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March 10, 2010

Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
Saint Paul, Minnesota 55101-2147

RE: Comments of the Minnesota Office of Energy Security
Docket No. G011/M-09-1285

Dear Dr. Haar:

Attached are the *Comments* of the Minnesota Office of Energy Security (OES) in the following matter:

A request (*Petition*) submitted by Minnesota Energy Resources Corporation-PNG (MERC-PNG or Company) for approval of changes in demand entitlements on its Viking Transmission Company (Viking) pipeline system.

The *Petition* was filed on November 2, 2009 by:

Greg Walters
Regulatory and Legislative Affairs Manager
Minnesota Energy Resources Corporation
519 1st Avenue SW
PO Box 6538
Rochester, MN 55903-6538

Based on its concerns associated with MERC-PNG's design-day calculations, the OES withholds recommendation in this proceeding until the Company provides additional information in its *Reply Comments*. Given these concerns, the OES recommends that MERC-PNG provide the following in its *Reply Comments*:

- a full discussion explaining why its heating degree day adjustment differs from the National Weather Service's calculation standard and what, if any, impact using the official wind chill calculation has on the Company's design-day forecasts;
- a detailed explanation justifying the reasonableness of its design-day calculations for its Viking PGA system;
- a full discussion detailing how it intends to install telemetry on its transportation customers and an estimate of how long it will be before it has adequate daily data to estimate its firm design day more accurately;

Burl W. Haar
March 10, 2010
Page Two

- a full discussion explaining how it arrived at its interruptible and transportation customer usage estimates that it incorporates into its design-day analysis;
- a full discussion of whether MERC-PNG is examining other techniques to improve its interruptible customer usage estimates;
- a full discussion explaining why it chose the 97.5 percent confidence level that it uses in its design day analysis; and
- a full analysis, including supporting calculations, comparing demand costs at the 97.5 confidence level and at the 99.9 percent confidence level in its volume risk adjustment.

The OES is available to answer any questions that the Commission may have.

Sincerely,

/s/ ADAM JOHN HEINEN
Rates Analyst
(651) 296-6329

AJH/sm
Attachment



BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

COMMENTS OF THE MINNESOTA OFFICE OF ENERGY SECURITY

DOCKET No. G011/M-09-1285

I. SUMMARY OF MERC-PNG'S PROPOSAL

Pursuant to Minnesota Rules 7825.2910, subpart 2 (Filing Upon Change in Demand), on November 2, 2009, Minnesota Energy Resources Corporation-PNG (MERC-PNG or Company), submitted a demand entitlement filing (*Petition*) for its Viking Transmission Company (Viking) pipeline system.¹ In its *Petition*, MERC-PNG requests the Minnesota Public Utilities Commission's (Commission) approval to "change demand levels by type" on the Viking system for service to its Minnesota firm customers. MERC-PNG does not recommend a change in its overall firm entitlement level but, rather, recommends a re-allocation in volumes among various demand contracts. In addition, MERC-PNG requests approval to recover the associated demand costs in the monthly Purchase Gas Adjustment (PGA) effective November 1, 2009. The Minnesota Office of Energy Security (OES) provides comments supporting MERC-PNG's proposal below.

II. OES ANALYSIS OF MERC-PNG'S DEMAND PROPOSAL

The OES reviewed MERC-PNG's proposed design-day requirement, proposed demand entitlement, and resulting reserve margins. Additionally, the OES compared this year's amounts

¹ MERC-PNG also serves Minnesota customers off of the Northern Natural Gas (Northern) pipeline system and the Great Lakes Transmission (Great Lakes) pipeline system. On November 2, 2009, MERC-PNG submitted the following requests with respect to these two systems:

- A request to change the Company's demand entitlements on the Northern system for the 2009-2010 heating season in Docket No. G011/M-09-1284; and
- A request to change the Company's demand entitlements on the Great Lakes system for the 2009-2010 heating season in Docket No. G011/M-09-1283.

In addition, on November 2, 2009, MERC-NMU (NMU), a division of Integrys Energy, submitted a request to change demand entitlements in Docket No. G007/M-09-1282. The OES separately addresses the requests in each of these dockets.

with previous years' amounts. The OES's analysis of the Company's request includes three parts:

- MERC-PNG's Viking PGA system proposed Design-Day Requirement, Demand Entitlement Level, and Reserve Margin;
- MERC-PNG's Viking PGA system specific proposed demand entitlement changes; and
- MERC-PNG's Viking PGA System Cost Recovery Proposal.

A. *MERC-PNG'S VIKING PROPOSED DESIGN-DAY REQUIREMENT, PROPOSED DEMAND ENTITLEMENT LEVEL, AND RESULTING RESERVE MARGIN*

1. *Design-Day Requirement*

a. *Peak-Day Calculation*

In its *Petition* and in response to OES discovery, MERC-PNG explained the peak-day model it uses to determine its design-day requirement and provided the model results and input data in its response to OES Information Request No. 7 (OES Attachment 1). Based on its review, the OES concludes that MERC-PNG conducted its design-day study using a statistically valid model. However, the OES is still concerned that the Company's design-day analysis may not ensure sufficient volumes on a peak day as defined by Commission practice.² Before discussing its concerns with MERC-PNG's design-day calculations, the OES provides a brief description of the Company's design-day analysis.

MERC-PNG conducts its design-day and peak-day analyses using statistical techniques, specifically ordinary least squares (OLS) regression. The Company's regression analysis is based on daily system throughput, wind-adjusted heating degree days (AHDDs),³ and other significant independent variables (*e.g.*, month, day of the week) for the months of December through February over the past three heating seasons (*i.e.*, 2006-2007, 2007-2008, 2008-2009).⁴ This regression analysis allows MERC-PNG to estimate weather's (AHDDs) impact on system throughput and then compare this impact to the Company's all-time system peak day. This comparison then allows MERC-PNG to estimate total system throughput, based on current customer counts and system characteristics, if a day similar to the system's all-time peak sendout

² Minnesota Rules 7825.2400, subp. 13d, defines a design-day as: "a 24-hour-day period of the greatest possible gas requirement to meet firm customer needs." The Commission later clarified this to mean the coldest day in the previous 20 years, which translates in MERC-PNG's Viking PGA territory as -18°F (81 HDD) or -44°F (109 AHDD).

³ Commission Staff has indicated concerns, in another utility's demand entitlement filing, about using AHDD when conducting a design-day analysis. MERC-PNG notes in its response to OES Information Request No. 8 (OES Attachment 2) that AHDDs produce more robust regression results than using non-wind aided HDDs.

⁴ The OES notes that MERC-PNG's adjusted HDD calculation is different than the official calculation used by the National Weather Service (NWS). Given this difference, the OES recommends that MERC-PNG provide, in its *Reply Comments*, a full discussion explaining why it uses a different calculation and what, if any, impact using the official wind chill calculation has on MERC-PNG's design-day forecast.

were to occur during the heating season. Finally, the Company includes a volume risk adjustment, removes interruptible and transportation customer usage, and applies a customer growth figure to its estimated total system throughput.

As noted above, the OES believes that MERC-PNG conducts its design-day analysis using a statistically valid technique; however, the OES is still concerned that this analysis may not be able to fully ensure system reliability on an all-time peak day. The OES's primary concern relates to estimating peak-day firm sales throughput. To estimate firm peak-day sales throughput, MERC-PNG subtracts estimated use by interruptible and transportation customers from total throughput. As mentioned in MERC-PNG's *Initial Petition*, page 9, the Company states that it only has monthly billing cycle data for the majority of its interruptible and transportation customers. This fact creates an issue in that it requires the Company to estimate daily interruptible and transportation customer use before estimating firm sales. However, since these non-firm customers are less weather sensitive than firm customers, it is not unreasonable to assume, as MERC-PNG does, that these customers will consume roughly the same amount of gas each day. While reviewing MERC-PNG's calculation of average daily interruptible and transportation use, the OES observed that the Company bases its calculation on 20 days in the month, which indicates that MERC-PNG believes that these customers operate approximately five days a week. The OES would prefer a more precise estimate, but notes that MERC-PNG is in the process of obtaining the data for a more precise estimate, as discussed below.

The OES conducted further peak-day analysis by comparing MERC-PNG's estimate of peak day use by interruptible and transportation customers to total peak day throughput estimates provided by the Company in its response to OES Information Request No. 7 (OES Attachment 1). Based on MERC-PNG's regression results, and analysis conducted by the OES, there were more than 70 days during the past three heating seasons where firm use on a peak day similar to the Viking PGA system all-time peak day (January 18, 1996) could have exceeded the Company's total entitlement level for this heating season (OES Attachment 3). This analysis indicates that there is a chance that, under certain circumstances, the Company may not have sufficient capacity to serve firm customers on an all-time peak day.

Given the large number of instances where calculated peak day use was greater than the Company's total entitlement level for the 2009-2010 heating season, the OES is concerned that MERC-PNG's design-day analysis for its Viking PGA system is inadequate to ensure firm reliability on a peak day. Although the OES has serious concerns with MERC-PNG's results, the OES does not believe that MERC-PNG is attempting to bias its estimate of interruptible and transportation use, or under-estimate firm usage. Rather, given the difficulties associated with estimating interruptible and transportation usage, the Company is attempting to deal with an unknown quantity, interruptible and transportation customer use, in the best manner possible. However, given the OES's concerns with MERC-PNG's design day calculation, the OES recommends that the Company provide a detailed explanation, in its *Reply Comments*, justifying the reasonableness of its design-day calculations for its Viking PGA system.

The Company is further attempting to mitigate the design-day risk associated with transportation customers by requiring gas meter telemetry. In its most recent general rate case, Docket No. G007,011/GR-08-835, MERC-PNG and MERC-NMU proposed a change in rate design requiring all transportation customers to install telemetry. In its June 29, 2009 *Order* in this rate case, the Commission agreed with the Administrative Law Judge's finding, and the Company's proposal, that MERC-PNG be allowed to require telemetry for transportation customers, without exception. The OES supported the Company's proposal.

