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November 1, 2016

VIA ELECTRONIC FILING

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

Re: In the Matter of the Petition of Minnesota Energy Resources Corporation-Northern Natural Gas—Albert Lea for Approval of a Change in Demand Entitlement – November 1 Update

Docket No. G011/M-16-652

Dear Mr. Wolf:

On August 1, 2016, Minnesota Energy Resources (“MERC” or the “Company”) filed its Petition for Change in Demand Entitlement for the MERC-NNG-Albert Lea purchased gas adjustment (“PGA”). On October 28, 2016, the Department of Commerce, Division of Energy Resources (“Department”) submitted comments in the above-referenced docket, requesting that MERC provide a justification for its selection of data from the Rochester weather station in NNG-Albert Lea’s peak-day analysis and also that MERC provide a revised design-day regression analysis with Albert Lea weather data in Reply Comments. MERC submits this update to its August 1, 2016, Demand Entitlement filing and will provide the requested additional information regarding Albert Lea weather data in subsequent Reply Comments. MERC notes that at the time of its August 1, 2016, filing, MERC did not possess the necessary Albert Lea weather data to utilize in its regression. Since that time, MERC has obtained the Albert Lea weather data and has now created a process to compare that data to other weather stations to verify its adequacy and reliability. MERC will provide a response to the Department’s request in subsequent Reply Comments.

In its April 28, 2016 Order in Docket No. G011/M-15-724, the Minnesota Public Utilities Commission (“Commission”) required that MERC explain changes made in its compliance petitions that are different from its original petitions, and provide a redline version of both petitions identifying changes.

As of the date of this filing, MERC has completed its purchases of future contract and call options for the 2016-17 winter period. This, along with an update in storage pricing is shown in attachment 11. Additionally, winter term gas purchases have been added to Attachment 6, page 2. A redline of MERC's August 1, 2016, Petition is included as Attachment 1 to this filing and updated exhibits showing revisions highlighted in orange are included. MERC also submits the updated Attachments in Microsoft Excel format.

Please contact me at (651) 322-8965 if you have any questions regarding the information in this filing. Thank you for your attention to this matter.

Sincerely yours,

/s/ Amber S. Lee

Amber S. Lee
Regulatory and Legislative Affairs Manager
Minnesota Energy Resources Corporation

cc: Service List

STATE OF MINNESOTA
BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger
Nancy Lange
Dan Lipschultz
Matt Schuerger
John Tuma

Chair
Commissioner
Commissioner
Commissioner
Commissioner

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

Docket No. G011/M-16-~~652~~

**UPDATED PETITION OF MINNESOTA ENERGY RESOURCES CORPORATION-NNG-
ALBERT LEA FOR CHANGE IN DEMAND**

I. Introduction

Pursuant to Minnesota Rule 7825.2910, subpart 2 (Filing Upon Change in Demand), Minnesota Energy Resources Corporation – NNG-Albert Lea (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-Albert Lea customers served off the Northern Natural Gas interstate pipeline system. MERC requests that the Commission approve the requested changes to be recovered in the Purchased Gas Adjustment (PGA) effective on November 1, 2016. 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

II. Discussion

A. MERC's NNG-Albert Lea Design-Day Requirements

Minn. R. 7825.2910, subp. 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-Albert Lea Design-Day requirement has decreased by 285 Dth from the November 1, 2015 filing.

**Table 1: MERC’s Proposed NNG-ABL Reserve Margins
For the 2016-2017 Heating Season**

	Reserve Margin 2016-2017 Heating Season	Reserve Margin 2015-2016 Heating Season	Change
NNG Zone EF	4.89%	2.73%	2.16%

For the Demand Entitlement filing effective November 1, 2016, the total Design-Day requirement for MERC-NNG-Albert Lea is 13,528 Dth (Attachment 1). The difference between the total Design-Day requirement and total Design-Day capacity results in a 4.89% positive reserve margin (Attachment 3).

As required by Order Point 9 of the Commission’s Order in Docket No. G011/M-15-724, Attachment 3 reflects the separate summer and winter demand entitlements for MERC-NNG-Albert Lea.

B. Gas Supply

Minn. R. 7825.2910, subp. 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, 2015

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

Before July 1, 2013, four Petitions for Change in Demand were filed (one for each PGA):

- A. PNG customers served off of VGT = PNG - VGT
- B. PNG customers served off of GLGT = PNG - GLGT
- C. PNG customers served off of NNG = PNG - NNG
- D. All NMU customers - served off of NNG, GLGT, VGT & Centra = NMU

Effective July 1, 2013, two Petitions for Change in Demand need to be filed (one for each PGA):

- i. All MERC customers served off of NNG = NNG
- ii. All other PNG customers, served off of Centra, GLGT & VGT = MERC NNG

Effective May 1, 2015, MERC acquired Interstate Power & Light Company's Minnesota natural gas operations and customers. The Commission's Order Approving Sale Subject to Conditions in Docket G-001,011/PA-14-107 required MERC to maintain the transitioned customers on a separate PGA until MERC's next rate case (MERC-NNG- Albert Lea).

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 demand areas:

	Pipeline	PGA	Weather Station(s)
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**Attachment 1
November 1, 2016**

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

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 (Department):

- a. Review and potentially change the regression methodology to mitigate the impact of autocorrelation.
 - b. Provide a reasonable explanation whenever we choose to use a regression model 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** Steps consisted of:

- Identify the coldest Adjusted Heating Degree Day (AHDD) in the last 20 years for each weather station.
- 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”).

**Attachment 1
November 1, 2016**

- 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) in the last 20 years. This 1-in-20 approach is consistent with prior years. The results are provided in the following table:

<u>Station</u>	<u>Date</u>	<u>Avg. Temp</u>	<u>Avg. Wind</u>	<u>HDD65</u>	<u>AHDD65</u>
Bemidji	2/1/1996	-34	8	99	107
Cloquet	2/2/1996	-31	7	96	103
Fargo	1/18/1996	-16	34	81	109
International Falls	2/2/1996	-34	8	99	107
Minneapolis	2/2/1996	-25	8	90	97
Rochester	2/2/1996	-27	10	92	101
Worthington	1/18/1996	-8	32	73	96
Ortonville	1/14/2009	-21	11	86	96

- ii. The **Regression Generation of Net Daily Metered Volumes** consisted of:
- For each of the pipelines and weather stations:

Attachment 1
November 1, 2016

1. Gather the net daily metered volumes and weather station data including AHDD65.¹
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, change the regression methodology to mitigate the impact of autocorrelation. See section below on autocorrelation.
5. In response to comments from the Department, provide a reasonable explanation whenever we choose to use a regression model that does not have an intercept.
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 in 20 years and the

¹ Temperature and weather data was obtained from Schneider Electric via TherMaxx then converted to HDD65 and AHDD65 in an Excel spreadsheet by MERC – Gas Supply. Temperature data is the average of the high and low temperature based on the 9am to 9am gas day. Wind data is the 24-hour average based on the 9am to 9am gas day.

Use/Prior Day AHDD65 coefficient times the AHDD65 on the day prior to the coldest AHDD65 in 20 years.

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. Subtract interruptible and transport expected peak day load volumes

In order to determine firm peak day load, volumes contained in the daily pipeline meter readings for interruptible and transportation customers needed to be isolated and removed. While it would have been ideal to have daily billing data for all customers, interruptible was only available from monthly billing records. An unfortunate, but unavoidable, consequence was that this data was based on monthly billing cycles that introduce billing lag, meter read lag (not all meters were read every month resulting in billing cycle estimates and reversals), and other potential errors into their volumes. In addition, this data was only through December 2014 and after May 2015.

Interruptible volumes were calculated by dividing the volumes consumed during the highest historical peak month of usage from this past winter (i.e., December 2015 - February 2016) for that customer group by twenty (20) to determine the Maximum Daily Quantity ("MDQ") for that customer group.

Daily data for transportation load is currently available; however, daily transportation data was only available after May 2015. The transportation volumes were calculated by finding the highest historic daily usage from this past winter (i.e., December 2015 – February 2016) for that customer group.

4. Autocorrelation Review

The Commission's February 4, 2015, Order in Docket Nos. G011/M-12-1192; G011/M-12-1193; G011/M-12-1194; and G011/M-12-1195, MERC's 2012-2013 demand entitlement dockets, 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, we used the Yule-Walker estimation method within the SAS software package to 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, 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 (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-15-724 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 MERC's 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.

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 through-put 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."

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-Albert Lea Demand Entitlement filing includes detailed evidence of the allocation of balancing costs to the commodity portion of the PGA on Attachment 4, page 2 of 3.

D. MERC's Proposed NNG-Albert Lea 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 actually available to MERC's NNG-Albert Lea 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-Albert Lea proposes no change in Design-Day Deliverability.

2. Other Demand Entitlement Changes

As shown in Attachment 3, MERC-NNG-Albert Lea proposes no change in April/October Deliverability. Additionally, no changes are requested to the MERC-NNG-Albert Lea storage contract.

E. Financial Option Units and Premiums

In accordance with the Commission's May 28, 2015, Order in Docket No. G011/M-15-231 approving MERC's variance extension request to recover the costs of financial instruments through the PGA, MERC provides the following information:

Attachment 1
November 1, 2016

- 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 MMBtu) of each contract (see Attachments 5 and 11);
- iv. the contract date (see Attachment 5);
- v. the contract price (see Attachment 11);
- 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-Albert Lea 2016-2017 Winter Portfolio Hedging Plans - Minnesota Energy Resources Corporation for gas supply purchases is shown on Attachment 6. MERC's hedging strategy covers 60% of normal winter volumes; 30% through physical storage and 30% through financial instruments. The weighted average price of currently purchased futures contracts of natural gas for the 2016/17 winter is \$3.~~0576~~1892. Please see Attachment 11, page 1 of 3. As shown in Attachment 11, page 2 of 3, MERC projects the NNG-Albert Lea storage WACOG to be \$2.~~5168~~6571. ~~The remaining 20% is hedged with financial call options.~~ MERC has purchased call options at an average strike price of \$3.~~2040~~3057, 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, 2016. 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 our system and our upstream entitlement levels and our process requires us to evaluate the system capability before we allow a customer 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 our demand entitlement levels.

