# PUBLIC DOCUMENT TRADE SECRET DATA HAS BEEN EXCISED 

## VIA Electronic Filing

Mr. Daniel P. Wolf, Executive Secretary

Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147
Dear Mr. Wolf:

## Re: $\quad$ Minnesota Rules 7825.2800-7825.2840 Annual Reports Containing Fuel Information and Data

In compliance with the above rules, Minnesota Power hereby submits to the Commission the following reports and information:
$\left.\begin{array}{ll}\text { Attachment No. } 1 & \begin{array}{l}\text { Minnesota Power's Fuel and Energy Source Procurement and } \\ \text { Energy Dispatching Policies Annual Report (MN Rule 7825.2800). } \\ \text { (Docket No. E-015/M-05-277) In addition, Minnesota Power's } \\ \text { additional information regarding its plans with respect to acquiring } \\ \text { fuel and purchased energy as required in Docket No. E-015/M-05- } \\ \text { 277 dated December 20, 2006. Please note this document contains } \\ \text { Trade Secret Data. }\end{array} \\ \text { Attachment No. } 2 & \begin{array}{l}\text { Independent Auditor's Report on Minnesota Power's Accounting } \\ \text { for Automatic Adjustments during the period July 2013 through } \\ \text { June 2014 (MN Rule 7825.2820). }\end{array} \\ \text { Attachment No. } 3 & \begin{array}{l}\text { Minnesota Power's Annual Report of Automatic Adjustment } \\ \text { Charges for the period July 2013 through June 2014 (MN Rule }\end{array} \\ \text { 7825.2810). Included is a breakdown by energy type as required in }\end{array}\right\}$

August 31, 2015
Mr. Wolf
Page 2

| Attachment No. 7 | Minnesota Power's List of Network Resources Designated to Serve Native Load (Docket No. E-015/M-05-277 dated December 20, 2006). |
| :---: | :---: |
| Attachment No. 8 | Minnesota Power's reporting matrix required under the MISO Day 2 Cost Order (Docket E-015/M-05-277 and Docket E-015/M-08528). |
| Attachment No. 9 | Minnesota Power's monthly MISO Day 2 charges and allocation (Docket E, G-999/AA-07-1130). |
| Attachment No. 10 | Minnesota Power's Annual and Daily ASM charges and summary (Docket No. E-015/M-08-528 dated August 23, 2010). |
| Attachment No. 11 | Minnesota Power's ARR process and information. (Docket No. E-015/M-05-277). Please note this document contains Trade Secret Data. |
| Attachment No. 12 | Minnesota Power's generation facilities maintenance expenses (Docket No. E999/AA-06-1208 dated February 6, 2008). |
| Attachment No. 13 | Minnesota Power's transmission transformer inventory by size for 100 kV defined by low side transmission kV (Docket No. E-999/AA-07-1130 dated August 31, 2009). Please note this document contains Trade Secret Data. |
| Attachment No. 14 | Minnesota Power's Report Addressing the Purchase Power Agreement with Manitoba Hydro (Docket No. E015/M-10-961; dated March 11, 2011). Please note this document contains Trade Secret Data. |
| Attachment No. 15 | Minnesota Power's Offsetting Revenues and/or Compensation Received by Investor-Owned Utilities (IOUs) (Docket No. E-999/AA-10-884 dated April 6, 2012). Please note this document contains Trade Secret Data. |
| Attachment No. 16 | Handling of forced outages; the lessons learned, information sharing and a simple identification of forced outages with discussion on how such outages could have been avoided or alleviated. (Docket No. E-999/AA-10-884 dated April 6, 2012). |

August 31, 2015
Mr. Wolf
Page 3
$\left.\begin{array}{ll}\text { Attachment No. } 17 & \begin{array}{l}\text { A comparison and reconciliation of the MISO accredited value of } \\ \text { their generators using MISO accredited UCAP values and } \\ \text { integrated resource plan capacity ratings (Docket No. E-999/AA- }\end{array} \\ \text { 10-884 dated April 6, 2012 and Docket No. E-999/AA-09-961 } \\ \text { dated August 31, 2009). Please note this document contains Trade } \\ \text { Secret Data. }\end{array}\right\}$

Minnesota Power believes this filing comports with the Commission's Notice relating to Revised Procedures for Handling Trade Secret and Privileged Data, pursuant to Minn. Rule part 7829.0500. As required by the revised procedures, a statement providing the justification for excising the trade secret data is attached to this letter.

Sincerely,
/s/ Leann Oehlerking-Boes
Leann Oehlerking-Boes
Manager -
Energy Pricing \& Billing

[^0]
## STATEMENT REGARDING JUSTIFICATION FOR EXCISING TRADE SECRET INFORMATION

Minnesota Power has excised material from the Annual Report Containing Fuel Information and Data (Report) because the format of the Report requires Minnesota Power to compile and provide information regarding its methods, techniques and process for obtaining and managing fuel supply resources for its generating facilities, including fuel supply, contract terms and conditions, as well as fuel cost projections. This is highly confidential information: Minnesota Power's competitors, as well as its potential suppliers, would gain a commercial advantage over Minnesota Power if this information was publicly available. As a result of public availability, Minnesota Power and its customers would suffer from corruption of Minnesota Power's negotiating position. Minnesota Power follows strict internal procedures to maintain the secrecy of this information in order to capitalize on economic value of the information to Minnesota Power.

Minnesota Power believes that this statement justifies why the information excised from the attached Report should remain a trade secret under Minn. Stat. §13.37. Minnesota Power respectfully requests the opportunity to provide additional justification in the event of a challenge to the trade secret designation provided herein.

Date prepared: August 31, 2015

## MINNESOTA POWER

SEPTEMBER 1, 2015

# FUEL AND ENERGY SOURCE PROCUREMENT AND ENERGY DISPATCHING POLICIES ANNUAL REPORT PURSUANT TO MINNESOTA RULE 7825.2800 

Fuel Source Procurement Policies

## Summary of Fuel Contracts

## Coal Contracts

- Kennecott Coal Sales LLC, an Oregon LLC (currently known as Rio Tinto Energy), Spring Creek Mine, Decker, Montana.

A 2002 Master Coal Purchase Agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides general terms and definitions governing purchases and sales of coal.

An agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [[TRADE SECRET DATA HAS BEEN EXCISED]. This agreement also provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal annually for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

An agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides for purchases of up to [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

- Kennecott Coal Sales LLC, an Oregon LLC (currently known as Rio Tinto Energy), Antelope Mine, Campbell and Converse Counties, Wyoming.
A 2002 Master Coal Purchase Agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides general terms and definitions governing purchases and sales of coal.

An agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

An agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides for purchases of up to [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

- Arch Coal Sales, Black Thunder Mine, Wright, Wyoming

A 2010 Master Coal Purchase Agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides general terms and definitions governing purchases and sales of coal.

A 2012 Agreement provides for the supply of coal from [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED] for a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal.

A 2013 Agreement provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED]. This agreement also provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal annually for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

A 2014 Agreement provides for the supply of coal for the period of[TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED] for a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal.

A 2014 Agreement provides for the supply of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED] for a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal.

- Peabody CoalSales, LLC., St. Louis, Missouri, North Antelope Rochelle Mine, Campbell and Converse Counties, Wyoming

PUBLIC DOCUMENT TRADE SECRET DATA HAS BEEN EXCISED

A 2014 Agreement provides for the supply of coal from [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED] for a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal annually.

- Decker Coal Company, Decker Mine, Decker, Montana

An Agreement signed on [TRADE SECRET DATA HAS BEEN EXCISED] provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal and a maximum of [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal annually for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

## Biomass Contracts

Currently Minnesota Power purchases wood fuel under purchase orders with 35 separate suppliers for use at the Hibbard Renewable Energy Center and the Rapids Energy Center with varying expiration dates. In addition, MP contracts with two suppliers of ground railroad ties: Stella Jones and Ties2. The Stella Jones contract provides biomass to the Hibbard Renewable Energy Center from [TRADE SECRET DATA HAS BEEN EXCISED] for a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons and a maximum of [TRADE SECRET DATA HAS BEEN EXCISED] tons per year. The Ties2 contract provides biomass to the Hibbard Renewable Energy Center from [TRADE SECRET DATA HAS BEEN EXCISED] for a minimum [TRADE SECRET DATA HAS BEEN EXCISED] for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED]. This agreement also provides for purchases of a minimum of [TRADE SECRET DATA HAS BEEN EXCISED] tons and a maximum of [TRADE SECRET DATA HAS BEEN EXCISED] tons annually for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

## Rail Contracts

- Burlington Northern Santa Fe (currently known as BNSF Railway)

Boswell, Taconite Harbor, Hibbard, Rapids, and Laskin - A 2002 Agreement provides for the transportation of coal through [TRADE SECRET DATA HAS BEEN EXCISED].

- Canadian National (CN); formerly Duluth Missabe \& Iron Range Railway (DM\&IR)

Laskin - CN currently provides transportation of Minnesota Power coal from a BNSF exchange to Laskin Energy Center under CN tariff terms.

## Vessel Contract

- Midwest Energy Resources Company

Taconite Harbor - A 2014 Agreement provided for the transportation of not less than the minimum annual tonnage requirement which shall be the greater of [TRADE SECRET DATA HAS BEEN EXCISED] or [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal and not more than [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED]. In addition, this agreement also provides for the transportation of not less than the minimum annual tonnage requirement which shall be the greater of [TRADE SECRET DATA HAS BEEN EXCISED] or [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal and not more than [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal for the period of [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

Hibbard Renewable Energy Center - A 2014 Agreement with Midwest Energy Resources Company provided for the transportation of not less than [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal from [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED]. In addition, this agreement was also amended for the transportation of not less than [TRADE SECRET DATA HAS BEEN EXCISED] tons of coal from [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

## Supplemental Fuels

Minnesota Power uses middle distillate fuel oil for start-up and flame stabilization at the Taconite Harbor Energy Center. The current procurement policy allows for the selection of [TRADE SECRET DATA HAS BEEN EXCISED] based upon price, past performance, resources and quality. Minnesota Power currently has an agreement with Best Oil from [TRADE SECRET DATA HAS BEEN EXCISED] through [TRADE SECRET DATA HAS BEEN EXCISED].

Minnesota Power also uses natural gas for start-up and flame stabilization at the Boswell and Laskin Stations, the TG5 unit at Sappi Station and for the unit at Blandin Paper. Minnesota Power will go out for bids on the Blandin, Boswell, and Sappi Stations. At the Laskin Station, gas is provided by rates established by the Minnesota Energy Resources and approved by the MPUC.

## Fuel Cost Minimization Activities

Minnesota Power's fuel procurement practices are aimed at strategically minimizing our customers' current energy costs while complying with current environmental regulations and, simultaneously, taking action to assure cost-effective compliance with future environmental requirements. Attaining these objectives requires that purchases and sales of energy, applicable coal and rail contract provisions, current and projected emissions, mine plans of our suppliers, requirements of customers, fuel delivery schedules, fuel inventory, fuel and rail costs, etc., be continuously evaluated. Balancing these parameters requires superimposing long- and short-term planning objectives on near-term operations. Descriptions of these activities have been summarized above.

In addition, Minnesota Power uses a multi-discipline fuels procurement and strategy team to achieve fuel cost minimization and environmental compliance objectives. The team meets regularly to coordinate all activities related to fuel procurement. Objectives include:

- Implement strategies for short- and long-term fuel procurement which provide a high-quality, reliable fuel supply to Minnesota Power facilities to achieve the lowest attainable electric rates.
- Optimize fuel costs and quality through developing, implementing and managing the short-term strategy for fuel scheduling and deliveries within operating and contract parameters.
- Environmental compliance planning efforts focus on the formulation, implementation and minimization of short- and long-term corporate strategies for fuel quality issues and the impact of fuel on plant performance and compliance with existing and emerging environmental regulations.


## Energy Source Procurement and Dispatching Policies

## Short Term Activities

The Midcontinent Independent System Operator (MISO) is a fully integrated regional transmission organization that operates a Day-Ahead Energy and Ancillary Services Market, a Real-Time Energy and Ancillary Services Market, and a Financial Transmission Rights (FTR) Market.

Minnesota Power's (MP) generation resources, load, and transmission assets are located within the MISO footprint and are part of the MISO market. The MISO markets are used to balance generation with load and to hedge congestion between generation and load. There are a variety of tools that MP uses to help with analysis and participation in the MISO market. Minnesota Power offers to sell energy and ancillary services sourced from their supply resources and bids to buy energy to serve load in the MISO market each day. MISO procures enough market ancillary service products to meet the needs of the entire footprint and MP is allocated their load ratio share of the costs to procure the needed ancillary services. If market clearing prices are above Minnesota Power's generator offer prices, MP generation will be selected to serve MP load. If market prices are below MP generator offers, other lower cost resources will be selected to serve MP load, and MP's generation will be backed down. MP also looks to buy energy in the short term bilateral market when there is an energy need and purchases can be made below expected MISO day-ahead costs.