Based on the discussion above, the OES believes that MERC-PNG made a reasonable attempt to estimate its design-day and peak-day sendout. However, given the lack of daily data associated with MERC-PNG's interruptible and transportation customers and issues associated with estimating firm usage on a peak day, the OES recommends that the Commission not endorse this technique until such time that MERC-PNG has adequate daily interruptible and transportation throughput data and shows that its design-day calculation produces results that are sufficient to ensure firm service on an all-time peak day. Further, the OES recommends that MERC-PNG provide the following in its *Reply Comments*:

- a full discussion detailing how it intends to install telemetry on its transportation customers and an estimate of how long it will be before it has adequate daily data to estimate its firm design day more accurately;
- a full discussion explaining how it arrived at its interruptible and transportation customer usage estimates that it incorporates into its design-day analysis; and
- a full discussion of whether MERC-PNG is examining other techniques to improve its interruptible customer usage estimates.

b. Volume Risk Adjustment

In its initial *Petition*, MERC-PNG states that it adds a volume risk adjustment to its design day estimate. The volume risk adjustment's purpose, as stated by the Company, is "to provide a confidence level that the daily metered load under design conditions would not exceed the daily metered regression estimate." The confidence level MERC-PNG chose is 97.5 percent, which means that there is roughly a 2.5 percent chance that any given design-day estimate will exceed the daily throughput estimate at a given point. In its response to OES Information Request No. 1 (OES Attachment 4), MERC-PNG states that a 99.9 percent confidence level could have also been chosen, which means that there would be a roughly 0.1 percent chance that a given design day estimate would exceed throughput estimates. Procuring demand contracts to meet a 99.9 percent confidence level would essentially assure full system integrity under any circumstance, but would also involve additional costs over MERC-PNG's current 97.5 percent confidence level. Given this trade-off between reasonable cost and absolute reliability, the OES recommends that MERC-PNG provide the following in its *Reply Comments*:

- a full discussion explaining why it chose the 97.5 percent confidence level that it uses in its design-day analysis; and

- a full analysis, including supporting calculations, comparing demand costs at the 97.5 confidence level and at the 99.9 percent confidence level.

2. Demand Entitlement Level

In its *Petition*, and clarified in its response to OES Information Request No. 3 (OES Attachment 5), MERC-PNG does not request a change in total entitlement levels between the 2008-2009 heating season and the 2009-2010 heating season. The Company does, however, recommend a re-allocation of various demand contracts. MERC-PNG's requested contract re-allocations are as follows:

Contract Name	Level of Change (Mcf)
NNG-TF12 Base (112495)	83 Mcf
NNG-TF12 Variable (112495)	178 Mcf
NNG-TF5 Chisago (112495)	(284) Mcf
NNG-TFX 12 Chisago (112486)	(43) Mcf
NNG-TFX 5 Chisago (112485)	67 Mcf

See OES Attachment 5.

Given relatively mild temperatures during recent heating seasons, the OES investigated the historical peak-day sendout per customer. OES Attachment 6 shows that the all-time peak-day sendout per customer was 1.5542 Mcf/customer per day during the 1998-1999 heating season.⁵ The OES further notes that the all-time peak-day sendout per customer was 1.7404 Mcf/customer during the 2005-2006 heating season.

As indicated in OES Attachment 6, the firm peak-day sendout on MERC-PNG's Viking PGA system for the 2008-2009 heating season was 5,869 Mcf/day, a decrease of 1,189 Mcf/day (or approximately 16.85 percent) over the 2007-2008 heating season. The Company's proposed design-day requirement results in an anticipated design-day per customer of 1.5633 Mcf/day. The total entitlement per customer of 1.7298 Mcf/day is greater than the 13-year average peak-day sendout per peak-day customer of 1.6304 Mcf/day and the all-time peak day sendout per customer of 1.5542 Mcf/day.⁶ The OES does note, however, that MERC-PNG's total entitlement per customer is less than the peak-day sendout per customer of 1.7404 Mcf/customer. This result is an indication that MERC-PNG may not have sufficient capacity to serve firm customers on an all-time peak-day event.

It is important to ensure that the Company does not over-estimate its need unreasonably and cause PGA rates to be too high. The OES intends to continue working with the Company to refine the estimates of peak-day use per customer, and it looks forward to reviewing the

⁵ When design-day forecasts of other Minnesota regulated natural gas companies were examined, the 1995-1996 and 1993-1994 heating seasons were generally where historic peak-day throughputs occurred. However, MERC-PNG has information available only from the 1998-1999 heating season going forward.

⁶ Please note that peak-day sendout per customer information is unavailable for the 2005-2006, 2006-2007, and 2007-2008 heating seasons.

information MERC-PNG will provide in its *Reply Comments* related to its design-day calculations.

3. Reserve Margin

As shown in OES Attachment 6, the Company's entitlement proposal would result in a positive reserve margin for MERC-PNG's Viking PGA system customers of 10.65 percent, which is a significant increase from the 2008-2009 reserve margin of 2.76 percent. This proposed increase in the reserve margin would bring the reserve margin over the five percent threshold that the OES considers to be an adequate reserve margin. However, given the design-day analysis issues discussed above and the Viking PGA system's lack of available storage and peak shaving, the OES believes that MERC-PNG's reserve margin is reasonable and adequate.

C. MERC-PNG'S SPECIFIC PROPOSED DEMAND ENTITLEMENT CHANGES

As MERC-PNG explains in its filing, there are two types of demand entitlement changes. The first type is design-day deliverability, which, in this filing, represents the re-allocation of various firm transportation capacity available to MERC-PNG Viking PGA customers during winter peak periods. The second type does not affect the design-day deliverability level, but does affect the demand costs recovered from ratepayers through the PGA. Changes in the second type of demand entitlement changes are made to non-winter transportation and balancing contracts and, in this filing, MERC-PNG does not propose any adjustments to these contracts types.

D. MERC-PNG'S GREAT LAKES PGA SYSTEM COST RECOVERY PROPOSAL

The demand entitlement changes proposed above represent the demand entitlements that firm customers on MERC-PNG's Viking PGA system would pay. The Company's *Petition* uses MERC-PNG's October 2009 PGA as a means of comparison for its entitlement level cost changes since MERC-PNG proposes that the rate change take effect on November 1, 2009. MERC-PNG's proposed changes would result in the following bill impacts:

Customer Class	Commodity Change (\$/Mcf)	Commodity Change (Percent)	Demand Change (\$/Mcf)	Demand Change (Percent)	Total Change (\$/Mcf)	Total Change (Percent)	Effect on Annual Bill (\$)
General Service	\$0.6681	18.21%	\$0.009	0.83%	\$0.6771	10.60%	\$89.57
Small Vol. Interruptible	\$0.6681	18.21%	\$0.000	0.00%	\$0.6681	13.60%	\$2,337.39
Large Vol. Interruptible	\$0.6681	18.21%	\$0.000	0.00%	\$0.6681	16.59%	\$75,951.54
Small Vol. Firm	\$0.6681	18.21%	\$0.000	0.00%	\$0.6681	13.60%	\$2,600.80

As shown above, and in MERC-PNG Attachment 4 in its initial *Petition*, the Company's proposed entitlement levels would result in the following estimated annual bill impacts:

- an increase of approximately \$89.57, or 10.60 percent, for an average General Service customer consuming 132 Mcf annually;
- an increase of approximately \$2,337.39, or 13.60 percent, for an average Small Volume Interruptible customer consuming 3,499 Mcf annually;
- an increase of approximately \$75,951.54, or 16.59 percent, for an average Large Volume Interruptible customer consuming 113,688 Mcf annually; and
- an increase of approximately \$2,600.80, or 13.60 percent, for an average Small Volume Firm customer consuming 3,893 Mcf annually.

The OES's analysis is somewhat different from that shown in MERC-PNG's initial *Petition*, since the OES holds the weighted average cost of gas constant to isolate the increases in total gas costs associated solely with the demand cost of gas. The OES's bill impacts are as follows:

Table 3: MERC-PNG's Great Lakes PGA System Cost Recovery Monthly Rate Impact as Calculated by the OES Compared to the October 2009 PGA

Customer Class	Commodity Change (\$/Mcf)	Commodity Change (Percent)	Demand Change (\$/Mcf)	Demand Change (Percent)	Total Change (\$/Mcf)	Total Change (Percent)	Effect on Annual Bill (\$)
General Service	\$0.0144	0.39%	\$0.0092	0.84%	\$0.0236	0.37%	\$3.12
Small Vol. Interruptible	\$0.0144	0.39%	\$0.0000	0.00%	\$0.0144	0.29%	\$50.39
Large Vol. Interruptible	\$0.0144	0.39%	\$0.0000	0.00%	\$0.0144	0.36%	\$1,637.11
Small Vol. Firm	\$0.0144	0.39%	\$0.0000	0.00%	\$0.0144	0.29%	\$56.06

Note: The change in commodity cost relates to the implementation of Call Option costs for the 2009-2010 heating season. The interruptible rate changes shown above are the result of changes in Call Option premium costs.

As shown in Table 2 above, and in OES Attachments 7 and 8, the proposed entitlement levels would result in the following estimated annual bill impacts:

- an increase of approximately \$3.12, or 0.37 percent, for an average General Service customer consuming 132 Mcf annually;
- an increase of approximately \$50.39, or 0.29 percent, for an average Small Volume Interruptible customer consuming 3,499 Mcf annually;
- an increase of approximately \$1,637.11, or 0.36 percent, for an average Large Volume Interruptible customer consuming 113,688; and
- an increase of approximately \$56.06, or 0.29 percent, for an average Small Volume Firm customer consuming 3,893 Mcf annually.

