Minnesota Energy Resources Corporation
2685 145th Street West
Rosemount, MN 55068
www.minnesotaenergyresources.com

July 31, 2020

VIA ELECTRONIC FILING

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, MN 55101

Re: In the Matter Minnesota Energy Resources Corporation's Petition for Approval of a Change in Demand Entitlement for its NNG System

Docket No. G011/M-20-___

Dear Mr. Seuffert:

In accordance with Minnesota Rules 7825.2910, subpart 2, please find enclosed Minnesota Energy Resources Corporation's (MERC's or the Company's) request to change demand entitlements for its Northern Natural Gas purchased gas adjustment area. Please note that any updated information will be provided with MERC's November 1, 2020 filing. MERC is also filing Excel and PDF versions of the attachments.

Pursuant to Minnesota Rule 7825.2910, subpart 3, a Notice of Availability has been sent to all intervenors in the Company's previous two rate cases.

Please contact me at (414) 221-4208 if you have any questions regarding the information in this filing. Thank you for your attention to this matter.

Sincerely yours,

/s/Joylyn Hoffman Malueg
Joylyn Hoffman Malueg
Project Specialist 3
Minnesota Energy Resources Corporation

Enclosures
cc: Service List

ATTACHMENT A

July 31, 2020

To: Service List

RE: Minnesota Energy Resources Corporation-NNG Petition for Approval of Change in Demand Entitlement

Notice of Availability

Please take notice that Minnesota Energy Resources Corporation has filed a petition with the Minnesota Public Utilities Commission for approval of a change in demand entitlement for its NNG Purchased Gas Adjustment system.

To obtain copies, or if you have any questions, please contact:

Joylyn C. Hoffman Malueg
Minnesota Energy Resources Corporation
2685 145th Street West
Rosemount, MN 55068
(414) 221-4208

Please note that this filing is also available through the eDockets system maintained by the Minnesota Department of Commerce and the Minnesota Public Utilities Commission. You can access this document by going to eDockets through the websites of the Department of Commerce or the Public Utilities Commission or going to the eDockets homepage at:

https://www.edockets.state.mn.us/EFiling/home.jsp

Once on the eDockets homepage, this document can be accessed through the Search Documents link and by entering the date of the filing.

ATTACHMENT B

STATE OF MINNESOTA
BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	**Chair**
Valerie Means	**Commissioner**
Matthew Schuerger	**Commissioner**
Joseph K. Sullivan	**Commissioner**
John A. Tuma	**Commissioner**

In the Matter of the Petition of Minnesota Energy Resources Corporation for Approval of a Change in Demand Entitlement for its NNG System	Docket No. G011/M-20-___

SUMMARY OF FILING

Pursuant to Minnesota Rule 7825.2910, subpart 2 (Filing Upon Change in Demand), Minnesota Energy Resources Corporation – NNG (MERC or the Company), hereby petitions the Minnesota Public Utilities Commission (Commission) for approval of changes in demand entitlements for MERC customers served off of the Northern Natural Gas (NNG) system. MERC requests the Commission approve the requested changes to be recovered in the Purchased Gas Adjustment (PGA) beginning November 1, 2020.

STATE OF MINNESOTA
BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	**Chair**
Valerie Means	**Commissioner**
Matthew Schuerger	**Commissioner**
Joseph K. Sullivan	**Commissioner**
John A. Tuma	**Commissioner**

In the Matter of the Petition of Minnesota Energy Resources Corporation for Approval of a Change in Demand Entitlement for its NNG System

Docket No. G011/M-20-___

FILING UPON CHANGE IN DEMAND

Pursuant to Minnesota Rule 7825.2910, subpart 2 (Filing Upon Change in Demand), Minnesota Energy Resources Corporation - NNG (MERC or the Company), a subsidiary of WEC Energy Group, hereby petitions the Minnesota Public Utilities Commission (Commission) for approval of changes in demand entitlements for MERC-NNG customers served off the Northern Natural Gas interstate pipeline system.[1] MERC requests the Commission approve the requested changes to be recovered in the Purchased Gas Adjustment (PGA) beginning November 1, 2020.

This filing includes the following attachments:

Attachment A:	Notice of Availability.
Attachment B:	One paragraph summary of the filing in accordance with Minn. R. 7829.1300, subp. 1.
Attachment C:	Petition for Change in Demand with Attachments.
Attachment D:	Certificate of Service and Service List.

The following information is provided in accordance with Minn. R. 7829.1300:

[1] MERC also serves certain of its Minnesota customers off of the Viking Gas Transmission, Great Lakes Gas Transmission, and Centra Pipeline systems. MERC requests approval of a demand entitlement change for the 2020-2021 heating season for its MERC-Consolidated PGA in a separate docket.

I. Summary of Filing

Pursuant to Minn. R. 7829.1300, subp. 1, a one-paragraph summary of the filing is attached.

II. Service

Pursuant to Minn. R. 7829.1300, subp. 2, MERC has served a copy of this filing on the Department of Commerce, Division of Energy Resources and the Office of the Attorney General — Residential Utilities Division. The summary of filing has been served on all parties on the attached service list. Additionally, pursuant to Minn. R. 7825.2910, subp. 3, a Notice of Availability has been sent to all intervenors in the Company's previous two rate cases.

III. General Filing Information

A. Name, Address, and Telephone Number of the Utility

Minnesota Energy Resources Corporation
2685 145th Street West
Rosemount, MN 55068
(651) 322-8901

B. Name, Address, Electronic Address, and Telephone Number of Attorney for the Utility

Kristin M. Stastny
Taft Stettinius & Hollister LLP
2200 IDS Center
80 South 8th Street
Minneapolis, MN 55402
KStastny@Taftlaw.com
(612) 977-8656

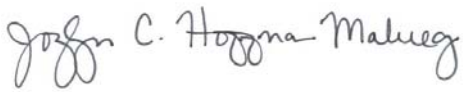
C. Date of the Filing and Proposed Effective Date

Date of filing: July 31, 2020
Proposed Effective Date: November 1, 2020

D. Statute Controlling Schedule for Processing the Filing

Minnesota Statutes and related rules do not provide an explicit time frame for action by the Commission. Under Minn. R. 7829.1400, initial comments are due within 30 days of filing, with reply comments due 10 days thereafter.

E. Signature, Electronic Address, and Title of Utility Employee Responsible for the Filing



Joylyn C. Hoffman Malueg
Project Specialist 3
Joylyn.HoffmanMalueg@wecenergygroup.com
2685 145th Street West
Rosemount, MN 55068
(414) 221-4208

If additional information is required, please contact Joylyn Hoffman Malueg at (414) 221-4208.

DATED: July 31, 2020

Respectfully submitted,
MINNESOTA ENERGY RESOURCES CORPORATION

By: /s/ Joylyn C. Hoffman Malueg
Joylyn C. Hoffman Malueg
2685 145th Street West
Rosemount, MN 55068
Telephone: (414) 221-4208

ATTACHMENT C

STATE OF MINNESOTA
BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	**Chair**
Valerie Means	**Commissioner**
Matthew Schuerger	**Commissioner**
Joseph K. Sullivan	**Commissioner**
John A. Tuma	**Commissioner**

In the Matter of the Petition of Minnesota Energy Resources Corporation for Approval of a Change in Demand Entitlement for its NNG System

Docket No. G011/M-20-___

PETITION OF MINNESOTA ENERGY RESOURCES CORPORATION-NNG FOR CHANGE IN DEMAND

I. Introduction

Pursuant to Minnesota Rule 7825.2910, subpart 2 (Filing Upon Change in Demand), Minnesota Energy Resources Corporation - NNG (MERC or the Company), a subsidiary of WEC Energy Group, hereby petitions the Minnesota Public Utilities Commission (Commission) for approval of changes in demand entitlements for MERC-NNG customers served off the Northern Natural Gas interstate pipeline system. MERC requests the Commission approve the requested changes to be recovered in the Purchased Gas Adjustment (PGA) beginning November 1, 2020. Included with this filing are the following Attachments:

Attachment 1: Design-Day Demand Summary

Attachment 2: Sales Forecast

Attachment 3: Current and Proposed Entitlement Levels

Attachment 4: Rate Impact of the Proposed Demand Change

Attachment 5: Financial Option Summary

Attachment 6: Winter Plan

Attachment 7: Entitlement History

Attachment 8: Change in Entitlement Levels and Related Demand Costs

Attachment 9: Actual Throughput and Design Day Forecast Estimated Throughput

Attachment 10: Customer Counts

Attachment 11: Hedging Summary

Attachment 12: Forecast Methodology

Through this filing, MERC also addresses compliance with the Commission's May 8, 2018, Order in Docket No. G011/M-15-895, which required MERC to provide a discussion of any capacity substitutions in its annual demand entitlement filings.

II. Discussion

A. MERC's NNG Design-Day Requirements

Minnesota Rule 7825.2910, subpart 2(b) requires that a filing upon change in demand include the utility's Design-Day demand by customer class and the change in Design-Day demand, if any, necessitating the demand revision. The NNG Design-Day requirement has increased by 3,420 dekatherms (dth) from the November 1, 2019, filing. This represents a 1.2% increase in Design-Day requirement over the 2019-2020 heating season. As a result of the increase to the Design-Day requirement, the 2020-2021 reserve margin has been reduced from 13.33 percent to 11.95 percent as reflected in Table 1 below.

Table 1: MERC Proposed NNG Reserve Margins For the 2020-2021 Heating Season

	Reserve Margin 2020-2021 Heating Season	Reserve Margin 2019-2020 Heating Season	Change
NNG Zone EF	11.95%	13.33%	-1.38%

For the Demand Entitlement filing effective November 1, 2020, the total Design-Day requirement for MERC NNG is 280,796 dth (Attachment 1). The difference between the total Design-Day requirement and total Design-Day capacity results in a 11.95% reserve margin (Attachment 3). As required by Order Point 9 of the Commission's Order in Docket No. G011/M-15-723, Attachment 3 reflects the separate summer and winter demand entitlements for MERC-NNG.

B. Gas Supply

Minnesota Rule 7825.2910, subpart 2, requires a description of Design-Day gas supply from all sources under the new level, allocation, or form of demand. This information is provided in Attachment 3.

C. Forecast Methodology for MERC Demand Entitlement November 1, 2020

See Attachment 12. Order Point 11 from the Commission's April 28, 2016, Order in Docket Nos. G011/M-15-722, G011/M-15-723, and G011/M-15-724, required that MERC work with the Department in developing an appropriate Design Day regression analysis until the Company had three years of daily data for all of its interruptible customers for the NNG PGA area (i.e., until MERC has adequate data for the historic MERC-Albert Lea PGA). As discussed in Attachment 12, MERC's 2020-2021 Design-Day Regression analysis utilizes the three years of telemetry data now available.

III. Additional Filing Requirements

A. Daily Design-Day Estimate to Actual Comparison

In the 2007-2008 demand entitlement dockets,[2] MERC agreed to include a daily estimate utilizing the Design-Day model, which is calculated in Attachment 9. The daily estimate is compared to actual consumption. The actual volumes are total throughput which includes interruptible and transportation volumes that are located behind MERC citygates. The Design-Day model only calculates firm volumes. MERC does not forecast on a daily/monthly basis utilizing the Design-Day model. The Design-Day model is utilized to calculate the theoretical peak day.

B. Average Customer Counts

In the 2007-2008 demand entitlement dockets, MERC agreed to include average customer counts which are provided in Attachment 10.

C. Balancing

Order Point 4 of the Commission's January 21, 2015, Order in MERC's 2010-2011 demand entitlement dockets, Docket Nos. G007/M-10-1166; G007/M-10-1167; G011/M-10-1168; and G011/M-10-1169, required that in future demand entitlement filings MERC provide a clarification of its statements regarding system balancing and detailed evidence assuring the Commission that the appropriate customer group is paying for any balancing charges or penalties. Additionally, in Docket No. G-999/AA-12-756, by Order dated November 14, 2013, the Commission ordered that "prospectively, all regulated natural gas utilities shall recover balancing service costs, and shall credit the utility's penalty revenues and the pipeline's revenue credits, to the commodity portion of the PGA effective with the earliest true-up filing (for revenues) or the earliest monthly PGA (for costs) that can reasonably be implemented."

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[2] Docket Nos. G007/M-07-1402; G007/M-07-1403; G007/M-07-1404; and G007/M-07-1405.

MERC subsequently revised its monthly PGA filings, beginning November 2013, to recover all balancing costs via the commodity portion of the PGA. MERC's 2014 AAA and true-up filings, as well as the 2014 Demand Entitlement filing, also reflected this change. The current MERC-NNG demand entitlement filing includes detailed evidence of the allocation of balancing costs to the commodity portion of the PGA in Attachment 4, page 2 of 2.

D. MERC's Proposed NNG System Demand-Related Changes

There are two types of demand entitlement changes. The first type is Design-Day Deliverability, which quantifies the amount of firm transportation and storage capacity available to MERC's NNG customers during winter peak periods. The second type does not affect Design-Day Deliverability levels, but alters the capacity portfolio and the PGA costs recovered from customers.

1. Design-Day Deliverability Changes

As shown in Attachment 3, MERC-NNG proposes no change in Design-Day Deliverability.

2. Other Demand Entitlement Changes

MERC-NNG contract 112495 has a base and a variable component as outlined in the NNG's tariffs as approved by the Federal Energy Regulatory Commission (FERC). The base and variable components are set each year as a result of MERC's use of contract 112495 during the April – October period, which is driven by customer load. The variable component of this contract increased by 5,774 dth/day, with a corresponding decrease in the base component. This change does not result in an increase or decrease in demand entitlement levels.

As discussed in MERC's May 31, 2017, filing in Docket No. G011/M-16-650, effective June 1, 2017, MERC acquired released storage capacity on the NNG system. The release contracts were effective June 1, 2017, and had a total volume of 1,500,000 Dth. Contract 132024 represents 500,000 Dth of the acquired capacity and will continue through May 31,

2022. Contract 133736 for 1,000,000 Dth also continues through May 31, 2022, and was re-released to MERC at the same volume and rate beginning June 1, 2018. These contracts are shown in Attachment 4, page 2 and in Attachment 8.

Finally, MERC notes that NNG filed a rate case with FERC on July 1, 2019. On July 21, 2020, the FERC Administrative Law Judge issued a Certification of Uncontested Settlement recommending approval of a settlement with rates effective as of May 1, 2020[3]. Those rates are reflected in this filing.

E. Financial Option Units and Premiums

MERC has started its purchases of future contracts and call options for the 2020-2021 winter period. Financial hedge volumes and costs are shown in Attachments 5 and 11 (page 1 and 3). The call option premium costs additionally flow through the spreadsheet in Attachment 4, pages 1 and 2, and in Attachment 8. MERC will provide an update with its November 1, 2020 filing.

In accordance with the Commission's May 8, 2017, Order in Docket No. G011/M-17-85 approving MERC's variance extension request to recover the costs of financial instruments through the PGA, MERC provides the following information:

i. a list of all financial instruments purchased for the upcoming heating season (see Attachment 11);
ii. the cost premium associated with each contract (see Attachment 5);
iii. the size (in dth) of each contract (see Attachments 5 and 11);
iv. the contract date (see Attachment 5);
v. the contract price (see Attachment 11);

[3] NNG received interim rates from the FERC effective January 1, 2020, with final settlement rates effective May 1, 2020. MERC implemented the interim and final settlement rates within the monthly Purchase Gas Adjustment (PGA) for NNG in Docket No. G011/AA-19-826, effective January 1, 2020, and Docket No. G011/AA-20-507, effective June 1, 2020, respectively.

vi. an attachment that details the projected total system sales estimates for the upcoming heating season, including all supporting data and assumptions used when calculating the sales forecast, and the total number of volumes hedged using financial instruments for the upcoming heating season (see Attachment 2 and Attachment 6, page 1 of 2); and

vii. a detailed discussion of the anticipated benefits to ratepayers related to MERC's financial instrument contracts, discussed below.

