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September 23, 2016

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

**RE: In the Matter of Great Plains Natural Gas Co.'s 2015-2016 Demand Entitlement Filing, Docket No. G004/M-15-645**

**In the Matter of Great Plains Natural Gas Co.'s 2016-2017 Demand Entitlement Filing, Docket No. G004/M-16-557**

Dear Mr. Wolf:

Great Plains Natural Gas Co. (Great Plains), a Division of MDU Resources Group, Inc., herewith electronically submits its Reply Comments in response to the Department of Commerce's (Department) August 31, 2016 Response Comments and Comments submitted in the above referenced dockets related to Great Plains' 2015-2016 and 2016-2017 Demand Entitlement Filings (DEQ).

Below Great Plains addresses the issues raised in the Department's Comments related to (1) Great Plains' incremental capacity contract on the Northern Natural Gas Pipeline (Northern); (2) certain data discrepancies; (3) non-heating season capacity in the North District; and (4) rate and bill impact reporting.<sup>1</sup>

### **New Contract for Incremental Capacity with Northern Natural Gas Pipeline**

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<sup>1</sup> In its August 31, 2016 Response Comments in Docket No. G004/M-15-645, the Department notes that Great Plains failed to respond to earlier Department comments. Great Plains apologizes for the oversight and appreciates the opportunity to address the Department's comments at this time.

On July 1, 2015, Great Plains submitted its DEQ Filing for the 2015-2016 heating season in Docket No. G004/M-15-645. In its filing, Great Plains requested an increase in South District capacity of 730 dk per day associated with a TFX Seasonal contract with Northern. Subsequent to the July submission and prior to the 2015-1016 heating season, the opportunity to secure incremental capacity on Northern was made available through an Open Season offering made by Northern on September 1, 2015. Great Plains participated in the Open Season offering and successfully secured incremental capacity for the South System and entered into a 10-year, 2,000 dk per day annual contract with Northern. Great Plains provided an update to its DEQ filing (Docket No. M-15-645) on October 29, 2015, updating its DEQ reserve margins to reflect the new contract and a capacity release of 1,300 per day.

This update resulted in a 5.9 percent reserve margin on the South District, which Great Plains recognizes is above the targeted reserve margin preferred by the Commission of 5 percent and, in a perfect situation, Great Plains would request the exact incremental capacity as required of approximately 500 dk per day per year. However, Northern's pipeline system that serves the South District customers is fully subscribed and the Company determined that procuring capacity made available through the Open Season on September 1, 2015 was in the best long-term interest of its customers. In reaching this determination, Great Plains concluded that the only viable alternative to procuring additional pipeline capacity was constructing a propane air peaking system to ensure deliverability of firm gas to its customers.

Great Plains' decision to procure additional capacity on Northern was driven by increased peak demand. In particular, during the past three years the estimated peak day demand has increased approximately 516 dk per day per year. With this in mind, the 2,000 dk of additional capacity will be required to meet the peak day demands of its firm customers in only four years and Great Plains will then be required to secure additional capacity to meet its anticipated increase of demand. Such capacity may not be available on Northern at that time or may only be available at a prohibitively high cost. In the 2015-16 heating season Great Plains offset the cost of the new capacity by releasing 1,300 dk per day to an independent marketer. For the upcoming heating season, Great Plains will again release any unneeded capacity to help offset costs and bring its reserve margin to approximately five percent.

As requested, Great Plains will address the Department's specific questions as follows:

- What sort of pipeline system improvements did Northern make, where on its system were the improvements made, and when?

Response: While Northern would not disclose specific changes made to upgrade their system, they informed Great Plains the modifications on their system may have included pressure changes, changes in receipt and delivery of 3rd party gas, changes in regulators, valves and/or changes in pipe. The changes were made in

Zone E-F during 2015 on the pipeline segment that serves gas to the South District of Great Plains.

- Did Northern conduct an open season? If so, when and did Great Plains and other Northern shippers participate?

Response: Northern did conduct an open season during September 2015. Please see Attachment A for a copy of the open season notification. Great Plains did participate along with two other shippers. Please see Attachment B for a copy of the Results of the Open Season. Great Plains is not aware of which other shippers participated.

- Did Northern have any unutilized capacity available prior to the pipeline system improvements mentioned above?

Response: Northern indicated they did not have unutilized capacity available prior to the pipeline system improvements.

- Did Great Plains inquire of other Northern shippers and/or marketers if they had capacity available for release?

Response: No. Great Plains was seeking permanent capacity to allow for future capacity needs without the risk of a recallable capacity release.

- Did Great Plains need to meet unexpected demand growth?

Response: No. The capacity was acquired to meet current and anticipated future growth requirements in its South District. During the four-year period between the 2012-2013 DEQ and the 2016-2017 DEQ filings, the Projected Design Day has increased from 14,850 dk to 16,842 dk. That represents an increase of 1,992 dk. Great Plains expects a similar growth rate in the Projected Design Day to continue.