III. THE OES'S RECOMMENDATIONS

Based on its concerns associated with MERC-PNG's design-day calculations, the OES withholds recommendation in this proceeding until the Company provides additional information in its *Reply Comments*. Given these concerns, the OES recommends that MERC-PNG provide the following in its *Reply Comments*:

- a full discussion explaining why its heating degree day adjustment differs from the National Weather Service's calculation standard and what, if any, impact using the official wind chill calculation has on the Company's design-day forecasts;
- a detailed explanation justifying the reasonableness of its design day calculations for its Viking PGA system;
- a full discussion detailing how it intends to install telemetry on its interruptible and transportation customers and an estimate of how long it will be before it has adequate daily data to more accurately estimate its firm design day;
- a full discussion explaining why it chose the 97.5 percent confidence level that it uses in its design day analysis; and
- a full analysis, including supporting calculations, comparing demand costs at the 97.5 confidence level and at the 99.9 percent confidence level in its volume risk adjustment.

/sm

State of Minnesota
OFFICE OF ENERGY SECURITY

Docket No. G011/M-09-1285
OES Attachment 1
Page 1 of 3

Utility Information Request

Docket Number: G011/M-09-1285

Date of Request: December 8, 2009

Requested From: Minnesota Energy Resources Corporation

Response Due: December 18, 2009

Analyst Requesting Information: Adam Heinen

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.	
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7 Subject: Design-Day Regression Models

Please provide the following related to MERC-PNG Viking's design-day regression:

- a) a copy of any, and all, regression outputs that were used by MERC-PNG Viking to determine its design-day study;
- b) any, and all, input, and raw, data used by MERC-PNG Viking in its design-day analysis; and
- c) any, and all, raw weather data, and calculations, used to determine MERC-PNG Viking's weather input data.

If this information has already been provided in written testimony or in response to an earlier OES information request, please identify the specific testimony cite(s) or OES information request number(s).

Response:

a. All data used in the MERC-PNG Viking peak day regressions and the individual regression results are provided on separate tabs in the attached Excel spreadsheet "MERC09-1285-IR7a-PNG-VGTpeakdayRegressions.xls".

b. The raw input data used in the regressions appears on the "Data" tab of the Excel file attached in the response to part (a) (some of this data is "lagged" to provide prior day values on the "Values" tab of that file). The attached Excel file "MERC09-1285-IR7b-Interruptible-TransportationConsumptionReportfor2010PeakDay 091509.xls" provides support for removing the 3,329 Dths of Interruptible, Transportation, and Joint Interruptible demand. The attached Excel file "MERC09-1285-IR7b-SmVolJointFirm Daily Firm Customers.xls" contains support for the 36 Dths of Daily Firm Capacity that was added back into the peak day requirements. The attached Excel file "MERC09-1285-IR7b-MERCF CST2009004_June_03_09.xls" contains support for the -5.7% sales forecast change for general service customers from 2009 to 2010.

c. The attached Excel file "MERC09-1285-IR7c-Fargo Weather Data.xls" contains the raw weather data and calculations used to determine MERC-PNG Viking' weather input data for both the daily regression data and the design weather conditions.

Docket No. G011/M-09-1285
OES Attachment 1
Page 2 of 3

PNG-VGT Peak Day Regression for Winter 2010 - Summary
Based on December through February Data for 3 years

108.6 Coldest Fargo AHDD65 in 20 years (January 18, 1996)
108.2 Coldest Fargo MGUAAdj65 in 20 years (January 18, 1996)
2.5% Risk Tolerance for Actual Load Exceeding Estimate

Regression	Baseload	Use Per		Adj R Sq.	Sigma	Point Est	Total	
		AHDD65	MGUAAdj65				Daily Meter Risk Adjustment	Daily Meter Peak Day Estimate
Lasylt Year 3yr-S	622.94	86.38		0.896	443.26	10,038	869	10,907
Last Year 3yr-AHDD65	313.26	88.66		0.878	479.68	9,978	940	10,918
3yr-S	1,100.19		80.36	0.850	509.17	9,795	998	10,793
3yr-S+AHDD65	1,141.69	77.58		0.841	525.36	9,567	1,030	10,597
3yr-AHDD65	908.10	79.02		0.829	544.88	9,490	1,068	10,557
3yr-MGUAAdj65	861.62		81.86	0.838	530.31	9,719	1,039	10,758
					Min	9,490		10,557
					Max	9,795		10,793
					Avg	9,643		10,676

Notes:

- Dec 2005 to Feb 2008, only statistically significant independent variables
- Dec 2005 to Feb 2008, only Adjusted HDD
- Dec 2006 to Feb 2009, SAS best statistically significant independent variables
- Dec 2006 to Feb 2009, AHDD65 plus Significant non-weather variables
- Dec 2006 to Feb 2009, only AHDD65
- Dec 2006 to Feb 2009, only MGUAAdj65 (New Significant Weather Variable)

State of Minnesota
OFFICE OF ENERGY SECURITY

Utility Information Request

Docket Number: G011/M-09-1285 Date of Request: December 8, 2009
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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.	
8	<p data-bbox="305 905 756 936">Subject: Design-Day Weather Data</p> <p data-bbox="305 974 1456 1178">MERC-PNG Viking uses adjusted heating degree days (AHDDs) as an input in its design-day study models. As discussed in the OES's June 17, 2009 <i>Response Comments</i> in Docket No. G011/M-08-1328, Commission Staff raised concerns about the appropriateness of using AHDDs in calculating the design-day. Given these concerns, please provide any, and all, evidence, including by not limited to statistical analysis, that fully supports MERC-PNG's use of AHDDs in its design-day calculations.</p> <p data-bbox="305 1215 1414 1314">If this information has already been provided in written testimony or in response to an earlier OES information request, please identify the specific testimony cite(s) or OES information request number(s).</p> <p data-bbox="305 1354 436 1386"><u>Response:</u></p> <p data-bbox="305 1423 1438 1661">The Excel file attachment in the response to question 7a above shows the details of the regressions run using MERC-PNG Viking adjusted heating degree days (AHDD) on the "3yr-AHDD65" tab. The "3yr-HDD65" tab contains the regression results using standard heating degree days (HDD). The standard error, or sigma, for the AHDD regression of 544.88 is 6% lower than the HDD regression sigma of 576.94, indicating that the AHDD variable provides a better fit than HDD. The AHDD regression also has a higher R-Squared value than the HDD regression (0.829 vs. 0.808).</p> <p data-bbox="305 1698 1419 1831">Note: The above analysis is focused on directly comparing AHDD verses HDD to determine which variable better matches MERC-PNG Viking customer demand. The final Design Day forecast "3yr-S+AHDD65" regression uses AHDD with additional significant indicator variables.</p>

MERC-PNG's Regression Output and OES's Analysis of MERC-PNG's Peak Day Calculations

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.918193817
R Square	0.843079886
Adjusted R Square	0.840720185
Standard Error	525.3635614
Observations	271

ANOVA

	df	SS	MS	F	Significance F
Regression	4	394449712.6	98612428	357.283	1.199E-105
Residual	266	73417827.85	276006.87		
Total	270	467867540.4			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1,141.6855	143.0241	7.9825	0.0000	860.0821863	1423.288798	860.0821863	1423.288798
AHDD65	77.5807	2.1548	36.0044	0.0000	73.33811495	81.82320372	73.33811495	81.82320372
Sat	(280.8111)	87.5062	(3.2090)	0.0015	-453.1039541	-108.518297	-453.1039541	-108.5182968
Sun	(249.6543)	91.6436	(2.7242)	0.0069	-430.0933295	-69.2152061	-430.0933295	-69.2152061
Dec	(182.8834)	68.7716	(2.6593)	0.0083	-318.2893172	-47.4775501	-318.2893172	-47.4775501

PNG-VGT Peak Day Regression for Winter 2010

1	2	3	5	22	23	24	Mcf Usage per HDD	77.58
	(Mon=1)	Total	Fargo				Peak Day Temperature	108.6
							Days above Peak	75

Date	Day	Daily Meter	AHDD65	Sat	Sun	Dec	Estimated Peak Day Use	Estimated Interruptible Use	Estimated Firm Use	MERC Total Entitlement Value	Difference Between Firm Use and Estimated Total Entitlement	0= Sufficient Capacity 1=Estimated Firm Use Greater than Total Entitlement
12/1/2006	5	5,335	50	0	0	1	9,720	3,320	6,400	7,625	(1,225)	0
12/2/2006	6	6,063	66	1	0	1	10,167	3,320	6,847	7,625	(778)	0
12/3/2006	7	5,940	62	0	1	1	10,075	3,320	6,755	7,625	(870)	0
12/4/2006	1	6,439	60	0	0	1	10,824	3,320	7,504	7,625	(121)	0
12/5/2006	2	5,269	46	0	0	1	9,654	3,320	6,334	7,625	(1,291)	0
12/6/2006	3	7,089	64	0	0	1	11,474	3,320	8,154	7,625	529	1
12/7/2006	4	6,356	69	0	0	1	10,741	3,320	7,421	7,625	(204)	0
12/8/2006	5	4,235	44	0	0	1	8,620	3,320	5,300	7,625	(2,325)	0
12/9/2006	6	3,523	31	1	0	1	7,827	3,320	4,307	7,625	(3,318)	0
12/10/2006	7	3,430	38	0	1	1	7,565	3,320	4,245	7,625	(3,380)	0
12/11/2006	1	3,729	38	0	0	1	8,114	3,320	4,794	7,625	(2,831)	0
12/12/2006	2	4,041	36	0	0	1	8,426	3,320	5,106	7,625	(2,519)	0
12/13/2006	3	3,489	34	0	0	1	7,874	3,320	4,554	7,625	(3,071)	0
12/14/2006	4	4,092	34	0	0	1	8,477	3,320	5,157	7,625	(2,468)	0
12/15/2006	5	4,166	39	0	0	1	8,551	3,320	5,231	7,625	(2,394)	0
12/16/2006	6	3,556	32	1	0	1	7,660	3,320	4,340	7,625	(3,285)	0
12/17/2006	7	4,504	44	0	1	1	8,639	3,320	5,319	7,625	(2,306)	0
12/18/2006	1	4,518	46	0	0	1	8,903	3,320	5,583	7,625	(2,042)	0
12/19/2006	2	3,971	40	0	0	1	8,356	3,320	5,036	7,625	(2,589)	0
12/20/2006	3	4,429	38	0	0	1	8,814	3,320	5,494	7,625	(2,131)	0
12/21/2006	4	4,075	44	0	0	1	8,460	3,320	5,140	7,625	(2,485)	0
12/22/2006	5	3,785	38	0	0	1	8,170	3,320	4,850	7,625	(2,775)	0
12/23/2006	6	3,728	36	1	0	1	7,832	3,320	4,512	7,625	(3,113)	0
12/24/2006	7	3,795	36	1	0	1	7,899	3,320	4,579	7,625	(3,046)	0
12/25/2006	1	4,139	49	0	1	1	8,274	3,320	4,954	7,625	(2,671)	0
12/26/2006	2	3,863	36	0	0	1	8,248	3,320	4,928	7,625	(2,697)	0
12/27/2006	3	3,660	31	0	0	1	8,045	3,320	4,725	7,625	(2,900)	0
12/28/2006	4	3,845	34	0	0	1	8,230	3,320	4,910	7,625	(2,715)	0
12/29/2006	5	3,670	37	0	0	1	8,055	3,320	4,735	7,625	(2,890)	0
12/30/2006	6	3,527	39	1	0	1	7,631	3,320	4,311	7,625	(3,314)	0
12/31/2006	7	4,517	48	1	0	1	8,621	3,320	5,301	7,625	(2,324)	0