IV. Conclusion

~~If any changes to the entitlements for MERC NNG-Albert Lea are made, MERC will submit an update to this filing by November 1, 2016. MERC NNG-Albert Lea has completed hedging and physical purchases for the 2016-17 winter period and has a positive reserve margin of 4.89%. MERC requests that the Commission approve MERC NNG-Albert Lea's proposed Demand Entitlements to be recovered in the PGA effective on November 1, 2016.~~

Attachment 1
November 1, 2016

| DATED: ~~August~~ November 1, 2016

Respectfully Submitted,

MINNESOTA ENERGY RESOURCES
CORPORATION

By: /s/ Amber S. Lee
Amber S. Lee
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MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

DESIGN-DAY DEMAND SUMMARY

NOVEMBER 1, 2016

NNG-Albert Lea

Design Day Requirement		13,528
Total Peak Day Entitlement		14,190
Firm Peak Day Actual Sendout -Non Coincidental	1/18/2016	10,733
Firm Annual Throughput - Minnesota		1,225,402
No. of Firm Customers		10,734
Department Load Factor Calculation		31.28%

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

NNG MINNESOTA DESIGN DAY REQUIREMENTS

NOVEMBER 1, 2016

NNG

Pipeline Group	2015/16 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	10,734	10,734	101	2,608	134	17,208	(3,680)	13,528	0	13,528
Total	10,734	10,734								13,528

OFF PEAK										
NNG	10,734	10,734	55	2,608	134	10,986	(3,633)	7,353	0	7,353
Total	10,734	10,734								7,353

* Adjusted for customer growth

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

DESIGN-DAY DEMAND PER CUSTOMER - GS

NOVEMBER 1, 2016

NNG

<u>Heating Season</u>	<u>No. of Firm Customers</u>	<u>Design Day Requirements</u>	<u>MMBtu /Customer /Day</u>
16/17	10,734	13,528	1.26
15/16	10,690	13,813	1.29
14/15	10,690	12,915	1.21
13/14	10,676	13,035	1.22
12/13	10,608	13,442	1.27
11/12	10,649	12,927	1.21
10/11	10,583	16,694	1.58

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

SUMMER/WINTER USAGE - Mcf
PROJECTED 12 MONTHS ENDING JUNE 2017
NNG

<u>Class</u>	<u>*Summer Apr-Oct</u>	<u>Winter Nov-Mar</u>	<u>Total</u>
GS	419,994	805,408	1,225,402
SVI	32,628	76,667	109,295
SVJ	0	0	0
LVI	63,886	73,513	137,399
LVJ	0	0	0
SLV	<u>0</u>	<u>0</u>	0
Total	<u>516,508</u>	<u>955,588</u>	<u>1,472,096</u>

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

ENTITLEMENT LEVELS

PROPOSED TO BE EFFECTIVE NOVEMBER 1, 2016

<u>Capacity Type</u>	<i>Summer</i>			<i>April/October</i>			<i>Winter</i>		
	<u>2015/16</u> <u>MMBtu</u>	<u>Change</u> <u>MMBtu</u>	<u>Proposed</u> <u>MMBtu</u>	<u>2015/16</u> <u>MMBtu</u>	<u>Change</u> <u>MMBtu</u>	<u>Proposed</u> <u>MMBtu</u>	<u>2015/16</u> <u>MMBtu</u>	<u>Change</u> <u>MMBtu</u>	<u>Proposed</u> <u>MMBtu</u>
TF-12 Base & Variable	9,393	0	9,393	9,393	0	9,393	9,393	0	9,393
TF5	0	0	0	0	0	0	3,997	0	3,997
TFX - 5	0	0	0	0	0	0	800	0	800
Total	9,393	0	9,393	9,393	0	9,393	14,190	0	14,190
Heating Season Forecasted Design Day-Adjusted							13,813	(285)	13,528
Non-Heating Season Forecasted Design Day				7395.36	(42)	7,353			
Heating Season Capacity Surplus/Shortage							377	285	662
Non-Heating Season Capacity Surplus/Shortage				1,998	42	2,040			
*Not included in Heating Season Total entitlement									
Reserve Margin				27.01%	0	27.74%	2.73%	2.16%	4.89%

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

RATE IMPACT OF THE PROPOSED DEMAND CHANGE

NOVEMBER 1, 2016

Albert Lea

All costs in \$/Dth	Base Cost of Gas G011/MR-15-748 Jan 1, 2016	Demand Change Oct 1, 2015	Demand Change Demand Filing Nov 1, 2015	Most Recent PGA Oct 1, 2016	Proposed Effective Nov 1, 2016	Result of Proposed Change			
						Change from Last Rate Case	Change from Nov 1, 2015 Demand Filing	Change from Last PGA %	Change from Last PGA \$

1) General Service Residential: Avg. Annual Use:		76	Dth						
Commodity Cost	\$3.6168	\$2.8353	\$2.8063	\$3.1676	\$3.0390	(\$0.5778)	\$0.2327	-4.06%	(\$0.1286)
Demand Cost	\$1.0379	\$1.2852	\$0.9194	\$1.0379	\$1.0379	\$0.0000	\$0.1185	0.00%	\$0.0000
Commodity Margin	\$2.3980	\$2.1806	\$2.1806	\$2.3980	\$2.3980	\$0.0000	\$0.2174	0.00%	\$0.0000
Total Cost of Gas	\$7.0527	\$6.3011	\$5.9063	\$6.6035	\$6.4749	(\$0.5778)	\$0.5686	-1.95%	(\$0.1286)
Avg Annual Cost	\$536.01	\$478.88	\$448.88	\$501.87	\$492.09	(\$43.91)	\$43.21	-1.95%	(\$9.77)
Effect of proposed commodity change on average annual bills:									(\$9.77)
Effect of proposed demand change on average annual bills:									\$0.00

2) Large General Service: Avg. Annual Use:		350	Dth						
Commodity Cost	\$3.6168	\$2.8353	\$2.8063	\$3.1676	\$3.0390	(\$0.5778)	\$0.2327	-4.06%	(\$0.1286)
Demand Cost	\$1.0379								
Commodity Margin	\$1.8232	\$1.6579	\$1.6579	\$1.8232	\$1.8232	\$0.0000	\$0.1653	0.00%	\$0.0000
Total Cost of Gas	\$6.4779	\$4.4932	\$4.4642	\$4.9908	\$4.8622	(\$1.6157)	\$0.3980	-2.58%	(\$0.1286)
Avg Annual Cost	\$2,267.27	\$1,572.62	\$1,562.47	\$1,746.78	\$1,701.77	(\$565.50)	\$139.30	-2.58%	(\$45.01)
Effect of proposed commodity change on average annual bills:									(\$45.01)
Effect of proposed demand change on average annual bills:									\$0.00

3) Small Vol. Interruptible: Avg. Annual Use:		6,043	Dth						
Commodity Cost	\$3.6168	\$2.8353	\$2.8063	\$3.1676	\$3.0390	(\$0.5778)	\$0.2327	-4.06%	(\$0.1286)
Demand Cost									
Commodity Margin	\$0.9336	\$0.8490	\$0.8490	\$0.9336	\$0.9336	\$0.0000	\$0.0846	0.00%	\$0.0000
Total Cost of Gas	\$4.5504	\$3.6843	\$3.6553	\$4.1012	\$3.9726	(\$0.5778)	\$0.3173	-3.14%	(\$0.1286)
Avg Annual Cost	\$27,498.07	\$22,264.22	\$22,088.98	\$24,783.55	\$24,006.42	(\$3,491.65)	\$1,917.44	-3.14%	(\$777.13)
Effect of proposed commodity change on average annual bills:									(\$777.13)
Effect of proposed demand change on average annual bills:									\$0.00

3) Large Vol. Interruptible: Avg. Annual Use:		9,759	Dth						
Commodity Cost	\$3.6168	\$2.8353	\$2.8063	\$3.1676	\$3.0390	(\$0.5778)	\$0.2327	-4.06%	(\$0.1286)
Demand Cost									
Commodity Margin	\$0.5007	\$0.4553	\$0.4553	\$0.5007	\$0.5007	\$0.0000	\$0.0454	0.00%	\$0.0000
Total Cost of Gas	\$4.1175	\$3.2906	\$3.2616	\$3.6683	\$3.5397	(\$0.5778)	\$0.2781	-3.51%	(\$0.1286)
Avg Annual Cost	\$40,182.68	\$32,112.97	\$31,829.95	\$35,798.94	\$34,543.93	(\$5,638.75)	\$2,713.98	-3.51%	(\$1,255.01)
Effect of proposed commodity change on average annual bills:									(\$1,255.01)
Effect of proposed demand change on average annual bills:									\$0.00

Note: Average Annual Average based on Albert Lea Annual Automatic Adjustment Report in Docket No. E,G999/AA-16-524

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)
RATE IMPACT OF THE PROPOSED DEMAND CHANGE