- Is the contract tied to any of Great Plains' existing contracts with Northern?

Response: For administrative ease the contract is tied to its existing TFX Agreement #21277. The contract was not the result of "grandfathered rights," however, as it was acquired through an open season.

- What sort of criteria did Great Plains use to evaluate the costs, benefits, and reasonableness of the acquisition of this particular 10-year contract?

Response: Great Plains prepared a net present value comparison of the 10-year contract to a propane air peaking facility and determined the cost of the capacity contract was beneficial to the South District customers. The rate per dk/month, on a

net present value basis, for the additional pipeline capacity is \$66.19 versus a propane peaking facility of \$85.84 based on the Company's analysis. See Attachment D for a list of assumptions and a summary of the results.

### **Historical Date Discrepancies**

In its Response Comments submitted in Docket No. G004/M-16-557, the Department requested that Great Plains address the reconciliation and explanation for all the historical data discrepancies between the Company's 2015 Petition (Docket No. G004/M-15-645) and the Company's 2016 Petition (Docket No. G004/M-16-557). Since the Department filed its Comments, Great Plains addressed the noted data discrepancies in response to an Information Request provided to the Department on September 8, 2016. A copy of the Company's response to the Information Request is included as Attachment C.

As noted in the Company's attached Response, there were differences in the data provided in Docket Nos. M-15-645 and M-16-557; however, the overall results using the most recent data produced similar results in Docket No. M-15-645 and there are no changes to any information provided in Docket No. M-16-557. Overall, each District had sufficient capacity to serve all firm customers during the 2015-2016 heating season and the reserve margin was very close to the Commission recommended reserve margin of 5 percent.

The Department also raised concerns regarding historical reporting discrepancies of Firm Peak Day Usage between responses to the Department's Annual Gas Cost Recovery (GCR) Information Request, No. 3(B) and the DEQ filing's Exhibit D, Column 11, from 2012 to 2014. Great Plains appreciates the Department's thorough review, but maintains that DEQ Exhibit D reflects the actual Firm Peak Day Usage values.

Responses to the GCR Information Request, No. 3(B) for 2012 and 2014 reflect calculated peak usage derived from the regression analysis utilized by the DEQ. This is done by replacing the design day heating degree days with the highest actual heating degree days. For 2013, the response to GCR Information Request, No. 3(B) reflects design day customer numbers, which were reported instead of the Firm Peak Day Usage. Great Plains will be more diligent in future filings to ensure the Firm Peak Day Usage reported in the DEQ and GCR are the same. Great Plains will supplement the GCR Information Request, No. 3(B) for 2012 through 2014 with the correct information in its Response in Docket No. G999/AA-16-524 due October 3, 2016.

### **Non-Heating Season Capacity Reserve**

In its Comments, the Department requested that Great Plain explain how it manages its non-heating season capacity in light of an apparent shortfall in the North District. Great Plains is able to meet its non-heating season capacity by obtaining gas in the day market to meet the peak day demand on a day-by-day basis should the need arise.

The Viking system has adequate backhaul transportation capacity available from the Chisago interconnect with Northern Natural to allow daily flow from this point. Great Plains has firm capacity on Northern's system to ensure the gas will flow on a firm contract to the Chisago interconnect. In response to the Department's observation on page 2 of its Response Comments, Great Plains could seek additional capacity through the release capacity market; however, the Company would then be paying for this additional capacity every day regardless if the capacity is needed or not. By using the backhaul capacity that is available in the day market Great Plains only pays for this capacity on the day(s) it is required. Although unlikely, exceeding contracted capacity would be concentrated in the months of April and October and Great Plains has not acquired additional capacity to meet firm customers' demand during the past five years. Also, as noted in the Department's comments, the Company has requested that the Purchased Gas Adjustment districts be combined in Docket No. G004/GR-15-879 which was approved in the Commission's Order dated September 6, 2016 to be effective July 1, 2017. On a combined basis, no non-heating season capacity shortfall exists under the Company's current capacity arrangements.

### **Rate and Bill Impact Reporting**

Great Plains agrees with the Department's recommendation to supplement its Petition once the final demand entitlement changes, including the final reallocation of the Northern TF-12B and TF-12V contract, become available and the associated rate and bill impacts are known. Great Plains also agrees to update all of its Attachments updates and Reply Comments in future demand entitlement filings and updates and provide a red-lined version so that changes can readily be seen.

Finally, Great Plains requests that the Commission issue an Order accepting Great Plains' Demand Entitlement Filing in Docket Nos. G004/M-15-645 and G004/M-16-557.

If you have any questions regarding this filing, please contact Tamie A. Aberle at (701) 222-7856, or Brian Meloy, at (612) 335-1451.