OES Attachment 3

MERC-PNG's Design Day Regression Output and the OES's Analysis of MERC-PNG's Peak Day Calculations

Docket No. G011/M-09-1285
 OES Attachment 3
 Page 2 of 5

1/1/2007	1	4,731	55	0	1	0	9,049	3,320	5,729	7,625	(1,896)	0
1/2/2007	2	4,354	51	0	0	0	8,922	3,320	5,602	7,625	(2,023)	0
1/3/2007	3	3,825	38	0	0	0	8,393	3,320	5,073	7,625	(2,552)	0
1/4/2007	4	3,817	34	0	0	0	8,385	3,320	5,065	7,625	(2,560)	0
1/5/2007	5	3,871	39	0	0	0	8,439	3,320	5,119	7,625	(2,506)	0
1/6/2007	6	3,987	44	1	0	0	8,274	3,320	4,954	7,625	(2,671)	0
1/7/2007	7	4,871	45	0	1	0	9,189	3,320	5,869	7,625	(1,756)	0
1/8/2007	1	5,105	51	0	0	0	9,673	3,320	6,353	7,625	(1,272)	0
1/9/2007	2	5,443	56	0	0	0	10,011	3,320	6,691	7,625	(934)	0
1/10/2007	3	4,747	47	0	0	0	9,315	3,320	5,995	7,625	(1,630)	0
1/11/2007	4	7,242	69	0	0	0	11,810	3,320	8,490	7,625	865	1
1/12/2007	5	7,647	87	0	0	0	12,215	3,320	8,895	7,625	1,270	1
1/13/2007	6	6,395	75	1	0	0	10,682	3,320	7,362	7,625	(263)	0
1/14/2007	7	6,592	79	0	1	0	10,910	3,320	7,590	7,625	(35)	0
1/15/2007	1	7,159	78	0	0	0	11,727	3,320	8,407	7,625	782	1
1/16/2007	2	6,272	71	0	0	0	10,840	3,320	7,520	7,625	(105)	0
1/17/2007	3	5,909	51	0	0	0	10,477	3,320	7,157	7,625	(468)	0
1/18/2007	4	5,788	48	0	0	0	10,356	3,320	7,036	7,625	(589)	0
1/19/2007	5	5,663	61	0	0	0	10,231	3,320	6,911	7,625	(714)	0
1/20/2007	6	4,769	50	1	0	0	9,056	3,320	5,736	7,625	(1,889)	0
1/21/2007	7	5,097	53	0	1	0	9,415	3,320	6,095	7,625	(1,530)	0
1/22/2007	1	5,172	51	0	0	0	9,740	3,320	6,420	7,625	(1,205)	0
1/23/2007	2	5,093	52	0	0	0	9,661	3,320	6,341	7,625	(1,284)	0
1/24/2007	3	5,373	48	0	0	0	9,941	3,320	6,621	7,625	(1,004)	0
1/25/2007	4	4,987	56	0	0	0	9,555	3,320	6,235	7,625	(1,390)	0
1/26/2007	5	4,813	41	0	0	0	9,381	3,320	6,061	7,625	(1,564)	0
1/27/2007	6	7,107	68	1	0	0	11,394	3,320	8,074	7,625	449	1
1/28/2007	7	6,205	69	0	1	0	10,523	3,320	7,203	7,625	(422)	0
1/29/2007	1	7,322	67	0	0	0	11,890	3,320	8,570	7,625	945	1
1/30/2007	2	6,623	75	0	0	0	11,191	3,320	7,871	7,625	246	1
1/31/2007	3	6,707	68	0	0	0	11,275	3,320	7,955	7,625	330	1
2/1/2007	4	7,584	75	0	0	0	12,152	3,320	8,832	7,625	1,207	1
2/2/2007	5	7,809	79	0	0	0	12,377	3,320	9,057	7,625	1,432	1
2/3/2007	6	8,240	89	1	0	0	12,527	3,320	9,207	7,625	1,582	1
2/4/2007	7	8,354	85	0	1	0	12,672	3,320	9,352	7,625	1,727	1
2/5/2007	1	7,865	81	0	0	0	12,433	3,320	9,113	7,625	1,488	1
2/6/2007	2	7,837	78	0	0	0	12,405	3,320	9,085	7,625	1,460	1
2/7/2007	3	8,205	86	0	0	0	12,773	3,320	9,453	7,625	1,828	1
2/8/2007	4	7,951	80	0	0	0	12,519	3,320	9,199	7,625	1,574	1
2/9/2007	5	7,738	80	0	0	0	12,306	3,320	8,986	7,625	1,361	1
2/10/2007	6	6,448	77	1	0	0	10,735	3,320	7,415	7,625	(210)	0
2/11/2007	7	5,861	60	0	1	0	10,179	3,320	6,859	7,625	(766)	0
2/12/2007	1	6,979	77	0	0	0	11,547	3,320	8,227	7,625	602	1
2/13/2007	2	7,701	83	0	0	0	12,269	3,320	8,949	7,625	1,324	1
2/14/2007	3	7,672	77	0	0	0	12,240	3,320	8,920	7,625	1,295	1
2/15/2007	4	7,040	80	0	0	0	11,608	3,320	8,288	7,625	663	1
2/16/2007	5	5,858	59	0	0	0	10,426	3,320	7,106	7,625	(519)	0
2/17/2007	6	5,458	53	1	0	0	9,745	3,320	6,425	7,625	(1,200)	0
2/18/2007	7	5,424	54	0	1	0	9,742	3,320	6,422	7,625	(1,203)	0
2/19/2007	1	5,055	46	0	0	0	9,623	3,320	6,303	7,625	(1,322)	0
2/20/2007	2	4,155	42	0	0	0	8,723	3,320	5,403	7,625	(2,222)	0
2/21/2007	3	5,266	40	0	0	0	9,834	3,320	6,514	7,625	(1,111)	0
2/22/2007	4	4,847	49	0	0	0	9,415	3,320	6,095	7,625	(1,530)	0
2/23/2007	5	5,025	40	0	0	0	9,593	3,320	6,273	7,625	(1,352)	0
2/24/2007	6	4,561	42	1	0	0	8,848	3,320	5,528	7,625	(2,097)	0
2/25/2007	7	4,332	43	0	1	0	8,650	3,320	5,330	7,625	(2,295)	0
2/26/2007	1	4,485	43	0	0	0	9,053	3,320	5,733	7,625	(1,892)	0
2/27/2007	2	4,587	46	0	0	0	9,155	3,320	5,835	7,625	(1,790)	0
2/28/2007	3	4,596	42	0	0	0	9,164	3,320	5,844	7,625	(1,781)	0

OES Attachment 3

MERC-PNG's Design Day Regression Output and the OES's Analysis of MERC-PNG's Peak Day Calculations