The NNG 2020-2021 Winter Portfolio Hedging Plans - Minnesota Energy Resources Corporation for gas supply purchases is shown in Attachment 6. MERC's hedging strategy covers 60% of normal winter volumes; 30% through physical storage; and 30% through financial instruments (10% futures and 20% options). The weighted average price of currently purchased futures contracts of natural gas for the 2020-2021 winter is $2.8120/dth. Please see Attachment 11, page 1 of 3. As shown in Attachment 11, page 2 of 3, MERC projects the NNG storage WACOG to be $1.7134/dth. MERC has purchased call options at an average strike price of $5.1556/dth, which means if NYMEX contract(s) settle above that price, the options are exercised and MERC customers' gas cost is capped at the average strike price. Please see Attachment 11, page 3 of 3. The remaining 40% of normal winter volumes are purchased at index or market prices. All numbers reflected are natural gas costs only and do not include any transportation, storage, hedge premium, or margin costs.

F. PGA Cost Recovery

MERC proposes to begin recovering the costs associated with the change in demand-related costs in its monthly PGA effective November 1, 2020. Rate impacts associated with this change can be found on Attachment 4.

G. Impacts of Telemetry

Throughout the course of the year, a number of customers request to switch from interruptible to firm service. MERC evaluates these requests to determine the impact to its system and upstream entitlement levels. MERC's process requires an evaluation of the system capability before a customer is allowed to switch to firm. As a result, the firm volumes associated with a customer switch fall within the Design-Day parameters and do not impact demand entitlement levels.

H. Rochester Project Compliance

The Commission's May 8, 2018, Order in Docket No. G011/M-15-895 required MERC to (1) provide semiannual updates in Docket No. G011/M-15-895 explaining what, if any, capacity-release-related activity occurred during the previous six months (e.g., when capacity release was offered, amount accepted, prices),[4] and (2) provide a detailed discussion of each capacity substitution in its annual demand entitlement filings on a going-forward basis.

As discussed in Docket No. G011/M-19-496, the second tranche of additional capacity resulting from the NNG upgrades related to the Rochester Project approved in Docket No. G011/M-15-895 became available on November 1, 2019. This additional capacity is included for recovery through the commodity portion of the PGA, in accordance with the Commission's May 5, 2017, Order Approving Rochester Project and Granting Rider Recovery with Conditions.[5]

For the 2020-2021 heating season, MERC has calculated a reserve margin of 11.95%. As a result, MERC has taken action as laid out in the Capacity Release Plan filed on August 31,

[4] MERC has provided an update with its July 31 filing and will submit an updated Compliance filing in Docket No. G011/M-15-895 on or before February 1, 2021.

[5] In Docket No. G011/M-18-526, MERC had inadvertently included the Rochester Project capacity costs in the demand portion of the PGA. The Commission authorized MERC to refund firm customers and recover from interruptible customers the approximately $423,646 over- and under-charged amounts related to the Rochester demand entitlement error through the monthly PGA over a six-month period following Commission approval in its November 18, 2019, Order Approving Change in Demand Entitlements, Authorizing Cost Recovery, and Approving Correction of Billing Errors.

2017, and approved by the Commission by Order dated May 8, 2018. MERC will submit a compliance filing in accordance with the Commission's May 8, 2018, Order on July 31, 2020, which will address details regarding released capacity stemming the Rochester NNG upgrades.

With respect to capacity substitutions related to the additional Rochester Project capacity, as discussed in MERC's August 31, 2017, Capacity Release Plan, MERC received Commission approval to expand its service into the communities of Balaton and Esko (Docket Nos. G011/M-16-654 and G011/M-16-655, respectively). The capacity created by the Rochester Project has allowed MERC to absorb this additional firm sales load (estimated peak load of approximately 2,500 dth/day) without paying for additional pipeline investments. Additionally, in Docket No. G011/M-18-460, MERC received Commission approval, by order dated March 29, 2019, to extend service into Pengilly. MERC completed the Pengilly New Area Extension project in November 2019 and has been able to utilize existing capacity to serve the new customers in the Pengilly project area as well. No additional capacity substitutions have occurred. MERC will provide updates on future capacity substitutions in future Demand Entitlement filings and updates.

IV. Conclusion

MERC respectfully requests that the Commission approve the requested changes to be recovered in the Purchased Gas Adjustment (PGA) beginning November 1, 2020.

DATED: July 31, 2020

Respectfully submitted,

MINNESOTA ENERGY RESOURCES CORPORATION

By: /s/ Joylyn C. Hoffman Malueg

Joylyn C. Hoffman Malueg
2685 145th Street West
Rosemount, MN 55068
Telephone: (414) 221-4208

MINNESOTA ENERGY RESOURCES - NNG

DESIGN-DAY DEMAND SUMMARY
NOVEMBER 1, 2020
NNG

Design Day Requirement		280,796
Total Peak Day Entitlement		314,349
2019/20 Firm Peak Day Actual Sendout	2/13/2020	220,338
Firm Annual Throughput - Minnesota		26,290,450
No. of Firm Customers		204,781
Department Load Factor Calculation		32.69%

MINNESOTA ENERGY RESOURCES - NNG

NNG MINNESOTA DESIGN DAY REQUIREMENTS
NOVEMBER 1, 2020
NNG

Pipeline Group	2019/20 Customer Count	Zone Total Customer Count	1/20 Design DDD	Regression Factors		Regression Total	Regression Adjustment	1/20 Requirements Regression Load	Estimated Contract Demand Units	Total
				Intercept	Slope					
PEAK										
NNG	204,781	204,781	99	7,147	2,145	270,362	10,339	280,701	95	280,796
OFF PEAK										
NNG	204,781	204,781	55	7,147	2,145	153,687	10,339	164,026	95	164,121

MINNESOTA ENERGY RESOURCES - NNG

DESIGN-DAY DEMAND PER CUSTOMER
NOVEMBER 1, 2020

NNG

Heating Season	No. of Firm Customers	Design Day Requirements	MMBtu /Customer /Day
19/20	204,781	280,796	1.37
19/20	201,190	277,376	1.38
18/19	198,628	273,842	1.38
17/18	197,991	267,783	1.35
16/17	195,311	262,324	1.34
15/16	192,016	259,076	1.35
14/15	189,078	273,917	1.45
13/14	189,254	258,913	1.37
12/13	187,545	239,325	1.28
11/12	185,890	247,982	1.33

MINNESOTA ENERGY RESOURCES - NNG

SUMMER/WINTER USAGE - Dth

PROJECTED 12 MONTHS ENDING JUNE 2021

NNG

Class	Summer Apr-Oct	Winter Nov-Mar	Total
GS	7,402,551	18,871,914	26,274,466
Interruptible	917,855	1,735,080	2,652,934
Firm/Interruptible	5,530	10,454	15,984
Total	8,325,936	20,617,448	28,943,384

MINNESOTA ENERGY RESOURCES - NNG

ENTITLEMENT LEVELS
November 1, 2020
NNG

	Summer			*April/October*			*Winter*		
Capacity Type	2019/20 MMBtu	Change MMBtu	Proposed MMBtu	2019/20 MMBtu	Change MMBtu	Proposed MMBtu	2019/20 MMBtu	Change MMBtu	Proposed MMBtu
TF-12 Base & Variable	84,709	0	84,709	84,709	0	84,709	84,709	0	84,709
TF5	0	0	0	0	0	0	36,275	0	36,275
TFX - 12	85,329	0	85,329	85,329	0	85,329	85,329	0	85,329
TFX - 5	0	0	0	0	0	0	104,501	0	104,501
TFX- (Apr/Oct) Offpeak*	0	0	0	2,000	0	2,000	0	0	0
Bison	50,000	0	50,000	50,000	0	50,000	50,000	0	50,000
NBPL	50,000	0	50,000	50,000	0	50,000	50,000	0	50,000
Northwest Gas (Windom)	2,500	0	2,500	2,500	0	2,500	2,500	0	2,500
Northwestern Energy (Ortonville)	1,035	0	1,035	1,035	0	1,035	1,035	0	1,035
NNG Zone Delivery Call Option	0	0	0	0	0	0	0	0	0
Total	173,573	0	173,573	175,573	0	175,573	314,349	0	314,349
Heating Season Forecasted Design Day-Adjusted							277,376	3,420	280,796
Non-Heating Season Forecasted Design Day				161,783	2,338	164,121			
Heating Season Capacity Surplus/Shortage							36,973	(3,420)	33,553
Non-Heating Season Capacity Surplus/Shortage				13,790	(2,338)	11,452			
*Not included in Heating Season Total entitlement									
Reserve Margin				8.52%	-1.55%	6.98%	13.33%	-1.38%	11.95%

MINNESOTA ENERGY RESOURCES - NNG

RATE IMPACT OF THE PROPOSED DEMAND CHANGE
NOVEMBER 1, 2020
NNG

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 July 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:		**87**	**Dth**					
Commodity Cost	$3.6673	$3.6657	$2.8030	$2.8010	($0.8663)	($0.8647)	-0.07%	($0.0020)
Demand Cost	$0.9363	$0.9227	$1.1361	$1.1443	$0.2080	$0.2216	0.72%	$0.0082
Commodity Margin	$2.4686	$2.4686	$2.4686	$2.4686	$0.0000	$0.0000	0.00%	$0.0000
Total Cost of Gas	$7.0722	$7.0570	$6.4077	$6.4139	($0.6583)	($0.6431)	0.10%	$0.0062
Avg Annual Cost	$615.74	$614.42	$557.89	$558.43	($57.31)	($55.99)	0.10%	$0.54
Effect of proposed commodity change on average annual bills:								($0.17)
Effect of proposed demand change on average annual bills								$0.71
2) Small C&I Firm, Class 2: Avg. Annual Use:		**687**	**Dth**					
Commodity Cost	$3.6673	$3.6657	$2.8030	$2.8010	($0.8663)	($0.8647)	-0.07%	($0.0020)
Demand Cost	$0.9363	$0.9227	$1.1361	$1.1443	$0.2080	$0.2216	0.72%	$0.0082
Commodity Margin	$1.6857	$1.6857	$1.6857	$1.6857	$0.0000	$0.0000	0.00%	$0.0000
Total Cost of Gas	$6.2893	$6.2741	$5.6248	$5.6310	($0.6583)	($0.6431)	0.11%	$0.0062
Avg Annual Cost	$4,318.91	$4,308.48	$3,862.59	$3,866.85	($452.05)	($441.63)	0.11%	$4.26
Effect of proposed commodity change on average annual bills:								($1.35)
Effect of proposed demand change on average annual bills								$5.61
3) Large C&I Firm Class 3: Avg. Annual Use:		**17946**	**Dth**					
Commodity Cost	$3.6673	$3.6657	$2.8030	$2.8010	($0.8663)	($0.8647)	-0.07%	($0.0020)
Demand Cost	$0.9363	$0.9227	$1.1361	$1.1443	$0.2080	$0.2216	0.72%	$0.0082
Commodity Margin	$1.2453	$1.2453	$1.2453	$1.2453	$0.0000	$0.0000	0.00%	$0.0000
Total Cost of Gas	$5.8489	$5.8337	$5.1844	$5.1906	($0.6583)	($0.6431)	0.12%	$0.0062
Avg Annual Cost	$104,966.77	$104,694.39	$93,041.38	$93,152.77	($11,814.00)	($11,541.62)	0.12%	$111.39
Effect of proposed commodity change on average annual bills:								($35.28)
Effect of proposed demand change on average annual bills								$146.67
4) Small C&I Interruptible, Class 2: Avg. Annual Use:		**3,942**	**Dth**					
Commodity Cost	$3.6673	$3.6657	$3.1671	$2.8010	($0.8663)	($0.8647)	-11.56%	($0.3661)
Commodity Margin	$1.0453	$1.0453	$1.0453	$1.0453	$0.0000	$0.0000	0.00%	$0.0000
Total Cost of Gas	$4.7126	$4.7110	$4.2124	$3.8463	($0.8663)	($0.8647)	-8.69%	($0.3661)
Avg Annual Cost	$18,576.46	$18,570.15	$16,604.74	$15,161.75	($3,414.71)	($3,408.40)	-8.69%	($1,442.98)
Effect of proposed commodity change on average annual bills								($1,442.98)
5) Large C&I Interruptible, Class 3: Avg. Annual Use:		**25,685**	**Dth**					
Commodity Cost	$3.6673	$3.6657	$3.1671	$2.8010	($0.8663)	($0.8647)	-11.56%	($0.3661)
Commodity Margin	$0.9453	$0.9453	$0.9453	$0.9453	$0.0000	$0.0000	0.00%	$0.0000
Total Cost of Gas	$4.6126	$4.6110	$4.1124	$3.7463	($0.8663)	($0.8647)	-8.90%	($0.3661)
Avg Annual Cost	$118,473.85	$118,432.75	$105,626.30	$96,223.96	($22,249.89)	($22,208.79)	-8.90%	($9,402.34)
Effect of proposed commodity change on average annual bills								($9,402.34)

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.

Attachment 4
Page 2 of 2

MINNESOTA ENERGY RESOURCES - NNG

RATE IMPACT OF THE PROPOSED DEMAND CHANGE
NOVEMBER 1, 2020
NNG

A. NORTHERN NATURAL GAS COMPANY'S RATES -- CURRENT COST OF GAS EFFECTIVE: **01-Nov-20**

	Contract #(s)	Tariff-Summer (7 mths)	Tariff-Winter (5 mths)	Wt. Annual	GRI	Total
TF-12B	112495	$ 7.3030	$ 13.1450	$9.7372	$0.0000	$9.7372
TF-12B Discount	112495	$ 7.3030	$ 10.0320	$8.4401	$0.0000	$8.4401
TF-12V	112495	$ 7.3030	$ 17.8180	$11.6843	$0.0000	$11.6843
TF-5	112495	$ -	$ 19.4710	$19.4710	$0.0000	$19.4710
TFX	112486	$ 7.3030	$ 19.4710	$12.3730	$0.0000	$12.3730
TFX-5	112486	$ -	$ 19.4710	$19.4710	$0.0000	$19.4710
TFX-5 Discount	112486	$ -	$ 10.0320	$10.0320	$0.0000	$10.0320
TFX Rochester	112486	$ 37.1175	$ 37.1175	$37.1175	$0.0000	$37.1175
TFX Rochester II	112486	$ 10.7714	$ 10.7714	$10.7714	$0.0000	$10.7714
TFX - Discount	111866	$ 2.2192	$ 15.1392	$7.6025	$0.0000	$7.6025
TFX - Discount	111866	$ 4.8640	$ 4.8640	$4.8640	$0.0000	$4.8640
TFX - Discount	111866	$ 5.4720	$ 5.4720	$5.4720	$0.0000	$5.4720
Gas Cost						$1.5425 /Dth

B. ANNUAL SALES -- As approved in Docket No. G011/MR-17-564

Total MERC NNG Annual Sales	264,337,861
Total MERC NNG Firm Sales	236,895,506

C. MERC-NNG'S CURRENT COST OF GAS EFFECTIVE: **01-Nov-20**

		Contract #(s)	Monthly Entitlements (Dth)	Months	Rate $/Dth		Contract Costs	Total MERC NNG Firm Sales	Rate/Therm
1. NNG-GS	TF12B (Max Rate) Winter	112495	40,806	5	$ 13.1450	=	$2,681,974	236,895,506	$ 0.01132
	TF12B (Max Rate) Summer	112495	40,806	7	$ 7.3030	=	$2,086,044	236,895,506	$ 0.00881
	TF12V (Max Rate)	112495	38,703	12	$ 11.6843	=	$5,426,610	236,895,506	$ 0.02291
	TF5 (Max Rate)	112495	36,275	5	$ 19.4710	=	$3,531,553	236,895,506	$ 0.01491
	TF12B (Discount)	112495	5,200	12	$ 8.4401	=	$526,662	236,895,506	$ 0.00222
	TFX12 (Max Rate)	112486	10,822	12	$ 12.3730	=	$1,606,807	236,895,506	$ 0.00678
	TFX Apr (Max Rate)	112486	2,000	1	$ 7.3030	=	$14,606	236,895,506	$ 0.00006
	TFX Oct (Max Rate)	112486	2,000	1	$ 7.3030	=	$14,606	236,895,506	$ 0.00006
	TFX5 (Max Rate)	112486	77,688	5	$ 19.4710	=	$7,563,315	236,895,506	$ 0.03193
	TFX5 (Discount)	112486	1,800	5	$ 10.0320	=	$90,288	236,895,506	$ 0.00038
	TFX12 (Discount)	111866	1,283	12	$ 4.8640	=	$74,886	236,895,506	$ 0.00032
	TFX12 (Discount)	111866	8,271	12	$ 5.4720	=	$543,107	236,895,506	$ 0.00229
	TFX12 (Discount)	111866	11,921	12	$ 7.6025	=	$1,087,553	236,895,506	$ 0.00459
	TFX5 (Discount)	111866	379	5	$ 4.8640	=	$9,217	236,895,506	$ 0.00004
	TFX5 (Discount)	111866	2,445	5	$ 5.4720	=	$66,895	236,895,506	$ 0.00028
	TFX5 (Discount)	111866	22,189	5	$ 15.1392	=	$1,679,619	236,895,506	$ 0.00709
	Windom		2,500	12	$ -	=	$0	236,895,506	$ -
	Northwestern Energy		1,035	12	$ 8.3382	=	$103,560	236,895,506	$ 0.00044
	Total Demand Cost						$27,107,302		**$ 0.11443**
	NNG-GS Demand Current Cost of Gas/therm								**$ 0.11443**
	NNG-GS Commodity Current Cost of Gas/therm								**$ 0.28010**
	Total NNG-GS Current Cost of Gas/therm								**$ 0.39453**