NOVEMBER 1, 2016

Albert Lea

IV. NORTHERN NATURAL GAS COMPANY'S RATES -- CURRENT COST OF GAS EFFECTIVE							01-Nov-16
	Tariff-Summer(7 mths)	Tariff-Winter(5 mths)	Wt. Annual	GRI	Total		
TF-12B	129170 \$ 5.6830 \$	10.2300	\$7.5776	\$0.0000	\$7.5776		
TF-12V	129170 \$ 5.6830 \$	13.8660	\$9.0926	\$0.0000	\$9.0926		
TF-5	129170 \$ - \$	15.1530	\$15.1530	\$0.0000	\$15.1530		
TFX-5	106082 \$ - \$	15.1530	\$15.1530	\$0.0000	\$15.1530		
Gas Cost					\$2.8262		
V. MERC-AL SALES --							
Total MERC-AL Annual Sales as approved in Docket No. G011/MR-15-748						16,301,176	
MERC-AL Demand (GS) Sales as approved in Docket No. G011/MR-15-748						12,822,861	
VI. MERC-AL CURRENT COST OF GAS EFFECTIVE:							01-Nov-16
A. GS-AL	Season	Monthly Entitlements (Dth)	Months	Rate \$/Dth	Contract Costs	GS-AL Sales therms	Rate/Therm
TF-12B (Max Rate) - Winter	Winter	3,157	5	\$ 10.2300	\$161,481	12,822,861	\$ 0.01259
TF-12B (Max Rate) - Summer	Summer	9,393	7	\$ 5.6830	\$373,663	12,822,861	\$ 0.02914
TF-12V (Max Rate)	Winter	6,236	5	\$ 13.8660	\$432,342	12,822,861	\$ 0.03372
TF-5 (Max Rate)	Winter	3,997	5	\$ 15.1530	\$302,833	12,822,861	\$ 0.02362
TFX-5 (Max Rate)	Winter	800	5	\$ 15.1530	\$60,612	12,822,861	\$ 0.00473
GS-AL Total Demand Costs					\$1,330,931		\$ 0.10379
Commodity Costs							
	Contract #(s)	Monthly Entitlements (Dth)	Months	Rate \$/Dth	Contract Costs	Rate Case Sales (therm)	Rate (\$/therm)
FDD - Reservation	22335	6,071	12	\$ 1.7140	=	\$124,868	\$ 0.00766
FDD - Storage Cycle	22335	70,000	5	\$ 0.3567	=	\$124,845	\$ 0.00766
Firm Deferred Delivery Storage Contracts						\$249,713	\$ 0.01532
	Annual Sales (Dth)	Rate (\$/Dth)	Commodity Cost	Rate Case Sales (therm)	Rate (\$/therm)		
CD-1 Commodity	1,630,118	\$2.8262	\$4,607,038	16,301,176	\$ 0.28262		
SMS-Bal Service	1,700	\$2.1800	\$44,472	16,301,176	\$ 0.00273		
Call Option Premium			\$52,654	16,301,176	\$ 0.00323		
GS-AL Current Total Cost of Gas/therm						\$ 0.40769	
B. SVI-AL, SVJ-AL, LVI-AL & LVJ-AL Commodity							\$ 0.30390
TOTAL SVI-AL, SVJ-AL, LVI-AL & LVJ-AL CURRENT TOTAL COST OF GAS (\$/therm)							\$ 0.30390
C. AL DEMAND COSTS ASSIGNED TO JOINT RATES - SVJ, LVJ							
	Units	Month	Cost/Unit	Cost	\$/therm		
TF-12B (Max Rate) - Winter	3,157	5	\$10.2300	\$161,481	\$0.11813		
TF-12B (Max Rate) - Summer	9,393	7	\$5.6830	\$373,663	\$0.27334		
TF-12V (Max Rate)	6,236	5	\$13.8660	\$432,342	\$0.31627		
TF-5 (Max Rate)	3,997	5	\$15.1530	\$302,833	\$0.22153		
TFX-5 (Max Rate)	800	5	\$15.1530	\$60,612	\$0.04434		
Total Cost				\$1,330,930			
Annualized Entitlement				1,367,010			
Demand Component				0.97361	\$/therm		
SVJ-AL & LVJ-AL CURRENT JOINT DEMAND RATE \$/therm/MDQ					\$0.97361		

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

**Financial Options
 Heating Season 2016-2017**

Units - Gas Daily Peaker Packages (Physical)

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

Premium - Gas Daily Peaker (Monthly Cost)

November		December		January		February		March		Option Premium	Total 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 (Daily Volume)

	November		December		January		February		March		Term Total
	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	
1	05/18/16	73	05/26/16	70	05/25/16	127	05/19/16	140	05/23/16	123	16,021
2	06/02/16	52	05/26/16	56	06/20/16	127	06/14/16	140	05/23/16	15	11,628
3	07/07/16	31	06/22/16	126	07/22/16	104	07/13/16	70	06/16/16	123	13,835
4	07/07/16	21	07/26/16	98	08/22/16	104	07/13/16	56	07/18/16	108	11,785
5	08/02/16	52	08/25/16	98	09/19/16	92	08/04/16	56	08/08/16	92	11,889
6	09/07/16	52	09/26/16	98	10/18/16	92	08/04/16	56	09/15/16	77	11,413
7	10/05/16	52	10/24/16	98			09/09/16	98	09/15/16	15	7,827
8							10/11/16	98	10/13/16	92	5,602
9											
10											
Total		333		645		645		714		645	90,000

Units - Call Options (Daily Volume)

	November		December		January		February		March		Term Total
	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	Contract Date	Daily Volume	
1	05/24/16	185	05/20/16	233	05/19/16	285	05/25/16	126	05/18/16	173	30,509
2	06/17/16	185	06/15/16	220	06/13/16	285	05/26/16	126	06/01/16	173	30,083
3	07/21/16	185	07/15/16	220	07/11/16	271	06/21/16	252	07/06/16	173	33,170
4	08/09/16	154	08/05/16	220	08/03/16	271	07/25/16	238	08/01/16	150	31,140
5	09/15/16	154	09/09/16	206	09/08/16	257	08/23/16	238	09/06/16	150	30,272
6	10/03/16	138	10/12/16	192	10/07/16	243	09/20/16	140	10/17/16	150	26,198
7							09/20/16	84			2,353
8							10/20/16	224			6,275
Total		1,000		1,290		1,613		1,429		968	190,000

Premium - Call Option (Monthly Cost)

	November		December		January		February		March		Option Premium	Total Premium Cost
	Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost	Option Premium	Premium Cost		
1	\$ 0.1840	\$ 1,019	\$ 0.2420	\$ 1,751	\$ 0.2580	\$ 2,283	\$ 0.3300	\$ 1,165	\$ 0.3600	\$ 1,929	\$ 0.2670	\$ 8,146
2	\$ 0.2020	\$ 1,119	\$ 0.2410	\$ 1,641	\$ 0.2860	\$ 2,531	\$ 0.3500	\$ 1,235	\$ 0.3680	\$ 1,971	\$ 0.2825	\$ 8,497
3	\$ 0.1800	\$ 997	\$ 0.2750	\$ 1,872	\$ 0.2750	\$ 2,312	\$ 0.3470	\$ 2,449	\$ 0.4530	\$ 2,427	\$ 0.3032	\$ 10,057
4	\$ 0.1450	\$ 669	\$ 0.2560	\$ 1,743	\$ 0.3000	\$ 2,522	\$ 0.3400	\$ 2,267	\$ 0.3530	\$ 1,639	\$ 0.2839	\$ 8,840
5	\$ 0.1540	\$ 711	\$ 0.1700	\$ 1,085	\$ 0.3080	\$ 2,453	\$ 0.3640	\$ 2,427	\$ 0.3500	\$ 1,625	\$ 0.2742	\$ 8,301
6	\$ 0.0860	\$ 357	\$ 0.1500	\$ 894	\$ 0.2960	\$ 2,227	\$ 0.3270	\$ 1,282	\$ 0.3400	\$ 1,579	\$ 0.2419	\$ 6,338
7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.3260	\$ 767	\$ -	\$ -	\$ 0.3260	\$ 767
8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.2720	\$ 1,707	\$ -	\$ -	\$ 0.2720	\$ 1,707
Total	\$ 0.1624	\$ 4,872	\$ 0.2246	\$ 8,986	\$ 0.2866	\$ 14,328	\$ 0.3325	\$ 13,299	\$ 0.3723	\$ 11,169	\$ 0.2771	\$ 52,654

Units - Collar Floor (put)

No Puts were purchased.

Attachment 6
Page 1 of 2

16/17 Winter Portfolio Plan - Total MERC Hedging Plan

		10,000 Contract Size		Nov-16		Dec-16		Jan-17		Feb-17		Mar-17		Total		Percent of Requirements
System	Purchase Month	Number Contracts	Contract Volume	Number Contracts	Contract Volume	Number Contracts	Contract Volume	Number Contracts	Contract Volume	Number Contracts	Contract Volume	Number Contracts	Contract Volume	Number Contracts	Contract Volume	
MN Requirements			142,666		219,423		224,697		198,712		170,089		955,587		955,587	
NNG -IPL			4,756		7,078		7,248		7,097		5,487		6,287		6,287	
	10% Futures		14,267		21,942		22,470		19,871		17,009		95,559		95,559	
	20% Call		28,533		43,885		44,939		39,742		34,018		191,117		191,117	
	30% Storage		42,800		65,827		67,409		59,614		51,027		286,676		286,676	
	40% Index		57,066		87,769		89,879		79,485		68,036		382,235		382,235	
Contracts	May-16	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	5	50,000	
	Jun-16	0	0	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	4	40,000	
	Jul-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Aug-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sep-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Oct-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	1	10,000	2	20,000	2	20,000	2	20,000	2	20,000	2	20,000	9	90,000	9.42%
Call Options	May-16	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	5	50,000	
	Jun-16	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	5	50,000	
	Jul-16	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	1	10,000	5	50,000	
	Aug-16	0	0	1	10,000	1	10,000	1	10,000	0	0	0	0	3	30,000	
	Sep-16	0	0	0	0	1	10,000	0	0	0	0	0	0	1	10,000	
	Oct-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	3	30,000	4	40,000	5	50,000	4	40,000	3	30,000	3	30,000	19	190,000	19.88%
Collars	May-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Jun-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Jul-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Aug-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sep-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Oct-16	0	0	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	0	0.00%
Index (back financial)	Total		40,000		60,000		70,000		60,000		50,000		280,000		280,000	29.30%
Physical Hedges			0		0		0		0		0		0		0	
Storage			34,125		85,750		85,750		85,750		34,125		325,500		325,500	34.06%
Prepaid Obl			0		0		0		0		0		0		0	0.00%
Term Index			51.96%		66.42%		69.32%		73.35%		49.46%		63.36%		63.36%	63.36%
		0	0	0	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	0	0	0.00%
Total NNG MN																
Futures													90,000		90,000	9.42%
Call Options													190,000		190,000	19.88%
Costing Collar													0		0	0.00%
Storage													325,500		325,500	34.06%
Prepaid Obl													0		0	0.00%
Term Index													0		0	0.00%
Month/Daily													350,087		350,087	36.64%
Total													955,587		955,587	100.00%
Costing Collar													0		0	0.00%
Storage													90,000		90,000	9.42%
Prepaid Obl													190,000		190,000	19.88%
Term Index													325,500		325,500	34.06%
Month/Daily													(955,587)		(955,587)	-100.00%
Total													955,587		955,587	100.00%