Docket No. G011/M-09-1285

OES Attachment 3

Page 3 of 5

12/1/2007	6	5,050	53	1	0	1	9,154	3,320	5,834	7,625	(1,791)	0
12/2/2007	7	6,107	71	0	1	1	10,242	3,320	6,922	7,625	(703)	0
12/3/2007	1	5,687	64	0	0	1	10,072	3,320	6,752	7,625	(873)	0
12/4/2007	2	5,779	53	0	0	1	10,164	3,320	6,844	7,625	(781)	0
12/5/2007	3	6,316	73	0	0	1	10,701	3,320	7,381	7,625	(244)	0
12/6/2007	4	6,062	63	0	0	1	10,447	3,320	7,127	7,625	(498)	0
12/7/2007	5	6,785	77	0	0	1	11,170	3,320	7,850	7,625	225	1
12/8/2007	6	6,900	79	1	0	1	11,004	3,320	7,684	7,625	59	1
12/9/2007	7	6,516	78	0	1	1	10,651	3,320	7,331	7,625	(294)	0
12/10/2007	1	5,796	63	0	0	1	10,181	3,320	6,861	7,625	(764)	0
12/11/2007	2	5,816	63	0	0	1	10,201	3,320	6,881	7,625	(744)	0
12/12/2007	3	5,280	58	0	0	1	9,665	3,320	6,345	7,625	(1,280)	0
12/13/2007	4	6,881	60	0	0	1	11,266	3,320	7,946	7,625	321	1
12/14/2007	5	6,363	72	0	0	1	10,748	3,320	7,428	7,625	(197)	0
12/15/2007	6	5,119	56	1	0	1	9,223	3,320	5,903	7,625	(1,722)	0
12/16/2007	7	5,198	57	0	1	1	9,333	3,320	6,013	7,625	(1,612)	0
12/17/2007	1	4,816	55	0	0	1	9,201	3,320	5,881	7,625	(1,744)	0
12/18/2007	2	5,034	53	0	0	1	9,419	3,320	6,099	7,625	(1,526)	0
12/19/2007	3	4,896	52	0	0	1	9,281	3,320	5,961	7,625	(1,664)	0
12/20/2007	4	4,646	48	0	0	1	9,031	3,320	5,711	7,625	(1,914)	0
12/21/2007	5	4,285	47	0	0	1	8,670	3,320	5,350	7,625	(2,275)	0
12/22/2007	6	5,648	60	1	0	1	9,752	3,320	6,432	7,625	(1,193)	0
12/23/2007	7	6,288	68	0	1	1	10,423	3,320	7,103	7,625	(522)	0
12/24/2007	1	4,801	57	0	1	1	8,936	3,320	5,616	7,625	(2,009)	0
12/25/2007	2	4,339	43	1	0	1	8,443	3,320	5,123	7,625	(2,502)	0
12/26/2007	3	4,732	54	0	0	1	9,117	3,320	5,797	7,625	(1,828)	0
12/27/2007	4	4,946	52	0	0	1	9,331	3,320	6,011	7,625	(1,614)	0
12/28/2007	5	4,666	49	0	0	1	9,051	3,320	5,731	7,625	(1,894)	0
12/29/2007	6	4,698	51	1	0	1	8,802	3,320	5,482	7,625	(2,143)	0
12/30/2007	7	4,774	54	0	1	1	8,909	3,320	5,589	7,625	(2,036)	0
12/31/2007	1	6,043	62	0	1	1	10,178	3,320	6,858	7,625	(767)	0
1/1/2008	2	7,047	77	1	0	0	11,334	3,320	8,014	7,625	389	1
1/2/2008	3	6,254	68	0	0	0	10,822	3,320	7,502	7,625	(123)	0
1/3/2008	4	5,142	52	0	0	0	9,710	3,320	6,390	7,625	(1,235)	0
1/4/2008	5	4,909	51	0	0	0	9,477	3,320	6,157	7,625	(1,468)	0
1/5/2008	6	3,947	46	1	0	0	8,234	3,320	4,914	7,625	(2,711)	0
1/6/2008	7	3,553	35	0	1	0	7,871	3,320	4,551	7,625	(3,074)	0
1/7/2008	1	3,867	36	0	0	0	8,435	3,320	5,115	7,625	(2,510)	0
1/8/2008	2	4,951	49	0	0	0	9,519	3,320	6,199	7,625	(1,426)	0
1/9/2008	3	4,750	48	0	0	0	9,318	3,320	5,998	7,625	(1,627)	0
1/10/2008	4	4,972	48	0	0	0	9,540	3,320	6,220	7,625	(1,405)	0
1/11/2008	5	5,041	50	0	0	0	9,609	3,320	6,289	7,625	(1,336)	0
1/12/2008	6	5,056	57	1	0	0	9,343	3,320	6,023	7,625	(1,602)	0
1/13/2008	7	6,503	67	0	1	0	10,821	3,320	7,501	7,625	(124)	0
1/14/2008	1	7,670	80	0	0	0	12,238	3,320	8,918	7,625	1,293	1
1/15/2008	2	5,961	68	0	0	0	10,529	3,320	7,209	7,625	(416)	0
1/16/2008	3	7,017	64	0	0	0	11,585	3,320	8,265	7,625	640	1
1/17/2008	4	7,039	72	0	0	0	11,607	3,320	8,287	7,625	662	1
1/18/2008	5	8,296	81	0	0	0	12,864	3,320	9,544	7,625	1,919	1
1/19/2008	6	8,050	85	1	0	0	12,337	3,320	9,017	7,625	1,392	1
1/20/2008	7	7,537	82	0	1	0	11,855	3,320	8,535	7,625	910	1
1/21/2008	1	7,473	71	0	0	0	12,041	3,320	8,721	7,625	1,096	1
1/22/2008	2	7,554	71	0	0	0	12,122	3,320	8,802	7,625	1,177	1
1/23/2008	3	8,307	81	0	0	0	12,875	3,320	9,555	7,625	1,930	1
1/24/2008	4	7,122	75	0	0	0	11,690	3,320	8,370	7,625	745	1
1/25/2008	5	5,839	62	0	0	0	10,407	3,320	7,087	7,625	(538)	0
1/26/2008	6	5,280	60	1	0	0	9,567	3,320	6,247	7,625	(1,378)	0
1/27/2008	7	4,130	48	0	1	0	8,448	3,320	5,128	7,625	(2,497)	0
1/28/2008	1	5,343	48	0	0	0	9,911	3,320	6,591	7,625	(1,034)	0
1/29/2008	2	9,192	85	0	0	0	13,760	3,320	10,440	7,625	2,815	1
1/30/2008	3	8,515	87	0	0	0	13,083	3,320	9,763	7,625	2,138	1
1/31/2008	4	7,244	74	0	0	0	11,812	3,320	8,492	7,625	867	1

OES Attachment 3

MERC-PNG's Design Day Regression Output and the OES's Analysis of MERC-PNG's Peak Day Calculations

Docket No. G011/M-09-1285

OES Attachment 3

Page 4 of 5

2/1/2008	5	5,446	55	0	0	0	10,014	3,320	6,694	7,625	(931)	0
2/2/2008	6	5,906	56	1	0	0	10,193	3,320	6,873	7,625	(752)	0
2/3/2008	7	4,908	47	0	1	0	9,226	3,320	5,906	7,625	(1,719)	0
2/4/2008	1	5,000	51	0	0	0	9,568	3,320	6,248	7,625	(1,377)	0
2/5/2008	2	6,588	72	0	0	0	11,156	3,320	7,836	7,625	211	1
2/6/2008	3	5,756	69	0	0	0	10,324	3,320	7,004	7,625	(621)	0
2/7/2008	4	5,025	56	0	0	0	9,593	3,320	6,273	7,625	(1,352)	0
2/8/2008	5	4,947	47	0	0	0	9,515	3,320	6,195	7,625	(1,430)	0
2/9/2008	6	8,062	71	1	0	0	12,349	3,320	9,029	7,625	1,404	1
2/10/2008	7	8,235	91	0	1	0	12,553	3,320	9,233	7,625	1,608	1
2/11/2008	1	7,354	77	0	0	0	11,922	3,320	8,602	7,625	977	1
2/12/2008	2	6,220	61	0	0	0	10,788	3,320	7,468	7,625	(157)	0
2/13/2008	3	6,526	65	0	0	0	11,094	3,320	7,774	7,625	149	1
2/14/2008	4	7,753	79	0	0	0	12,321	3,320	9,001	7,625	1,376	1
2/15/2008	5	6,763	69	0	0	0	11,331	3,320	8,011	7,625	386	1
2/16/2008	6	4,408	46	1	0	0	8,695	3,320	5,375	7,625	(2,250)	0
2/17/2008	7	6,585	57	0	1	0	10,903	3,320	7,583	7,625	(42)	0
2/18/2008	1	7,837	83	0	0	0	12,405	3,320	9,085	7,625	1,460	1
2/19/2008	2	8,408	90	0	0	0	12,976	3,320	9,656	7,625	2,031	1
2/20/2008	3	8,011	89	0	0	0	12,579	3,320	9,259	7,625	1,634	1
2/21/2008	4	6,062	71	0	0	0	10,630	3,320	7,310	7,625	(315)	0
2/22/2008	5	5,316	56	0	0	0	9,884	3,320	6,564	7,625	(1,061)	0
2/23/2008	6	4,413	56	1	0	0	8,700	3,320	5,380	7,625	(2,245)	0
2/24/2008	7	4,305	47	0	1	0	8,623	3,320	5,303	7,625	(2,322)	0
2/25/2008	1	5,350	59	0	0	0	9,918	3,320	6,598	7,625	(1,027)	0
2/26/2008	2	5,357	51	0	0	0	9,925	3,320	6,605	7,625	(1,020)	0
2/27/2008	3	4,988	54	0	0	0	9,556	3,320	6,236	7,625	(1,389)	0
2/28/2008	4	4,697	46	0	0	0	9,265	3,320	5,945	7,625	(1,680)	0
2/29/2008	5	5,402	53	0	0	0	9,970	3,320	6,650	7,625	(975)	0
12/1/2008	1	1,582	53	0	0	1	5,967	3,320	2,647	7,625	(4,978)	0
12/2/2008	2	4,779	48	0	0	1	9,164	3,320	5,844	7,625	(1,781)	0
12/3/2008	3	5,494	56	0	0	1	9,879	3,320	6,559	7,625	(1,066)	0
12/4/2008	4	6,054	62	0	0	1	10,439	3,320	7,119	7,625	(506)	0
12/5/2008	5	5,436	60	0	0	1	9,821	3,320	6,501	7,625	(1,124)	0
12/6/2008	6	6,098	66	1	0	1	10,202	3,320	6,882	7,625	(743)	0
12/7/2008	7	5,458	56	0	1	1	9,593	3,320	6,273	7,625	(1,352)	0
12/8/2008	1	5,614	63	0	0	1	9,999	3,320	6,679	7,625	(946)	0
12/9/2008	2	6,011	62	0	0	1	10,396	3,320	7,076	7,625	(549)	0
12/10/2008	3	5,876	50	0	0	1	10,261	3,320	6,941	7,625	(684)	0
12/11/2008	4	6,902	70	0	0	1	11,287	3,320	7,967	7,625	342	1
12/12/2008	5	5,342	55	0	0	1	9,727	3,320	6,407	7,625	(1,218)	0
12/13/2008	6	4,945	70	1	0	1	9,049	3,320	5,729	7,625	(1,896)	0
12/14/2008	7	7,109	97	0	1	1	11,244	3,320	7,924	7,625	299	1
12/15/2008	1	8,082	89	0	0	1	12,467	3,320	9,147	7,625	1,522	1
12/16/2008	2	7,300	77	0	0	1	11,685	3,320	8,365	7,625	740	1
12/17/2008	3	7,204	77	0	0	1	11,589	3,320	8,269	7,625	644	1
12/18/2008	4	6,650	75	0	0	1	11,035	3,320	7,715	7,625	90	1
12/19/2008	5	5,520	60	0	0	1	9,905	3,320	6,585	7,625	(1,040)	0
12/20/2008	6	6,745	83	1	0	1	10,849	3,320	7,529	7,625	(96)	0
12/21/2008	7	7,241	84	0	1	1	11,376	3,320	8,056	7,625	431	1
12/22/2008	1	6,847	75	0	0	1	11,232	3,320	7,912	7,625	287	1
12/23/2008	2	5,853	64	0	0	1	10,238	3,320	6,918	7,625	(707)	0
12/24/2008	3	6,094	76	0	0	1	10,479	3,320	7,159	7,625	(466)	0
12/25/2008	4	4,765	58	0	0	1	9,150	3,320	5,830	7,625	(1,795)	0
12/26/2008	5	3,786	46	1	0	1	7,890	3,320	4,570	7,625	(3,055)	0
12/27/2008	6	5,240	64	1	0	1	9,344	3,320	6,024	7,625	(1,601)	0
12/28/2008	7	4,832	56	0	1	1	8,967	3,320	5,647	7,625	(1,978)	0
12/29/2008	1	5,387	60	0	0	1	9,772	3,320	6,452	7,625	(1,173)	0
12/30/2008	2	6,667	82	0	0	1	11,052	3,320	7,732	7,625	107	1
12/31/2008	3	5,961	75	0	0	1	10,346	3,320	7,026	7,625	(599)	0