2. NNG - General Service, Interruptible, Firm/Interruptible - Commodity

	Contract #(s)	Monthly Entitlement (Dth)	Months	Rate ($/Dth)		Contract Costs	Total MERC NNG Annual Sales	Rate ($/therm)
FDD - Reservation	118657	81,508	12	$ 2.8624	=	$2,799,702	$264,337,861	$ 0.01059
FDD - Storage Cycle	118657	939,864	5	$ 0.5957	=	$2,799,386	$264,337,861	$ 0.01059
FDD - Reservation	118657	5,550	12	$ 3.3157	=	$220,826	$264,337,861	$ 0.00084
FDD - Storage Cycle	118657	64,000	5	$ 0.6901	=	$220,832	$264,337,861	$ 0.00084
FDD - Reservation	133736	17,345	12	$ 2.8624	=	$595,780	$264,337,861	$ 0.00225
FDD - Storage Cycle	133736	200,000	5	$ 0.5957	=	$595,700	$264,337,861	$ 0.00225
FDD - Reservation	132024	8,672	12	$ 2.8624	=	$297,873	$264,337,861	$ 0.00113
FDD - Storage Cycle	132024	100,000	5	$ 0.5957	=	$297,850	$264,337,861	$ 0.00113
(a) Firm Deferred Delivery Storage Contracts						$7,827,948		$ 0.02961

Per Docket No. G-007/M-07-1402-05 dated August 6, 2014, storage demand charges will be allocated through the commodity charge effective 11/1/2014.

	Contract #(s)	Monthly Entitlement (Dth)	Months	Rate ($/Dth)		Contract Costs	Total MERC NNG Annual Sales	Rate ($/therm)
Bison	FT0003	50,000	12	$ 17.4896	=	$10,493,750	$264,337,861	$ 0.03970
NBPL	T8673F	50,000	12	$ 6.3905	=	$3,834,300	$264,337,861	$ 0.01451
TFX12 (Rochester)	112486	10,500	12	$ 37.1175	=	$4,676,805	$264,337,861	$ 0.01769
TFX12 (Rochester II)	112486	34,500	12	$ 10.7714	=	$4,459,360	$264,337,861	$ 0.01687
TFX12 (SE MN Expansion)	112486	8,032	12	$ 12.3730	=	$1,192,559	$264,337,861	$ 0.00451
(b) Delivery Contracts to be recovery via Commodity						$24,656,774		$ 0.09328

Per Docket No. G-007/M-10-1166 and G-011/M-10-1168 dated January 26, 2015, recover the costs associated with Bison contract through commodity effective February 1, 2015; retroactive costs (July 2014 - January 2015) will be allocated in the AAA filing.
Per Docket No. G-011/M-15-895 dated May 5, 2017, recovery of the costs associated with Rochester and SE MN Expansion is via commodity.

		Annual Sales (Dth)		Rate ($/Dth)	Commodity Cost	Rate Case Sales (therm)	Rate ($/therm)
(c) Remaining Costs to be Recovered via Commodity	Commodity	26,433,786	x	$1.5425	$40,774,115	264,337,861	$ 0.15425
	Balancing Service	272,160	x	$2.1800	$593,309	264,337,861	$ 0.00224
	Physical Forward Start Premium				$0	264,337,861	$ -
	Call Option Premium				$191,573	264,337,861	$ 0.00072
(d) NNG-General Service, Interruptible, Firm/Interruptible: Total Commodity Current Cost of Gas/therm (I.e. Sum of Costs from Sections (a), (b), and (c))					$74,043,718		**$ 0.28010**

MINNESOTA ENERGY RESOURCES - NNG

Financial Options

Heating Season 2020-2021

Units - Gas Daily Peaker Packages (Physical)

November		December		January		February		March			
Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Daily Total	Term Total
N/A		N/A		N/A		N/A		N/A			

Premium - Gas Daily Peaker (Monthly Cost)

November		December		January		February		March		Total	
Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost
N/A		N/A		N/A		N/A		N/A			

Units - Futures (Dth)

	November		December		January		February		March		
	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Term Total
1	05/05/20	1,647	05/14/20	270	05/19/20	3,235	05/07/20	3,008	05/12/20	2,452	318,175
2	06/09/20	1,647	05/14/20	2,159	06/23/20	3,235	06/11/20	2,105	06/16/20	2,179	343,294
3	07/07/20	1,647	06/18/20	2,429	01/00/00	-	06/11/20	902	07/09/20	1,907	209,325
4	01/00/00	-	07/13/20	1,889	01/00/00	-	07/08/20	3,008	01/00/00	-	142,341
5	01/00/00	-	07/13/20	270	01/00/00	-	01/00/00	-	01/00/00	-	8,373
6	01/00/00	-	01/00/00	-	01/00/00	-	01/00/00	-	01/00/00	-	-
7	01/00/00	-			01/00/00	-					-
8					01/00/00	-					-
9					01/00/00	-					-
Total		4,941		7,018		6,471		9,023		6,538	1,021,508

Units - Call Options (Dth)

	November		December		January		February		March		
	Contract Date	Daily	Contract Date	Daily	Contract Date	Daily	Contract Date	Daily	Contract Date	Daily	Term Total
1	05/05/20	3,294	05/12/20	4,542	05/07/20	2,948	05/14/20	5,963	05/19/20	4,311	631,612
2	06/09/20	3,294	06/16/20	4,542	05/19/20	3,216	06/18/20	5,665	06/23/20	4,311	631,573
3	07/07/20	3,020	07/09/20	4,542	06/11/20	2,948	07/13/20	5,665	01/00/00	-	481,402
4	01/00/00	-	01/00/00	-	06/23/20	3,216	01/00/00	-	01/00/00	-	99,706
5	01/00/00	-	01/00/00	-	07/08/20	2,948	01/00/00	-	01/00/00	-	91,397
6	01/00/00	-	01/00/00	-	01/00/00	-	01/00/00	-	01/00/00	-	-
7					01/00/00	-					-
8											
Total		9,608		13,627		15,278		17,292		8,621	1,935,689

Premium - Call Option (Monthly Cost)

	November		December		January		February		March		Total	
	Option Premium	Premium	Option Premium	Premium	Option Premium	Premium	Option Premium	Premium	Option Premium	Premium	Option Premium	Premium
1	$ 0.0950	$ 9,388	$ 0.1000	$ 14,081	$ 0.0980	$ 8,957	$ 0.1000	$ 16,696	$ 0.1000	$ 13,363	$ 0.0989	$ 62,484
2	$ 0.0950	$ 9,388	$ 0.0980	$ 13,799	$ 0.1000	$ 9,971	$ 0.1000	$ 15,861	$ 0.1000	$ 13,363	$ 0.0988	$ 62,382
3	$ 0.0940	$ 8,515	$ 0.1000	$ 14,081	$ 0.1000	$ 9,140	$ 0.1000	$ 15,861	$ -	$ -	$ 0.0989	$ 47,597
4	$ -	$ -	$ -	$ -	$ 0.1000	$ 9,971	$ -	$ -	$ -	$ -	$ 0.1000	$ 9,971
5	$ -	$ -	$ -	$ -	$ 0.1000	$ 9,140	$ -	$ -	$ -	$ -	$ 0.1000	$ 9,140
6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -
7	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -
8	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -
Total	$ 0.0947	$ 27,292	$ 0.0993	$ 41,961	$ 0.0996	$ 47,178	$ 0.1000	$ 48,417	$ 0.1000	$ 26,725	$ 0.0990	$ 191,573

Units - Collar Floor (put)

No Puts were purchased.

Attachment 6
Page 1 of 2

MINNESOTA ENERGY RESOURCES - NNG

20/21 Winter Portfolio Plan - NNG MERC Hedging Plan

System	Purchase Month	Nov-20 Number Contracts	Nov-20 Contract Volume	Dec-20 Number Contracts	Dec-20 Contract Volume	Jan-21 Number Contracts	Jan-21 Contract Volume	Feb-21 Number Contracts	Feb-21 Contract Volume	Mar-21 Number Contracts	Mar-21 Contract Volume	Total Number Contracts	Total Contract Volume	Percent of Requirements
MN Requirements			2,841,080		4,112,508		5,663,455		4,804,118		3,824,109		21,245,270	21,245,270
Daily Average			94,703		132,662		182,692		171,576		123,358		140,697	
10%	Futures		284,108		411,251		566,345		480,412		382,411		2,124,527	
20%	Call		568,216		822,502		1,132,691		960,824		764,822		4,249,054	
30%	Storage		852,324		1,233,752		1,699,036		1,441,235		1,147,233		6,373,581	
40%	Index		1,136,432		1,645,003		2,265,382		1,921,647		1,529,644		8,498,108	
Futures														
Contracts	May-20	5	50,000	7	70,000	10	100,000	8	80,000	7	70,000	37	370,000	
	Jun-20	5	50,000	7	70,000	10	100,000	8	80,000	7	70,000	37	370,000	
	Jul-20	5	50,000	7	70,000	9	90,000	8	80,000	6	60,000	35	350,000	
	Aug-20	5	50,000	7	70,000	9	90,000	8	80,000	6	60,000	35	350,000	
	Sep-20	4	40,000	7	70,000	9	90,000	8	80,000	6	60,000	34	340,000	
	Oct-20	4	40,000	6	60,000	9	90,000	8	80,000	6	60,000	33	330,000	
	Total	28	280,000	41	410,000	56	560,000	48	480,000	38	380,000	211	2,110,000	**9.93%**
Call Options	May-20	10	100,000	14	140,000	19	190,000	16	160,000	13	130,000	72	720,000	
	Jun-20	10	100,000	14	140,000	19	190,000	16	160,000	13	130,000	72	720,000	
	Jul-20	9	90,000	14	140,000	19	190,000	16	160,000	13	130,000	71	710,000	
	Aug-20	9	90,000	14	140,000	19	190,000	16	160,000	13	130,000	71	710,000	
	Sep-20	9	90,000	13	130,000	19	190,000	16	160,000	12	120,000	69	690,000	
	Oct-20	9	90,000	13	130,000	18	180,000	16	160,000	12	120,000	68	680,000	
	Total	56	560,000	82	820,000	113	1,130,000	96	960,000	76	760,000	423	4,230,000	**19.91%**
Collars	May-20	0	0	0	0	0	0	0	0	0	0	0	0	
	Jun-20	0	0	0	0	0	0	0	0	0	0	0	0	
	Jul-20	0	0	0	0	0	0	0	0	0	0	0	0	
	Aug-20	0	0	0	0	0	0	0	0	0	0	0	0	
	Sep-20	0	0	0	0	0	0	0	0	0	0	0	0	
	Oct-20	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	**0.00%**
Index (back financial)														
	Total		840,000		1,230,000		1,690,000		1,440,000		1,140,000		6,340,000	**29.84%**
Physical Hedges			0		0		0		0		0		0	
Storage			635,634		1,597,234		1,597,234		1,597,234		635,634		6,062,969	**28.54%**
Prepaid Obl			0		0		0		0		0		0	**0.00%**
			52%		69%		58%		63%		46%		58%	**58.38%**
Term Index		0	0	0	0	0	0	0	0	0	0		0	**0.00%**
		0	0	0	0	0	0	0	0	0	0		0	**0.00%**
Total NNG MN														
Futures													2,110,000	**9.93%**
Call Options													4,230,000	**19.91%**
Costing Collar													0	**0.00%**
Storage													6,062,969	**28.54%**
Prepaid Obl													0	**0.00%**
Term Index													0	**0.00%**
Month/Daily													8,842,301	**41.62%**
Total													21,245,270	**100.00%**

MINNESOTA ENERGY RESOURCES - NNG

NNG WINTER PLAN
NOVEMBER 2020 THROUGH MARCH 2021

PHYSICAL FIXED PRICE HEDGES	Deal #	Trigger Locked	Trigger Exercised	Receipt Point	Daily Volumes Nov	Dec	Jan	Feb	Mar	Monthly Total
										-
No Physical Fixed Price Hedges										-
										-
	Total Actual Fixed/Option Physical				-	-	-	-	-	-

INDEX	Contract Number	Date	Receipt Point	Nov	Dec	Jan	Feb	Mar	Total
	85658	4/24/2020	NNG/GLGT Carlton	10,000	10,000	10,000	10,000	10,000	1,510,000
	85659	4/24/2020	NNG/GLGT Carlton	5,000	5,000	5,000	5,000	5,000	755,000
	85660	4/24/2020	NNG/GLGT Grand Rapids	6,060	6,060	6,060	6,060	6,060	915,060
	85661	4/24/2020	NNG-NBPL/NNG Ventura		10,000	10,000	10,000		900,000
	85662	4/24/2020	NNG-NBPL/NNG Ventura		10,000	10,000	10,000		900,000
	85663	4/24/2020	NNG-NBPL/NNG Ventura	5,000	5,000	5,000	5,000	5,000	755,000
	85667	4/24/2020	NNG-Field/Demarc	10,000	10,000	10,000	10,000	10,000	1,510,000
	85666	4/24/2020	NNG-Field/Demarc	10,000	10,000	10,000	10,000	10,000	1,510,000
	85665	4/24/2020	NNG-Field/Demarc	10,000	10,000	10,000	10,000	10,000	1,510,000
	85664	4/24/2020	NNG-Field/Demarc	10,000	10,000	10,000	10,000	10,000	1,510,000
	Total Actual Seasonal Index			66,060	86,060	86,060	86,060	66,060	11,775,060

GAS DAILY PACKAGES									
Physical Call Option	83949	2/10/2020	NNG Ventura	40,000	40,000	40,000	40,000	40,000	

STORAGE

Injection Month	K#118657 Volume Injected	K#132024 Volume Injected	K#133736 Volume Injected	Total Volume Injected
May - balance forward	0	0	0	0
June	984,181	98,039	196,078	1,278,298
July	1,016,987	101,307	202,614	1,320,908
August	1,016,987	101,307	202,614	1,320,908
Sept	984,181	98,039	196,078	1,278,298
Oct (est)	1,016,987	101,307	202,614	1,320,908
Total	**5,019,321**	**500,000**	**1,000,000**	**6,519,321**

Minnesota Energy Resources Corporation
2020-2021 Demand Entitlement
MERC-NNG
July 31, 2020