NOTE:

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

**NNG WINTER PLAN
 NOVEMBER, 2016 THROUGH MARCH, 2017**

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

INDEX

<u>Contract Number</u>	<u>Date</u>	<u>Receipt Point</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Total</u>
40712	8/25/2016	NNG Demarc	-	1,500	1,500	1,500	-	135,000
40714	8/25/2016	NNG Demarc	3,500	3,500	3,500	3,500	3,500	528,500
40713	8/25/2016	NNG Carlton	1,372	1,372	1,372	1,372	1,372	207,172
Total Actual Seasonal Index			4,872	6,372	6,372	6,372	4,872	870,672

GAS DAILY PACKAGES

N/A

STORAGE

<u>Injection Month</u>	<u>Contract #</u>	<u>Total Volume Injected</u>	<u>Total Volume Injected</u>
	22335		
May - balance forward		55,000	55,000
June		30,000	30,000
July		36,221	36,221
August		80,040	80,040
Sept		79,068	79,068
Oct (est)		69,671	69,671
Total		350,000	350,000

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

	2012 NNG-AL GS	2013 NNG-AL GS	2014 NNG-AL GS	2015 NNG-AL GS	2016 NNG-AL GS	Proposed Change
Design Day				13,813	13,528	-285
Customer Requirements moving to Transportation 2005-6						
Adjusted Design Day				13,813	13,528	-285
Design Day Percentages				31.33%	31.28%	-0.05%
Total Design Day Capacity (includes non-recallable capacity)				14,190	14,190	0
<u>Allocated Entitlements in PGA</u>						
TF12B						0
TF12V						0
TF5						0
TFX12						0
TFX(5)						0
Total Allocated Entitlements in PGA	0	0	0	0	0	0
* Bison/NBPL does not add incremental capacity but is utilized to deliver Rockies supply to NNG. Volume is not included in Peak Capacity.						
<u>Direct Assigned Entitlements in PGA</u>						
TF12B				3,157	3,157	0
TF12V				6,236	6,236	0
TF5				3,997	3,997	0
TFX5				800	800	0
Total Direct Assignments				14,190	14,190	0
Total Capacity before Peak Shaving				14,190	14,190	0
LP Peak Shaving						
Total Design Day Capacity				14,190	14,190	0
Total Transp. (with TFX Offpeak less LSP)				14,190	14,190	0
Total Annual Transportation				9,393	9,393	0
Total Seasonal Transportation				4,797	4,797	0
Total Percent Seasonal				33.81%	33.81%	0
Reserve Margin				2.73%	4.89%	2.16%
<u>Direct Assigned Demand Not in PGA</u>						
TF-12-B Contract Demand				0	0	0
Total Design Day Capacity w/ contract demand				14,190	14,190	0
Factors				31.33%	31.28%	-0.05%
<u>Other Entitlements not included in Peak Day Deliverability</u>						
FDD Storage Reservation				6,071	6,071	0
FDD Storage Capacity				70,000	70,000	0
FDD Maximum Storage Quantity				350,000	350,000	0
SMS				1,700	1,700	0

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

Change in Costs due to November 1, 2016 Change in Entitlement Levels and Related Demand Costs
Albert Lea

Costs Assigned In Demand

	Contract	2015/16 Entitlements	2016/17 Entitlements	Entitlement Change	Months	Nov-16 Rate/Dth	2015/16 Total Cost	2016/17 Total Cost	Entitlement Change
TF-12B (Max Rate) - Winter	Winter	3,157	3,157	0	5	\$10.2300	\$161,481	\$161,481	\$0
TF-12B (Max Rate) - Summer	Summer	9,393	9,393	0	7	\$5.6830	\$373,663	\$373,663	\$0
TF-12V (Max Rate)	Winter	6,236	6,236	0	5	\$13.8660	\$432,342	\$432,342	\$0
TF-5 (Max Rate)	Winter	3,997	3,997	0	5	\$15.1530	\$302,833	\$302,833	\$0
TFX-5 (Max Rate)	Winter	800	800	0	5	\$15.1530	\$60,612	\$60,612	\$0
Total Costs Assigned to the Demand Charge:							\$1,330,930	\$1,330,930	\$0

Costs Assigned In Commodity

		2015/16 Entitlements	2016/17 Entitlement	Entitlement Change	Months	Nov-16 Rate/Dth	2015/16 Total Cost	Entitlement Total Cost	Entitlement Change
FDD - Reservation	Annual	6,071	6,071	0	12	\$ 1.7140	\$124,868	\$124,868	\$0
FDD - Storage Cycle	Annual	70,000	70,000	0	5	\$ 0.3567	\$124,845	\$124,845	\$0
SMS-Bal Service	Annual	1,700	1,700	0	12	\$ 2.1800	\$44,472	\$44,472	\$0
							\$294,185	\$294,185	\$0
Call Option Premium							\$93,053	\$52,654	(\$40,399)
Total Costs Assigned to the Commodity Charge:							\$387,238	\$346,839	(\$40,399)

MINNESOTA ENERGY RESOURCES - Albert Lea (AL)

Daily Total Throughput Data - July 1, 2015 through June 30, 2016

NNG

Base	2,608
Variable	134

Minnesota Energy Resources Corporation
 2016-2017 Demand Entitlement
 MERC-NNG Albert Lea
 Attachment 9

Date	Rochester Adjusted HDD	Actual Total Through- Put *	Estimated Firm Through- Put **
7/1/15	8	2,303	3,653
7/2/15	2	1,912	2,822
7/3/15	0	1,288	2,608
7/4/15	0	909	2,608
7/5/15	0	1,386	2,608
7/6/15	2	2,168	2,916
7/7/15	5	2,276	3,332
7/8/15	3	2,275	3,037
7/9/15	0	2,122	2,608
7/10/15	0	1,821	2,608
7/11/15	0	1,258	2,608
7/12/15	0	1,356	2,608
7/13/15	0	2,093	2,608
7/14/15	0	2,064	2,608
7/15/15	0	2,123	2,608
7/16/15	0	2,026	2,608
7/17/15	0	1,752	2,608
7/18/15	0	980	2,608
7/19/15	0	1,258	2,608
7/20/15	0	2,020	2,608
7/21/15	0	2,205	2,608
7/22/15	0	2,055	2,608
7/23/15	0	1,990	2,608
7/24/15	0	1,708	2,608
7/25/15	0	1,095	2,608
7/26/15	0	1,341	2,608
7/27/15	0	2,143	2,608
7/28/15	0	2,123	2,608
7/29/15	0	2,125	2,608
7/30/15	0	2,084	2,608
7/31/15	0	1,808	2,608
8/1/15	0	1,294	2,608
8/2/15	0	1,540	2,608
8/3/15	2	2,129	2,822
8/4/15	0	2,066	2,608
8/5/15	0	2,144	2,608
8/6/15	0	2,082	2,608
8/7/15	0	1,744	2,608
8/8/15	0	1,162	2,608
8/9/15	0	1,358	2,608
8/10/15	0	2,082	2,608
8/11/15	0	2,173	2,608
8/12/15	0	2,091	2,608
8/13/15	0	2,068	2,608
8/14/15	0	1,821	2,608
8/15/15	0	1,106	2,608
8/16/15	0	1,319	2,608
8/17/15	0	2,021	2,608
8/18/15	4	2,206	3,198
8/19/15	9	1,872	3,814
8/20/15	4	1,516	3,131
8/21/15	0	1,848	2,608
8/22/15	0	1,357	2,608
8/23/15	8	1,805	3,693
8/24/15	10	2,358	3,894
8/25/15	6	2,326	3,412
8/26/15	3	2,865	3,023
8/27/15	0	2,202	2,608
8/28/15	5	2,163	3,265
8/29/15	0	1,327	2,608
8/30/15	0	1,388	2,608
8/31/15	0	1,754	2,608
9/1/15	0	1,736	2,608
9/2/15	0	1,750	2,608
9/3/15	0	1,641	2,608
9/4/15	0	1,320	2,608
9/5/15	0	843	2,608
9/6/15	0	850	2,608
9/7/15	0	1,259	2,608
9/8/15	2	1,788	2,903
9/9/15	1	2,149	2,755
9/10/15	7	2,316	3,479
9/11/15	16	2,311	4,725
9/12/15	11	1,838	4,095
9/13/15	3	1,700	2,983
9/14/15	0	2,130	2,608
9/15/15	0	2,209	2,608
9/16/15	0	2,199	2,608
9/17/15	0	2,200	2,608
9/18/15	10	2,237	3,935
9/19/15	10	1,597	3,961
9/20/15	5	1,773	3,278
9/21/15	0	2,435	2,608
9/22/15	0	2,447	2,608
9/23/15	0	2,449	2,608
9/24/15	0	2,270	2,608
9/25/15	0	2,150	2,608
9/26/15	0	1,476	2,608