Sincerely,

*/s/ Tamie A. Aberle*

Tamie A. Aberle  
Director of Regulatory Affairs

cc: Brian Meloy  
Service List



PRINTABLE  
VERSION

<b>TSP Name:</b> Northern Natural Gas Company	<b>Post Date/Time:</b> 09/01/2015 9:31 AM
<b>TSP:</b> 784158214	<b>Notice Effective Date/Time:</b> 09/01/2015 9:00 AM
<b>Notice ID:</b> 032140	<b>Notice End Date/Time:</b> 09/14/2015 5:00 PM
<b>Notice Type:</b> TSP Capacity Offering	<b>For Gas Day(s):</b> 9/1/2015 - 9/14/2015
<b>Subject:</b> OPEN SEASON FOR WILLMAR BRANCH LINE GENERALLY AVAILABLE CAPACITY	<b>Notice Status:</b> Initiate
<b>Critical:</b> N	<b>Required Response:</b> No Response Required

**Notice Text:**

Northern is hereby soliciting binding bids for approximately 1,000 Dth per day of Market Area firm throughput service from the Marshall, Minnesota, receipt point (POI 204) in the winter and Ventura, Iowa, receipt point (POI 192) in the summer to delivery point(s) located on Northern's Willmar, Minnesota, branch line. Service would commence upon the in-service date of the Willmar, Minnesota, branch line facilities being constructed in 2015, which is expected to be November 1, 2015, or anytime in the future. The term of service for any bid must end on a March 31 or an October 31. The actual capacity available will be determined based on the specific delivery point(s) requested in the open season. See the Willmar Branch Line Allocation Group (Group 1018) for potential delivery points.

Customers requesting service are responsible for ensuring arrangements have been made for any capacity necessary on any upstream or downstream pipeline for their volumes to be confirmed during the nomination and scheduling process.

Northern will award the existing capacity in a manner consistent with the Open Season Procedures discussed below.

**Open Season Timing**

The open season commences on Tuesday, September 1, 2015, and ends at 5 p.m. CCT on Monday, September 14, 2015. To be considered in the open season, customer's signed binding Bid Form must be received by the close of the open season at 5 p.m. CCT on Monday, September 14, 2015. If you have any questions, please contact your Account Manager or Dave Stockdale at (402) 398-7643.

**Open Season Procedures**

1. Submit your binding Bid Form to Northern either via facsimile to **(402) 398-7413** or email to NNGOpenSea@nngco.com. The Bid Form must include the requested volume, delivery point(s), effective date, rate and term. Please state in your bid the minimum amount of capacity you are willing to accept at the rate set forth in your bid.
2. Northern may consider construction of minor facilities with this open season.
3. The reservation rate bid is binding for firm throughput service. The bid quantity must be equal for all months across each winter season (November-March) and all months across each summer season (April-October).
4. The capacity will be awarded to the highest bid(s) based on a determination of the best bid, or combination of bids that result in the highest net present value (NPV) of reservation revenue, on a per unit of capacity basis. Northern has the right to aggregate bids, or portions of bids, that generate the highest NPV to Northern. The NPV per unit will be determined by discounting the cash flow (using the FERC interest rate) generated from the reservation rate multiplied by the volume for each month, by bid, and then dividing the NPV by the maximum daily quantity bid. Northern reserves the right to reject any bid(s) less than maximum rates.
5. Northern reserves the right to reject any bid(s) which are subject to any contingency.
6. Transportation contracts are to be executed by customers within thirty (30) calendar days of tender by Northern.

7. Northern and customer(s) may agree to amend the service agreement, as allowed by Northern's Tariff, at any time after award of the capacity.
8. Northern will evaluate and award capacity for incremental bids based on the terms of this open season. A realignment request may be awarded during this open season if the realignment allows additional capacity to be sold on an incremental basis. Otherwise, Northern will process requests for realignment in the order received within seven (7) work days of the close of the open season or by 5 p.m. on Wednesday, September 23, 2015.
9. Customer(s) must meet the creditworthiness provisions of Northern's Tariff. Upon request by Northern, customer shall provide appropriate credit assurance, including credit assurance for the construction of facilities, within ten (10) business days of Northern's request. If a non-creditworthy customer fails to provide the appropriate security, Northern may award the capacity to the next best bid(s) or proceed to remarket the capacity, and customer will be liable for any difference in value of the bids, in addition to any other remedies available by law.

The results of this open season will be posted on Northern's website.



<b>TSP Name:</b> Northern Natural Gas Company	<b>Post Date/Time:</b> 09/16/2015 4:24 PM
<b>TSP:</b> 784158214	<b>Notice Effective Date/Time:</b> 09/16/2015 4:24 PM
<b>Notice ID:</b> 032288	<b>Notice End Date/Time:</b> 09/23/2015 5:00 PM
<b>Notice Type:</b> TSP Capacity Offering	<b>For Gas Day(s):</b> 9/16/2015 - 9/23/2015
<b>Subject:</b> RESULTS OF THE WILLMAR BRANCH LINE GENERALLY AVAILABLE CAPACITY OPEN SEASON	<b>Notice Status:</b> Initiate
<b>Critical:</b> N	<b>Required Response:</b> No Response Required