Attachment 7

MINNESOTA ENERGY RESOURCES - NNG

	2016-2017 NNG	2017-2018 NNG	2018-2019 NNG	2019-2020 NNG	2020-2021 NNG	Proposed Change
Design Day	262,324	267,783	273,842	277,376	280,796	3,420
Customer Requirements moving to Transportation						
Adjusted Design Day						
Design Day Percentages	29.71%	30.43%	28.70%	25.04%	32.69%	7.65%
Total Design Day Capacity (includes non-recallable capacity)	266,317	266,317	277,256	314,349	314,349	0
Less: Windom	2,500	2,500	2,500	2,500	2,500	0
Less: Northwestern Energy	1,035	1,035	1,035	1,035	1,035	0
Total Design Day Capacity NNG Pipeline	262,782	262,782	273,721	310,814	310,814	0
Factors for All Winter Capacity	100.00%	100.00%	100.00%	100.00%	100.00%	
Direct Assigned Entitlements in PGA						
TF12B	48,183	54,419	51,706	51,780	46,006	(5,774)
TF12V	36,526	30,290	33,003	32,929	38,703	5,774
TF5	36,275	36,275	36,275	36,275	36,275	0
TFX12	32,297	32,297	48,236	85,329	85,329	0
TFX(5)	109,501	109,501	104,501	104,501	104,501	0
TFX(5) (12-V)						0
TFX (April Only)	2,000	2,000	2,000	2,000	2,000	0
TFX (October Only)	2,000	2,000	2,000	2,000	2,000	0
Windom	2,500	2,500	2,500	2,500	2,500	0
Northwestern Energy	1,035	1,035	1,035	1,035	1,035	0
NNG Zone Delivery Call Option	0	0	0	0	0	0
Bison *	50,000	50,000	50,000	50,000	50,000	0
NBPL *	50,000	50,000	50,000	50,000	50,000	0
Total Direct Assignments	266,317	266,317	277,256	314,349	314,349	0
LP Peak Shaving						0
Total Design Day Capacity	266,317	266,317	277,256	314,349	314,349	0
Total Annual Transportation	120,541	120,541	136,480	173,573	173,573	0
Total Seasonal Transportation	145,776	145,776	140,776	140,776	140,776	0
Total Percent Seasonal	54.7%	54.7%	50.8%	44.8%	44.8%	0.0%
Reserve Margin	1.52%	-0.55%	1.25%	13.33%	11.95%	-1.4%
Total Design Day Capacity w/ contract demand	266,317	266,317	277,256	314,349	314,349	0
Factors	29.71%	30.43%	28.70%	25.04%	32.69%	7.65%
Other Entitlements not included in Peak Day Deliverability						
TFX Oct	2,000	2,000	2,000	2,000	2,000	0
TFX Apr	2,000	2,000	2,000	2,000	2,000	0
FDD Storage Reservation	107,871	113,075	113,075	113,075	113,075	0
FDD Storage Capacity	1,163,864	1,303,864	1,303,864	1,303,864	1,303,864	0
FDD Maximum Storage Quantity	6,219,321	6,519,321	6,519,321	6,519,321	6,519,321	0
SMS	24,380	22,680	22,680	22,680	22,680	0

Attachment 8

MINNESOTA ENERGY RESOURCES - NNG

Change in Costs due to November 1, 2020 Change in Entitlement Levels and Related Demand Costs

Costs Assigned In Demand	Contract	2019/20 Entitlements	2020/21 Entitlements	Entitlement Change	Months	2020/21 Rate	2019/20 Total Annual Cost	2020/21 Total Annual Cost	Total Annual Cost Change
TF12B (Max Rate) Winter	112495	46,580	40,806	(5,774)	5	$13.1450	$2,382,567	$2,681,974	$299,407
TF12B (Max Rate) Summer	112495	46,580	40,806	(5,774)	7	$7.3030	$1,852,999	$2,086,044	$233,045
TF12V (Max Rate)	112495	32,929	38,703	5,774	12	$11.6843	$3,592,923	$5,426,610	$1,833,687
TF5 (Max Rate)	112495	36,275	36,275	0	5	$19.4710	$2,748,375	$3,531,553	$783,177
TF12B (Discount)	112495	5,200	5,200	0	12	$8.4401	$467,694	$526,662	$58,968
TFX12 (Max Rate)	112486	10,822	10,822	0	12	$12.3730	$1,250,434	$1,606,807	$356,373
TFX Apr (Max Rate)	112486	2,000	2,000	0	1	$7.3030	$11,366	$14,606	$3,240
TFX Oct (Max Rate)	112486	2,000	2,000	0	1	$7.3030	$11,366	$14,606	$3,240
TFX5 (Max Rate)	112486	77,688	77,688	0	5	$19.4710	$5,886,031	$7,563,315	$1,677,284
TFX5 (Discount)	112486	1,800	1,800	0	5	$10.0320	$90,288	$90,288	$0
TFX12 (Discount)	111866	1,283	1,283	0	12	$4.8640	$74,886	$74,886	$0
TFX12 (Discount)	111866	8,271	8,271	0	12	$5.4720	$543,107	$543,107	$0
TFX12 (Discount)	111866	11,921	11,921	0	12	$7.6025	$1,087,553	$1,087,553	$0
TFX5 (Discount)	111866	379	379	0	5	$4.8640	$9,217	$9,217	$0
TFX5 (Discount)	111866	2,445	2,445	0	5	$5.4720	$66,895	$66,895	$0
TFX5 (Discount)	111866	22,189	22,189	0	5	$15.1392	$1,679,619	$1,679,619	$0
Windom		2,500	2,500	0	12	$0.0000	$0	$0	$0
Northwestern Energy		1,035	1,035	0	12	$8.3382	$103,560	$103,560	$0
Total Demand Cost							$21,858,881	$27,107,302	$5,248,421

Costs Assigned In Commodity		2019/20 Entitlements	2020/21 Entitlement	Entitlement Change	Months	2020/21 Rate/Dth	2019/20 Total Annual Cost	Entitlement Total Cost	Entitlement Change
Upstream Surcharges:									
Storage (FDD)									
FDD - Reservation	118657	81,508	81,508	0	12	$ 2.8624	$1,676,457	$2,799,702	$1,123,245
FDD - Storage Cycle	118657	939,864	939,864	0	5	$ 0.5957	$1,676,248	$2,799,386	$1,123,138
FDD - Reservation	118657	5,550	5,550	0	12	$ 3.3157	$220,826	$220,826	$0
FDD - Storage Cycle	118657	64,000	64,000	0	5	$ 0.6901	$220,832	$220,832	$0
FDD - Reservation	133736	17,345	17,345	0	12	$ 2.8624	$356,752	$595,780	$239,028
FDD - Storage Cycle	133736	200,000	200,000	0	5	$ 0.5957	$356,700	$595,700	$239,000
FDD - Reservation	132024	8,672	8,672	0	12	$ 2.8624	$178,366	$297,873	$119,507
FDD - Storage Cycle	132024	100,000	100,000	0	5	$ 0.5957	$178,350	$297,850	$119,500
Pipeline									
Bison	FT0003	50,000	50,000	0	12	$17.4896	$10,493,750	$10,493,750	$0
NBPL	T8673F	50,000	50,000	0	12	$6.3905	$3,834,300	$3,834,300	$0
TFX12 (Rochester)	112486	10,500	10,500	0	12	$37.1175	$4,676,805	$4,676,805	$0
TFX12 (Rochester II)	112486	34,500	34,500	0	12	$10.7714	$4,459,360	$4,459,360	$0
TFX12 (SE MN Expansion)	112486	8,032	8,032	0	12	$12.3730	$928,062	$1,192,559	$264,497
Balancing Service		272,160	272,160	0	1	$2.1800	$593,309	$593,309	$0
Physical Forward Start Premium							$0	$0	$0
Financial Call Option Premium							$384,268	$191,573	($192,695)
Total Commodity Costs							$30,234,383	$33,269,603	$3,035,220