## Medium Term Activities

Minnesota Power uses a medium term production cost model to determine their forward monthly energy position. Model inputs include forecasted customer loads, generator capabilities, contract energy purchases and sales, forward energy prices, planned generator outages, and forced and maintenance outage rates. Inputs are updated and the model is run at least monthly to determine MP's forward energy position.

Planned generator outages are usually known about a year or more in advance, so when outage dates are set and a significant energy deficit is identified, MP watches the wholesale market for least cost supply energy options and times bilateral purchases to keep short position within the volumetric limits outlined in MP's Power Marketing Risk Management Policy. If forward energy prices drop below forecasted spot market prices the entire short position could be covered with a bilateral purchase prior to the start of the outage. If lower cost energy is available in the areas that border the MISO north region, MP may choose to use bilateral purchases from those border areas to cover a generator outage.

Minnesota Power's Coal \& Transportation Procurement Strategy

Minnesota Power's Boswell Energy Center ("Boswell"), the company's remaining coal plant post October 2016, is captive to the BNSF Railway ("BNSF"), meaning it has rail service available from only one railroad for coal deliveries to its destination. Boswell utilizes 4-4.5 million tons of coal annually, which is shipped directly from the Powder River Basin ("PRB") to Boswell via the BNSF.
[TRADE SECRET DATA HAS BEEN EXCISED]

## Report of Independent Accountants

To the Audit Committee of the Board of Directors and Management of ALLETE, Inc:
We have performed the procedures enumerated below, which were agreed to by ALLETE, Inc. and Minnesota Power, an operating division of ALLETE, Inc. (together the "Company") so, solely to assist the specified parties in evaluating compliance with rule 7825.2820 of the Rules of the Minnesota Public Utilities Commission (the "MPUC") Governing Automatic Adjustment Charges. The Company is responsible for Section A of Minnesota Power's Annual Report of Automatic Adjustment Charges for the period July 1, 2014 through June 30, 2015 found in Attachment No. 3 (Section A) of the Company's Annual Reports Containing Fuel Information and Data (the "Annual Report") pursuant to MPUC Rules 7825.2800 - 7825.2840. Management is responsible for the Company's compliance with those requirements. This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of these procedures is solely the responsibility of those parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose. The procedures performed on Section A of the Company's Annual Report are summarized as follows:

1) For the months of October 2014, February 2015 and April 2015, we agreed the cost of fuel issued for consumption at the Company's generating stations included on Line 1 of Attachment No. 3 (Section A) of the Company's Annual Report to the Company's fuel ledger without exception. For the months of October 2014, February 2015 and April 2015, we agreed fuel purchases recorded in the Company's fuel ledger to supporting invoices for fuel purchases totaling $\$ 10.7$ million ( $100 \%$ coverage), $\$ 13.7$ million ( $100 \%$ coverage), and $\$ 13.4$ million (100\% coverage), respectively, without exception. Additionally, we recomputed the average monthly cost of fuel consumed per ton by inventory location for the months of October 2014, February 2015, and April 2015 as determined from the Company's fuel ledger and compared such averages to the average monthly cost of fuel purchased per ton by inventory location as determined from the Company's fuel ledger for the respective month, noting the amounts varied by less than $5.0 \%$, except as follows:

| Inventory Location |  | Average Monthly Cost of <br> Fuel Consumed per Ton | Average Monthly Cost of Fuel <br> Purchased per Ton |
| :--- | :---: | :---: | :---: |
| October 2014 | $\$ 4$ |  |  |
| BECP-Spring Creek/ Decker Passthru | $\$$ | 22.47 | $\$$ |
| BECA-ULS Wyoming Passthru | 22.48 | 20.34 | $*$ |
| BECP-Wyoming Passthru | 23.15 | 32.74 | $*$ |
| April 2015 | 42.98 | 21.63 | $*$ |
| THECA-Decker Passthru |  | 38.97 | $* *$ |

* Management explained these variances are primarily due to inventory quantity adjustments following physical inventory counts.
** Management explained this variance is due to recent declines in the cost of inventory purchases.

2) For the months of October 2014, February 2015 and April 2015, we agreed the cost of energy purchased included on Line 2 of Attachment No. 3 (Section A) of the Company's Annual Report to the Company's fuel ledger without exception. For the months of October 2014, February 2015 and April 2015, we selected, purchase transactions by purchased energy type (i.e. from a specific counterparty or MISO charge type) from the Company's fuel ledger representing aggregate purchases of $\$ 12.8$ million ( $74 \%$ coverage), $\$ 10.8$ million ( $80 \%$ coverage), and $\$ 11.0$ million ( $79 \%$ coverage), respectively. We agreed the selected purchase transaction amounts to supporting documentation, consisting of third party invoices, intercompany invoices, sales checkout reports, MISO Charge Types Excluding Asset Energy and Admin Charges Report, RE-Generation to Load LMP Difference Report or the MISO to MISO Report, noting no differences.
3) For purchase transactions selected in 2) above which were MISO Charges, (February 2015 and April 2015), we obtained the MISO Charge Types Excluding Asset Energy and Admin Charges Report and, selected, at a minimum, 16 MISO related charges for February 2015 and April 2015, respectively, and agreed them to the underlying invoices, noting no differences.
4) For the months of October 2014, February 2015, and April 2015, we agreed the total electric kilowatt hour sales on Line 6 of Attachment No. 3 (Section A) of the Company's Annual Report to the Company's billing register, as adjusted for unbilled amounts, for each respective month noting no differences.
5) For the months of October 2014, February 2015 and April 2015, we obtained schedules of the individual inter-system and interruptible power sales transactions comprising the total electric kilowatt hour sales on Line 7 of Attachment No. 3 (Section A) of the Company's Annual Report and tested the mathematical accuracy without exception. From the schedules, we selected individual inter-system and interruptible power sales transactions comprising 260.4 million kWh ( $85 \%$ coverage), 263.1 million kWh ( $83 \%$ coverage), and 302.6 million kWh ( $92 \%$ coverage) for the months of October 2014, February 2015, and April 2015, respectively and agreed the individual transaction amounts to supporting documentation consisting of the MISO EP Daily Sales Output Report or Company invoices noting no exceptions.

We were not engaged to and did not conduct an examination, the objective of which would be the expression of an opinion on Section A of Minnesota Power's Annual Report of Automatic Adjustment Charges for the period July 1, 2014 through J une 30, 2015 found in Attachment No. 3 of the Company's Annual Report. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of ALLETE, Inc. and Minnesota Power, and is not intended to be and should not be used by anyone other than these specified parties.


