/16/2020																	
1/17/2020																	
1/18/2020																	
1/19/2020																	
1/20/2020																	
1/21/2020																	
1/22/2020																	
1/22/2020																	
1/23/2020																	
1/24/2020																	
1/25/2020																	
1/25/2020																	
1/26/2020																	
1/27/2020																	
1/28/2020																	
1/28/2020																	
1/29/2020																	
1/30/2020																	
1/31/2020																	
2/1/2020																	
2/2/2020																	
2/2/2020																	
2/3/2020																	
2/4/2020																	
2/5/2020																	
2/5/2020																	
2/6/2020																	
2/7/2020																	
2/8/2020																	
2/8/2020																	
2/9/2020																	
2/10/2020																	
2/11/2020																	
2/11/2020																	
2/12/2020																	
2/13/2020																	
2/14/2020																	
2/14/2020																	
2/15/2020																	
2/16/2020																	
2/17/2020																	
2/17/2020																	
2/18/2020																	
2/19/2020																	
2/19/2020																	
2/20/2020																	
2/21/2020																	
2/22/2020																	
2/22/2020																	
2/23/2020																	
2/24/2020																	
2/25/2020																	
2/26/2020																	
2/27/2020																	
2/28/2020																	
2/28/2020																	
2/29/2020																	

Observations: 271.00
 Under-Estimate: 43.00
 Over-Estimate: 228.00

ColdAHDD	ColdAHDD Lag	MERC_Pla nning	MERC_Pla nning_Lag	DOC_Plan ning	DOC_Plan ning_Lag	MP_Differ ence	MPL_Diffe rence	DP_Differ ence	DPL_Diffe rence	Intercept	AHDD Coefficient	AHDDLag Coefficient	Fri	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Fri_Impac t	Sat_Impa ct	Sun_Impa ct	MERC Design Day	DOC Design Day
----------	-----------------	-------------------	-----------------------	------------------	----------------------	-------------------	--------------------	-------------------	--------------------	-----------	---------------------	------------------------	-----	-----	-----	------------------------	--------------------------	-----------------------	-------------------------	----------------	----------------	----------------	-----------------------	----------------------

ColdAHDD	ColdAHDD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Fri	Sat	Sun	MERC	MERC	DOC	DOC	Fri_Impac	Sat_Impa	Sun_Impa	MERC	DOC
	Lag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien				AHDD	AHDD-1	AHDD	AHDD-1	t	ct	ct	Design	Design
											t	t				Impact	Impact	Impact	Impact				Day	Day

ColdAHDD	ColdAHDD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Fri	Sat	Sun	MERC	MERC	DOC	DOC	Fri_Impac	Sat_Impa	Sun_Impa	MERC	DOC
	Lag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien				AHDD	AHDD-1	AHDD	AHDD-1	t	ct	ct	Design	Design
											t	t				Impact	Impact	Impact	Impact				Day	Day

ColdAHDD	ColdAHDD Lag	MERC_Pla nning	MERC_Pla nning_Lag	DOC_Plan ning	DOC_Plan ning_Lag	MP_Differ ence	MPL_Diffe rence	DP_Differ ence	DPL_Diffe rence	Intercept	AHDD Coefficient	AHDDLag Coefficient	Fri	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Fri_Impac t	Sat_Impa ct	Sun_Impa ct	MERC Design Day	DOC Design Day
----------	-----------------	-------------------	-----------------------	------------------	----------------------	-------------------	--------------------	-------------------	--------------------	-----------	---------------------	------------------------	-----	-----	-----	------------------------	--------------------------	-----------------------	-------------------------	----------------	----------------	----------------	-----------------------	----------------------

ColdAHDD	ColdAHDD	MERC_Pla	MERC_Pla	DOC_Plan	DOC_Plan	MP_Differ	MPL_Diffe	DP_Differ	DPL_Diffe	Intercept	AHDD	AHDDLag	Fri	Sat	Sun	MERC	MERC	DOC	DOC	Fri_Impac	Sat_Impa	Sun_Impa	MERC	DOC
	Lag	nning	nning_Lag	ning	ning_Lag	ence	rence	ence	rence		Coefficien	Coefficien				AHDD	AHDD-1	AHDD	AHDD-1	t	ct	ct	Design	Design
											t	t				Impact	Impact	Impact	Impact				Day	Day