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
7/1/19	0	0	0	0	0	169,865	**7,147**
7/2/19	0	0	0	0	0	182,480	**7,147**
7/3/19	0	0	0	0	0	171,539	**7,147**
7/4/19	0	0	0	0	0	157,706	**7,147**
7/5/19	0	0	0	0	0	162,415	**7,147**
7/6/19	6	0	0	0	1	153,537	**9,036**
7/7/19	0	0	0	0	0	160,487	**7,147**
7/8/19	0	0	0	0	0	159,691	**7,147**
7/9/19	0	0	0	0	0	163,639	**7,147**
7/10/19	1	0	0	0	0	140,763	**7,297**
7/11/19	0	0	0	0	0	160,201	**7,147**
7/12/19	0	0	0	0	0	153,639	**7,147**
7/13/19	0	0	0	0	0	157,226	**7,147**
7/14/19	0	0	0	0	0	155,760	**7,147**
7/15/19	0	0	0	0	0	152,673	**7,147**
7/16/19	0	0	0	0	0	171,604	**7,147**
7/17/19	0	0	0	0	0	166,725	**7,147**
7/18/19	0	0	0	0	0	164,313	**7,147**
7/19/19	0	0	0	0	0	152,477	**7,147**
7/20/19	0	0	0	2	0	135,889	**7,547**
7/21/19	5	0	0	0	1	138,485	**8,556**
7/22/19	0	0	0	2	0	150,972	**7,547**
7/23/19	0	0	0	0	0	157,683	**7,147**
7/24/19	0	0	0	0	0	152,751	**7,147**
7/25/19	0	0	0	0	0	144,252	**7,147**
7/26/19	0	0	0	0	0	144,294	**7,147**
7/27/19	0	0	0	0	0	145,905	**7,147**
7/28/19	0	0	0	0	0	136,155	**7,147**
7/29/19	8	0	0	2	1	152,361	**10,006**
7/30/19	5	0	2	0	1	160,554	**10,076**
7/31/19	0	0	0	0	0	151,938	**7,147**
8/1/19	0	0	0	0	0	162,205	**7,147**
8/2/19	0	0	0	0	0	158,438	**7,147**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
8/3/19	0	0	0	0	0	149,886	**7,147**
8/4/19	0	0	0	0	0	152,542	**7,147**
8/5/19	0	0	0	0	0	154,067	**7,147**
8/6/19	0	0	0	0	0	166,880	**7,147**
8/7/19	1	0	0	0	0	163,027	**7,297**
8/8/19	2	0	2	0	1	154,705	**9,937**
8/9/19	2	0	0	0	0	155,498	**7,627**
8/10/19	0	0	0	0	0	132,951	**7,147**
8/11/19	0	0	0	0	0	160,857	**7,147**
8/12/19	1	0	0	0	0	171,947	**7,297**
8/13/19	7	0	0	0	1	151,417	**9,366**
8/14/19	3	0	2	0	1	155,632	**9,596**
8/15/19	0	0	0	0	0	159,903	**7,147**
8/16/19	0	0	0	0	0	163,780	**7,147**
8/17/19	0	0	0	0	0	149,249	**7,147**
8/18/19	2	0	2	2	1	147,486	**9,978**
8/19/19	0	0	0	0	0	158,372	**7,147**
8/20/19	0	0	0	0	0	157,734	**7,147**
8/21/19	3	0	3	3	2	153,905	**11,496**
8/22/19	8	0	0	3	2	148,928	**10,436**
8/23/19	4	0	1	0	1	140,940	**8,891**
8/24/19	1	0	0	1	0	132,800	**7,752**
8/25/19	0	0	2	1	1	134,061	**8,918**
8/26/19	5	1	2	1	2	138,813	**10,724**
8/27/19	5	0	3	6	3	143,201	**13,214**
8/28/19	5	1	6	1	3	168,432	**14,446**
8/29/19	10	1	4	6	4	171,077	**15,673**
8/30/19	10	0	4	2	3	162,957	**14,583**
8/31/19	4	0	6	4	4	147,904	**15,040**
9/1/19	5	0	0	0	1	146,542	**8,706**
9/2/19	8	0	0	0	1	143,796	**9,546**
9/3/19	9	0	3	3	3	144,749	**13,748**
9/4/19	7	1	6	1	4	165,836	**15,984**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
9/5/19	8	0	0	0	1	159,412	**9,546**
9/6/19	5	0	2	0	2	156,427	**10,717**
9/7/19	14	5	4	7	6	144,233	**20,597**
9/8/19	12	8	10	8	9	143,028	**27,388**
9/9/19	11	0	3	0	3	129,141	**13,127**
9/10/19	3	0	0	0	0	137,479	**8,107**
9/11/19	16	4	0	0	3	140,300	**14,419**
9/12/19	16	5	5	1	6	161,908	**19,952**
9/13/19	16	9	12	9	11	164,940	**31,613**
9/14/19	6	0	0	0	1	139,480	**9,006**
9/15/19	4	0	0	0	1	135,027	**8,227**
9/16/19	4	0	0	0	1	123,308	**8,406**
9/17/19	2	0	0	0	0	118,455	**7,627**
9/18/19	0	0	0	0	0	129,366	**7,147**
9/19/19	0	0	0	0	0	136,823	**7,147**
9/20/19	6	0	0	0	1	125,449	**8,916**
9/21/19	2	0	0	0	0	122,223	**7,777**
9/22/19	12	4	7	9	7	158,695	**21,860**
9/23/19	5	0	2	0	1	165,765	**10,286**
9/24/19	3	0	0	0	0	146,097	**7,927**
9/25/19	15	7	8	12	9	165,725	**26,813**
9/26/19	11	6	5	7	6	161,038	**20,020**
9/27/19	20	11	6	12	10	175,183	**28,199**
9/28/19	16	10	10	14	11	149,873	**30,625**
9/29/19	17	5	5	1	6	141,522	**19,673**
9/30/19	13	0	0	0	2	167,593	**11,165**
10/1/19	16	15	13	21	15	179,550	**39,356**
10/2/19	23	16	18	22	18	195,301	**46,686**
10/3/19	25	20	21	24	21	202,666	**52,899**
10/4/19	24	19	21	21	21	183,848	**51,902**
10/5/19	19	15	18	15	17	165,842	**42,981**
10/6/19	19	12	13	15	13	175,252	**35,867**
10/7/19	13	9	11	8	10	191,988	**28,916**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
10/8/19	8	3	7	4	6	158,245	**19,294**
10/9/19	3	2	5	5	4	163,559	**15,236**
10/10/19	20	19	20	25	20	188,114	**50,515**
10/11/19	35	33	39	41	37	224,457	**86,839**
10/12/19	34	33	38	39	36	209,232	**84,466**
10/13/19	32	28	34	36	32	237,056	**76,188**
10/14/19	25	23	25	22	24	219,293	**58,389**
10/15/19	26	20	22	28	23	212,814	**55,826**
10/16/19	28	24	30	28	28	244,995	**66,597**
10/17/19	22	19	20	15	19	217,516	**48,644**
10/18/19	15	8	11	7	10	177,090	**29,455**
10/19/19	18	13	18	16	16	197,657	**41,872**
10/20/19	17	12	12	15	13	187,011	**34,431**
10/21/19	24	19	19	30	21	202,968	**52,595**
10/22/19	31	29	32	29	31	234,545	**73,014**
10/23/19	29	28	29	35	29	256,687	**70,351**
10/24/19	32	30	33	31	31	279,469	**74,424**
10/25/19	26	22	27	23	25	233,200	**60,535**
10/26/19	24	23	29	21	26	221,626	**61,891**
10/27/19	34	31	34	38	34	248,914	**79,362**
10/28/19	40	35	38	41	38	307,399	**88,716**
10/29/19	41	36	34	41	36	296,065	**84,909**
10/30/19	43	37	43	46	41	320,951	**95,839**
10/31/19	38	36	41	41	39	311,582	**91,236**
11/1/19	35	30	33	34	32	283,012	**76,745**
11/2/19	41	35	38	30	37	317,980	**86,147**
11/3/19	35	27	29	30	29	288,525	**69,891**
11/4/19	45	38	41	42	41	320,470	**94,477**
11/5/19	45	39	41	42	41	336,017	**94,915**
11/6/19	51	47	56	57	53	331,537	**120,315**
11/7/19	53	47	60	51	54	339,531	**123,356**
11/8/19	43	39	49	39	44	304,538	**101,464**
11/9/19	38	31	35	35	34	291,367	**80,788**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
11/10/19	53	49	50	58	51	327,938	**116,520**
11/11/19	62	60	63	66	62	375,537	**140,590**
11/12/19	58	56	61	57	59	356,832	**132,805**
11/13/19	46	44	46	44	45	354,838	**104,036**
11/14/19	45	40	44	41	43	324,937	**99,094**
11/15/19	43	32	32	25	33	284,523	**77,251**
11/16/19	29	27	34	24	30	257,462	**71,496**
11/17/19	36	32	36	34	34	275,153	**80,879**
11/18/19	37	32	35	29	34	282,439	**79,778**
11/19/19	32	26	32	30	30	265,702	**71,597**
11/20/19	33	28	30	27	29	234,058	**69,789**
11/21/19	47	42	43	50	44	279,331	**101,888**
11/22/19	46	42	44	43	43	285,889	**100,193**
11/23/19	32	29	35	32	32	251,279	**76,797**
11/24/19	27	26	33	28	29	248,278	**70,061**
11/25/19	33	29	31	33	31	261,508	**73,236**
11/26/19	42	38	38	44	39	280,603	**91,429**
11/27/19	51	43	46	47	46	302,611	**105,156**
11/28/19	44	40	42	44	42	293,180	**97,441**
11/29/19	40	38	39	41	39	284,043	**90,907**
11/30/19	46	39	39	45	40	270,672	**93,744**
12/1/19	60	47	53	57	52	303,921	**119,673**
12/2/19	54	47	49	51	50	295,802	**113,418**
12/3/19	45	36	41	40	40	277,258	**92,739**
12/4/19	39	36	43	39	40	286,447	**92,629**
12/5/19	49	42	42	47	43	286,595	**100,316**
12/6/19	51	45	48	51	48	303,480	**110,111**
12/7/19	41	36	42	39	40	256,035	**92,108**
12/8/19	48	39	36	52	41	275,241	**94,071**
12/9/19	70	63	62	67	64	355,742	**144,730**
12/10/19	79	70	72	68	72	399,298	**161,110**
12/11/19	71	63	61	62	63	382,727	**142,456**
12/12/19	53	52	49	58	52	350,539	**117,933**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
12/13/19	54	55	53	55	54	320,350	**122,216**
12/14/19	75	64	67	66	67	355,591	**150,980**
12/15/19	69	57	62	62	61	359,610	**138,854**
12/16/19	53	46	50	53	50	337,126	**113,456**
12/17/19	69	58	63	58	62	366,540	**139,111**
12/18/19	72	62	66	55	64	375,288	**144,859**
12/19/19	56	46	48	44	48	329,838	**110,759**
12/20/19	43	40	45	47	43	306,076	**99,995**
12/21/19	42	35	42	36	39	261,485	**90,578**
12/22/19	36	34	36	36	35	261,035	**82,599**
12/23/19	40	35	36	39	37	287,492	**85,876**
12/24/19	37	34	35	37	35	275,793	**82,798**
12/25/19	36	37	34	39	36	265,772	**83,509**
12/26/19	40	39	41	50	42	296,264	**96,302**
12/27/19	44	40	43	42	42	305,926	**97,735**
12/28/19	43	33	34	37	36	275,796	**83,584**
12/29/19	34	30	33	44	34	263,289	**79,090**
12/30/19	47	44	48	54	48	317,809	**109,373**
12/31/19	53	50	54	52	52	328,875	**119,573**
1/1/20	46	41	40	41	41	274,498	**95,700**
1/2/20	44	33	39	40	38	290,478	**88,457**
1/3/20	47	38	42	49	42	297,980	**98,293**
1/4/20	43	40	44	47	43	286,056	**99,544**
1/5/20	48	40	43	43	43	278,657	**98,639**
1/6/20	44	39	43	46	42	296,226	**97,736**
1/7/20	69	57	61	53	60	338,083	**135,601**
1/8/20	65	59	61	57	60	349,612	**136,572**
1/9/20	50	41	40	50	43	308,496	**99,046**
1/10/20	72	63	60	77	64	349,391	**145,221**
1/11/20	63	62	61	71	63	341,712	**141,739**
1/12/20	53	53	51	55	53	305,130	**120,060**
1/13/20	46	45	44	50	45	286,802	**103,653**
1/14/20	52	44	48	49	47	316,584	**108,866**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
1/15/20	72	64	69	74	68	370,804	**153,831**
1/16/20	73	69	73	71	72	388,918	**160,746**
1/17/20	55	53	56	62	56	312,797	**126,750**
1/18/20	55	60	68	85	66	337,194	**148,169**
1/19/20	56	62	67	78	65	358,085	**147,477**
1/20/20	58	60	68	68	64	350,101	**145,236**
1/21/20	61	52	62	60	59	314,179	**132,928**
1/22/20	39	34	41	37	38	289,346	**89,366**
1/23/20	43	37	40	42	40	292,604	**92,106**
1/24/20	42	38	41	43	41	269,795	**94,155**
1/25/20	39	39	44	45	42	275,549	**97,311**
1/26/20	43	40	44	41	42	282,338	**97,541**
1/27/20	52	45	48	49	48	320,320	**110,262**
1/28/20	50	48	50	50	49	334,804	**113,050**
1/29/20	45	48	49	47	48	317,449	**109,989**
1/30/20	45	45	47	42	45	311,852	**104,392**
1/31/20	43	38	42	38	40	291,582	**93,479**
2/1/20	37	31	36	36	35	241,459	**81,701**
2/2/20	37	32	38	37	36	235,250	**84,750**
2/3/20	59	50	49	57	52	304,907	**117,730**
2/4/20	61	51	57	55	55	354,923	**125,622**
2/5/20	50	47	55	51	51	342,900	**117,450**
2/6/20	48	44	52	51	49	329,884	**111,843**
2/7/20	58	56	54	68	57	355,291	**129,136**
2/8/20	59	60	59	58	59	324,116	**133,224**
2/9/20	56	51	63	57	58	326,323	**131,286**
2/10/20	51	50	63	52	56	326,835	**127,781**
2/11/20	48	42	54	51	49	301,880	**112,339**
2/12/20	71	61	64	73	65	353,055	**146,962**
2/13/20	78	76	87	80	82	432,596	**182,061**
2/14/20	71	65	75	63	70	351,755	**156,802**
2/15/20	55	43	45	43	46	301,845	**104,790**
2/16/20	58	48	47	46	49	320,281	**111,788**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
2/17/20	48	42	49	45	46	304,903	**106,276**
2/18/20	69	60	65	57	63	363,306	**142,953**
2/19/20	74	65	74	67	71	394,459	**158,978**
2/20/20	67	59	70	64	66	363,805	**147,832**
2/21/20	44	40	46	41	44	277,169	**100,855**
2/22/20	35	34	41	36	38	248,525	**87,941**
2/23/20	37	33	40	38	37	275,444	**87,473**
2/24/20	40	32	37	40	36	289,367	**85,282**
2/25/20	46	41	43	54	44	294,930	**101,818**
2/26/20	57	46	52	48	51	326,856	**115,814**
2/27/20	62	48	53	45	52	331,151	**117,976**
2/28/20	56	47	59	45	53	325,657	**121,604**
2/29/20	48	40	48	34	44	245,812	**101,312**
3/1/20	33	28	35	35	33	240,733	**77,544**
3/2/20	37	35	41	38	38	259,991	**88,717**
3/3/20	44	36	41	32	39	266,387	**90,842**
3/4/20	40	31	36	28	34	246,238	**80,035**
3/5/20	48	39	45	44	44	284,133	**100,485**
3/6/20	39	34	40	34	37	265,749	**87,459**
3/7/20	27	20	29	19	25	202,138	**60,587**
3/8/20	27	21	27	25	25	203,930	**60,265**
3/9/20	41	36	39	48	40	281,823	**91,883**
3/10/20	39	30	32	38	33	277,299	**78,235**
3/11/20	35	28	31	29	30	238,158	**72,326**
3/12/20	38	35	32	35	34	256,853	**80,374**
3/13/20	50	38	40	40	41	283,311	**94,231**
3/14/20	48	39	42	41	42	299,364	**96,441**
3/15/20	42	35	36	40	37	262,640	**87,061**
3/16/20	42	36	38	38	38	281,780	**87,936**
3/17/20	38	30	32	34	32	249,548	**76,773**
3/18/20	36	26	31	26	30	252,888	**70,514**
3/19/20	44	40	39	51	42	260,135	**96,179**
3/20/20	52	42	46	52	46	312,227	**106,295**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
3/21/20	45	40	43	43	42	267,764	**97,880**
3/22/20	36	31	37	32	34	273,710	**80,797**
3/23/20	31	28	31	29	30	264,417	**70,912**
3/24/20	31	24	28	21	27	229,544	**64,210**
3/25/20	35	28	27	34	29	257,401	**70,037**
3/26/20	35	24	26	33	27	249,448	**65,600**
3/27/20	28	16	21	26	21	215,361	**52,475**
3/28/20	31	29	31	35	31	218,885	**73,179**
3/29/20	28	27	33	27	30	234,397	**71,457**
3/30/20	32	19	23	21	23	228,779	**56,315**
3/31/20	34	23	27	23	26	218,110	**63,718**
4/1/20	32	21	26	14	24	202,401	**58,726**
4/2/20	27	24	22	33	25	201,616	**60,097**
4/3/20	44	45	47	49	46	276,004	**106,027**
4/4/20	37	32	35	33	34	260,190	**80,630**
4/5/20	25	21	22	21	22	218,910	**54,172**
4/6/20	24	13	20	9	17	209,752	**43,601**
4/7/20	19	7	11	9	11	197,427	**30,121**
4/8/20	30	24	26	29	27	207,410	**64,037**
4/9/20	41	35	39	43	39	250,243	**89,992**
4/10/20	30	25	29	28	28	232,621	**66,344**
4/11/20	25	22	18	26	21	202,323	**52,273**
4/12/20	42	44	48	55	47	250,292	**107,210**
4/13/20	46	42	50	50	47	279,740	**107,714**
4/14/20	49	45	54	50	50	291,007	**114,557**
4/15/20	41	38	47	40	43	281,390	**98,908**
4/16/20	36	30	39	33	35	242,936	**82,826**
4/17/20	28	23	32	28	28	214,835	**67,819**
4/18/20	27	16	18	19	19	170,505	**46,875**
4/19/20	31	23	28	25	27	202,319	**64,092**
4/20/20	34	23	26	24	26	195,907	**63,048**
4/21/20	33	25	27	15	26	201,415	**62,784**
4/22/20	32	14	9	9	14	151,672	**37,008**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
4/23/20	29	16	17	6	17	153,050	**43,738**
4/24/20	19	11	15	17	14	131,637	**38,236**
4/25/20	21	7	13	17	13	133,065	**34,642**
4/26/20	22	8	7	7	9	116,598	**27,187**
4/27/20	14	2	5	4	5	133,634	**18,871**
4/28/20	27	20	17	19	19	142,002	**48,774**
4/29/20	17	14	19	16	17	144,712	**43,307**
4/30/20	9	5	12	4	9	135,146	**25,954**
5/1/20	11	0	1	0	2	96,968	**11,117**
5/2/20	12	4	6	9	7	102,283	**21,670**
5/3/20	27	13	12	8	14	108,891	**36,983**
5/4/20	29	14	18	16	18	142,074	**45,834**
5/5/20	22	13	21	22	19	140,399	**47,506**
5/6/20	18	12	15	17	15	126,290	**38,390**
5/7/20	28	20	20	22	21	121,445	**53,138**
5/8/20	31	25	31	25	29	132,842	**68,440**
5/9/20	25	18	17	22	19	117,692	**47,589**
5/10/20	31	23	28	30	27	137,138	**65,332**
5/11/20	30	22	25	25	25	155,712	**60,099**
5/12/20	22	15	19	18	18	133,983	**45,566**
5/13/20	19	10	11	15	12	115,501	**33,372**
5/14/20	11	7	9	10	9	118,607	**26,197**
5/15/20	14	3	7	7	7	111,844	**21,305**
5/16/20	15	11	6	14	9	87,255	**27,300**
5/17/20	20	15	17	20	17	103,232	**44,247**
5/18/20	11	6	15	11	12	100,517	**32,197**
5/19/20	14	1	7	13	7	88,181	**22,089**
5/20/20	7	0	1	8	2	80,560	**11,946**
5/21/20	3	3	7	7	5	86,303	**18,186**
5/22/20	7	3	4	4	4	77,485	**16,209**
5/23/20	5	0	3	2	2	71,716	**11,721**
5/24/20	2	0	0	0	0	68,247	**7,627**
5/25/20	4	0	0	2	1	79,323	**8,776**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
5/26/20	2	0	0	6	1	86,758	**9,096**
5/27/20	0	0	0	0	0	84,741	**7,147**
5/28/20	4	0	3	4	2	82,024	**12,028**
5/29/20	16	8	11	8	10	85,637	**28,921**
5/30/20	17	8	10	4	10	84,014	**27,827**
5/31/20	2	0	0	0	0	73,740	**7,627**
6/1/20	0	0	0	0	0	88,249	**7,147**
6/2/20	0	0	0	0	0	98,416	**7,147**
6/3/20	3	0	0	0	0	113,160	**7,927**
6/4/20	0	0	0	0	0	112,169	**7,147**
6/5/20	5	0	0	0	1	102,531	**8,766**
6/6/20	11	0	0	0	2	76,575	**10,566**
6/7/20	12	0	0	0	2	79,010	**10,805**
6/8/20	0	0	0	0	0	111,691	**7,147**
6/9/20	2	0	0	0	0	106,583	**7,627**
6/10/20	7	1	7	3	5	86,010	**17,375**
6/11/20	8	0	0	0	1	95,741	**9,576**
6/12/20	15	1	0	0	2	99,514	**11,961**
6/13/20	15	2	8	0	6	72,831	**20,768**
6/14/20	7	0	0	0	1	72,026	**9,096**
6/15/20	3	0	0	0	0	93,501	**7,957**
6/16/20	0	0	0	0	0	92,765	**7,147**
6/17/20	0	0	0	0	0	95,567	**7,147**
6/18/20	0	0	0	0	0	98,651	**7,147**
6/19/20	2	0	0	0	0	103,289	**7,627**
6/20/20	8	0	2	0	2	94,779	**11,155**
6/21/20	0	0	0	0	0	91,515	**7,147**
6/22/20	3	0	4	1	2	104,344	**12,396**
6/23/20	2	0	3	2	2	103,658	**10,738**
6/24/20	4	0	0	0	1	107,122	**8,257**
6/25/20	0	0	0	0	0	109,787	**7,147**
6/26/20	0	0	0	0	0	107,363	**7,147**
6/27/20	0	0	0	0	0	104,887	**7,147**

Attachment 9

MINNESOTA ENERGY RESOURCES - NNG

Daily Total Throughput Data - July 1, 2019 through June 30, 2020
NNG

Design Day:	
Base	7,147
Variable	2,145

Date	13.98% Cloquet Adjusted HDD	29.22% Minneapolis Adjusted HDD	45.15% Rochester Adjusted HDD	11.65% Worthington Adjusted HDD	100.00% Weighted Adjusted HDD	Actual Total Through-Put *	Estimated Firm Through-Put **
6/28/20	0	0	0	0	0	106,667	**7,147**
6/29/20	0	0	0	0	0	125,951	**7,147**
6/30/20	0	0	0	0	0	127,665	**7,147**
Totals	9,821	8,037	8,938	8,914	8,795	78,494,133	21,481,371