August 31, 2015
A. Summary - Automatic Adjustment Charges:

| Line | Revenue/Accounting Month | May 2014 | Jun 2014 | Jul 2014 | Aug 2014 | Sep 2014 | Oct 2014 | Nov 2014 | Dec 2014 | Jan 2015 | Feb 2015 | Mar 2015 | Apr 2015 | May 2015 | Jun 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Cost of fuel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No <br> 1 <br> 2 <br> 2 <br> 3 <br> 3 <br> 4 <br> 5 | Company's Generating Stations (A/C 151) | \$10,281,254 | \$12,158,515 | \$12,575,739 | \$12,137,170 | \$9,036,186 | \$7,908,176 | \$10,005,579 | \$10,730,293 | \$13,033,427 | \$12,217,931 | \$11,032,947 | \$8,043,057 | 11,423,019 | \$10,090,425 |
|  | Plus: Purchased Energy | 14,990,368 | 9,111,537 | 12,480,621 | 12,766,047 | 16,036,136 | 17,356,620 | 14,669,279 | 12,472,095 | 11,669,018 | 13,423,440 | 12,478,153 | 14,012,357 | 9,495,602 | 10,168,512 |
|  | Less: MISO Schedules 16 \&17 \& 24 | 88,358 | 45,664 | 43,408 | 65,897 | 20,352 | 47,695 | 78,013 | 63,214 | 55,510 | 83,443 | 100,371 | 59,242 | 144,856 | $(62,786)$ |
|  | Less: Fuel Cost Recovered Through Inter-System Sales | 5,374,116 | 5,075, 249 | 6,197,921 | 6,317,593 | 9,951,419 | 6,822,106 | 6,906,833 | 7,090,274 | 7,641,480 | 7,813,654 | 7,233,193 | 6,222,249 | 7,974,580 | 7,742,676 |
|  | Total Monthl Cost of Fuel | \$19,809,148 | \$16,149,139 | \$18,815,031 | \$18,519,727 | \$15,100,551 | \$18,394,995 | \$17,690,012 | \$16,048,900 | \$17,005,455 | \$17,744,274 | \$16,177,536 | \$15,773,923 | \$12,799,185 | \$12,579,047 |
|  | 2 -Month Total Cost of Fuel | \$38,614,471 | \$35,958,287 | \$34,964,170 | \$37,334,758 | \$33,620,278 | \$33,495,546 | \$36,085,007 | \$33,738,912 | \$33,054,355 | \$34,749,729 | \$33,921,810 | \$31,951,459 | \$28,573,108 | \$25,378,232 |
|  | KWh Sales |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Total Sales of Electricity | 1,060,722,507 | 1,070,120,323 | 1,147,490,894 | 1,179,636,215 | 1,152,683,460 | 1,165,730,790 | 1,197,271,038 | 1,284,225,991 | 1,333,786,345 | 1,217,103,598 | 1,283,970,191 | 1,173,221,361 | 1,219,227,239 | 1,064,498,303 |
| 7 | Less: Inter-System Sales | 225,048,435 | 232,502,627 |  |  |  | 307,235,413 | 324,693,534 | 341,497,087 | 370,916,573 | 318,374,529 | 348,518,258 | 328,034,253 | 454,310,609 | 390,009,967 |
| 8 | Total Monthl kWh Sales | 835,674,072 | 837,617,696 | 895, 214,360 | 887,811,111 | 747,287,871 | 858,495,377 | 872,577,504 | 942,728,904 | 962,869,772 | 898,729,069 | 935,451,933 | 845,187,108 | 764,916,630 | 674,488,336 |
| 9 | 2-Month Total KWh Sales | 1,723,512,293 | 1,673,291,768 | 1,732,832,056 | 1,783,025,471 | 1,635,098,982 | 1,605,783,248 | 1,731,072,881 | 1,815,306,408 | 1,905,598,676 | 1,861,598,841 | 1,834,181,002 | 1,780,639,041 | 1,610,103,738 | 1,439,404,966 |
|  | Fuel Adjustment Charge - Fuel Clause 16 ( $/ 1 \mathrm{KWh}$ ) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | 2-Month Average Cost of Fuel (c/kWh) | 2.240 | 2.149 | 2.018 | 2.094 | 2.056 | 2.086 | 2.085 | 1.859 | 1.735 | 1.867 | 1.849 | 1.794 |  |  |
| 11 | Base Cost of Fuel (6/kWh) | ${ }_{1}^{1.018}$ | ${ }_{1}^{1.1018}$ | ${ }^{1.018}$ | ${ }_{1}^{1.018}$ | 1.018 | ${ }_{1}^{1.018}$ | ${ }_{1}^{1.018}$ | ${ }^{1.018}$ | ${ }_{0}^{1.018}$ | 1.018 | ${ }^{1.018}$ | 1.018 |  |  |
| 12 | Fuel Adiustment Charge (lines 10 - line 11) (9/kWh) | 1.222 | 1.131 | 1.000 | 1.076 | 1.038 | 1.068 | 1.067 | 0.841 | 0.717 | 0.849 | 0.831 | 0.776 |  |  |
| 13 | Applicable During Billing Month of: | Jul 2014 | Aug 2014 | Sep 2014 | Oct 2014 | Nov 2014 | Dec 2014 | Jan 2015 | Feb 2015 | Mar 2015 | Apr 2015 | May 2015 | Jun 2015 |  |  |
|  | 2-Month Average Cost of Fuel by Energy Type ( $9 / \mathrm{kWh}$ ) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Billing Month: | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 |  |  |
| 14 | Generation - Coal | 0.782 | 1.013 | 1.094 | 1.083 | 0.997 | 0.773 | 0.768 | 0.880 | 0.974 | 1.046 | 0.980 | ${ }^{0.823}$ |  |  |
| 15 | Generation - Gas | 0.016 | 0.019 | 0.018 | 0.017 | 0.019 | 0.019 | 0.017 | 0.017 | 0.017 | 0.016 | 0.015 | 0.013 |  |  |
| 16 | Generation - Biofuel | 0.016 | 0.027 | 0.025 | 0.017 | 0.019 | 0.020 | 0.018 | 0.017 | 0.017 | 0.016 | 0.014 | 0.013 |  |  |
| 17 | Purchased Power - Coal | 0.162 | 0.002 | 0.217 | 0.428 | 0.413 | 0.333 | 0.248 | 0.276 | 0.296 | 0.344 | 0.348 | 0.345 |  |  |
| 18 | Purchased Power - Biomass | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |  |
| 19 | Purchased Power - Hydro | 0.088 | 0.103 | 0.072 | 0.045 | 0.064 | 0.048 | 0.024 | 0.034 | 0.025 | 0.012 | 0.012 | 0.018 |  |  |
| 20 | Purchased Power-Gas | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |  |
| 21 | Purchased Power - Wind | 0.135 | 0.114 | 0.093 | 0.081 | 0.090 | 0.137 | 0.164 | 0.129 | 0.124 | 0.126 | 0.126 | 0.157 |  |  |
| 22 | Purchased Power - Diesel | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |  |
| 23 | Purchased Power - Unknown | ${ }^{1.042}$ | ${ }^{0.871}$ | ${ }^{0.497}$ |  | ${ }^{0.453}$ | 0.757 |  | 0.506 | ${ }_{0}^{0.382}$ | $\frac{0.288}{1849}$ | 0.300 | 0.405 |  |  |
|  | Total Two-Month Average Cost | ${ }^{2.240}$ | ${ }^{2.149}$ | 2.018 | ${ }^{2.094}$ | ${ }^{2.056}$ | ${ }^{2.086}$ | ${ }^{2.085}$ | ${ }^{1.859}$ | ${ }^{1.835}$ | ${ }^{1.849}$ | ${ }^{1.794}$ | 1.775 |  |  |