MERC

9/27/15	0	1,508	2,608
9/28/15	1	2,367	2,755
9/29/15	16	2,980	4,792
9/30/15	16	3,102	4,779
10/1/15	19	3,114	5,100
10/2/15	18	2,961	4,966
10/3/15	19	2,455	5,114
10/4/15	18	2,586	4,953
10/5/15	13	3,189	4,350
10/6/15	10	3,310	3,975
10/7/15	10	3,616	3,935
10/8/15	8	3,897	3,626
10/9/15	18	4,160	5,074
10/10/15	7	2,790	3,573
10/11/15	0	2,570	2,608
10/12/15	18	4,083	4,980
10/13/15	20	5,004	5,261
10/14/15	11	4,279	4,095
10/15/15	23	4,347	5,744
10/16/15	34	5,224	7,097
10/17/15	24	4,141	5,864
10/18/15	17	3,218	4,940
10/19/15	1	3,088	2,769
10/20/15	4	2,751	3,131
10/21/15	20	3,767	5,221
10/22/15	14	3,484	4,511
10/23/15	13	3,104	4,310
10/24/15	24	3,113	5,757
10/25/15	21	3,113	5,476
10/26/15	13	4,076	4,404
10/27/15	17	4,321	4,926
10/28/15	31	6,045	6,708
10/29/15	26	5,256	6,079
10/30/15	23	3,960	5,717
10/31/15	25	3,551	5,904
11/1/15	16	2,846	4,792
11/2/15	13	3,669	4,377
11/3/15	6	3,199	3,466
11/4/15	8	3,621	3,640
11/5/15	14	3,725	4,524
11/6/15	28	4,893	6,414
11/7/15	28	4,429	6,414
11/8/15	23	3,826	5,663
11/9/15	23	4,496	5,650
11/10/15	18	4,419	5,007
11/11/15	23	5,089	5,744
11/12/15	35	6,577	7,338
11/13/15	35	5,950	7,298
11/14/15	21	3,673	5,355
11/15/15	14	2,936	4,457
11/16/15	21	4,612	5,409
11/17/15	13	4,001	4,310
11/18/15	32	5,990	6,883
11/19/15	44	7,884	8,558
11/20/15	46	7,911	8,745
11/21/15	53	7,709	9,764
11/22/15	47	7,321	8,960
11/23/15	33	7,084	6,976
11/24/15	31	6,828	6,816
11/25/15	26	5,395	6,065
11/26/15	42	6,777	8,182
11/27/15	50	7,987	9,335
11/28/15	41	6,675	8,062
11/29/15	38	6,526	7,633
11/30/15	37	7,501	7,579
12/1/15	42	8,133	8,236
12/2/15	41	7,903	8,075
12/3/15	41	7,937	8,075
12/4/15	32	6,333	6,950
12/5/15	28	5,330	6,400
12/6/15	32	6,078	6,829
12/7/15	32	6,609	6,842
12/8/15	30	6,506	6,668
12/9/15	29	5,613	6,467
12/10/15	29	6,281	6,481
12/11/15	28	5,766	6,414
12/12/15	28	4,684	6,293
12/13/15	29	5,470	6,548
12/14/15	36	7,289	7,419
12/15/15	33	7,224	7,057
12/16/15	43	8,466	8,410
12/17/15	52	9,467	9,536
12/18/15	57	10,529	10,219
12/19/15	49	7,975	9,187
12/20/15	31	5,999	6,775
12/21/15	36	7,849	7,472
12/22/15	39	8,131	7,807
12/23/15	42	7,566	8,223
12/24/15	42	6,816	8,276
12/25/15	44	7,062	8,491
12/26/15	44	7,222	8,450
12/27/15	52	9,364	9,536
12/28/15	53	10,220	9,643
12/29/15	45	8,777	8,665
12/30/15	55	9,628	9,978
12/31/15	59	9,512	10,447
1/1/16	54	8,680	9,777
1/2/16	52	8,034	9,603
1/3/16	52	8,381	9,589
1/4/16	57	10,107	10,259
1/5/16	50	9,218	9,335

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MERC-NNG Albert Lea
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1/6/16	43	8,173	8,303
1/7/16	36	7,422	7,405
1/8/16	52	8,665	9,563
1/9/16	81	12,468	13,422
1/10/16	84	13,047	13,918
1/11/16	74	13,247	12,551
1/12/16	74	13,335	12,537
1/13/16	54	9,993	9,857
1/14/16	46	8,757	8,812
1/15/16	64	11,291	11,171
1/16/16	85	13,296	14,052
1/17/16	88	14,273	14,454
1/18/16	81	14,413	13,395
1/19/16	71	12,889	12,082
1/20/16	55	10,804	9,924
1/21/16	48	9,715	9,040
1/22/16	50	9,733	9,254
1/23/16	50	8,861	9,362
1/24/16	42	7,899	8,290
1/25/16	46	9,431	8,745
1/26/16	56	9,625	10,112
1/27/16	47	8,396	8,852
1/28/16	49	8,621	9,120
1/29/16	45	8,038	8,611
1/30/16	35	6,129	7,244
1/31/16	40	6,732	7,928
2/1/16	42	7,603	8,236
2/2/16	49	8,655	9,134
2/3/16	62	10,531	10,876
2/4/16	55	10,458	9,978
2/5/16	55	9,252	9,991
2/6/16	44	7,467	8,437
2/7/16	50	8,551	9,241
2/8/16	69	11,911	11,827
2/9/16	69	11,977	11,787
2/10/16	66	11,907	11,439
2/11/16	64	11,038	11,211
2/12/16	76	12,342	12,765
2/13/16	69	11,284	11,908
2/14/16	56	9,777	10,166
2/15/16	43	8,085	8,343
2/16/16	50	8,786	9,281
2/17/16	51	9,103	9,402
2/18/16	38	7,930	7,713
2/19/16	34	6,727	7,110
2/20/16	36	6,140	7,378
2/21/16	34	6,150	7,191
2/22/16	35	7,171	7,244
2/23/16	35	7,383	7,258
2/24/16	40	7,978	7,914
2/25/16	42	8,338	8,263
2/26/16	38	6,732	7,740
2/27/16	23	4,354	5,717
2/28/16	36	6,742	7,472
2/29/16	47	8,951	8,946
3/1/16	60	10,154	10,688
3/2/16	52	9,262	9,616
3/3/16	40	8,190	7,928
3/4/16	39	7,806	7,807
3/5/16	37	6,939	7,566
3/6/16	28	4,688	6,333
3/7/16	12	3,708	4,216
3/8/16	15	4,092	4,578
3/9/16	31	6,303	6,722
3/10/16	31	6,325	6,708
3/11/16	17	3,990	4,846
3/12/16	11	3,148	4,069
3/13/16	18	3,788	5,033
3/14/16	14	3,861	4,524
3/15/16	23	4,735	5,690
3/16/16	31	6,020	6,749
3/17/16	34	6,753	7,191
3/18/16	35	6,858	7,231
3/19/16	37	6,761	7,526
3/20/16	36	6,347	7,405
3/21/16	29	5,540	6,440
3/22/16	20	4,789	5,301
3/23/16	42	8,060	8,263
3/24/16	43	6,836	8,316
3/25/16	37	5,168	7,539
3/26/16	25	4,608	6,012
3/27/16	32	5,869	6,869
3/28/16	21	4,843	5,395
3/29/16	16	4,601	4,725
3/30/16	22	5,308	5,529
3/31/16	27	5,631	6,280
4/1/16	37	6,555	7,579

4/2/16	39	6,230	7,847
4/3/16	18	3,994	4,993
4/4/16	36	6,648	7,378
4/5/16	35	7,393	7,271
4/6/16	31	6,414	6,722
4/7/16	34	6,769	7,124
4/8/16	45	7,822	8,584
4/9/16	39	5,708	7,794
4/10/16	27	4,949	6,253
4/11/16	38	6,739	7,633
4/12/16	26	5,209	6,105
4/13/16	10	3,439	3,881
4/14/16	8	3,126	3,626
4/15/16	2	2,296	2,916
4/16/16	0	1,716	2,608
4/17/16	1	1,859	2,688
4/18/16	1	2,349	2,675
4/19/16	14	2,883	4,471
4/20/16	14	3,281	4,497
4/21/16	12	2,941	4,162
4/22/16	17	2,763	4,846
4/23/16	5	1,823	3,305
4/24/16	2	1,915	2,916
4/25/16	8	2,641	3,667
4/26/16	23	3,885	5,717
4/27/16	26	5,784	6,079
4/28/16	29	5,710	6,440
4/29/16	22	4,298	5,610
4/30/16	24	4,467	5,837
5/1/16	19	3,625	5,100
5/2/16	12	3,385	4,270
5/3/16	12	2,893	4,162
5/4/16	15	3,155	4,564
5/5/16	5	2,469	3,278
5/6/16	0	1,814	2,608
5/7/16	12	1,624	4,229
5/8/16	5	1,661	3,265
5/9/16	13	3,122	4,310
5/10/16	14	2,873	4,511
5/11/16	13	3,093	4,363
5/12/16	19	3,546	5,181
5/13/16	29	4,711	6,427
5/14/16	29	3,756	6,427
5/15/16	13	2,459	4,404
5/16/16	12	2,784	4,216
5/17/16	16	3,085	4,779
5/18/16	10	2,725	3,948
5/19/16	3	2,509	3,050
5/20/16	5	2,026	3,265
5/21/16	1	1,462	2,675
5/22/16	0	1,670	2,608
5/23/16	0	2,196	2,608
5/24/16	0	2,233	2,608
5/25/16	0	2,153	2,608
5/26/16	0	2,171	2,608
5/27/16	0	1,782	2,608
5/28/16	0	1,163	2,608
5/29/16	0	936	2,608
5/30/16	0	1,287	2,608
5/31/16	0	2,270	2,608
6/1/16	6	2,434	3,439
6/2/16	0	2,389	2,608
6/3/16	0	2,093	2,608
6/4/16	2	1,529	2,903
6/5/16	0	1,752	2,608
6/6/16	7	2,316	3,533
6/7/16	7	2,378	3,492
6/8/16	0	2,161	2,608
6/9/16	0	2,166	2,608
6/10/16	0	2,014	2,608
6/11/16	0	1,355	2,608
6/12/16	0	1,611	2,608
6/13/16	0	2,175	2,608
6/14/16	0	2,224	2,608
6/15/16	0	2,174	2,608
6/16/16	0	2,182	2,608
6/17/16	0	2,031	2,608
6/18/16	0	1,323	2,608
6/19/16	0	1,417	2,608
6/20/16	0	2,171	2,608
6/21/16	0	2,211	2,608
6/22/16	0	2,291	2,608
6/23/16	6	2,355	3,399
6/24/16	0	1,987	2,608
6/25/16	0	1,294	2,608
6/26/16	0	1,566	2,608
6/27/16	0	2,214	2,608
6/28/16	4	2,280	3,171
6/29/16	0	2,150	2,608
6/30/16	0	2,278	2,608
Totals	7,761	1,694,887	1,994,529