**Notice Text:**

Northern held an open season for firm throughput service to delivery points located on the Willmar, Minnesota, branch line, for service commencing upon the in-service date of the Willmar, Minnesota, branch line facilities in 2015, which is expected to be November 1, 2015, or anytime in the future. The open season began September 1, 2015, and concluded at 5 p.m. CCT on September 14, 2015. Northern received the following bids:

Bidder	Winter MDQ (Dth/Day)	Summer MDQ (Dth/Day)	Bid Rate Evaluated (\$/Daily/Dth)	Term	NPV/unit @ 3.25%	MDQ Awarded (Dth/Day)
<b>A</b>	2,000	2,000	Maximum TFX	11/01/2015 - 10/31/2025	\$989.1849	2,000
<b>B</b>	2,000	500	Maximum TFX	11/01/2015 - 10/31/2022	\$540.0409	0

Bidder A – The capacity requested was awarded in the open season.

A third request was received that was not acceptable because it included a delivery point that could not be served during the winter period from the Marshall/NBPL receipt point.

Note: These results could change if Northern determines the bidder is not creditworthy and appropriate security is not provided within the required time. If the results change due to this creditworthiness provision, Northern will post the revised results.



**State of Minnesota**  
**DEPARTMENT OF COMMERCE**  
**DIVISION OF ENERGY RESOURCES**

Attachment C  
Page 1 of 8  
Nonp  
Public

Utility Information Request

Docket Number: G004/M-16-557

Date of Request: 8/29/2016

Requested From: Great Plains Natural Gas Co.  
A Division of MDU Resources Group, Inc.

Response Due: 9/8/2016

Analyst Requesting Information: Sachin Shah/Michael Ryan

Type of Inquiry:     .....Financial           .....Rate of Return       .....Rate Design  
                          .....Engineering           .....Forecasting           .....Conservation  
                          .....Cost of Service       .....CIP                   .....Other:

*If you feel your responses are trade secret or privileged, please indicate this on your response.*

Request No.	
1	<p>Subject: Great Plains Natural Gas Company, A Division of MDU Resources Group Inc., (Great Plains or Company) Design Day Analysis.</p> <p>Reference: Electronic files provided by Great Plains and titled, "2016-17 GPNG Firm Normalization by Rate Class.xlsx" and "GPNG Firm Normalization by Rate Class.xlsx" for Docket Nos. G004/M-16-557 (Docket 16-557) and G004/M-15-645 (Docket 15-645), respectively.</p> <p>For example, for the month of March 2015, for the South District and Rate 60, the file in Docket 16-557 showed consumption of 85,596.90 Dekatherms (Dth) and yet in Docket 15-645, Great Plains showed consumption of 147,087.80 Dth.</p> <p>For example, for the month of May 2013 for Wahpeton, the Company's file in Docket 15-645 shows 106 billing period degree days whereas data in the instant docket no. 16-557, Great Plains reported 551.99 degree days.</p> <p>(a) Using data/information provided by the Company in the electronic files referenced above, please reconcile all of the information including, but not limited to the actual customer counts, Billed Dth and weather data for Crookston, North 4, Wahpeton and South District.</p> <p><i>Continued on next page</i></p>

Response by: Travis Jacobson

List sources of information:

Title: Manager, Regulatory Affairs

Department: Regulatory Affairs

Telephone: (701) 222-7855

- (b) Additionally, as part of your response to the question in part (a) above, please provide a detailed step-by-step explanation in sufficient detail to permit duplication for any and all difference(s) that are identified.
- (c) Will the reconciliation in parts (a) and (b) above impact the Company's design day analysis and/or Exhibits A through D filed by the Company on July 1, 2016 in Docket No. 16-557?
- (d) If the answer to part (c) above is "yes", then please provide the corrected Exhibits and design day analysis for Docket No. 16-557 reflecting the Company's reconciliation.
- (e) Will the reconciliation in parts (a) and (b) above impact the Company's design day analysis and/or Exhibits A through D filed by the Company on July 1, 2015, and/or the October 29, 2015 and December 9, 2015 Informational Updates, in Docket No. 15-645?
- (f) If the answer to part (e) above is "yes", then please provide the corrected Exhibits and design day analysis for Docket No. 15-645 reflecting the Company's reconciliation.

Where applicable for any and all parts above, please provide the requested data in a Microsoft Excel executable format with all links and formulae intact. If any of these links target an outside file, please provide all such additional files.

If this information has already been provided in written testimony, filing, or in response to an earlier Department of Commerce (DOC) information request, please identify the specific testimony, and/or filing cite(s) or DOC information request number(s).

**Response:**

- a. Great Plains continually enhances the regression analysis used to calculate normalized customer usage. Normalized customer usage is then used to determine the Demand Entitlement Quantity (DEQ). During the period between the filing Docket Nos. 15-645 and 16-557, the Company implemented a change in the analysis of customer usage from a billing period basis to a calendar month basis. The Company has determined there is a better correlation between customer consumption and degree days under this method. The change was made possible due to the implementation of Great Plains' new customer information system and the detail of the information available.