B. Summary - Revenue Collected From Retail



```
R Retail Fuel Clause-LIGHTING
FUEL COST RECOVERY (&IKWH)
Class Cost Factor (RIDER FOR FUEL AND PURCHASED
49 ENERGY ADJUSTMENT Nov 2, 2009)
50 Base Cost of fuel (c1/WWh) (line 11, section A x line 49)
FUEL COST RECOVERY (S)
52 Base Cost of Fuel (line 44 x line 50)
subtotal (line 52 + line 53)
Total Fuel Cost Recovery From Retail Sales: 
\1 Base Cost of Fuel (line 10+line 17+ line 24+ line 31+ line 38+ lin
62 Fuel Adjustment Charge (line 11
Total Fuel Cost: Recovery(line 12+ line 19+ line 26+ line 33+ line
```

c. Summary - Over (Under) Recovery From
dic Adustment Charges:
Line
No.
$\frac{1}{1}$ Total Retail Fuel Cost Recovery (ine 63, section B)
2 Retail KWh Sales Subject to FAC (line 4 , section B)
KWh Sales Under Comp
Subtotal (ine $2+$ line 3 )

5 Actual Monthy Cost of Fuel ( 9 (kWh) (ine 3 , section B)
6 Actual Monthly Cost of Fuel for Retail kWh ( (ine $4 \times$ line 5 )
7 Total Over (Under) Recovery - Monthly (line 1- line 6)
8 Cumulative Over (Under) Recovery (Based on line 7 )

| 1,322,447 | 1,499,288 | 1,688,872 | 2,040,153 | 2,175,690 | 2,382,394 | 2,435,944 | 2,006,542 | 1,895,233 | 1,622,714 | 1,619,951 | 1,216,377 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 | 0.74029 |
| 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 | 0.754 |
| 0.905 | 0.837 | 0.740 | 0.797 | 0.768 | 0.791 | 0.790 | 0.623 | 0.531 | 0.629 | 0.615 | 0.574 |
| \$9,971 | \$11,305 | \$12,734 | \$15,383 | \$16,405 | \$17,963 | \$18,367 | \$15,129 | \$14,290 | \$12,235 | \$12,214 | \$9,171 |
| \$11,968 | \$12,549 | \$12,498 | \$16,260 | \$16,709 | \$18,845 | \$19,244 | \$12,501 | \$10,064 | \$10,207 | \$9,963 | \$6,982 |
| \$21,939 | \$23,854 | \$25,232 | \$31,643 | \$33,114 | \$36,808 | \$37,611 | \$27,630 | \$24,354 | \$22,442 | \$22,177 | \$16,153 |
| Jul 2014 | Aug 2014 | Sep 2014 | Oct 2014 | Nov 2014 | Dec 2014 | Jan 2015 | Feb 2015 | Mar 2015 | Apr 2015 | May 2015 | Jun 2015 |
| \$7,700,494 | \$7,627,206 | \$6,334,178 | \$7,368,851 | \$7,405,982 | \$8,044,682 | \$8,217,842 | \$7,992,649 | \$8,092,877 | \$7,323,064 | \$6,548,796 | \$5,628,368 |
| \$9,246,930 | \$8,477,275 | \$6,224,779 | \$7,791,007 | \$7,553,533 | \$8,442,180 | \$8,615,935 | \$6,356,840 | \$5,701,689 | \$6,108,895 | \$5,346,037 | \$4,292,189 |
| \$16,947,424 | \$16,104,481 | \$12,558,957 | \$15,159,858 | \$14,959,515 | \$16,486,862 | \$16,833,777 | \$14,049,489 | \$13,794,566 | \$13,431,959 | \$11,894,833 | \$9,920,557 |


| Ju-14 | Aug-14 | Sep-14 | Oct-14 | ov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| \$16,947,424 | \$16,104,481 | \$12,558,957 | \$15,159,858 | \$14,959,515 | \$16,486,862 | \$16,833,777 | \$14,049,489 | \$13,794,566 | \$13,431,959 | \$11,894,833 | \$9,920,557 |
| 758,849,537 | 751,246,997 | 621,645,529 ${ }_{0}$ | 726,494,871 | $729,867,220$ 0 | 790,135,269 | 805,181,147 0 | 754,014,226 0 | 794,591,526 ${ }_{0}$ | 720,050,936 | 643,287,672 | 552,283,311 |
| 758,849,537 | 751,246,997 | 621,645,529 | 726,494,871 | 729,867,220 | 790,135,269 | 805,181,147 | 754,014,226 | 794,591,526 | 720,050,936 | 643,287,672 | 552,283,311 |
| 2.102 | 2.086 | 2.021 | 2.143 | 2.027 | . 02 | 1.766 | 1.974 | 1.729 | 1.866 | 73 | 1.865 |
| \$15,951,017 | \$15,671,012 | \$12,563,456 | \$15,568,785 | 14,794,409 | \$13,448,102 | \$14,219,499 | \$14,884,241 | \$13,738,487 | \$13,436,150 | \$10,762,203 | 10,300,084 |
| \$996,406 | \$433,469 | $(\$ 4,499)$ | (\$408,927) | \$165,106 | \$3,038,759 | \$2,614,278 | ( 8834,751 ) | \$56,079 | $(54,191)$ | \$1,132,631 | (\$379,527) |
| \$996,406 | \$1,429,875 | \$1,425,376 | \$1,016,449 | \$1,181,555 | \$4,220,314 | \$6,834,592 | \$5,999,841 | \$6,055,920 | \$6,051,728 | \$7,184,359 | \$6,804,832 |
| NOTES: |  |  |  |  |  |  |  |  |  |  |  |
| Fuel Adjustment Clause 16 is applicable to all retail schedulus except Compentitive Rates, Industrial Production Service. KWH Sales under Competitive Rate Schedules are not subject to the Fuel Clause but the Competitive Rate does recover the base cost of tuel. |  |  |  |  |  |  |  |  |  |  |  |
| Beginning Nov. 1, 2009 with final rates, the company began applying the Fuel Adjustment Clause based (Fuel and Purchased Energy Adjustment) on Class Cost Factors for each different rate class such as Residential, General Service, Large Light and Power, Large Power, Municipal Pumping and Lighting |  |  |  |  |  |  |  |  |  |  |  |

# Minnesota Power <br> Five-Year Projection of Fuel Costs <br> July 2015 - June 2020 

Attached is Minnesota Power's five-year projection of fuel costs by source of power, which is based on data, generated by the Electric Financial Forecast. Forecast data beyond 2015 is available on an annual basis only.