* Volumes include interruptible and transportation volumes

** Design Model numbers are used to calculate firm volumes only

Attachment 10
NNG

MINNESOTA ENERGY RESOURCES - NNG

Customer Counts by PGAC Class - July 1, 2019 through June 30, 2020

Tariff Rate Class	Rate Designation	Jul-19 Customers	Aug-19 Customers	Sep-19 Customers	Oct-19 Customers	Nov-19 Customers	Dec-19 Customers	Jan-20 Customers	Feb-20 Customers	Mar-20 Customers	Apr-20 Customers	May-20 Customers	Jun-20 Customers	Annual Average Customers
GS- Residential	MERC000001	174,895	180,016	181,658	182,163	183,348	187,284	188,197	182,803	179,729	184,234	184,934	184,897	182,846
Residential Farm Taps	MERC001206	35	1,226	1,251	1,212	1,297	1,374	1,351	1,285	1,287	1,201	1,324	1,183	1,169
Firm Class 1	MERC000005	6,629	6,921	6,885	7,063	7,134	7,275	7,422	7,084	7,107	7,204	7,211	7,145	7,090
Firm Class 2	MERC001221	10	8,777	10,119	10,190	10,155	10,302	10,458	10,028	10,040	10,207	10,220	10,136	9,220
Firm Class 3	MERC001231		52	62	60	60	60	59	60	59	59	61	60	59
Firm Class 4	MERC001241													0
Firm Class 5	MERC001251													0
GS-C&I <1,500 therms/yr (Small) Emmons, IA	MERC000013	1	1	1	1	1	1	1	1	1	1	1	1	1
GS-C&I >1,500 therms/yr (Large) Emmons, IA	MERC000014	2	2	2	2	2	2	2	2	2	2	2	2	2
Agricultural Grain Dryer Class 1	MERC001217	1	26	32	33	42	155	94	75	68	63	61	53	59
Agricultural Grain Dryer Class 2	MERC001227		48	59	64	65	169	134	90	107	91	83	81	90
Agricultural Grain Dryer Class 3	MERC001237													0
Interruptible Class 2	MERC001222		237	212	230	220	119	355	203	178	193	177	197	211
Interruptible Class 3	MERC001232	1	64	61	67	60	31	100	51	47	49	51	50	53
Interruptible Class 4	MERC001242		2	2	2	2	2	3	3	1	3	2	2	2
Interruptible Class 5	MERC001252													0
Firm/Interruptilbe Class 2	MERC001223		2	2	2	1	1	5	2	3	2	2	1	2
Firm/Interruptilbe Class 3	MERC001233													0
Firm/Interruptilbe Class 4	MERC001243													0
Firm/Interruptilbe Class 5	MERC001253													0
Farm Tap Class 1	MERC001216	2	98	99	95	111	114	115	103	111	98	112	84	95
Farm Tap Class 2	MERC001226	11	221	233	223	238	245	227	230	227	226	230	222	211
Farm Tap Class 3	MERC001236		10	6	8	7	10	8	8	7	9	7	9	8
Interruptible Electric Generation Class 1	MERC001218	1	7	7	7	7	8	13	7	8	8	8	7	7
Interruptible Electric Generation Class 2	MERC001228			3		1	1	1	1	1	1	1	1	1
GS-C&I >1,500 therms/yr (Large)	MERC000009	9,918	1,307	-71	-6	2			-8				-67	1,582
Small Volume Interruptible (SVI)	MERC000015	274	1											138
Small Volume Interruptible w/Joint (SVJ)	MERC000019	3												0
Large Volume Interruptible (LVI)	MERC000022	62	1											32
Large Volume Interruptible w/Joint (LVJ)	MERC000026	1						10						6
GS- Residential	MERC000101	9,329	1,356	-86	-21	-2								2,115
GS-C&I <1,500 therms/yr (Small)	MERC000102	547	73	-2										206
GS-C&I >1,500 therms/yr (Large)	MERC000103	612	58	-5	4									167
Small Volume Interruptible (SVI)	MERC000104	32	3											18
Large Volume Interruptible (LVI)	MERC000106	11												11
Total		202,378	200,509	200,529	201,400	202,750	207,152	208,554	202,027	198,982	203,652	204,487	204,064	205,401

MINNESOTA ENERGY RESOURCES - NNG

Projected Hedged Cost - November 2020 through March 2021

Futures Contracts WACOG

Futures 10,000 Dth/contract

Nov-20

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	LDS Settle*	LDS Settle Cost	Over/(Under Market	Premium Per Unit	Premium Cost	Total Cost
1	05/05/20	85854	6	60,000	$ 2.7540	$ 165,240	$ 2.3480	$ 140,880	$ 24,360		$ -	$ 165,240
2	06/09/20	86580	6	60,000	$ 2.3720	$ 142,320	$ 2.3480	$ 140,880	$ 1,440		$ -	$ 142,320
3	07/07/20	87098	6	60,000	$ 2.3550	$ 141,300	$ 2.3480	$ 140,880	$ 420		$ -	$ 141,300
4			-	-		$ -	$ 2.3480	$ -	$ -		$ -	$ -
5			-	-		$ -	$ 2.3480	$ -	$ -		$ -	$ -
6			-	-		$ -	$ 2.3480	$ -	$ -		$ -	$ -
7			-	-		$ -	$ 2.3480	$ -	$ -		$ -	$ -
8			-	-		$ -	$ 2.3480	$ -	$ -		$ -	$ -
9												
10												
11												
12												
13												
14												
15												
Total			18	180,000		$ 448,860		$ 422,640	$ 26,220		$ -	$ 448,860
						$ 2.4937		$ 2.3480	$ 0.1457		$ -	$ 2.4937
NNG	28	82.35%	15	148,235	$ 2.4937	$ 369,649	$ 2.3480	$ 348,056	$ 21,593	$ -	$ -	$ 369,649
Other-Cons	6	17.65%	3	31,765	$ 2.4937	$ 79,211	$ 2.3480	$ 74,584	$ 4,627	$ -	$ -	$ 79,211
Total	34	100.0%	18	180,000	$ 2.4937	$ 448,860	$ 2.3480	$ 422,640	$ 26,220	$ -	$ -	$ 448,860

Dec-20

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	LDS Settle*	LDS Settle Cost	Over/(Under Market	Premium Per Unit	Premium Cost	Total Cost
1	05/14/20	86142	1	10,000	$ 2.8100	$ 28,100	$ 2.7540	$ 27,540	$ 560		$ -	$ 28,100
2	05/14/20	86143	8	80,000	$ 2.8110	$ 224,880	$ 2.7540	$ 220,320	$ 4,560		$ -	$ 224,880
3	06/18/20	86804	9	90,000	$ 2.7920	$ 251,280	$ 2.7540	$ 247,860	$ 3,420		$ -	$ 251,280
4	07/13/20	87244	7	70,000	$ 2.7320	$ 191,240	$ 2.7540	$ 192,780	$ (1,540)		$ -	$ 191,240
5	07/13/20	87245	1	10,000	$ 2.7310	$ 27,310	$ 2.7540	$ 27,540	$ (230)		$ -	$ 27,310
6				-		$ -	$ 2.7540	$ -	$ -		$ -	$ -
7				-		$ -	$ 2.7540	$ -	$ -		$ -	$ -
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15												
Total			26	260,000		$ 722,810		$ 716,040	$ 6,770		$ -	$ 722,810
						$ 2.7800		$ 2.7540	$ 0.0260		$ -	$ 2.7800
NNG	41	83.67%	22	217,551	$ 2.7800	$ 604,800	$ 2.7540	$ 599,136	$ 5,665	$ -	$ -	$ 604,800
Other-Cons	8	16.33%	4	42,449	$ 2.7800	$ 118,010	$ 2.7540	$ 116,904	$ 1,105	$ -	$ -	$ 118,010
Total	49	100.0%	26	260,000	$ 2.7800	$ 722,810	$ 2.7540	$ 716,040	$ 6,770	$ -	$ -	$ 722,810

Jan-21

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	LDS Settle*	LDS Settle Cost	Over/(Under Market	Premium Per Unit	Premium Cost	Total Cost
1	05/19/20	86236	12	120,000	$ 3.0170	$ 362,040	$ 2.8840	$ 346,080	$ 15,960		$ -	$ 362,040
2	06/23/20	86927	12	120,000	$ 2.8700	$ 344,400	$ 2.8840	$ 346,080	$ (1,680)		$ -	$ 344,400
3				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
4				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
5				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
6				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
7				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
8				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
9				-		$ -	$ 2.8840	$ -	$ -		$ -	$ -
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15												
Total	Total		24	240,000		$ 706,440		$ 692,160	$ 14,280		$ -	$ 706,440
						$ 2.9435		$ 2.8840	$ 0.0595		$ -	$ 2.9435
NNG	56	83.58%	20	200,597	$ 2.9435	$ 590,457	$ 2.8840	$ 578,522	$ 11,936	$ -	$ -	$ 590,457
Other-Cons	11	16.42%	4	39,403	$ 2.9435	$ 115,983	$ 2.8840	$ 113,638	$ 2,344	$ -	$ -	$ 115,983
Total	67	100.0%	24	240,000	$ 2.9435	$ 706,440	$ 2.8840	$ 692,160	$ 14,280	$ -	$ -	$ 706,440

Feb-21

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	LDS Settle*	LDS Settle Cost	Over/(Under Market	Premium Per Unit	Premium Cost	Total Cost
1	05/07/20	85948	10	100,000	$ 3.0030	$ 300,300	$ 2.8500	$ 285,000	$ 15,300		$ -	$ 300,300
2	06/11/20	86647	7	70,000	$ 2.9460	$ 206,220	$ 2.8500	$ 199,500	$ 6,720		$ -	$ 206,220
3	06/11/20	86648	3	30,000	$ 2.9490	$ 88,470	$ 2.8500	$ 85,500	$ 2,970		$ -	$ 88,470
4	07/08/20	87121	10	100,000	$ 2.8660	$ 286,600	$ 2.8500	$ 285,000	$ 1,600		$ -	$ 286,600
5			-	-		$ -	$ 2.8500	$ -	$ -		$ -	$ -
6			-	-		$ -	$ 2.8500	$ -	$ -		$ -	$ -
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Total			30	300,000		$ 881,590		$ 855,000	$ 26,590		$ -	$ 881,590
						$ 2.9386		$ 2.8500	$ 0.0886		$ -	$ 2.9386
NNG	48	84.21%	25	252,632	$ 2.9386	$ 742,392	$ 2.8500	$ 720,000	$ 22,392	$ -	$ -	$ 742,392
Other-Cons	9	15.79%	5	47,368	$ 2.9386	$ 139,198	$ 2.8500	$ 135,000	$ 4,198	$ -	$ -	$ 139,198
Total	57	100.0%	30	300,000	$ 2.9386	$ 881,590	$ 2.8500	$ 855,000	$ 26,590	$ -	$ -	$ 881,590

Mar-21

Deal Number	Purchase Date	Trade Number	Number Contracts	Financial Volume	Strike Price	Strike Cost	LDS Settle*	LDS Settle Cost	Over/(Under Market	Premium Per Unit	Premium Cost	Total Cost
1	05/12/20	86094	9	90,000	$ 2.8370	$ 255,330	$ 2.7510	$ 247,590	$ 7,740		$ -	$ 255,330
2	06/16/20	86742	8	80,000	$ 2.7960	$ 223,680	$ 2.7510	$ 220,080	$ 3,600		$ -	$ 223,680
3	07/09/20	87196	7	70,000	$ 2.7420	$ 191,940	$ 2.7510	$ 192,570	$ (630)		$ -	$ 191,940
4				-		$ -	$ 2.7510	$ -	$ -		$ -	$ -
5				-		$ -	$ 2.7510	$ -	$ -		$ -	$ -
6				-		$ -	$ 2.7510	$ -	$ -		$ -	$ -
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Total			24	240,000		$ 670,950		$ 660,240	$ 10,710		$ -	$ 670,950
						$ 2.7956		$ 2.7510	$ 0.0446		$ -	$ 2.7956
NNG	38	84.44%	20	202,667	$ 2.7956	$ 566,580	$ 2.7510	$ 557,536	$ 9,044	$ -	$ -	$ 566,580
Other-Cons	7	15.56%	4	37,333	$ 2.7956	$ 104,370	$ 2.7510	$ 102,704	$ 1,666	$ -	$ -	$ 104,370
Total	45	100.0%	24	240,000	$ 2.7956	$ 670,950	$ 2.7510	$ 660,240	$ 10,710	$ -	$ -	$ 670,950

Total

Deal Number	Purchase Date	%	Number Contracts	Physical Volume	Strike Price	Strike Cost	LDS Settle	LDS Settle Cost	Over/(Under Market	Premium Per Unit	Premium Cost	Total Cost
1			38	380,000	$ 2.9237	$ 1,111,010	$ 2.7555	$ 1,047,090	$ 63,920	$ -	$ -	$ 1,111,010
2			41	410,000	$ 2.7841	$ 1,141,500	$ 2.7484	$ 1,126,860	$ 14,640	$ -	$ -	$ 1,141,500
3			25	250,000	$ 2.6920	$ 672,990	$ 2.6672	$ 666,810	$ 6,180	$ -	$ -	$ 672,990
4			17	170,000	$ 2.8108	$ 477,840	$ 2.8105	$ 477,780	$ 60	$ -	$ -	$ 477,840
5			1	10,000	$ 2.7310	$ 27,310	$ 2.7540	$ 27,540	$ (230)	$ -	$ -	$ 27,310
6			0	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7			0	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8			0	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
9			0	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
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Total			122	1,220,000		$ 3,430,650		$ 3,346,080	$ 84,570		$ -	$ 3,430,650
						$ 2.8120		$ 2.7427	$ 0.0693		$ -	$ 2.8120
NNG	211	83.73%	102	1,021,507.94	$ 2.8120	$ 2,872,489	$ 2.7427	$ 2,801,678	$ 70,811	$ -	$ -	$ 2,872,489
Other-Cons	41	16.27%	20	198,492	$ 2.8120	$ 558,161	$ 2.7427	$ 544,402	$ 13,759	$ -	$ -	$ 558,161
Total	252	100.0%	122	1,220,000	$ 2.8120	$ 3,430,650	$ 2.7427	$ 3,346,080	$ 84,570	$ -	$ -	$ 3,430,650

*Prices from 7/14/20 NYMEX market

MINNESOTA ENERGY RESOURCES - NNG

Projected Storage Cost - November 2020 through March 2021

Month/ Year	K#118657 NNG Storage (Dth)	LS Power K#132024 NNG Storage (Dth)	LS Power K#133736 NNG Storage (Dth)	Total NNG Storage (Dth)	Projected NNG WACOG	K#118657 NNG Storage Cost	K#132024 NNG Storage Cost	K#133736 NNG Storage Cost	Total NNG Storage Cost	ANR Storage GLGT/VGT (Dth)	ANR Storage GLGT/VGT WACOG	ANR Storage GLGT/VGT Cost
Nov-20	489,384	48,750	97,500	635,634	$ 1.7134	$ 838,494	$ 83,527	$ 167,053	$ 1,089,074	96,000	$ 1.6679	$ 160,122
Dec-20	1,229,734	122,500	245,000	1,597,234	$ 1.7134	$ 2,106,984	$ 209,887	$ 419,775	$ 2,736,646	189,100	$ 1.6679	$ 315,406
Jan-21	1,229,734	122,500	245,000	1,597,234	$ 1.7134	$ 2,106,984	$ 209,887	$ 419,775	$ 2,736,646	189,100	$ 1.6679	$ 315,406
Feb-21	1,229,734	122,500	245,000	1,597,234	$ 1.7134	$ 2,106,984	$ 209,887	$ 419,775	$ 2,736,646	196,000	$ 1.6679	$ 326,915
Mar-21	489,384	48,750	97,500	635,634	$ 1.7134	$ 838,494	$ 83,527	$ 167,053	$ 1,089,074	85,900	$ 1.6679	$ 143,275
Total	4,667,969	465,000	930,000	6,062,969		$ 7,997,940	$ 796,715	$ 1,593,431	$ 10,388,086	756,100		$ 1,261,124

Month/ Year	NNG Storage Volume (Dth)	NNG Index Price	NNG Index Cost
Nov-20	635,634	$ 2.3950	$ 1,522,343
Dec-20	1,597,234	$ 3.2220	$ 5,146,287
Jan-21	1,597,234	$ 3.8450	$ 6,141,363
Feb-21	1,597,234	$ 3.8405	$ 6,134,176
Mar-21	635,634	$ 2.9375	$ 1,867,174
Total	6,062,969		$ 20,811,343
Storage Savings (Cost):			$ 10,423,257

Month/ Year	ANR Storage Volume (Dth)	Emerson Index Price	Emerson Market Cost
Nov-20	96,000	$ 2.2625	$ 217,200
Dec-20	189,100	$ 2.7295	$ 516,148
Jan-21	189,100	$ 2.8975	$ 547,917
Feb-21	196,000	$ 2.8655	$ 561,638
Mar-21	85,900	$ 2.7475	$ 236,010
Total	756,100		$ 2,078,914

*Indexes and projected WACOG based on 7/8/20 market prices

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MINNESOTA ENERGY RESOURCES - NNG