The difference in decatherms in the shoulder month of March 2015 as noted above does appear to be significant but on an annual basis will produce similar results. Again, this is related to a shift from billing period to calendar month. The degree days for Wahpeton in May 2013 was an error in Docket No. 15-645 and was corrected in this Docket.

Because the differences between the two Dockets previously mentioned are primarily the result of a change of the base data used in the regression analysis, a meaningful reconciliation cannot be performed as the data has a different basis. Please see the attached Excel file titled Response No. 1 Attachment A. The file includes customer counts, billed Dth and weather data. There are three sections: information included in Docket No. M-16-557, information included in Docket No. M-15-645 and the variance between the two submissions.

- b. As noted, the data has a different basis and therefore a reconciliation is not available.

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Response by: Travis Jacobson

List sources of information:

Title: Manager, Regulatory Affairs

Department: Regulatory Affairs

Telephone: (701) 222-7855

- c. No, the Company's information in Docket No. 16-557 is based on the change in the method used and is accurate and appropriate as reported.
- d. N/A.
- e. Great Plains does not believe the change in the method or the correction of an error yields a material difference in the Company's DEQ. However, the current data would produce different results than provided in Exhibits A - D in the July 1, 2015 filing which was updated October 29, 2015. The December 9, 2015 data would not change.

The information presented by District and in Total in each filing is summarized below:

	Projected Design Day	Proposed Capacity	Reserve Margin
<u>July 1, 2015</u>			
North	15,409	16,200	5.1%
South	16,858	17,875	6.0%
Total	32,267	34,075	5.6%
<u>October 29, 2015</u> 1/			
North	15,409	15,700	1.9%
South	16,858	17,845	5.9%
Total	32,267	33,545	4.0%

1/ The information provided December 9, 2015 is consistent with the October 29, 2015 filing.

Response No. 1 Attachment B

North	15,335	15,700	2.4%
South	16,673	17,845	7.0%
Total	32,008	33,545	4.8%

- f. See Response No. 1 Attachment B for updated Exhibits A, page 1 of 3, Exhibits B and D. The remaining pages of the Exhibits did not change from the October 29, 2015 filing.

In summary, as shown in part e above, there were differences in the data provided in Docket Nos. M-15-645 and M-16-557; however, the overall results using the most recent data produce similar results in Docket No. M-15-645 and there are no changes to any information in Docket No. M-16-557. Overall, each District had sufficient capacity to serve all firm customers during the 2015-2016 heating season and the reserve margin was very close to the Commission recommended reserve margin of 5 percent.

Response by: Travis Jacobson

List sources of information:

Title: Manager, Regulatory Affairs

Department: Regulatory Affairs

Telephone: (701) 222-7855

**Attachment B**

# **Attachment B**

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GREAT PLAINS NATURAL GAS CO.  
DEMAND ENTITLEMENT FILING 2015 - 2016 HEATING SEASON  
DEMAND PROFILE EFFECTIVE NOVEMBER 1, 2015  
UPDATED 10/29/2016 AND REVISED 8/31/2016

DOCKET NO. G047116-040  
Exhibit A  
Revised 8/31/2016  
Page 1 of 3

<u>Type of Capacity or Entitlement</u>	<u>Current Amount</u>	<u>Proposed Change</u>	<u>Proposed Amount</u>	<u>Contract Length</u>	<u>Expiration Date</u>
<b><u>Demand Profile for South District (dk):</u></b>					
TF12 Base (Summer & Winter) 1/	4,604	0	4,604	5 years	10/31/19
TF12 Variable (Summer & Winter) 1/	2,931	0	2,931	5 years	10/31/19
TF5 (November - March)	3,410	0	3,410	5 years	10/31/19
TFX Negotiated (November - March)	1,000	0	1,000	10.5 years	3/31/25
TFX Seasonal (November - March)	5,200	0	5,200	5 years	10/31/19
TFX (Annual)	0	2,000	2,000	10 years	10/31/25
TFX Seasonal - Capacity Release	0	(1,300)	(1,300)	5 months	3/31/16
Subtotal	17,145	700	17,845		
FT-A - Zone 1-1 (April - October)	5,000	0	5,000	1 year	10/31/16
SMS	2,500	0	2,500	5 years	10/31/19
FDD-1 Reservation	4,640	0	4,640	5 years	5/31/16
Heating Season Total Capacity:	17,145	700	17,845		
Non-Heating Season Total Capacity:	12,535	0	12,535		
Forecasted Heating Season Design Day:	16,312	361	16,673		
Estimated Non-Heating Season Design Day:	8,727	208	8,935		
Heating Season Capacity: Surplus/(Shortage)	833	339	1,172		
Non-Heating Season Capacity: Surplus/(Shortage)	3,808	(208)	3,600		
<b><u>Demand Profile for North District (dk) 2/</u></b>					
FT-A	8,000	0	8,000	5 years	10/31/17
FT-A - Zone 1-1 (November - March)	5,000	0	5,000	1 year	10/31/16
TFX Seasonal (November - March)	2,000	0	2,000	5 years	3/31/16
BP Seasonal Contract	500	(500)	0	3 months	2/28/15
FT-A Seasonal (November - March)	0	700	700	5 months	3/31/16
Subtotal	15,500	200	15,700		
FT-A Seasonal (November - March) 3/	2,000	0	2,000	1 years	10/31/16
LMS Demand	2,500	0	2,500	1 year	10/31/16
TFX (Annual)	13,000	0	13,000	11.5 years	3/31/24
BP Seasonal Contract	0	730	730	5 months	3/31/16
Heating Season Total Capacity:	15,500	200	15,700		
Non-Heating Season Total Capacity:	8,000	0	8,000		
Forecasted Heating Season Design Day:	14,812	523	15,335		
Estimated Non-Heating Season Design Day:	8,404	256	8,660		
Heating Season Capacity: Surplus/(Shortage)	688	(323)	365		
Non-Heating Season Capacity: Surplus/(Shortage)	(404)	(256)	(660)		