Minnesota Power has five sources of power:

- Steam Generation at Company owned plants,
- Purchased Power from Square Butte under a Power Purchase Agreement,
- Purchased Power from MISO wholesale market and from other power suppliers,
- Hydro Power from Company owned generating plants (for which there is no energy cost), and
- Wind Generation from Company owned generating plants, and from other power suppliers

The major assumptions in determining the fuel cost projections are:

1. The Bison 4 wind project was completed and is expected to provide an 835,000 MWh annually.
2. Minnesota Power's steam generation is expected to decrease in order to seek a sustainable balance of energy generation that is dependable, affordable and environmentally sound to best serve its customers as stated in its integrated resource plan filed on March 1, 2013. In 2015 Minnesota Power ceased coal operation from its Taconite Harbor Unit 3 generator (75 MW) and converted its Laskin Energy Center to natural gas which is planned to run significantly less than its previous baseload operation as it serves as a peaking resource for customer power supply.
3. Total Steam generation costs attributed to coal are expected to [TRADE SECRET DATA HAS BEEN EXCISED] from 2015 to 2020.
4. Starting in June 2015 purchased generation from Square Butte declined to reflect MP's decreased share of the units total output of approximately $22 \%$. After 2022, Minnesota Power's share of the output will continue to be reduced per the North Dakota Wind Project.
5. Minnesota Power continues to use wholesale market purchases and bilateral contracts to meet its energy requirements.
6. Minnesota Power has about 116 MW of Hydroelectric capability for its native load of customers. There is no energy cost associated with this energy source. Hydro generation is projected to [TRADE SECRET DATA HAS BEEN EXCISED].
7. Minnesota Power's load is expected to increase significantly as idled large industrial customers return, additional large industrial customers begin or expand operation in our service territory and growth in our Resale customer class continues. Minnesota Power's outlook includes an increase in annual customer energy requirements of over 1,500,000 MWhs of energy from 2015 to 2020.
8. Minnesota Power included its decision to put the Taconite Harbor Unit 1 and Taconite Harbor Unit 2 on economic standby starting in the fall of 2016 as recommended in MP's 2015 Integrated Resource Plan.
9. Minnesota Power has developed a robust, portfolio-based solar strategy consisting of three pillars of focus: the customer, community and utility to meet and integrate solar power supply. This strategy was submitted on June 1, 2015 as part of the Company's SES Report. Minnesota Power will add approximately 33 MW of solar powered generation to its portfolio to comply with the 2020 SES requirements. The 2015 Integrated Resource Plan includes Minnesota Power's strategy to comply with the SES. This filing contains the assumed solar generation from this strategy for the planning years 2015-2020.

| MP GENERATION |  |  |  |  | PURCHASES |  |  |  | COSTSRECOVEREDTHRU SALES |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| STEAM GENERATION |  |  | WIND GEN | HYDRO | SQUARE BUTTE |  | MARKET |  |  | $\begin{aligned} & \text { TOTAL } \\ & \text { FUEL } \\ & \text { COST } \end{aligned}$ | $\begin{gathered} \text { TOTAL } \\ \text { FAC } \\ \text { SALES } \end{gathered}$ | AVERAGE FUEL COST |
| COAL | OIL \& OTHER |  |  |  |  |  |  |  |  |  |  |  |
| COST | COST | TOTAL | TOTAL | TOTAL | COST | TOTAL | COST | TOTAL | COST |  |  |  |
| \$(000) | \$(000) | MWh | MWh | MWh | \$(000) | MWh | $\$(000)$ | MWh | \$(000) | \$(000) | MWh | per MWh |
| [TRADE SECRET DATA EXCISED] |  |  |  |  |  |  |  |  |  |  |  |  |

JUL 15
AUG
SEPT
OCT
NOV
DEC 15
JAN 16
FEB
MAR
APR
MAY
JUN 16
TOTAL

JUL 16
AUG
SEPT
OCT
NOV
DEC 16
JAN 17
FEB
MAR
APR
MAY
JUN 17
TOTAL

JUL 17 - JUN 18

JUL 18 - JUN 19

JUL 19 - JUN 20

## Notice of Availability of Reports

To: All Interveners in Minnesota Power
Retail Rate Proceedings
Docket No. E-015/GR-09-1151

The Minnesota Public Utilities Commission requires Minnesota Power and other Minnesota public utilities to file various annual reports concerning utility operations with the Commission as specified in Minnesota Rules 7825.2800 to 7825.2840 . The subject matter of the reports filed includes the following:
a) Procurement policies for selecting fuel and energy purchased
b) Independent auditor's report with regard to monthly fuel adjustments
c) Charges made under automatic fuel adjustment clauses
d) Five-year projection of fuel costs
e) MISO Compliance Report and Cost Impacts
f) List of Network Resources
g) Matrix of Reporting Requirements for MISO Day 2 Cost and ASM Orders
h) MISO Day 2/ASM monthly charges and allocations
i) ASM Annual and Daily Charges Summary
j) ARRs information and process
k) Generation maintenance expenses
I) Transformer inventory
m) Report Addressing the Purchase Power Agreement with Manitoba Hydro
n) Offsetting Revenues and/or Compensation Received by Investor-Owned Utilities
o) Annual Identification of Forced Outages and Lessons Learned
p) Comparison and Reconciliation of the MISO Accredited Value of Generators Using MISO

Accredited UCAP Values and Integrated Resource Plan Capacity Ratings
q) Congestion Analysis
r) Plant Outages Contingency Plans
s) Oliver County I and II Wind Curtailment Reporting
t) Bison Curtailment Reporting

Minnesota Rule 7825.2840 requires Minnesota Power to provide this notice of availability of such reports to all Interveners in the previous two general rate cases. Copies of the above reports are available at Minnesota Power. Please note that certain information contained in these reports is considered trade secret and is unavailable to the public. Requests for public copies of this report should be forwarded to:

Minnesota Power<br>Leann Oehlerking-Boes<br>Manager - Energy Pricing \& Billing<br>30 West Superior Street<br>Duluth, MN 55802

## Certificate of Service

It is hereby certified that the foregoing Notice of Availability of Reports was served as so indicated to the parties on the attached service list.