Projected Hedged Cost - November 2020 through March 2021

Call/Put Options WACOG

Call/Put Options 10,000 Dth/contract

Nov-20

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	Option Price	Option Cost	Pent Settle*	Pent Settle Cost	Over/(Under) Market	Premium Per Unit	Premium Cost	Total Cost
1	05/05/20	85853	12	120,000	$ 3.8500	$ 462,000	$ 2.3480	$ 281,760	$ 2.3480	$ 281,760	$ -	$ 0.0950	$ 11,400	$ 293,160
2	06/09/20	86579	12	120,000	$ 3.0000	$ 360,000	$ 2.3480	$ 281,760	$ 2.3480	$ 281,760	$ -	$ 0.0950	$ 11,400	$ 293,160
3	07/07/20	87097	11	110,000	$ 3.0000	$ 330,000	$ 2.3480	$ 258,280	$ 2.3480	$ 258,280	$ -	$ 0.0940	$ 10,340	$ 268,620
4				-		$ -	$ -	$ -	$ 2.3480	$ -	$ -		$ -	$ -
5				-		$ -	$ -	$ -	$ 2.3480	$ -	$ -		$ -	$ -
6				-		$ -	$ -	$ -	$ 2.3480	$ -	$ -		$ -	$ -
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Total			35	350,000		$ 1,152,000		$ 821,800		$ 821,800	$ -		$ 33,140	$ 854,940
						$ 3.2914		$ 2.3480		$ 2.3480	$ -		$ 0.0288	$ 2.4427
NNG		82.35%	29	288,235	$ 3.2914	$ 948,706	$ 2.3480	$ 676,776	$ 2.3480	$ 676,776	$ -	$ 0.0947	$ 27,292	$ 704,068
Other-Cons		17.65%	6	61,765	$ 3.2914	$ 203,294	$ 2.3480	$ 145,024	$ 2.3480	$ 145,024	$ -	$ 0.0947	$ 5,848	$ 150,872
Total		100.0%	35	350,000	$ 3.2914	$ 1,152,000	$ 2.3480	$ 821,800	$ 2.3480	$ 821,800	$ -	$ 0.0947	$ 33,140	$ 854,940

Dec-20

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	Option Price	Option Cost	Pent Settle*	Pent Settle Cost	Over/(Under) Market	Premium Per Unit	Premium Cost	Total Cost
1	05/12/20	86093	17	170,000	$ 4.8000	$ 816,000	$ 2.7540	$ 468,180	$ 2.7540	$ 468,180	$ -	$ 0.1000	$ 17,000	$ 485,180
2	06/16/20	86741	17	170,000	$ 4.0000	$ 680,000	$ 2.7540	$ 468,180	$ 2.7540	$ 468,180	$ -	$ 0.0980	$ 16,660	$ 484,840
3	07/09/20	87195	17	170,000	$ 3.8000	$ 646,000	$ 2.7540	$ 468,180	$ 2.7540	$ 468,180	$ -	$ 0.1000	$ 17,000	$ 485,180
4				-		$ -	$ -	$ -	$ 2.7540	$ -	$ -		$ -	$ -
5				-		$ -	$ -	$ -	$ 2.7540	$ -	$ -		$ -	$ -
6				-		$ -	$ -	$ -	$ 2.7540	$ -	$ -		$ -	$ -
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Total			51	510,000		$ 2,142,000		$ 1,404,540		$ 1,404,540	$ -		$ 50,660	$ 1,455,200
						$ 4.2000		$ 2.7540		$ 2.7540	$ -		$ 0.0237	$ 2.8533
NNG		82.83%	42	422,424	$ 4.2000	$ 1,774,182	$ 2.7540	$ 1,163,356	$ 2.7540	$ 1,163,356	$ -	$ 0.0993	$ 41,961	$ 1,205,317
Other-Cons		17.17%	9	87,576	$ 4.2000	$ 367,818	$ 2.7540	$ 241,184	$ 2.7540	$ 241,184	$ -	$ 0.0993	$ 8,699	$ 249,883
Total		100.0%	51	510,000	$ 4.2000	$ 2,142,000	$ 2.7540	$ 1,404,540	$ 2.7540	$ 1,404,540	$ -	$ 0.0993	$ 50,660	$ 1,455,200

Jan-21

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	Option Price	Option Cost	Pent Settle*	Pent Settle Cost	Over/(Under) Market	Premium Per Unit	Premium Cost	Total Cost
1	05/07/20	85946	11	110,000	$ 6.4500	$ 709,500	$ 2.8840	$ 317,240	$ 2.8840	$ 317,240	$ -	$ 0.0680	$ 10,780	$ 328,020
2	05/19/20	86234	12	120,000	$ 5.9500	$ 714,000	$ 2.8840	$ 346,080	$ 2.8840	$ 346,080	$ -	$ 0.1000	$ 12,000	$ 358,080
3	06/11/20	86646	11	110,000	$ 5.0000	$ 550,000	$ 2.8840	$ 317,240	$ 2.8840	$ 317,240	$ -	$ 0.1000	$ 11,000	$ 328,240
4	06/23/20	86925	12	120,000	$ 4.8500	$ 582,000	$ 2.8840	$ 346,080	$ 2.8840	$ 346,080	$ -	$ 0.1000	$ 12,000	$ 358,080
5	07/08/20	87120	11	110,000	$ 4.9500	$ 544,500	$ 2.8840	$ 317,240	$ 2.8840	$ 317,240	$ -	$ 0.1000	$ 11,000	$ 328,240
6				-		$ -	$ -	$ -	$ 2.8840	$ -	$ -		$ -	$ -
7				-		$ -	$ -	$ -	$ 2.8840	$ -	$ -		$ -	$ -
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Total			57	570,000		$ 3,100,000		$ 1,643,880		$ 1,643,880	$ -		$ 56,780	$ 1,700,660
						$ 5.4386		$ 2.8840		$ 2.8840	$ -		$ 0.0183	$ 2.9836
NNG		83.09%	47.3603	473,603	$ 5.4386	$ 2,575,735	$ 2.8840	$ 1,365,871	$ 2.8840	$ 1,365,871	$ -	$ 0.0996	$ 47,178	$ 1,413,048
Other-Cons		16.91%	9.63971	96,397	$ 5.4386	$ 524,265	$ 2.8840	$ 278,009	$ 2.8840	$ 278,009	$ -	$ 0.0996	$ 9,603	$ 287,612
Total		100.0%	57	570,000	$ 5.4386	$ 3,100,000	$ 2.8840	$ 1,643,880	$ 2.8840	$ 1,643,880	$ -	$ 0.0996	$ 56,780	$ 1,700,660

Feb-21

Deal Number	Purchase Date	Trade Number	Number Contracts	Physical Volume	Strike Price	Strike Cost	Option Price	Option Cost	Pent Settle*	Pent Settle Cost	Over/(Under) Market	Premium Per Unit	Premium Cost	Total Cost
1	05/14/20	61909	20	200,000	$ 6.4500	$ 1,290,000	$ 2.8500	$ 570,000	$ 2.8500	$ 570,000	$ -	$ 0.1000	$ 20,000	$ 590,000
2	06/18/20	86803	19	190,000	$ 6.0000	$ 1,140,000	$ 2.8500	$ 541,500	$ 2.8500	$ 541,500	$ -	$ 0.1000	$ 19,000	$ 560,500
3	07/13/20	87243	19	190,000	$ 5.7500	$ 1,092,500	$ 2.8500	$ 541,500	$ 2.8500	$ 541,500	$ -	$ 0.1000	$ 19,000	$ 560,500
4				-		$ -	$ -	$ -	$ 2.8500	$ -	$ -		$ -	$ -
5				-		$ -	$ -	$ -	$ 2.8500	$ -	$ -		$ -	$ -
6				-		$ -	$ -	$ -	$ 2.8500	$ -	$ -		$ -	$ -
7				-		$ -	$ -	$ -	$ 2.8500	$ -	$ -		$ -	$ -
8				-		$ -	$ -	$ -	$ 2.8500	$ -	$ -		$ -	$ -
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Total			58	580,000		$ 3,522,500		$ 1,653,000		$ 1,653,000	$ -		$ 58,000	$ 1,711,000
						$ 6.0733		$ 2.8500		$ 2.8500	$ -		$ 0.0165	$ 2.9500
NNG		83.48%	48	484,174	$ 6.0733	$ 2,940,522	$ 2.8500	$ 1,379,896	$ 2.8500	$ 1,379,896	$ -	$ 0.1000	$ 48,417	$ 1,428,313
Other-Cons		16.52%	10	95,826	$ 6.0733	$ 581,978	$ 2.8500	$ 273,104	$ 2.8500	$ 273,104	$ -	$ 0.1000	$ 9,583	$ 282,687
Total		100.0%	58	580,000	$ 6.0733	$ 3,522,500	$ 2.8500	$ 1,653,000	$ 2.8500	$ 1,653,000	$ -	$ 0.1000	$ 58,000	$ 1,711,000

Mar-21

Deal Number	Purchase Date	Trade Number	Number Contracts	Financial Volume	Strike Price	Strike Cost	Option Price	Option Cost	Pent Settle*	Pent Settle Cost	Over/(Under) Market	Premium Per Unit	Premium Cost	Total Cost
1	05/19/20	86235	16	160,000	$ 7.0500	$ 1,128,000	$ 2.7510	$ 440,160	$ 2.7510	$ 440,160	$ -	$ 0.1000	$ 16,000	$ 456,160
2	06/23/20	86926	16	160,000	$ 6.0500	$ 968,000	$ 2.7510	$ 440,160	$ 2.7510	$ 440,160	$ -	$ 0.1000	$ 16,000	$ 456,160
3				-		$ -	$ -	$ -	$ 2.7510	$ -	$ -		$ -	$ -
4				-		$ -	$ -	$ -	$ 2.7510	$ -	$ -		$ -	$ -
5				-		$ -	$ -	$ -	$ 2.7510	$ -	$ -		$ -	$ -
6				-		$ -	$ -	$ -	$ 2.7510	$ -	$ -		$ -	$ -
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Total			32	320,000		$ 2,096,000		$ 880,320		$ 880,320	$ -		$ 32,000	$ 912,320
						$ 6.5500		$ 2.7510		$ 2.7510	$ -		$ 0.0153	$ 2.8510
NNG		83.52%	27	267,253	$ 6.5500	$ 1,750,505	$ 2.7510	$ 735,212	$ 2.7510	$ 735,212	$ -	$ 0.1000	$ 26,725	$ 761,938
Other-Cons		16.48%	5	52,747	$ 6.5500	$ 345,495	$ 2.7510	$ 145,108	$ 2.7510	$ 145,108	$ -	$ 0.1000	$ 5,275	$ 150,382
Total		100.0%	32	320,000	$ 6.5500	$ 2,096,000	$ 2.7510	$ 880,320	$ 2.7510	$ 880,320	$ -	$ 0.1000	$ 32,000	$ 912,320

Total

Deal Number	Purchase Date	%	Number Contracts	Physical Volume	Strike Price	Strike Cost	Option Price	Option Cost	Pent Settle*	Pent Settle Cost	Over/(Under) Market	Premium Per Unit	Premium Cost	Total Cost
1			76	760,000	$ 5.7967	$ 4,405,500	$ 2.7333	$ 2,077,340	$ 2.7333	$ 2,077,340	$ -	$ 0.0989	$ 75,180	$ 2,152,520
2			76	760,000	$ 5.0816	$ 3,862,000	$ 2.7338	$ 2,077,680	$ 2.7338	$ 2,077,680	$ -	$ 0.0988	$ 75,060	$ 2,152,740
3			58	580,000	$ 4.5147	$ 2,618,500	$ 2.7331	$ 1,585,200	$ 2.7331	$ 1,585,200	$ -	$ 0.0989	$ 57,340	$ 1,642,540
4			12	120,000	$ 4.4500	$ 582,000	$ 2.8840	$ 346,080	$ 2.8840	$ 346,080	$ -	$ 0.1000	$ 12,000	$ 358,080
5			11	110,000	$ 4.9500	$ 544,500	$ 2.8840	$ 317,240	$ 2.8840	$ 317,240	$ -	$ 0.1000	$ 11,000	$ 328,240
6			0	-	$ -	$ -		$ -	#DIV/0!	$ -	$ -	$ -	$ -	$ -
7			0	-	$ -	$ -		$ -	#DIV/0!	$ -	$ -	$ -	$ -	$ -
8			0	-	$ -	$ -		$ -	#DIV/0!	$ -	$ -	$ -	$ -	$ -
9														
10														
11														
12														
13														
14														
15														
Total			233	2,330,000		$ 12,012,500		$ 6,403,540		$ 6,403,540	$ -		$ 230,580	$ 6,634,120
						$ 5.1556		$ 2.7483		$ 2.7483	$ -		$ 0.0989	$ 2.8473
NNG		83.10%	193.569	1,935,688	$ 5.1608	$ 9,990,650	$ 2.7489	$ 5,321,112	$ 2.7489	$ 5,321,112	$ -	$ 0.0990	$ 191,573	$ 5,512,684
Other-Cons		16.90%	39.4311	394,311	$ 5.1301	$ 2,022,850	$ 2.7451	$ 1,082,428	$ 2.7451	$ 1,082,428	$ -	$ 0.0989	$ 39,007	$ 1,121,436
Total		83.1%	233	2,330,000	$ 5.1556	$ 12,012,500	$ 2.7483	$ 6,403,540	$ 2.7483	$ 6,403,540	$ -	$ 0.0990	$ 230,580	$ 6,634,120

*Prices from 7/14/20 NYMEX market

Attachment 12: Forecast Methodology for MERC Demand Entitlement Effective November 1, 2020

1. Peak-day

a. Purpose

Gather data and perform analysis used in the "Petition for Change in Demand" for MERC, otherwise known as the "MERC Demand Entitlement Filings."

b. Background

MERC customers are served by four pipelines[1]

1. VGT - Viking Gas Transmission system
2. NNG - Northern Natural Gas pipeline
3. GLGT - Great Lakes Gas Transmission pipeline
4. Centra - Centra pipeline

Weather data is obtained from eight weather stations: International Falls, Bemidji, Cloquet, Fargo, Minneapolis, Rochester, Worthington, and Ortonville.

For analytical purposes, data is subdivided, analyzed, and regressed by the following nine demand areas:

	Pipeline	PGA	Weather Station(s)
1	Centra	MERC Consolidated	International Falls
2	GLGT	MERC Consolidated	Bemidji
3	GLGT	MERC Consolidated	Cloquet
4	VGT	MERC Consolidated	Fargo
5	NNG	MERC NNG	Cloquet
6	NNG	MERC NNG	Minneapolis
7	NNG	MERC NNG	Ortonville
8	NNG	MERC NNG	Rochester
9	NNG	MERC NNG	Worthington

[1] MERC acquired Interstate Power & Light Company's Minnesota natural gas operations and customers in 2015. The Commission's Order Approving Sale Subject to Conditions in Docket No. G-001,011/PA-14-107 required MERC to maintain the transitioned customers on a separate PGA (MERC–NNG–Albert Lea). Pursuant to the Commission's Order in Docket No. G011/GR-15-736, the NNG and NNG–Albert Lea PGAs were consolidated effective July 1, 2017. MERC now submits only two demand entitlement petitions (NNG and Consolidated) for each heating season.

2. Analytical Approach

a. Summary

1. Obtain daily weather data for each weather station.
2. Obtain daily total throughput volumes by pipeline and by weather station.
3. Obtain daily large volume transportation, interruptible, and joint interruptible volumes by pipeline and by weather station (Data A).
4. Obtain daily small volume interruptible volumes by pipeline and by weather station (Data B).
5. Calculate daily “firm” volumes by subtracting both Data A and Data B from total throughput volumes.
6. Perform quality control on volumetric data (e.g., identify missing or bad reads, and, to the extent possible, fix missing or bad reads).
7. Perform firm peak day regressions. In response to comments from the Minnesota Department of Commerce, Division of Energy Resources (Department):
    a. Incorporate a methodology to mitigate the impact of autocorrelation.
    b. Provide a reasonable explanation whenever a regression model is selected that does not have an intercept.
8. Add back Daily Firm Capacity (DFC) customer selections.