1/ Effective November 1, 2015.

2/ Minnesota North District communities plus Wahpeton, ND.

3/ Northern Natural - Chisago.

GREAT PLAINS NATURAL GAS CO.  
 DEMAND ENTITLEMENT FILING 2015 - 2016 HEATING SEASON  
 DESIGN DAY - NOVEMBER 2015  
 REVISED 8/31/2016

Area	Customer Factors 1/			Design HDD 2/	No. of Customers 3/	Projected Customers 4/	Peak/ Customer	Projected Peak Day (dk)	L&UA 5/	Projected Design	Capacity	Reserve
	Dk/day	Dk/DD	RSqr									
Crookston	0.03587	0.01372	0.97122	96	2,448	2,513	1.35299	3,400	24	3,424		
North 4	0.05231	0.01324	0.96196	91	7,047	7,096	1.25715	8,921	63	8,984		
Wahpeton	0.07306	0.01395	0.97999	91	2,162	2,165	1.34251	2,907	20	2,927		
Total North District					11,657	11,774		15,228	107	15,335	15,700	2.4%
South 13	0.05118	0.01607	0.97653	83	11,898	11,954	1.38499	16,556	117	16,673	17,845	7.0%
Total					23,555	23,728		31,784	224	32,008	33,545	4.8%

1/ Use per customer factors based on regression analysis for the 36 months ending March 2015.

2/ Design Heating Degree Days Base 60 degrees F.

3/ Reflects monthly average for December 2014 - February 2015.

4/ Customer growth is based on regression analysis for the 36 months ending March 2015 with composite growth rates of: Crookston = 0.74%, North = 1.12%, Wahpeton = 1.21%, South = 1.06%.

5/ Lost and Unaccounted for Gas percentage of 0.7%.

**GREAT PLAINS NATURAL GAS CO.  
DEMAND ENTITLEMENT ANALYSIS  
NORTH DISTRICT  
REVISED 8/31/2016**

Heating Season	Number of Firm Customers			Design Day Requirement			Total Entitlement + Storage + Peak Shaving			
	(1) Number of Customers	(2) Change From Previous Year	(3) % Change From Previous Year	(4) Design Day (dk)	(5) Change From Previous Year	(6) % Change From Previous Year	(7) Total Entitlement (dk)	(8) Change From Previous Year	(9) % Change From Previous Year	(10) % of Reserve Margin [(7)-(4)]/(4)
2015-2016	11,774	92	0.79%	15,335	523	3.53%	15,700	200	1.29%	2.38%
2014-2015	11,682	103	0.89%	14,812	672	4.75%	15,500	500	3.33%	4.64%
2013-2014	11,579	172	1.51%	14,140	(104)	-0.73%	15,000	0	0.00%	6.08%
2012-2013	11,407	177	1.58%	14,244	176	1.25%	15,000	159	1.07%	5.31%
2011-2012	11,230	48	0.43%	14,068	(96)	-0.68%	14,841	(1,000)	-6.31%	5.49%
2010-2011	11,182	(12)	-0.11%	14,164	(248)	-1.72%	15,841	0	0.00%	11.84%
2009-2010	11,194	8	0.07%	14,412	(37)	-0.26%	15,841	(1,000)	-5.94%	9.92%
2008-2009	11,186	41	0.37%	14,449	(413)	-2.78%	16,841	0	0.00%	16.55%
2007-2008	11,145	28	0.25%	14,862	(289)	-1.91%	16,841	0	0.00%	13.32%
2006-2007	11,117	(64)	-0.57%	15,151	(673)	-4.25%	16,841	0	0.00%	11.15%
2005-2006	11,181	81	0.73%	15,824	(49)	-0.31%	16,841	0	0.00%	6.43%
2004-2005	11,100	25	0.23%	15,873	(121)	-0.76%	16,841	0	0.00%	6.10%
2003-2004 1/	11,075	2,375	27.30%	15,994	2,559	19.05%	16,841	4,154	32.74%	5.30%
2002-2003	8,700	180	2.11%	13,435	(1,231)	-8.39%	12,687	(2,780)	-17.97%	-5.57%
2001-2002	8,520	19	0.22%	14,666	212	1.47%	15,467	0	0.00%	5.46%
2000-2001	8,501	304	3.71%	14,454	0	0.00%	15,467	0	0.00%	7.01%
1999-2000	8,197	82	1.01%	14,454	618	4.47%	15,467	0	0.00%	7.01%
1998-1999	8,115	227	2.88%	13,836	244	1.80%	15,467	0	0.00%	11.79%
1997-1998	7,888	215	2.80%	13,592	2,415	21.61%	15,467	3,950	34.30%	13.79%
1996-1997	7,573	267	3.61%	11,177	379	3.51%	11,517	1,459	14.51%	3.04%
1995-1996	7,406			10,798			10,058			-6.85%
Annual Average			2.58%			1.90%			2.93%	6.89%