## Minnesota Power

By:
/s/ Leann Oehlerking-Boes
Leann Oehlerking-Boes
Manager - Energy Pricing \& Billing

Dated: August 31, 2015

| STATE OF MINNESOTA | ) ss | AFFIDAVIT OF SERVICE VIA |
| :--- | :--- | :--- |
| COUNTY OF ST. LOUIS | ) ss | E-FILING AND |
| CIRST CLASS MAIL |  |  |

Susan Romans, of the City of Duluth, County of St. Louis, State of Minnesota, says that on the $31^{\text {st }}$ day of August, 2015, she e-filed Minnesota Power's Annual Reports Containing Fuel Information and Data on the Minnesota Public Utilities Commission via electronic filing. The remaining parties on the attached service list were served as requested.


Susan Romans

Attachment No. 5
Page 4 of 9

| First Name | Last Name | Emal | Company Name | Address | Dellvery Method | Vlew Trade Secret | Service List Name |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Christopher | Anderson | candersonglallete.com | Minnesota Power | 30 W Superior St <br> Duluth MN 558022191 | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| Julla | Anderson | Jula.Andersongag.state.m n.us | Omice of the Attomey General-DOC | 1800 ERM Tower 445 Mnnesota St St. Paul, MN 551012134 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Thomas | Balley | tralleygbriggs.com | Briggs And Morgan | 2200 IDS Center 80 S 8 th St Mrneapoll 5, MN 55402 | Paper Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Richard | Baxendale |  | Bolse Cascade Corporaton | 926 Harvard Avenue East <br> Seattle, <br> WA <br> 98102 | Paper Service | No | GEN_SL_Minesota Power_AAA Serv Lst |
| willam A. | Blazar | Dblazargmenchamber.com | Minnesota Chamber of Commerce | Sulte 1500 400 Robert Street Nor St Paul. MN SN 101 | Electronic Service | No | GEN SL Minnesota Power_AAA Serv Lst |
| Willam | Bond | willam.bondggarcelormitial. com | ArcelorMital USA Minorca Mine Inc. | PO Box 1 5950 Oid Highway 53 Virginla, MN 55792 | Electronic Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| Elizabetn | Brama | ebramagboriggs.com | Briggs and Morgan | 2200 IDS Center 80 South 8 th street $M$ Mneapolls, $M N$ 55402 | Electronic Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| Greg | Chandler | greg.chandenchupmkymmene.com | UPM Elandln Paper | 115 SW First Street <br> Grand Raplds, MN 55744 | Paper Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| Mchael | Dariand | N/A | Sappl Fine Paper North America | 255 State St F1 4 <br> Boston, <br> MA <br> 02109-2617 | Paper Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| Ian | Dobson | lan.dobsongeag.state.mn.u | Omice of the Attomey General-RUD | Antitrust and Utiltes <br> Divislon <br> 445 Minnesota Street <br> BRM Tower <br> St Paul. <br> MN <br> 55101 | $\begin{aligned} & \text { Electronic Service } \\ & 1400 \end{aligned}$ | No | GEN SL Minnesota Power_AAAA Serv Lst |

AN ALLETE COMPANY

| First Name | Last Name | Emal | Company Name | Address | Dellvery Method | View Trade Secret | Service Lust Name |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Marle | Doyle | mane.doylegcenterpointen ergy.com | CenterPoint Energy | 800 Lasalle Avenue P O Box 59038 Minneapolls, MN 554590038 | Electronic Service | No | GEN_SL_Minesota Power_AAAA Serv Lst |
| Sharon | Ferguson | sharonfergusonggstate.mn . 15 | Department of Commerce | 85 7th Place E Ste 500 <br> Saint Paul, <br> MN <br> 551012198 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Edward | Garvey | garveyedgraol.com | Residence | $\begin{gathered} \hline 32 \text { Lawton St } \\ \text { Saint Paul, } \\ M N \\ 55102 \end{gathered}$ | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Bruce | Gemardson | Dgerhardsongotpco.com | Otter Tall Power Company | PO Box 496 <br> 215 S Cascade St Fergus Falls, MN 565380496 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Machael | Greiveldinger | michaelgrelveldingergalla ntenergy.com | Interstate Power and LIght Company | 4902 N. Blitmore Lane <br> Madison, <br> W <br> 53718 | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| Sam | Hanson | shansongbriggs.com | Eriggs And Morgan, P.A. | 2200 IDS Center 80 South Eighth Streef M nneapolis, $M N$ 55402 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Shane | Henriksen | shane.henriksengeerioridge com | Enbridge Energy Company. Inc. | 1409 Hammond Ave FL 2 <br> Superior, <br> WI <br> 54880 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Margaret | Hodnlk | mhodrikgemnpower.com | Minnesota Power | 30 West Superior Street <br> Duluth, <br> MN <br> 55802 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Lorl | Hoyum | Ihoyumgmnpower.com | Minnesota Power | 30 West Superlor Street <br> Duluth, <br> MN <br> 55802 | Electronic Service | No | GEN_SL_Minesota Power_AAAA Serv Lst |
| James | Jary | N/A | Minnesota Ore Operations - U S steel | $\begin{gathered} \text { P O Box } 417 \\ \text { Mountain Iron, } \\ M N \\ 55768 \end{gathered}$ | Paper Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |

AN ALLETE COMPANY

| First Name | Last Name | Emal | Company Name | Address | Dellvery Method | Vlew Trade Secret | Service List Name |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Enic | Jensen | ejensenglimacorg | Izaak Walton League of America | Sulte 202 <br> 1619 Dayton Avenue St Paul, <br> MN <br> 55104 | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| LInda | Jensen | IInda.s.jensengega.state.m ก.us | Office of the Attomey General-DOC | 1800 BRM Tower 445 Minnesota Street $\begin{aligned} & \text { St Paul, } \\ & \text { MN } \\ & 551012134 \end{aligned}$ | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Travis | Kolarl | N/A | Keetac | PO Box 217 <br> Keewatin, MN 55753 | Paper Service | No | GEN_SL Minnesota Power_AAA Serv Lst |
| Mchael | Krikava | mikrikavagboriggs.com | Briggs And Morgan, P.A. | 2200 IDS Center 80 S 8 th St $\mathrm{M} n n e a p o l i s$, MN 55402 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Douglas | Larson | diarsonegdakotaelectric.co <br> m | Dakota Electric Assoclation | 4300 220th 5 t $W$ <br> Famingtion, MN 55024 | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| James D. | Larson | [ames/arsonglavantenergy .com | Avant Energy Services | 220 S 6th St Ste 1300 <br> Minneapolls, <br> MN <br> 55402 | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| Amber | Lee | ASLeeghinnesotaenergyr esources.com | Minnesota Energy Resources Corporation | 2665 145th St W <br> Rosemount, MN 55068 | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| John | UIndel | agorud.ectgag.state.mn.us | Omfice of the Attomey General-RUD | 1400 ERM Tower 445 Minnesota St St Paul, MN 551012130 | Electronic Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| Jay | Lotgren | Dademallaylofgrengbolse paper.com | Bolse, Inc. | Paper Division $400-$ 2nd Street Intemational Falls, $M N$ 56549 | Paper Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Sarah | Manchester | N/A | Sappl Fine Paper North America | 255 State St F1 4 <br> Boston, MA 02109-2617 | Paper Service | No | GEN_SL_Minnesota Power_A-AA Serv Lst |