OES Attachment 3

MERC-PNG's Design Day Regression Output and the OES's Analysis of MERC-PNG's Peak Day Calculations

Docket No. G011/M-09-1285
 OES Attachment 3
 Page 5 of 5

1/1/2009	4	5,705	67	1	0	0	9,992	3,320	6,672	7,625	(953)	0
1/2/2009	5	5,554	66	0	0	0	10,122	3,320	6,802	7,625	(823)	0
1/3/2009	6	5,384	72	1	0	0	9,671	3,320	6,351	7,625	(1,274)	0
1/4/2009	7	6,754	83	0	1	0	11,072	3,320	7,752	7,625	127	1
1/5/2009	1	6,107	73	0	0	0	10,675	3,320	7,355	7,625	(270)	0
1/6/2009	2	5,927	70	0	0	0	10,495	3,320	7,175	7,625	(450)	0
1/7/2009	3	6,915	72	0	0	0	11,483	3,320	8,163	7,625	538	1
1/8/2009	4	6,300	67	0	0	0	10,868	3,320	7,548	7,625	(77)	0
1/9/2009	5	6,166	69	0	0	0	10,734	3,320	7,414	7,625	(211)	0
1/10/2009	6	5,692	67	1	0	0	9,979	3,320	6,659	7,625	(966)	0
1/11/2009	7	5,644	60	0	1	0	9,962	3,320	6,642	7,625	(983)	0
1/12/2009	1	7,582	84	0	0	0	12,150	3,320	8,830	7,625	1,205	1
1/13/2009	2	7,924	90	0	0	0	12,492	3,320	9,172	7,625	1,547	1
1/14/2009	3	8,661	92	0	0	0	13,229	3,320	9,909	7,625	2,284	1
1/15/2009	4	8,564	94	0	0	0	13,132	3,320	9,812	7,625	2,187	1
1/16/2009	5	6,670	70	0	0	0	11,238	3,320	7,918	7,625	293	1
1/17/2009	6	4,909	50	1	0	0	9,196	3,320	5,876	7,625	(1,749)	0
1/18/2009	7	4,904	51	0	1	0	9,222	3,320	5,902	7,625	(1,723)	0
1/19/2009	1	5,450	50	0	0	0	10,018	3,320	6,698	7,625	(927)	0
1/20/2009	2	5,112	54	0	0	0	9,680	3,320	6,360	7,625	(1,265)	0
1/21/2009	3	4,973	54	0	0	0	9,541	3,320	6,221	7,625	(1,404)	0
1/22/2009	4	5,295	64	0	0	0	9,863	3,320	6,543	7,625	(1,082)	0
1/23/2009	5	7,053	84	0	0	0	11,621	3,320	8,301	7,625	676	1
1/24/2009	6	7,043	84	1	0	0	11,330	3,320	8,010	7,625	385	1
1/25/2009	7	7,149	83	0	1	0	11,467	3,320	8,147	7,625	522	1
1/26/2009	1	7,374	83	0	0	0	11,942	3,320	8,622	7,625	997	1
1/27/2009	2	6,596	77	0	0	0	11,164	3,320	7,844	7,625	219	1
1/28/2009	3	6,015	63	0	0	0	10,583	3,320	7,263	7,625	(362)	0
1/29/2009	4	6,846	71	0	0	0	11,414	3,320	8,094	7,625	469	1
1/30/2009	5	5,126	51	0	0	0	9,694	3,320	6,374	7,625	(1,251)	0
1/31/2009	6	3,892	40	1	0	0	8,179	3,320	4,859	7,625	(2,766)	0
2/1/2009	7	5,189	65	0	1	0	9,507	3,320	6,187	7,625	(1,438)	0
2/2/2009	1	7,467	82	0	0	0	12,035	3,320	8,715	7,625	1,090	1
2/3/2009	2	7,215	77	0	0	0	11,783	3,320	8,463	7,625	838	1
2/4/2009	3	6,347	69	0	0	0	10,915	3,320	7,595	7,625	(30)	0
2/5/2009	4	4,473	50	0	0	0	9,041	3,320	5,721	7,625	(1,904)	0
2/6/2009	5	3,771	43	0	0	0	8,339	3,320	5,019	7,625	(2,606)	0
2/7/2009	6	4,652	54	1	0	0	8,939	3,320	5,619	7,625	(2,006)	0
2/8/2009	7	3,735	44	0	1	0	8,053	3,320	4,733	7,625	(2,892)	0
2/9/2009	1	3,647	32	0	0	0	8,215	3,320	4,895	7,625	(2,730)	0
2/10/2009	2	3,727	35	0	0	0	8,295	3,320	4,975	7,625	(2,650)	0
2/11/2009	3	4,164	45	0	0	0	8,732	3,320	5,412	7,625	(2,213)	0
2/12/2009	4	4,917	57	0	0	0	9,485	3,320	6,165	7,625	(1,460)	0
2/13/2009	5	5,097	60	0	0	0	9,665	3,320	6,345	7,625	(1,280)	0
2/14/2009	6	5,659	62	1	0	0	9,946	3,320	6,626	7,625	(999)	0
2/15/2009	7	4,655	56	0	1	0	8,973	3,320	5,653	7,625	(1,972)	0
2/16/2009	1	4,537	54	0	0	0	9,105	3,320	5,785	7,625	(1,840)	0
2/17/2009	2	4,663	59	0	0	0	9,231	3,320	5,911	7,625	(1,714)	0
2/18/2009	3	6,415	71	0	0	0	10,983	3,320	7,663	7,625	38	1
2/19/2009	4	5,873	64	0	0	0	10,441	3,320	7,121	7,625	(504)	0
2/20/2009	5	5,399	64	0	0	0	9,967	3,320	6,647	7,625	(978)	0
2/21/2009	6	5,554	66	1	0	0	9,841	3,320	6,521	7,625	(1,104)	0
2/22/2009	7	5,750	63	0	1	0	10,068	3,320	6,748	7,625	(877)	0
2/23/2009	1	5,299	61	0	0	0	9,867	3,320	6,547	7,625	(1,078)	0
2/24/2009	2	3,992	49	0	0	0	8,560	3,320	5,240	7,625	(2,385)	0
2/25/2009	3	5,605	69	0	0	0	10,173	3,320	6,853	7,625	(772)	0
2/26/2009	4	6,422	86	0	0	0	10,990	3,320	7,670	7,625	45	1
2/27/2009	5	6,397	79	0	0	0	10,965	3,320	7,645	7,625	20	1
2/28/2009	6	6,167	73	1	0	0	10,454	3,320	7,134	7,625	(491)	0

State of Minnesota
OFFICE OF ENERGY SECURITY

Docket No. G011/M-09-1285
OES Attachment 4
Page 1 of 2

Utility Information Request

Docket Number: G011/M-09-1285

Date of Request: December 8, 2009

Requested From: Minnesota Energy Resources Corporation

Response Due: December 18, 2009

Analyst Requesting Information: Adam Heinen

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: Volume Risk Adjustments</p> <p>Reference: MERC-PNG Viking Initial Filing, Page 8</p> <p>A. Please provide a full explanation of how MERC-PNG arrived at its desired confidence level of 97.5 percent, which is mentioned in the above reference.</p> <p>B. Please provide a full explanation, including calculations where applicable, of how MERC-PNG's volume risk adjustment influences load under design-day conditions.</p> <p>If this information has already been provided in written testimony or in response to an earlier OES information request, please identify the specific testimony cite(s) or OES information request number(s).</p> <p><u>Response:</u></p> <p>A. MERC-PNG used management judgment and traditional statistical techniques to select the 97.5% confidence level that actual firm customer demand under design peak day conditions would not exceed the estimate. MERC-PNG selected 97.5% because the resulting confidence level covers actual observations up to 1.96 standard deviations (sigmas) above the regression line and represents a reasonable balance between the volume risk inherent in covering only 1 sigma and the incremental supply required to cover 3 sigmas.</p> <p>Covering only 1 sigma leaves about a 16% chance that actual firm customer demand under design-day conditions would exceed the forecast, which seemed too risky. Covering 3 sigmas reduces the risk that actual firm customer demand under design-day conditions would exceed the forecast to about 0.1%. It takes the same incremental peak day volumes to move from covering 1 sigma to covering 2 sigmas as it does to move from covering 2 sigmas to covering 3 sigmas. Covering 2 sigmas instead of 1 reduces the</p>

volume risk from 16% to about 2.5%. Covering 3 sigmas instead of 2 reduces the volume risk from about 2.5% to about 0.1%. MERC-PNG management did not feel that the incremental risk reduction associated with moving from 2 to 3 sigmas justified the incremental peak day volumes required and increasing their associated costs to ratepayers. MERC-PNG management decided that 2.5% was a reasonable volume risk and fine tuned the number of sigmas to 1.96 based on the traditional statistical one-tailed test.