Heating Season	Firm Peak Day Sendout			(14) Excess Per Customer [(7)-(4)]/(1)	(15) Design Day per Customer (4)/(1)	(16) Entitlement per Customer (7)/(1)	(17) Peak Day Sendout per Customer (11)/(1)
	(11) Firm Peak Day Sendout (dk)	(12) Change From Previous Year	(13) % Change From Previous Year				
2015-2016				0.0310	1.3024	1.3334	
2014-2015	13,868	632	4.77%	0.0589	1.2679	1.3268	1.1871
2013-2014	13,236	1,530	13.07%	0.0743	1.2212	1.2954	1.1431
2012-2013	11,706	3,265	38.68%	0.0663	1.2487	1.3150	1.0262
2011-2012	8,441	(2,617)	-23.67%	0.0688	1.2527	1.3215	0.7516
2010-2011	11,058	2,134	23.91%	0.1500	1.2667	1.4167	0.9889
2009-2010	8,924	(769)	-7.93%	0.1277	1.2875	1.4151	0.7972
2008-2009	9,693	(348)	-3.47%	0.2138	1.2917	1.5055	0.8665
2007-2008	10,041	451	4.70%	0.1776	1.3335	1.5111	0.9009
2006-2007	9,590	43	0.45%	0.1520	1.3629	1.5149	0.8626
2005-2006	9,547	(923)	-8.82%	0.0910	1.4153	1.5062	0.8539
2004-2005	10,470	(942)	-8.25%	0.0872	1.4300	1.5172	0.9432
2003-2004	11,412	1,606	16.38%	0.0765	1.4442	1.5206	1.0304
2002-2003	9,806	(3,572)	-26.70%	(0.0860)	1.5443	1.4583	1.1271
2001-2002	13,378	1,699	14.55%	0.0940	1.7214	1.8154	1.5702
2000-2001	11,679	(1,699)	-12.70%	0.1192	1.7003	1.8194	1.3738
1999-2000	13,378	2,196	19.64%	0.1236	1.7633	1.8869	1.6321
1998-1999	11,182	(748)	-6.27%	0.2010	1.7050	1.9060	1.3779
1997-1998	11,930	267	2.29%	0.2377	1.7231	1.9608	1.5124
1996-1997	11,663	551	4.96%	0.0443	1.4567	1.5010	1.5200
1995-1996	11,112			(0.0999)	1.4580	1.3581	1.5004
Annual Average			2.40%	0.0989	1.4447	1.5436	1.1483

1/ Crookston was consolidated with the North District in 2003.