3. Process

The Peak Day Process consisted of:

I. Data Preparation
II. Regression Generation of Net Daily Metered Volumes
III. Volume Risk Adjustments
IV. Adjusting the Regression Results to a Firm Peak Day Estimate

i. The **Data Preparation** consisted of:

- Identify the coldest Adjusted Heating Degree Day (AHDD) since January 1996 for each weather station. Note, this is a change in practice from prior analysis that used a rolling 20-year period. The change was included because many weather stations experienced historically cold weather in the January/February 1996 time period and without inclusion of that additional data from January/February 1996, AHDD were materially lower and not reflective of MERC's capacity needs.
- Determine the most recent three years of December through February daily total metered throughput by pipeline and by weather station.
- Determine the most recent three years of December through February daily large volume transportation, interruptible, and joint interruptible volumes by pipeline and by weather station (Data A).
- Determine the most recent three years of December through February daily small volume interruptible volumes by pipeline and by weather station (Data B).
- Review daily total metered throughput, Data A, and Data B, and identify missing or bad reads, and to the extent possible, fix missing or bad reads. To the extent that the data could not be fixed, it was not included in the regressions.
- Subtract both Data A and Data B daily meter readings for all three December through February years from the total throughput for each pipeline and each weather station. Use the resulting net daily metered volumes for regressions. Examples of transportation, interruptible, and joint interruptible meter readings subtracted are paper mills, direct-connects, taconites, and off-system end users. See "Adjusting the Regression Results to a Firm Peak Day Estimate" below.

Each daily weather station data file was searched to find the coldest Adjusted Heating Degree Day (AHDD65) since January 1996. Many weather stations experienced historically cold weather in the January/February 1996 time period; without inclusion of that additional data from January/February 1996, AHDD65 were materially lower and not reflective of MERC's capacity needs. The coldest AHDD65 data since 1996 is included in the table below, along with the AHDD65 conditions on the day prior ("AHDD65-1").

Station	Date	Avg. Temp	Avg. Wind	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

This data by weather station was then compared to the AHDD65 data used in the previous demand entitlement filing:

Station	Date	Avg. Temp	Avg. Wind	HDD65	AHDD65	AHDD65-1
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	1/18/1996	-8	32	73	96	74
Ortonville	1/14/2009	-21	11	86	96	86

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. Following is the data by weather station that was ultimately used in MERC's current analysis:

Station	Date	Avg. Temp	Avg. Wind	HDD65	AHDD65	AHDD65-1
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

ii. The **Regression Generation of Net Daily Metered Volumes** consisted of:

- For each of the pipelines and weather stations:
    1. Gather the net daily metered volumes and weather station data including AHDD65.[2]
    2. Add indicator variables for day-type and month. Day-type variables are used to isolate load that changes by day of the week, such as commercial or industrial customers who may change their consumption on weekends when they run fewer shifts. Month indicator variables are used to isolate load that changes based on winter months, such as businesses that are open extra hours in December and resume normal operating hours in January.
    3. Perform ordinary least squares linear regressions for the 3-year time frame using the AHDD65 weather variable and the significant indicator variables.
    4. In response to comments from the Department, the regression methodology incorporates a process to mitigate the impact of autocorrelation. See section below on autocorrelation.
    5. In response to comments from the Department, provide an explanation whenever we choose to use a regression model that does not have an intercept.

[2] Temperature and weather data were obtained from DTN (formerly Schneider Electric) via DataMaxx then converted to HDD65 and AHDD65 in an Excel spreadsheet by MERC – Gas Supply. Temperature and wind data is the 24-hour average based on the 9am to 9am gas day.

6. Summarize the Baseload and Use/AHDD65 and Use/Prior Day AHDD65 from each regression.
7. Calculate a point estimate from each regression based on the baseload value plus the Use/AHDD65 coefficient times the coldest AHDD65 since January 1996 and the Use/Prior Day AHDD65 coefficient times the AHDD65 on the day prior to the coldest AHDD65 since January 1996.

iii. **Volume Risk Adjustments**

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. An appropriate volume risk adjustment was determined for each regression group by multiplying the standard error of each regression analysis (sigma) by a factor needed to attain a desired confidence level. The desired confidence level chosen was 97.5%.

iv. **Adjusting the Regression Results to a Firm Peak Day Estimate** consisted of:

1. **Add back DFC customer selections**

While transportation, interruptible, and joint interruptible customer volumes were removed (as described above), in order to determine firm peak day load, daily firm capacity volumes needed to be added back. Reporting from the billing system provided historical monthly DFC data for the joint service customers from the prior winter that showed the volume that each customer has selected to receive as firm service from MERC each month. Based on direction from the Company's Gas Supply department, the Joint Firm/ Interruptible customers who were relying on MERC to provide peak day firm supply were identified and their daily firm capacity volumes were summed by month for each pipeline. The total volumes were then added back to the regression results.

Exhibit 1
Pipeline and Weather Station Regression Notes

A. Large Volume Transportation, Interruptible, and Joint Interruptible Customers

GLGT Paper Mills =
- Blandon mapped to Bemidji
- Sappi and USG mapped to Cloquet

VGT Lamb Weston mapped to Fargo

NNG Taconites / Direct Connects =
- CCI EMPIRE IND DEL PT 2 TILDEN mapped to Cloquet
- CCI NORTHSHORE mapped to Cloquet
- UNITED TACONITE (was EVELETH TACONITE) mapped to Cloquet
- HIBBING TACONITE CO. mapped to Cloquet
- U.S. STEEL #1 & #2 mapped to Cloquet
- NATIONAL STEEL PELLET mapped to Cloquet
- COTTAGE GROVE TBS LS POWER mapped to Minneapolis
- INLAND STEEL mapped to Cloquet
- HANNA MINING mapped to Cloquet

NNG OSEU (End Users) =
- ARKEMA INC. mapped to Rochester
- MAYO Clinic 1 Fairmount mapped to Worthington
- MAYO Clinic 2 (Franklin Htg) mapped to Rochester
- MAYO Clinic 3 (St Mary's) mapped to Rochester
- ARCHER DANIELS MIDLAND, CO. mapped to Minneapolis
- ASSOCIATED MILK PRODUCTS, INC. mapped to Rochester
- Hawkins Inc. mapped to Minneapolis
- CORRECTIONAL CTR mapped to Minneapolis
- DAIRY FARMERS OF AMERICA mapped to Rochester
- Dick's Sanitation mapped to Minneapolis
- KEMPS LLC mapped to Rochester
- KERRY BIO-SCIENCE mapped to Rochester
- LAKESIDE mapped to Rochester
- MILK SPECIALTIES mapped to Worthington
- LAND OF LAKES mapped to Rochester
- PRO-CORN mapped to Rochester
- SWIFT mapped to Worthington
- SENECA FOODS-ROCHESTER mapped to Rochester
- ENGINEERED POLYMERS mapped to Cloquet
- SANDSTONE FEDERAL CORRECTIONAL INSTITUTE mapped to Cloquet
- Agra Resources(Exol) mapped to Rochester
- Halcon Corporation mapped to Rochester
- REG ALBERT LEA, LLC mapped to Rochester

- Zinpro North Branch mapped to Minneapolis

B. Daily Firm Capacity

VGT

- DETROIT LAKES MIDDLE SCHOOL
- ROSSMAN SCHOOL

GLGT

- NORTHLAND APTS

NNG

- HENDRICKS HOSPITAL
- BRAND FX BODY INC

4. Autocorrelation Review

The Commission's February 4, 2015, Order in MERC's 2012-2013 demand entitlement dockets[3] required MERC to check its regression models for autocorrelation and correct the model if autocorrelation is present and to provide a reasonable explanation of its use of no-intercept models if it chooses to use one again in the future.

In a regression analysis, using time series data, autocorrelation of the errors is a problem. Autocorrelation of the errors, which themselves are unobserved, can generally be detected because it produces autocorrelation in the observable residuals. (Errors are also known as "error terms" in econometrics.) Autocorrelation violates the ordinary least squares (OLS) assumption that the error terms are uncorrelated. While it does not bias the OLS coefficient estimates, the standard errors tend to be underestimated (and the t-scores overestimated) when the autocorrelations of the errors at low lags are positive. The traditional test for the presence of first-order autocorrelation is the Durbin–Watson statistic or, if the explanatory variables include a lagged dependent variable, Durbin's h statistic. To correct for this use, MERC used the Yule-Walker estimation method within the SAS software package to

3 Docket Nos. G011/M-12-1192, G011/M-12-1193, G011/M-12-1194, and G011/M-12-1195

employ an AR(1) regression which then showed that the Durbin–Watson statistics are all either close to 2 or above.

5. Design-Day Model

Order Point 5 of the Commission's January 21, 2015, Order in MERC's 2010-2011 demand entitlement dockets[4] required that in future demand entitlement filings, MERC provide (1) the determinants used in its Design-Day models that account for each and every impact on usage associated with economic conditions, and (2) a detailed explanation of each and every cause of unexpected changes in usage that might impact the Design-Day calculation, and what, if any, modifications the Company made to its Design-Day numbers. MERC does not forecast its Design Day using economic variables. Additionally, there were no unexpected changes in the Design-Day forecast.

6. Verification of Regression Analysis Results

Order Point 10 of the Commission's April 28, 2016, Order in Docket No. G011/M-15-722 required that MERC verify its regression analysis results in future demand entitlement filings to ensure the results are consistent with the underlying theory the analysis attempts to explain. MERC has carefully reviewed the results of its regression analysis and verified that the results are consistent with the underlying theory the analysis attempts to explain. Please see the May 31, 2016, compliance filing in Docket Nos. G011/M-15-722, G011/M-15-723, and G011/M-15-724 for further discussion of this issue.

7. Albert Lea Telemetry Data

Order Point 11 of the Commission's April 28, 2016 Order in Docket Nos. G011/M-15-722, G011/M-15-723, and G011/M-15-724, required:

> If the Commission approves MERC's general rate case proposal to consolidate its MERC-NNG and MERC-Albert Lea PGA areas into one PGA area, direct MERC to work with the Department in

[4] Docket Nos. G007/M-10-1166, G007/M-10-1167, G011/M-10-1168, and G011/M-10-1169

> developing an appropriate Design Day regression analysis methodology for its subsequent demand entitlement petitions until MERC has three years daily interruptible data available for all its interruptible customers for the consolidated NNG PGA area.

MERC has worked with the Department to ensure its design day regression analysis for the NNG-PGA is reasonable. As of this filing, MERC has completed installation of telemetry for its former MERC-Albert Lea customers and has sufficient data for these customers to utilize in the Design Day analysis. For this 2020-2021 Design-Day, MERC has utilized daily telemetry data for all of the MERC-NNG customers

ATTACHMENT D

In the Matter of the Petition of Minnesota Energy Resources Corporation for Approval of a Change in Demand Entitlement for its NNG System

Docket No. G011/M-20-___

CERTIFICATE OF SERVICE

I, Colleen T. Sipiorski, hereby certify that on the 31st day of July, 2020, on behalf of Minnesota Energy Resources Corporation (MERC) I electronically filed a true and correct copy of MERC's Petition for Approval of a Change in Demand Entitlement on www.edockets.state.mn.us. Said documents were also served via U.S. mail and electronic service as designated on the attached service list.

Dated this 31st day of July, 2020.

/s/ Colleen T. Sipiorski
Colleen T. Sipiorski

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Tamie A.	Aberle	tamie.aberle@mdu.com	Great Plains Natural Gas Co.	400 North Fourth Street Bismarck, ND 585014092	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Michael	Ahern	ahern.michael@dorsey.com	Dorsey & Whitney, LLP	50 S 6th St Ste 1500 Minneapolis, MN 554021498	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Kristine	Anderson	kanderson@greatermngas.com	Greater Minnesota Gas, Inc.& Greater MN Transmission, LLC	1900 Cardinal Lane PO Box 798 Faribault, MN 55021	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Mara	Ascheman	mara.k.ascheman@xcelenergy.com	Xcel Energy	414 Nicollet Mall Fl 5 Minneapolis, MN 55401	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Gail	Baranko	gail.baranko@xcelenergy.com	Xcel Energy	414 Nicollet Mall7th Floor Minneapolis, MN 55401	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Robert S.	Carney, Jr.			4232 Colfax Ave. S. Minneapolis, MN 55409	Paper Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
John	Coffman	john@johncoffman.net	AARP	871 Tuxedo Blvd. St, Louis, MO 63119-2044	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Riley	Conlin	riley.conlin@stoel.com	Stoel Rives LLP	33 S. 6th Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
George	Crocker	gwillc@nawo.org	North American Water Office	PO Box 174 Lake Elmo, MN 55042	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Rebecca	Eilers	rebecca.d.eilers@xcelenergy.com	Xcel Energy	414 Nicollet Mall - 401 7th Floor Minneapolis, MN 55401	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Darcy	Fabrizius	Darcy.fabrizius@constellation.com	Constellation Energy	N21 W23340 Ridgeview Pkwy Waukesha, WI 53188	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Daryll	Fuentes	dfuentes@usg.com	USG Corporation	550 W Adams St Chicago, IL 60661	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Edward	Garvey	edward.garvey@AESLconsulting.com	AESL Consulting	32 Lawton St Saint Paul, MN 55102-2617	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP	Suite 1750 220 South Sixth Street Minneapolis, MN 554021425	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Robert	Harding	robert.harding@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 55101	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors	413 Wacouta Street #230 St.Paul, MN 55101	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Michael	Hoppe	il23@mtn.org	Local Union 23, I.B.E.W.	932 Payne Avenue St. Paul, MN 55130	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Gregory	Jenner	greg.jenner@stoel.com	Stoel Rives LLP	33 South Sixth Street Ste 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Richard	Johnson	Rick.Johnson@lawmoss.com	Moss & Barnett	150 S. 5th Street Suite 1200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Sarah	Johnson Phillips	sarah.phillips@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Michael	Krikava	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Nicolle	Kupser	nkupser@greatermngas.com	Greater Minnesota Gas, Inc. & Greater MN Transmission, LLC	1900 Cardinal Ln PO Box 798 Faribault, MN 55021	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Peder	Larson	plarson@larkinhoffman.com	Larkin Hoffman Daly & Lindgren, Ltd.	8300 Norman Center Drive Suite 1000 Bloomington, MN 55437	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Eric	Lipman	eric.lipman@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 551640620	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Mary	Martinka	mary.a.martinka@xcelenergy.com	Xcel Energy Inc	414 Nicollet Mall 7th Floor Minneapolis, MN 55401	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Brian	Meloy	brian.meloy@stinson.com	STINSON LLP	50 S 6th St Ste 2600 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Joseph	Meyer	joseph.meyer@ag.state.mn.us	Office of the Attorney General-RUD	Bremer Tower, Suite 1400 445 Minnesota Street St Paul, MN 55101-2131	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company	200 1st Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Greg	Palmer	gpalmer@greatermngas.com	Greater Minnesota Gas, Inc. & Greater MN Transmission, LLC	1900 Cardinal Ln PO Box 798 Faribault, MN 55021	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Catherine	Phillips	Catherine.Phillips@wecenergygroup.com	Minnesota Energy Resources	231 West Michigan St Milwaukee, WI 53203	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Richard	Savelkoul	rsavelkoul@martinsquires.com	Martin & Squires, P.A.	332 Minnesota Street Ste W2750 St. Paul, MN 55101	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Adam	Schurle	adam.schurle@stoel.com	Stoel Rives LLP	33 South Sixth Street, Suite 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul, MN 55101	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	7400 Lyndale Ave S Ste 190 Richfield, MN 55423	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Colleen	Sipiorski	Colleen.Sipiorski@wecenergygroup.com	Minnesota Energy Resources Corporation	700 North Adams St Green Bay, WI 54307	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP	2200 IDS Center 80 South 8th St Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
James M	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	200 S 6th St Ste 470 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Lynnette	Sweet	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Lisa	Veith	lisa.veith@ci.stpaul.mn.us	City of St. Paul	400 City Hall and Courthouse 15 West Kellogg Blvd. St. Paul, MN 55102	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Casey	Whelan	cwhelan@kinectenergy.com	Kinect Energy Group	605 Highway 169 N Ste 1200 Plymouth, MN 55441	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement
Mary	Wolter	mary.wolter@wecenergygroup.com	Minnesota Energy Resources Corporation (HOLDING)	231 West Michigan St Milwaukee, WI 53203	Electronic Service	No	GEN_SL_Minnesota Energy Resources Corporation (HOLDING)_2020-2021 Demand Entitlement