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MERC

* Volumes include interruptible and transportation volumes

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

MINNESOTA ENERGY RESOURCES - MERC-AL

Customer Counts by PGAC Class - July 1, 2015 through June 30, 2016

Rate Class	Tariff Rate Designation	Jul-15 Average Customers	Aug-15 Average Customers	Sep-15 Average Customers	Oct-15 Average Customers	Nov-15 Average Customers	Dec-15 Average Customers	Jan-16 Average Customers	Feb-16 Average Customers	Mar-16 Average Customers	Apr-16 Average Customers	May-16 Average Customers	Jun-16 Average Customers	Annual Average Customers
GS- Residential	MERC000101	9,699	9,303	9,427	9,765	8,685	9,406	9,970	9,848	8,970	10,051	9,490	9,562	9,515
GS-C&I <1,500 therms/yr (Small)	MERC000102	33	33	33	38	34	34	33	37	35	35	35	36	35
GS-C&I >1,500 therms/yr (Large)	MERC000103	1,216	1,136	1,160	1,160	1,129	1,220	1,219	1,231	1,174	1,191	1,190	1,191	1,185
Small Volume Interruptible (SVI)	MERC000104	49	31	39	36	37	43	35	39	38	35	39	38	38
Large Volume Interruptible (LVI)	MERC000106	30	14	15	14	16	15	15	13	15	20	19	16	17
Small Volume Joint (SVJ)	MERC000105	0	0	0	0	0	0	0	0	0	0	0	0	0
Large Volume Joint (LVJ)	MERC000107	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		11,027	10,517	10,674	11,013	9,901	10,718	11,272	11,168	10,232	11,332	10,773	10,843	10,789

MINNESOTA ENERGY RESOURCES - MERCAL
Projected Fixed Cost - November 2016 through March 2017

Futures Contracts WACOG

Table with columns: Deal Number, Purchase Date, Trade Number, Number Contracts, Physical Volume, Strike Price, Strike Cost, Nov-16 LDS Settle, LDS Settle Cost, Over/(Under) Market, Premium Per Unit, Premium Cost, Total Cost. Rows include data for various deal numbers (1-15) and totals for Nov-16 and Jan-17.

Table with columns: Deal Number, Purchase Date, Trade Number, Number Contracts, Physical Volume, Strike Price, Strike Cost, Feb-17 LDS Settle, LDS Settle Cost, Over/(Under) Market, Premium Per Unit, Premium Cost, Total Cost. Rows include data for various deal numbers (1-15) and totals for Feb-17 and Mar-17.

*Prices from 10/24/16 NYMEX market

90.48%

MINNESOTA ENERGY RESOURCES - MERC-AL

Projected Storage Cost - November 2016 through March 2017

Minnesota Energy Resources Corporation

Month/Year	K#118657 NNG Storage	LS Power K#130698 NNG Storage	LS Power K#130699 NNG Storage	Total NNG Storage	Projected NNG WACOG	K#118657 NNG Storage Cost	K#130698 NNG Storage Cost	K#130699 NNG Storage Cost	Total NNG Storage Cost	AECO Storage GLGT/VGT Centra Emerson	AECO Storage GLGT/VGT Centra Emerson WACOG	AECO Storage GLGT/VGT Centra Emerson Cost	NNG-ABL K#22335 NNG Storage	NNG-ABL K#22335 NNG Projected WACOG	NNG-ABL K#22335 NNG Projected Cost
Nov-16	455,259	68,250	48,750	572,259	\$ 2,2348	\$ 1,017,396	\$ 152,523	\$ 108,945	\$ 1,278,863	85,304	\$ 1,4605	\$ 124,586	34,125	\$ 2,6571	\$ 90,674
Dec-16	1,143,984	171,500	122,500	1,437,984	\$ 2,2348	\$ 2,556,532	\$ 383,262	\$ 273,758	\$ 3,213,552	231,768	\$ 1,4605	\$ 338,496	85,750	\$ 2,6571	\$ 227,848
Jan-17	1,143,984	171,500	122,500	1,437,984	\$ 2,2348	\$ 2,556,532	\$ 383,262	\$ 273,758	\$ 3,213,552	231,768	\$ 1,4605	\$ 338,496	85,750	\$ 2,6571	\$ 227,848
Feb-17	1,143,984	171,500	122,500	1,437,984	\$ 2,2348	\$ 2,556,532	\$ 383,262	\$ 273,758	\$ 3,213,552	209,339	\$ 1,4605	\$ 305,739	85,750	\$ 2,6571	\$ 227,848
Mar-17	455,259	68,250	48,750	572,259	\$ 2,2348	\$ 1,017,396	\$ 152,523	\$ 108,945	\$ 1,278,863	96,374	\$ 1,4605	\$ 140,754	34,125	\$ 2,6571	\$ 90,674
Total	4,342,470	651,000	465,000	5,458,470	\$ 2,2348	\$ 9,704,387	\$ 1,454,830	\$ 1,039,164	\$ 12,198,381	854,552	\$ 1,4605	\$ 1,248,070	325,500	\$ 2,6571	\$ 864,894

Month/Year	NNG Storage Volume	NNG Indexes Price	NNG Indexes Cost
Nov-16	572,259	\$ 2,8410	\$ 1,625,788
Dec-16	1,437,984	\$ 3,4365	\$ 4,941,632
Jan-17	1,437,984	\$ 3,8650	\$ 5,557,808
Feb-17	1,437,984	\$ 3,9095	\$ 5,621,798
Mar-17	572,259	\$ 3,4900	\$ 1,997,184
Total	5,458,470	\$ 3,6172	\$ 19,744,210

Month/Year	AECO Storage Volume	Total AECO Market WACOG	Total AECO Market Cost
Nov-16	85,304	\$ 2,2935	\$ 195,644
Dec-16	231,768	\$ 2,3790	\$ 551,376
Jan-17	231,768	\$ 2,4475	\$ 567,252
Feb-17	209,339	\$ 2,4595	\$ 514,868
Mar-17	96,374	\$ 2,4200	\$ 233,225
Total	854,552	\$ 2,4134	\$ 2,062,364

Month/Year	NNG-ABL Storage Volume	NNG-ABL Indexes Price	NNG-ABL Indexes Cost
Nov-16	34,125	\$ 2,8410	\$ 96,949
Dec-16	85,750	\$ 3,4365	\$ 294,680
Jan-17	85,750	\$ 3,8650	\$ 331,424
Feb-17	85,750	\$ 3,9095	\$ 335,240
Mar-17	34,125	\$ 3,4900	\$ 119,096
Total	325,500	\$ 3,6172	\$ 1,177,389

Max NNG-MERC Storage (Storage plan withdrawals through Apr 17) 5,458,470 5,869,321 **09/30/16 Storage Balance - NNG-MERC 4,579,317 78.02% 4,258,766**

Max AECO Storage (Storage plan withdrawals through Apr 17) 854,552 947,817 **09/30/16 Storage Balance - AECO 797,474 84.14% 719,003**

Max NNG-ABL Storage (Storage plan withdrawals through Apr 17) 325,500 350,000 **09/30/16 Storage Balance - NNG-ABL 275,072 78.59% 255,817**

Month/Year	K#118657 NNG Storage	LS Power K#130698 NNG Storage	LS Power K#130699 NNG Storage	Total NNG Storage	Projected K#118657 NNG WACOG	Projected K#130698 NNG WACOG	Projected K#130699 NNG WACOG	WACOG NNG Cost	Projected NNG Indexes Price	Projected NNG Index Cost	Additional Storage (Savings)/ Cost
Nov-16	455,259	68,250	48,750	572,259	\$ 2,2348	\$ 2,2348	\$ 2,2348	\$ 1,278,863	\$ 2,8410	\$ 1,625,788	\$ (346,925)
Dec-16	1,143,984	171,500	122,500	1,437,984	\$ 2,2348	\$ 2,2348	\$ 2,2348	\$ 3,213,552	\$ 3,4365	\$ 4,941,632	\$ (1,728,080)
Jan-17	1,143,984	171,500	122,500	1,437,984	\$ 2,2348	\$ 2,2348	\$ 2,2348	\$ 3,213,552	\$ 3,8650	\$ 5,557,808	\$ (2,344,256)
Feb-17	1,143,984	171,500	122,500	1,437,984	\$ 2,2348	\$ 2,2348	\$ 2,2348	\$ 3,213,552	\$ 3,9095	\$ 5,621,798	\$ (2,408,246)
Mar-17	455,259	68,250	48,750	572,259	\$ 2,2348	\$ 2,2348	\$ 2,2348	\$ 1,278,863	\$ 3,4900	\$ 1,997,184	\$ (718,321)
Total	4,342,470	651,000	465,000	5,458,470	\$ 2,8092	\$ 2,8092	\$ 2,8092	\$ 12,198,381	\$ 3,1285	\$ 19,744,210	\$ (7,545,829)