There is no single correct answer as to the proper method for selecting the peak day design volume risk conditions. Any method will result in different risks and costs for MERC-PNG's customers, as MERC-PNG needs to balance 1) the probability that firm customer requirements under design-day weather conditions could exceed the peak day requirements forecast and 2) the costs associated with actual firm supply exceeding firm requirements.

B. MERC-PNG's volume risk adjustment does not influence the actual load under design-day conditions. The volume risk adjustment quantifies the risk that actual load under design-day conditions could exceed the peak day forecast.

Relying on the regression line forecast alone provides an average "point estimate" of load under design-day conditions with a 50% chance that actual load under those design-day conditions would be higher than the forecast. MERC-PNG management interprets this as a 50% chance of facing more demand than the regression line shows on the day that our customers need service most.

Statistical confidence levels based on the 1-tail test are employed to convert the management risk preference of a 2.5% chance that actual load under design-day conditions could exceed the forecast to a volume risk adjustment required to provide that level of statistical confidence. Traditional statistical practice indicates that adding 1.96 sigmas to the regression line value provides an estimate that covers all but the highest 2.5% of expected occurrences. This approach does nothing to change the actual load under design-day conditions, it just recognizes that the actual load under design-day conditions is unknown and quantifies the chance that the peak day forecast could be exceeded when design-day conditions occur.

State of Minnesota
OFFICE OF ENERGY SECURITY

Docket No. G011/M-09-1285
OES Attachment 5
Page 1 of 2

Utility Information Request

Docket Number: G011/M-09-1285

Date of Request: December 8, 2009

Requested From: Minnesota Energy Resources Corporation

Response Due: December 18, 2009

Analyst Requesting Information: Adam Heinen

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.	
3	<p>Reference: Initial Filing, Attachment 3, Entitlement Levels</p> <p>While reviewing the above reference, the OES noted several inconsistencies or inaccuracies. Specifically, it appears that the <i>Current Amount</i> column contains information that was presented in MERC-PNG Viking's previous demand entitlement filing. Given this, please provide a revised Attachment 3 with corrected information.</p> <p>If this information has already been provided in written testimony or in response to an earlier OES information request, please identify the specific testimony cite(s) or OES information request number(s).</p> <p>Response: Please see the attached Revised PNG-VGT Attachment 3.</p>

12/18/2009

Attachment 3
REVISED

MINNESOTA ENERGY RESOURCES - PNG

ENTITLEMENT LEVELS

PROPOSED TO BE EFFECTIVE NOVEMBER 1, 2009

VGT

Type of Capacity or Entitlement		Current Amount Mcf or MMBtu	Proposed Change Mcf or MMBtu	Proposed Amount Mcf or MMBtu
AF0012		3,527	0	3,527
AF0014 (Dec-Feb) *		1,098	0	1,098
AF0016		1,000	0	1,000
AF0102		2,000	0	2,000
NNG-TF12 Base	112495	172	83	255
NNG-TF12 Variable	112495	0	178	178
NNG-TF5 Chisago	112495	389	(284)	105
NNG-TFX 12 Chisago	112486	432	(43)	389
NNG-TFX 5 Chisago	112486	105	67	172
Chisago Backhaul*	RF0361	0	0	0
Heating Season Total		7,625	202	7,625
Non-Heating Season Total		7,131		7,170
Total Entitlement		<u>7,625</u>	<u>202</u>	<u>7,625</u>
Heating Season				
Forecasted Design Day		7,420	(529)	6,891
Non-Heating Season				
Forecasted Design Day		4,108	120	4,228
Heating Season				
Capacity Surplus/Shortage		205	529	734
Non-Heating Season				
Capacity Surplus/Shortage		3,023	(81)	2,942
Reserve Margin		2.76%		10.65%

*Not included in total firm entitlement

(1) Increase entitlement to ensure adequate reserve margin against design day.

OES Attachment 6
MERC-PNG's Viking Area Demand Entitlement Analysis

Heating Season*	Number of Firm Customers			Design Day Requirement			Total Entitlement + Peak Shaving			Reserve Margin (10)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
	Number of Customers	Change from Previous Year	% Change From Previous Year	Design Day (Mcf)	Change from Previous Year	% Change From Previous Year	Total Entitlement (Mcf)	Change from Previous Year	% Change From Previous Year	% of Reserve Margin [(7)-(4)]/(4)
2009-2010	4,408	(227)	-4.90%	6,891	(529)	-7.13%	7,625	0	0.00%	10.65%
2008-2009	4,635	49	1.07%	7,420	(715)	-8.79%	7,625	(915)	-10.71%	2.76%
2007-2008	4,586	63	1.39%	8,135	23	0.28%	8,540	(324)	-3.66%	4.98%
2006-2007	4,523	62	1.39%	8,112	198	2.50%	8,864	778	9.62%	9.27%
2005-2006	4,461	(63)	-1.39%	7,914	316	4.16%	8,086	268	3.43%	2.17%
2004-2005	4,524	211	4.89%	7,598	175	2.36%	7,818	300	3.99%	2.90%
2003-2004	4,313	89	2.11%	7,423	340	4.80%	7,518	293	4.06%	1.28%
2002-2003	4,224	9	0.21%	7,083	286	4.21%	7,225	400	5.86%	2.00%
2001-2002	4,215	23	0.55%	6,797	93	1.39%	6,825	0	0.00%	0.41%
2000-2001	4,192	188	4.70%	6,704	193	2.96%	6,825	600	9.64%	1.80%
1999-2000	4,004	101	2.59%	6,511	269	4.31%	6,225	2,000	47.34%	-4.39%
1998-1999	3,903	128	3.39%	6,242	205	3.40%	4,225	0	0.00%	-32.31%
1997-1998	3,775			6,037			4,225			-30.01%
Average Change Per Year:			1.33%			1.20%			5.80%	-2.19%

Firm Peak Day Sendout

Heating Season*	Number of Peak Day Customers	Firm Peak Day Sendout (Mcf)	Change from Previous Year	% Change From Previous Year	Excess per Customer [(7)-(4)]/(1)	Design Day per Customer (4)/(1)	Entitlement per Customer (7)/(1)	Peak Day Sendout per PD Customer (12)/(11)	Peak Day Sendout per DD Customer (12)/(1)
2009-2010	unknown	unknown			0.1665	1.5633	1.7298	unknown	unknown
2008-2009 ^a	4,850	5,869	(1,189)	-16.85%	0.0442	1.6009	1.6451	1,2101	1,2662
2007-2008	unknown	7,058	143	2.07%	0.0883	1.7739	1.8622	unknown	1,5390
2006-2007	unknown	6,915	(849)	-10.94%	0.1663	1.7935	1.9598	unknown	1,5289
2005-2006	unknown	7,764	2,191	39.31%	0.0386	1.7740	1.8126	unknown	1,7404
2004-2005	4,474	5,573	(428)	-7.13%	0.0486	1.6795	1.7281	1,2456	1,2319
2003-2004	4,383	6,001	85	1.44%	0.0220	1.7211	1.7431	1,3692	1,3914
2002-2003	4,313	5,916	1,816	44.29%	0.0336	1.6768	1.7105	1,3717	1,4006
2001-2002	4,228	4,100	(439)	-9.67%	0.0066	1.6126	1.6192	0.9697	0.9727
2000-2001	4,217	4,539	(1,421)	-23.84%	0.0289	1.5992	1.6281	1.0764	1.0828
1999-2000	4,152	5,960	(367)	-5.80%	-0.0714	1.6261	1.5547	1.4355	1.4885
1998-1999	4,071	6,327	1,529	31.87%	-0.5168	1.5993	1.0825	1.5542	1.6211
1997-1998	4,040	4,798			-0.4800	1.5992	1.1192	1.1786	1.2710
Average Change Per Year:				4.07%	(0.0327)	1.6630	1.6304	1.2679	1.3779

*Per Peoples, information prior to 1995 is not available.

^a The peak day customer count number is calculated using the firm customer data provided in MERC-PNG's Initial Filing, Attachment 11.

In Column 12, the value for the 2005-2006 season has been changed to 7,764 from 5,573.

As shown in Docket No. E G999/AA-05-1403, Aquila Networks-PNG's response to Dept of Commerce Information Request No. 2 in Docket No. E G999/AA-05-1403,

and in Docket No. G011/JM-05-1725, the firm peak day sendout occurred on January 14, 2005 which would be indicative of the 2004-2005 season.

In Docket No. E G999/AA-06-1208, the firm peak day sendout of 7,764 Mcf occurred on 2/17/06 as identified in Table G10, during the 2005-2006 heating season.