**GREAT PLAINS NATURAL GAS CO.  
DEMAND ENTITLEMENT ANALYSIS  
SOUTH DISTRICT  
REVISED 8/31/2016**

Heating Season	Number of Firm Customers			Design Day Requirement			Total Entitlement + Storage + Peak Shaving			
	(1) Number of Customers	(2) Change From Previous Year	(3) % Change From Previous Year	(4) Design Day (dk)	(5) Change From Previous Year	(6) % Change From Previous Year	(7) Total Entitlement (dk)	(8) Change From Previous Year	(9) % Change From Previous Year	(10) % of Reserve Margin [(7)-(4)]/(4)
2015-2016	11,954	112	0.95%	16,673	361	2.21%	17,845	700	4.08%	7.03%
2014-2015	11,842	193	1.66%	16,312	1,019	6.66%	17,145	1,500	9.59%	5.11%
2013-2014	11,649	118	1.02%	15,293	443	2.98%	15,645	0	0.00%	2.30%
2012-2013	11,531	(13)	-0.11%	14,850	(18)	-0.12%	15,645	0	0.00%	5.35%
2011-2012	11,544	(8)	-0.07%	14,868	(297)	-1.96%	15,645	(380)	-2.37%	5.23%
2010-2011	11,552	10	0.09%	15,165	(267)	-1.73%	16,025	(1,170)	-6.80%	5.67%
2009-2010	11,542	77	0.67%	15,432	156	1.02%	17,195	(170)	-0.98%	11.42%
2008-2009	11,465	8	0.07%	15,276	(301)	-1.93%	17,365	0	0.00%	13.68%
2007-2008	11,457	(27)	-0.24%	15,577	(117)	-0.75%	17,365	0	0.00%	11.48%
2006-2007	11,484	(224)	-1.91%	15,694	(699)	-4.26%	17,365	0	0.00%	10.65%
2005-2006	11,708	(92)	-0.78%	16,393	(336)	-2.01%	17,365	0	0.00%	5.93%
2004-2005	11,800	60	0.51%	16,729	92	0.55%	17,365	0	0.00%	3.80%
2003-2004	11,740	40	0.34%	16,637	(413)	-2.42%	17,365	0	0.00%	4.38%
2002-2003	11,700	76	0.65%	17,050	(2,058)	-10.77%	17,365	(2,600)	-13.02%	1.85%
2001-2002	11,624	189	1.65%	19,108	7	0.04%	19,965	0	0.00%	4.49%
2000-2001	11,435	(41)	-0.36%	19,101	0	0.00%	19,965	0	0.00%	4.52%
1999-2000	11,476	280	2.50%	19,101	340	1.81%	19,965	0	0.00%	4.52%
1998-1999	11,196	(25)	-0.22%	18,761	374	2.03%	19,965	0	0.00%	6.42%
1997-1998	11,221	306	2.80%	18,387	431	2.40%	19,965	2,000	11.13%	8.58%
1996-1997	10,915	235	2.20%	17,956	353	2.01%	17,965	1,008	5.94%	0.05%
1995-1996	10,680			17,603			16,957			-3.67%
Annual Average			0.55%			-0.34%			0.18%	5.59%

Heating Season	Firm Peak Day Sendout			(14)	(15)	(16)	(17)
	(11) Firm Peak Day Sendout (dk)	(12) Change From Previous Year	(13) % Change From Previous Year	Excess Per Customer [(7)-(4)]/(1)	Design Day per Customer (4)/(1)	Entitlement per Customer (7)/(1)	Peak Day Sendout per Customer (11)/(1)
2015-2016				0.0980	1.3948	1.4928	
2014-2015	15,231	774	5.35%	0.0703	1.3775	1.4478	1.2862
2013-2014	14,457	1,941	15.51%	0.0302	1.3128	1.3430	1.2411
2012-2013	12,516	2,248	21.89%	0.0689	1.2878	1.3568	1.0854
2011-2012	10,268	(1,652)	-13.86%	0.0673	1.2879	1.3552	0.8895
2010-2011	11,920	(692)	-5.49%	0.0744	1.3128	1.3872	1.0319
2009-2010	12,612	(962)	-7.09%	0.1527	1.3370	1.4898	1.0927
2008-2009	13,574	888	7.00%	0.1822	1.3324	1.5146	1.1840
2007-2008	12,686	401	3.26%	0.1561	1.3596	1.5157	1.1073
2006-2007	12,285	(789)	-6.03%	0.1455	1.3666	1.5121	1.0697
2005-2006	13,074	(996)	-7.08%	0.0830	1.4002	1.4832	1.1167
2004-2005	14,070	(626)	-4.26%	0.0539	1.4177	1.4716	1.1924
2003-2004	14,696	425	2.98%	0.0620	1.4171	1.4791	1.2518
2002-2003	14,271	2,151	17.75%	0.0269	1.4573	1.4842	1.2197
2001-2002	12,120	(2,724)	-18.35%	0.0737	1.6438	1.7176	1.0427
2000-2001	14,844	(1,921)	-11.46%	0.0756	1.6704	1.7460	1.2981
1999-2000	16,765	828	5.20%	0.0753	1.6644	1.7397	1.4609
1998-1999	15,937	(133)	-0.83%	0.1075	1.6757	1.7832	1.4235
1997-1998	16,070	115	0.72%	0.1406	1.6386	1.7793	1.4321
1996-1997	15,955	(418)	-2.55%	0.0008	1.6451	1.6459	1.4617
1995-1996	16,373			(0.0605)	1.6482	1.5877	1.5331
Annual Average			0.14%	0.0793	1.4626	1.5420	1.2210



**GREAT PLAINS NATURAL GAS  
PIPELINE CAPACITY VS PROPANE**

Assumptions:

Purchase pipeline capacity

- 2,000 dk/day capacity
- Ten year term
- Price constant over ten year period
- Capacity release anticipated but not reflected

Propane Peaker

- 1,700 dk/day capacity
- Ten year term
- 20 year life of project
- 2015 average capital structure
- 10% ROE

Rate per dk/month NPV over 10 year term	
Pipeline	Propane
<u>\$66.19</u>	<u>\$85.84</u>