Month/Year	AECO Storage	AECO Storage Other WACOG	Total AECO Cost	Projected Emerson Index Price	Projected Emerson Index Cost	Additional Storage (Savings)/ Cost
Nov-16	85,304	\$ 1,4605	\$ 124,586	\$ 2,2935	\$ 195,644	\$ (71,058)
Dec-16	231,768	\$ 1,4605	\$ 338,496	\$ 2,3790	\$ 551,376	\$ (212,879)
Jan-17	231,768	\$ 1,4605	\$ 338,496	\$ 2,4475	\$ 567,252	\$ (228,755)
Feb-17	209,339	\$ 1,4605	\$ 305,739	\$ 2,4595	\$ 514,868	\$ (209,130)
Mar-17	96,374	\$ 1,4605	\$ 140,754	\$ 2,4200	\$ 233,225	\$ (92,471)
Total	854,552	\$ 1,4605	\$ 1,248,070	\$ 2,4134	\$ 2,062,364	\$ (814,294)

Month/Year	NNG-ABL K#22335 NNG Storage	K#22335 NNG Projected WACOG	K#22335 NNG Projected Cost	NNG-ABL Indexes Price	NNG-ABL Indexes Cost	Additional Storage (Savings)/ Cost
Nov-16	34,125	\$ 2,6571	\$ 90,674	\$ 2,8410	\$ 96,949	\$ (6,275)
Dec-16	85,750	\$ 2,6571	\$ 227,848	\$ 3,4365	\$ 294,680	\$ (66,831)
Jan-17	85,750	\$ 2,6571	\$ 227,848	\$ 3,8650	\$ 331,424	\$ (103,575)
Feb-17	85,750	\$ 2,6571	\$ 227,848	\$ 3,9095	\$ 335,240	\$ (107,391)
Mar-17	34,125	\$ 2,6571	\$ 90,674	\$ 3,4900	\$ 119,096	\$ (28,422)
Total	325,500	\$ 2,6571	\$ 864,894	\$ 3,6172	\$ 1,177,389	\$ (312,495)

*Indexes and projected WACOG based on 7/14/16 market prices

MINNESOTA ENERGY RESOURCES - MERC-A/L
Projected Call Option Costs - November 2016 through March 2017

Call/Put Options WACOG
Contract = 10,000

Minnesota Energy Resources Corporation
2016-2017 Demand Entitlement

Nov-16														Dec-16														Jan-17																
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	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	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	05/24/16	36573	12	120,000	\$ 2,750	\$ 330,000	\$ 2,750	\$ 330,000	\$ 2,8310	\$ 339,720	\$ (9,720)	\$ 0.1840	\$ 22,080	\$ 352,080	1	05/20/16	36765	17	170,000	\$ 3,000	\$ 510,000	\$ 3,000	\$ 510,000	\$ 3,3190	\$ 564,230	\$ (54,230)	\$ 0.2420	\$ 41,140	\$ 551,140	1	05/19/16	36702	20	200,000	\$ 3,250	\$ 650,000	\$ 3,250	\$ 650,000	\$ 3,4650	\$ 693,000	\$ (43,000)	\$ 0.2580	\$ 51,600	\$ 701,600
2	06/17/16	37571	12	120,000	\$ 3,000	\$ 360,000	\$ 2,8310	\$ 339,720	\$ 2,8310	\$ 339,720	\$ -	\$ 0.2020	\$ 24,240	\$ 363,960	2	06/15/16	37514	16	160,000	\$ 3,250	\$ 520,000	\$ 3,250	\$ 520,000	\$ 3,3190	\$ 531,040	\$ (11,040)	\$ 0.2410	\$ 38,560	\$ 558,560	2	06/13/16	37454	20	200,000	\$ 3,500	\$ 700,000	\$ 3,4650	\$ 693,000	\$ 3,4650	\$ 693,000	\$ -	\$ 0.2860	\$ 57,200	\$ 750,200
3	07/21/16	38269	12	120,000	\$ 3,000	\$ 360,000	\$ 2,8310	\$ 339,720	\$ 2,8310	\$ 339,720	\$ -	\$ 0.1800	\$ 21,600	\$ 361,320	3	07/19/16	38973	16	160,000	\$ 3,250	\$ 520,000	\$ 3,250	\$ 520,000	\$ 3,3190	\$ 531,040	\$ (11,040)	\$ 0.2750	\$ 44,000	\$ 564,000	3	07/11/16	38724	19	190,000	\$ 3,500	\$ 665,000	\$ 3,4650	\$ 658,350	\$ 3,4650	\$ 658,350	\$ -	\$ 0.2750	\$ 52,250	\$ 710,600
4	08/09/16	40064	10	100,000	\$ 3,000	\$ 300,000	\$ 2,8310	\$ 283,100	\$ 2,8310	\$ 283,100	\$ -	\$ 0.1450	\$ 14,500	\$ 297,600	4	08/05/16	39970	16	160,000	\$ 3,250	\$ 520,000	\$ 3,250	\$ 520,000	\$ 3,3190	\$ 531,040	\$ (11,040)	\$ 0.2580	\$ 40,960	\$ 560,960	4	08/03/16	39873	19	190,000	\$ 3,500	\$ 665,000	\$ 3,4650	\$ 658,350	\$ 3,4650	\$ 658,350	\$ -	\$ 0.3000	\$ 57,000	\$ 715,350
5	09/17/16	41392	10	100,000	\$ 3,000	\$ 300,000	\$ 2,8310	\$ 283,100	\$ 2,8310	\$ 283,100	\$ -	\$ 0.1540	\$ 15,400	\$ 298,500	5	09/09/16	41225	15	150,000	\$ 3,250	\$ 487,500	\$ 3,250	\$ 487,500	\$ 3,3190	\$ 497,650	\$ (10,150)	\$ 0.1700	\$ 25,500	\$ 513,000	5	09/06/16	41215	18	180,000	\$ 3,250	\$ 585,000	\$ 3,250	\$ 585,000	\$ 3,4650	\$ 623,700	\$ (38,700)	\$ 0.3360	\$ 60,480	\$ 644,180
6	10/03/16	41984	9	90,000	\$ 3,000	\$ 270,000	\$ 2,8310	\$ 254,790	\$ 2,8310	\$ 254,790	\$ -	\$ 0.0860	\$ 7,740	\$ 262,530	6	10/12/16	42282	14	140,000	\$ 3,500	\$ 490,000	\$ 3,3190	\$ 464,660	\$ 3,3190	\$ 464,660	\$ -	\$ 0.1500	\$ 21,000	\$ 485,660	6	10/07/16	42145	17	170,000	\$ 3,500	\$ 595,000	\$ 3,4650	\$ 589,050	\$ 3,4650	\$ 589,050	\$ -	\$ 0.2960	\$ 50,320	\$ 639,370
Total			65	650,000	\$ 2,9538	\$ 1,920,000	\$ 2,9538	\$ 1,830,430	\$ 2,8310	\$ 1,840,150	\$ (9,720)	\$ 0.1624	\$ 105,560	\$ 1,935,990	Total			84	840,000	\$ 3,2420	\$ 3,047,500	\$ 3,2420	\$ 3,022,160	\$ 3,2151	\$ 3,119,860	\$ (97,700)	\$ 0.2246	\$ 211,160	\$ 3,233,320	Total			113	1,130,000	\$ 3,4159	\$ 3,860,000	\$ 3,4159	\$ 3,833,750	\$ 3,3927	\$ 3,915,450	\$ (81,700)	\$ 0.2866	\$ 323,810	\$ 4,157,560
Other-Cons			11	110,000	\$ 2,9538	\$ 324,923	\$ 2,8160	\$ 309,765	\$ 2,8310	\$ 311,410	\$ (1,645)	\$ 0.1624	\$ 17,864	\$ 327,629	Other-Cons			17	170,000	\$ 3,2420	\$ 551,144	\$ 3,2151	\$ 546,561	\$ 3,3190	\$ 564,230	\$ (17,669)	\$ 0.2246	\$ 38,188	\$ 584,748	Other-Cons			20	200,000	\$ 3,4159	\$ 683,186	\$ 3,3927	\$ 678,540	\$ 3,4650	\$ 693,000	\$ (14,460)	\$ 0.2866	\$ 57,312	\$ 735,861