ColdAHDD	ColdAHDD Lag	MERC_Pla nning	MERC_Pla nning_Lag	DOC_Plan ning	DOC_Plan ning_Lag	MP_Differ ence	MPL_Diffe rence	DP_Differ ence	DPL_Diffe rence	Intercept	AHDD Coefficient	AHDDLag Coefficient	Fri	Sat	Sun	MERC AHDD Impact	MERC AHDD-1 Impact	DOC AHDD Impact	DOC AHDD-1 Impact	Fri_Impac t	Sat_Impa ct	Sun_Impa ct	MERC Design Day	DOC Design Day
----------	-----------------	-------------------	-----------------------	------------------	----------------------	-------------------	--------------------	-------------------	--------------------	-----------	---------------------	------------------------	-----	-----	-----	------------------------	--------------------------	-----------------------	-------------------------	----------------	----------------	----------------	-----------------------	----------------------

TRADE SECRET DATA ENDS

MINNESOTA ENERGY RESOURCES - CONSOLIDATED

RATE IMPACT OF THE PROPOSED DEMAND CHANGE

November 1, 2020

Consolidated

All costs in \$/Dth	Base Cost of Gas G011/MR-17-564 1-Jul-19	Demand Charge Demand Filing Nov 1, 2019	Most Recent PGA Oct 1, 2020	Proposed Effective Nov 1, 2020	Result of Proposed Change			
					Change from Last Rate Case	Change from Nov 1, 2019 Demand Filing	Change from Last PGA %	Change from Last PGA \$
1) General Service Residential Avg. Annual Use:			86	Dth				
Commodity Cost	\$2.8746	\$2.7837	\$2.1041	\$2.9261	1.79%	5.12%	39.07%	\$0.8220
Demand Cost	\$0.7527	\$0.8229	\$0.8229	\$0.8137	8.11%	-1.12%	-1.12%	(\$0.0092)
Commodity Margin	\$2.4686	\$2.4686	\$2.4686	\$2.4686	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$6.0959	\$6.0752	\$5.3956	\$6.2084	1.85%	2.19%	15.06%	\$0.8128
Avg Annual Cost	\$523.09	\$521.31	\$462.99	\$532.74	1.85%	2.19%	15.06%	\$69.75
Effect of proposed commodity change on average annual bills:								\$70.54
Effect of proposed demand change on average annual bills:								(\$0.79)
								-0.15%
2) Large C&I Firm, Class 2: Avg. Annual Use:			608	Dth				
Commodity Cost	\$2.8746	\$2.7837	\$2.1041	\$2.9261	1.79%	5.12%	39.07%	\$0.8220
Demand Cost	\$0.7527	\$0.8229	\$0.8229	\$0.8137	8.11%	-1.12%	-1.12%	(\$0.0092)
Commodity Margin	\$1.6857	\$1.6857	\$1.6857	\$1.6857	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$5.3130	\$5.2923	\$4.6127	\$5.4255	2.12%	2.52%	17.62%	\$0.8128
Avg Annual Cost	\$3,231.42	\$3,218.84	\$2,805.49	\$3,299.86	2.12%	2.52%	17.62%	\$494.37
Effect of proposed commodity change on average annual bills:								\$499.96
Effect of proposed demand change on average annual bills:								(\$5.59)
								-0.17%
3) Small C&I Interruptible, Class 2: Avg. Annual Use:			5,627	Dth				
Commodity Cost	\$2.8746	\$2.7837	\$2.1041	\$2.9261	1.79%	5.12%	39.07%	\$0.8220
Commodity Margin	\$1.0453	\$1.0453	\$1.0453	\$1.0453	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$3.9199	\$3.8290	\$3.1494	\$3.9714	1.31%	3.72%	26.10%	\$0.8220
Avg Annual Cost	\$22,058.36	\$21,546.95	\$17,722.54	\$22,348.28	1.31%	3.72%	26.10%	\$4,625.74
Effect of proposed commodity change on average annual bills:								\$4,625.74
								0.00%
4) Large C&I Interruptible, Class 3: Avg. Annual Use:			31,604	Dth				
Commodity Cost	\$2.8746	\$2.7837	\$2.1041	\$2.9261	1.79%	5.12%	39.07%	\$0.8220
Commodity Margin	\$0.9453	\$0.9453	\$0.9453	\$0.9453	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$3.8199	\$3.7290	\$3.0494	\$3.8714	1.35%	3.82%	26.96%	\$0.8220
Avg Annual Cost	\$120,724.44	\$117,852.29	\$96,373.49	\$122,352.71	1.35%	3.82%	26.96%	\$25,979.22
Effect of proposed commodity change on average annual bills:								\$25,979.22
								0.00%

Note: Average Annual Use based on new class structure found in 2018 MERC Gas Rate Design in Docket GR-17-563

Source: MERC's Attachment 4 to its November Update.