OES Attachment 7
Effect of Proposed Demand Entitlement Changes on MERC-PNG's Viking area PGAs

	Last Rate Case G007,011/GR- 08-835	Last Demand Change G011/M-08- 1331	Most Recent PGA as Filed- October 2009	October 2009 PGA with Current Demand Entitlement Change	Change From Last Rate Case	Change From Last Demand Change PGA	Change From Most Recent PGA	Change From Most Recent PGA
General Service								
Commodity Cost of Gas (WACOG)	\$8.2454	\$6.9633	\$3.6684	\$3.6828	-55.34%	-47.11%	0.39%	\$0.0144
Demand Cost of Gas	\$1.2591	\$1.2591	\$1.0908	\$1.1000	-12.64%	-12.64%	0.84%	\$0.0092
Commodity Margin	\$1.6263	\$1.6263	\$1.6263	\$1.6263	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$11.1308	\$9.8487	\$6.3855	\$6.4091	-42.42%	-34.92%	0.37%	\$0.0236
Average Annual Usage (Mcf)	132	132	132	132				
Average Annual Total Cost of Gas	\$1,469.27	\$1,300.03	\$842.89	\$846.00	-42.42%	-34.92%	0.37%	\$3.12

	Last Rate Case G007,011/GR- 08-835	Last Demand Change G011/M-08- 1331	Most Recent PGA	Current Proposal	Change From Last Rate Case	Change From Last Demand Change PGA	Change From Most Recent PGA	Change From Most Recent PGA
Small Volume Interruptible								
Commodity Cost of Gas (WACOG)	\$8.2454	\$6.9633	\$3.6684	\$3.6828	-55.34%	-47.11%	0.39%	\$0.0144
Demand Cost of Gas	\$0.0000	\$0.0000	\$0.0000	\$0.0000	0.00%	0.00%	0.00%	\$0.0000
Commodity Margin	\$1.2434	\$1.2434	\$1.2434	\$1.2434	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$9.4888	\$8.2067	\$4.9118	\$4.9262	-48.08%	-39.97%	0.29%	\$0.0144
Average Annual Usage (Mcf)	3,499	3,499	3,499	3,499				
Average Annual Total Cost of Gas	\$33,201.31	\$28,715.24	\$17,186.39	\$17,236.77	-48.08%	-39.97%	0.29%	\$50.39

	Last Rate Case G007,011/GR- 08-835	Last Demand Change G011/M-08- 1331	Most Recent PGA	Current Proposal	Change From Last Rate Case	Change From Last Demand Change PGA	Change From Most Recent PGA	Change From Most Recent PGA
Large Volume Interruptible								
Commodity Cost of Gas (WACOG)	\$8.2454	\$6.9633	\$3.6684	\$3.6828	-55.34%	-47.11%	0.39%	\$0.0144
Demand Cost of Gas	\$0.0000	\$0.0000	\$0.0000	\$0.0000	0.00%	0.00%	0.00%	\$0.0000
Commodity Margin	\$0.3592	\$0.3592	\$0.3592	\$0.3592	0.00%	0.00%	0.00%	\$0.0000
Total Cost of Gas	\$8.6046	\$7.3225	\$4.0276	\$4.0420	-53.03%	-44.80%	0.36%	\$0.0144
Average Annual Usage (Mcf)	113,688	113,688	113,688	113,688				
Average Annual Total Cost of Gas	\$978,239.76	\$832,480.38	\$457,889.79	\$459,526.90	-53.03%	-44.80%	0.36%	\$1,637.11

	Last Rate Case G007,011/GR- 08-835	Last Demand Change G011/M-08- 1331	Most Recent PGA	Current Proposal	Change From Last Rate Case	Change From Last Demand Change PGA	Change From Most Recent PGA	\$ Change From Most Recent PGA
Small Volume Firm								
Commodity Cost of Gas (WACOG)	\$8.2454	\$6.9633	\$3.6684	\$3.6828	-55.34%	-47.11%	0.39%	\$0.0144
Demand Cost of Gas	\$3.4671	\$3.4671	\$3.4671	\$3.4671	0.00%	0.00%	0.00%	\$0.0000
Commodity Margin	\$0.3592	\$1.2434	\$1.2434	\$1.2434	246.16%	0.00%	0.00%	\$0.0000
Demand Margin	\$2.0724	\$2.0724	\$2.0724	\$2.0724	0.00%	0.00%	0.00%	\$0.0000
Total Commodity Cost	\$8.6046	\$8.2067	\$4.9118	\$4.9262	-42.75%	-39.97%	0.29%	\$0.0144
Total Demand Cost	\$5.5395	\$5.5395	\$5.5395	\$5.5395	0.00%	0.00%	0.00%	\$0.0000
Total Recovery	\$28.2882	\$27.4924	\$20.9026	\$20.9314	-26.01%	-23.86%	0.14%	\$0.0288
Average Annual Usage (Mcf)*	3,893	3,893	3,893	3,893				
Average Annual Commodity Bill*	\$33,497.71	\$31,948.68	\$19,121.64	\$19,177.70	-42.75%	-39.97%	0.29%	\$56.0592

* Excludes 7 CD Units

Summary	Commodity Change (\$/Mcf)	Commodity Change (%)	Demand Change (\$/Mcf)	Demand Change (%)	Total Change (\$/Mcf)	Total Change (%)	Effect on Annual Bill
General Service	\$0.0144	0.39%	\$0.0092	0.84%	\$0.0236	0.37%	\$3.12
Small Volume Interruptible	\$0.0144	0.39%	\$0.0000	0.00%	\$0.0144	0.29%	\$50.39
Large Volume Interruptible	\$0.0144	0.39%	\$0.0000	0.00%	\$0.0144	0.36%	\$1,637.11
Small Volume Firm	\$0.0144	0.29%	\$0.0000	0.00%	\$0.0288	0.14%	\$56.06

Note: The Commodity and Demand Margin numbers are subject to change once the Company's General Rate Case in Docket No. G007,011/GR-08-835 is finalized and the Commission issues its Decision. Thus in the subsequent Demand Entitlement filings, the Margin numbers may change.

Minnesota Office of Energy Security Attachment 8
MERC-PNG's Viking PGA Demand Entitlements Rate Impacts as Revised by the OES

MERC-PNG Viking Purchased Gas Adjustment System Current Cost of Gas Effective October 1, 2009

Annual Sales--As filed in Docket No. G007,011/MR-08-836
Total Viking Sales 8,444,250

MERC-PNG's Current Cost of Gas Effective October 1, 2009

GS-5	Season	Monthly Entitlement (Mcf)	Months	Rate (\$/Mcf)	Contract Costs	GS-1 Sales (therms)	Rate (\$/therm)
FT	Annual	3,527	12	\$3.4671	\$146,741.54	6,019,300	\$0.02438
FT	Dec-Feb	1,098	3	\$3.4671	\$11,420.63	6,019,300	\$0.00190
FT	Annual	1,000	12	\$3.4671	\$41,605.20	6,019,300	\$0.00691
FT	Annual	2,000	12	\$3.4671	\$83,210.40	6,019,300	\$0.01382
TF-12	Summer	172	12	\$7.5776	\$15,640.17	6,019,300	\$0.00260
Tf-5	Winter	389	5	\$15.1530	\$29,472.59	6,019,300	\$0.00490
TFX-12	Summer	432	12	\$9.6288	\$49,915.70	6,019,300	\$0.00829
TFX-5	Winter	105	5	\$15.1530	\$7,955.33	6,019,300	\$0.00132
FT	Winter	0	3	\$2.7360	\$0.00	6,019,300	\$0.00000
Exchange	Annual	152,888	1	\$1.7700	\$270,611.76	6,019,300	\$0.04496
GS-5 Current Demand Cost of Gas/therm							\$0.10908
Current Commodity Cost of Gas/therm							\$0.36684
GS-5 Current Total Cost of Gas/therm							\$0.47592
GS-5, SVI-5, SJ-5 and LJ-5 Commodity							
Current Commodity Cost of Gas/therm							\$0.36684
Call Option Premium							\$0.00000
GS-5, SVI-5, SJ-5 and LJ-5 Commodity Current Cost of Gas/therm							\$0.36684
SJ-5	Current T-17 Demand Cost of Gas/therm						\$0.34671
Current Commodity Cost of Gas/therm							\$0.36684
LJ-5	Current T-17 Demand Cost of Gas/therm						\$0.34671
Current Commodity Cost of Gas/therm							\$0.36684

MERC-PNG Viking Purchased Gas Adjustment System Current Cost of Gas with Revised Demand Entitlement Volumes

Annual Sales--As filed in Docket No. G007,011/MR-08-836
Total Viking Sales 8,444,250

MERC-PNG's Current Cost of Gas Effective October 1, 2009

GS-5	Season	Monthly Entitlement (Mcf)	Months	Rate (\$/Mcf)	Contract Costs	GS-1 Sales (therms)	Rate (\$/therm)
	Annual	3,527	12	\$3.4671	\$146,741.54	6,019,300	\$0.02438
	Dec-Feb	1,098	3	\$3.4671	\$11,420.63	6,019,300	\$0.00190
	Annual	1,000	12	\$3.4671	\$41,605.20	6,019,300	\$0.00691
	Annual	2,000	12	\$3.4671	\$83,210.40	6,019,300	\$0.01382
	Summer	255	12	\$7.5776	\$23,187.46	6,019,300	\$0.00385
	Winter	178	12	\$9.0926	\$19,421.79	6,019,300	\$0.00323
	Winter	105	5	\$15.1530	\$7,955.33	6,019,300	\$0.00132
	Summer	389	12	\$9.6288	\$44,947.24	6,019,300	\$0.00747
	Winter	172	5	\$15.1530	\$13,031.58	6,019,300	\$0.00216
	Winter	0	3	\$2.7360	\$0.00	6,019,300	\$0.00000
	Annual	152,888	1	\$1.7700	\$270,611.76	6,019,300	\$0.04496
	GS-4 Current Demand Cost of Gas/therm				\$662,132.92	6,019,300	\$0.11000
	Current Commodity Cost of Gas/therm						\$0.36684
	GS-4 Current Total Cost of Gas/therm						\$0.47684
	GS-4, SVI-4, SJ-4 and LVI-4 Commodity						
	Current Commodity Cost of Gas/therm						\$0.36684
	Call Option Premium				\$12,126.92	8,444,250	\$0.00144
	GS-4, SVI-4, SJ-4 and LVI-4 Commodity Current Cost of Gas/therm						\$0.36828
	Current Demand Cost of Gas/therm						\$0.34671
	Current Commodity Cost of Gas/therm						\$0.36828
	Current Commodity Cost of Gas/therm						\$0.36828

CERTIFICATE OF SERVICE

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

**Minnesota Office of Energy Security
Comments**

Docket No. G011/M-09-1285

Dated this 10th day of March, 2010

/s/Sharon Ferguson

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