Feb-17														Mar-17														Total																
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	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	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	05/25/16	36904	9	90,000	\$ 3,250	\$ 292,500	\$ 3,250	\$ 292,500	\$ 3,4770	\$ 312,930	\$ (20,430)	\$ 0.3300	\$ 29,700	\$ 322,200	1	05/18/16	36606	15	150,000	\$ 3,000	\$ 450,000	\$ 3,000	\$ 450,000	\$ 3,4400	\$ 516,000	\$ (66,000)	\$ 0.3600	\$ 54,000	\$ 504,000	1			73	730,000	\$ 3,0582	\$ 2,232,500	\$ 3,0582	\$ 2,232,500	\$ 3,3231	\$ 2,425,880	\$ (193,380)	\$ 0.2719	\$ 198,520	\$ 2,431,020
2	05/26/16	36956	9	90,000	\$ 3,250	\$ 292,500	\$ 3,250	\$ 292,500	\$ 3,4770	\$ 312,930	\$ (20,430)	\$ 0.3500	\$ 31,500	\$ 324,000	2	06/01/16	37109	15	150,000	\$ 3,250	\$ 487,500	\$ 3,250	\$ 487,500	\$ 3,4400	\$ 516,000	\$ (28,500)	\$ 0.3680	\$ 55,200	\$ 542,700	2			72	720,000	\$ 3,2778	\$ 2,360,000	\$ 3,2399	\$ 2,332,720	\$ 3,3232	\$ 2,392,690	\$ (59,970)	\$ 0.2871	\$ 206,700	\$ 2,539,420
3	06/21/16	37699	18	180,000	\$ 3,500	\$ 630,000	\$ 3,4770	\$ 625,860	\$ 3,4770	\$ 625,860	\$ -	\$ 0.3470	\$ 62,460	\$ 688,320	3	07/09/16	38470	15	150,000	\$ 3,250	\$ 487,500	\$ 3,250	\$ 487,500	\$ 3,4400	\$ 516,000	\$ (28,500)	\$ 0.4530	\$ 67,950	\$ 554,450	3			80	800,000	\$ 3,3281	\$ 2,662,500	\$ 3,2893	\$ 2,631,430	\$ 3,3387	\$ 2,670,970	\$ (39,540)	\$ 0.3103	\$ 248,260	\$ 2,879,690
4	07/23/16	39422	17	170,000	\$ 3,500	\$ 595,000	\$ 3,4770	\$ 591,090	\$ 3,4770	\$ 591,090	\$ -	\$ 0.3480	\$ 59,160	\$ 650,250	4	08/01/16	39167	13	130,000	\$ 3,500	\$ 455,000	\$ 3,4400	\$ 447,200	\$ 3,4400	\$ 447,200	\$ -	\$ 0.3530	\$ 45,890	\$ 493,090	4			75	750,000	\$ 3,3800	\$ 2,535,000	\$ 3,3330	\$ 2,490,740	\$ 3,3477	\$ 2,510,700	\$ (11,040)	\$ 0.2884	\$ 216,150	\$ 2,715,890
5	08/23/16	40584	17	170,000	\$ 3,250	\$ 542,500	\$ 3,250	\$ 552,500	\$ 3,4770	\$ 591,090	\$ (38,590)	\$ 0.3640	\$ 61,880	\$ 614,380	5	09/06/16	41104	13	130,000	\$ 3,250	\$ 422,500	\$ 3,250	\$ 422,500	\$ 3,4400	\$ 447,200	\$ (24,700)	\$ 0.3500	\$ 45,500	\$ 468,000	5			73	730,000	\$ 3,2158	\$ 2,347,500	\$ 3,1938	\$ 2,330,600	\$ 3,3465	\$ 2,444,940	\$ (112,340)	\$ 0.2731	\$ 203,720	\$ 2,534,320
6	08/20/16	41514	10	100,000	\$ 3,500	\$ 350,000	\$ 3,4770	\$ 347,700	\$ 3,4770	\$ 347,700	\$ -	\$ 0.3270	\$ 32,700	\$ 380,400	6	10/17/16	42444	13	130,000	\$ 3,750	\$ 487,500	\$ 3,4400	\$ 447,200	\$ 3,4400	\$ 447,200	\$ -	\$ 0.3400	\$ 44,200	\$ 491,400	6			63	630,000	\$ 3,4802	\$ 2,192,500	\$ 3,3387	\$ 2,103,400	\$ 3,3387	\$ 2,103,400	\$ -	\$ 0.2476	\$ 155,960	\$ 2,259,360
7	09/20/16	41547	5	50,000	\$ 3,500	\$ 175,000	\$ 3,4770	\$ 170,625	\$ 3,4770	\$ 170,625	\$ -	\$ 0.3260	\$ 16,300	\$ 186,925	7			6	60,000	\$ 3,500	\$ 210,000	\$ 3,4770	\$ 208,620	\$ 3,4770	\$ 208,620	\$ -	\$ 0.3260	\$ 19,560	\$ 228,180	7			6	60,000	\$ 3,500	\$ 210,000	\$ 3,4770	\$ 208,620	\$ 3,4770	\$ 208,620	\$ -	\$ 0.3260	\$ 19,560	\$ 228,180
8	10/20/16	42645	16	160,000	\$ 3,750	\$ 600,000	\$ 3,4770	\$ 556,320	\$ 3,4770	\$ 556,320	\$ -	\$ 0.2720	\$ 43,520	\$ 599,840	8			16	160,000	\$ 3,750	\$ 600,000	\$ 3,4770	\$ 556,320	\$ 3,4770	\$ 556,320	\$ -	\$ 0.2720	\$ 43,520	\$ 599,840	8			16	160,000	\$ 3,750	\$ 600,000	\$ 3,4770	\$ 556,320	\$ 3,4770	\$ 556,320	\$ -	\$ 0.2720	\$ 43,520	\$ 599,840
Total			102	1,020,000	\$ 3,4534	\$ 3,522,500	\$ 3,3991	\$ 3,467,090	\$ 3,4770	\$ 3,546,540	\$ (79,450)	\$ 0.3325	\$ 339,120	\$ 3,806,210	Total			84	840,000	\$ 3,2420	\$ 2,790,000	\$ 3,2420	\$ 2,741,900	\$ 3,4400	\$ 3,440,000	\$ (288,600)	\$ 0.3723	\$ 312,740	\$ 3,054,640	Total			458	4,580,000	\$ 3,3057	\$ 15,140,000	\$ 3,2523	\$ 14,895,330	\$ 3,3431	\$ 15,311,600	\$ (416,270)	\$ 0.2822	\$ 1,292,390	\$ 16,187,720
Other-Cons			18	180,000	\$ 3,4534	\$ 621,618	\$ 3,3991	\$ 611,639	\$ 3,4770	\$ 625,860	\$ (14,021)	\$ 0.3325	\$ 59,845	\$ 671,684	Other-Cons			3	30,000	\$ 3,3214	\$ 99,643	\$ 3,2642	\$ 97,925	\$ 3,4400	\$ 103,200	\$ (5,275)	\$ 0.3723	\$ 11,169	\$ 109,094	Other-Cons			81	810,000	\$ 3,3075	\$ 2,679,084	\$ 3,2547	\$ 2,636,330	\$ 3,3463	\$ 2,710,500	\$ (74,170)	\$ 0.2828	\$ 229,050	\$ 2,865,388

*Prices from 10/24/16 NYMEX market

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

Docket No. G011/M-16-652

CERTIFICATE OF SERVICE

I, Kristin M. Stastny, hereby certify that on the 1st day of November, 2016, on behalf of Minnesota Energy Resources Corporation (MERC) I electronically filed a true and correct copy of MERC's Updates to its 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 1st day of November, 2016.

/s/ Kristin M. Stastny
Kristin M. Stastny

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Michael	Ahern	ahern.michael@dorsey.com	Dorsey & Whitney, LLP	50 S 6th St Ste 1500 Minneapolis, MN 554021498	Electronic Service	No	OFF_SL_16-652_M-16-652
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_16-652_M-16-652
Michael	Auger	mauger@usenergyservices.com	U S Energy Services, Inc.	Suite 1200 605 Highway 169 N Minneapolis, MN 554416531	Electronic Service	No	OFF_SL_16-652_M-16-652
Elizabeth	Brama	ebrama@briggs.com	Briggs and Morgan	2200 IDS Center 80 South 8th Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_16-652_M-16-652
Jeanne	Cochran	Jeanne.Cochran@state.mn.us	Office of Administrative Hearings	P.O. Box 64620 St. Paul, MN 55164-0620	Electronic Service	No	OFF_SL_16-652_M-16-652
Seth	DeMerritt	ssdemerritt@integrysgroup.com	MERC (Holding)	700 North Adams P.O. Box 19001 Green Bay, WI 543079001	Electronic Service	No	OFF_SL_16-652_M-16-652
Ian	Dobson	ian.dobson@ag.state.mn.us	Office of the Attorney General-RUD	Antitrust and Utilities Division 445 Minnesota Street, BRM Tower St. Paul, MN 55101	Electronic Service	No	OFF_SL_16-652_M-16-652
Darcy	Fabrizius	Darcy.fabrizius@constellation.com	Constellation Energy	N21 W23340 Ridgeview Pkwy Waukesha, WI 53188	Electronic Service	No	OFF_SL_16-652_M-16-652
Emma	Fazio	emma.fazio@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_16-652_M-16-652
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_16-652_M-16-652

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Daryll	Fuentes	dfuentes@usg.com	USG Corporation	550 W Adams St Chicago, IL 60661	Electronic Service	No	OFF_SL_16-652_M-16-652
Robert	Harding	robert.harding@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 55101	Electronic Service	No	OFF_SL_16-652_M-16-652
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	No	OFF_SL_16-652_M-16-652
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	OFF_SL_16-652_M-16-652
Amber	Lee	ASLee@minnesotaenergyresources.com	Minnesota Energy Resources Corporation	2665 145th St W Rosemount, MN 55068	Electronic Service	No	OFF_SL_16-652_M-16-652
John	Lindell	john.lindell@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_16-652_M-16-652
Peter	Madsen	peter.madsen@ag.state.mn.us	Office of the Attorney General-DOC	Bremer Tower, Suite 1800 445 Minnesota Street St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_16-652_M-16-652
Brian	Meloy	brian.meloy@stinson.com	Stinson, Leonard, Street LLP	150 S 5th St Ste 2300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_16-652_M-16-652
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	OFF_SL_16-652_M-16-652
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_16-652_M-16-652

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	OFF_SL_16-652_M-16-652
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	Ste 122 9100 W Bloomington Frwy Bloomington, MN 55431	Electronic Service	No	OFF_SL_16-652_M-16-652
Colleen	Sipiorski	ctsiorski@integrysgroup.com	Minnesota Energy Resources Corporation	700 North Adams Street Green Bay, WI 54307	Electronic Service	No	OFF_SL_16-652_M-16-652
Kristin	Stastny	kstastny@briggs.com	Briggs and Morgan, P.A.	2200 IDS Center 80 South 8th Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_16-652_M-16-652
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_16-652_M-16-652
Casey	Whelan	cwhelan@usenergyservices.com	U.S. Energy Services, Inc.	605 Highway 169 N Ste 1200 Plymouth, MN 55441	Electronic Service	No	OFF_SL_16-652_M-16-652
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_16-652_M-16-652