AN ALLETE COMPANY

| First Name | Last Name | Emal | Company Name | Address | Dellvery Method | Vlew Trade Secret | Service List Name |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pam | Marshal | pamgenergycents.org | Energy CENTS Coallition | 823 7th St E $\begin{aligned} & \text { St Paul, } \\ & \text { MN } \\ & 55106 \end{aligned}$ | Electronic Service | No | GEN_SL_Minnesota Power_AAMA Serv Lst |
| Kelth | Matzdort | kelth.matzdontgsappl.com | Sappl Fine Paper North America | ```PO Box }51 2201 Avenue B Cloquet, MN 55720``` | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| David | McMilan | dimamilangallete.com | Minnesota Power | 30 W Superior St <br> Duluth, MN 55802 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Herbert | Minke | hminikegallete.com | Minnesota Power | 30 W Superior St <br> Duluth, MN 55802 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| David | Moeler | dmoellergalete.com | Minnesota Power | 30 W Superior St <br> Duluth, MN 558022093 | Electronic Service | No | GEN_SL_Mrnesota Power_AAAA Serv Lst |
| Andrew | Moratiza | apmoratzkagstoel.com | Stoel Rives LLP | 33 South Sbth Street <br> Suite 4200 Minneapolls, MN 55402 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Richard L | Morgan |  | Sappl Fine Paper North America | P.O. Box 511 <br> 2201 Avenue B <br> Cioquet, <br> $M N$ <br> 55720 | Paper Service | No | GEN_SL_Mrnesota Power_AAAA Serv Lst |
| Leann | Oehlerking Boes | Iboes@mmpower.com | Minnesota Power | 30 W Superior St <br> Duluth, MN 55802 | Electronic Service | No | GEN_SL_Mrnesota Power_AAAA Serv Lst |
| Randy | Olson | roisongdakotaelectric.com | Dakota Electric Association | 4300 220th Street W. <br> Famington, MN <br> 55024-9583 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Cinristopher J. | Opplz | N/A | $\cdots$ | 110 1/2 1ST STE <br> Park Rapids, MN 56470-1695 | Paper Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |

AN ALLETE COMPANY

| First Name | Last Name | Emall | Company Name | Address | Dellvery Method | Vlew Trade Secret | Service List Name |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Marcla | Podratz | mpodratzgmompower.com | Minnesota Power | 30 W Superior S <br> Duluth <br> MN <br> 55802 | Electronic Service | No | GEN_SL_Minnesota Power_AAMA Serv Lst |
| Ralph | RIberich | riberichguss.com | United States Steel Corp | 600 Grant St Ste 2028 <br> Plttsburgh, PA 15219 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Susan | Romans | sromansgalete.com | Minnesota Power | 30 West Superlor Street Legal Dept Duuth MN 55802 | Electronic Service | No | GEN_SL_Mrnesota Power_AAA Serv Lst |
| Thomas | Schart | thomas.schartgenempagec orp.com | New Page Corporation | $\begin{aligned} & \text { P.O. Box } 8050 \\ & 610 \text { High Street } \\ & \text { WIsconsin Rapids, } \\ & \text { WI } \\ & 544958050 \end{aligned}$ | Electronic Service | No | GEN_SL_Minnesota Power_AAA Serv Lst |
| Wullam | Schmidt |  | USG interiors, Inc. | 35 Arch Street <br> Cioquet, MN 55720 | Paper Service | No | GEN_SL_Minnesota Power_AĀA Serv Lst |
| Joe | Scipionl |  | PolyMet MIning, inc. | P.O. Box 475 <br> County Highway 656 Hoyt Lakes, MN 55750 | Paper Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Ron | Spangler, Jr. | rispanglergotpco.com | Otter Tall Power Company | 215 So. Cascade St. PO Box 496 Fergus Falls, NN 565380496 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Eric | Swanson | eswansongywntirop.com | Winthrop Weinstine | 225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629 | Electronic Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| SaGonna | Thompson | Regulatory.recordsigxocele nergy.com | Xcel Energy | 414 Nicollet Mall FL 7 <br> Minneapolis, MN 554011993 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Stuart | Tommerdahl | stommerdahigotpco.com | Otter Tall Power Company | 215 S Cascade St PO Box 496 Fergus Fals, $M N$ 56537 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |

AN ALLETE COMPANY

Attachment No. 5

| First Name | Last Name | Emal | Company Name | Address | Dellvery Method | Vlew Trade Secret | Service List Name |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Timothy | Tomsich | tmothy.tomsichgeliftsNR.c om | Hibbing Taconile Company | 4950 Highway 5 Noth <br> Hiboing. <br> MN <br> 55746 | Electronic Service | No | GEN SL Minnesota Power_AAAA Serv Lst |
| Karen | Turnboom | karen.tumboomgnewpage corp.com | NewPage Corporation | 100 Central Avenue <br> Duluth, <br> MN <br> 55807 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Robyn | Woeste | robynwoestegallantenerg y.com | Interstate Power and Light Company | 200 First St SE <br> Cedar Rapids, IA 52401 | Electronic Service | No | GEN_SL_Minnesota Power_AAAA Serv Lst |
| Daniel P | Woif | dan.woligstate mn.us | Public Utilites Commission | 121 7th Place East Sute 350 St Paul, MN 551012147 | Electropic Service | No | GEN SL Minnesota Power_AAAA Serv Lst |

# Minnesota Power Compliance Report on MISO Operations and Cost Impacts to Minnesota Power Docket No. E-015/PA-01-539 

## Background

On April 26, 2002, the Commission approved Minnesota Power's petition to transfer functional control of certain transmission facilities to the Midcontinent Independent System Operator, Inc. (MISO). In compliance to the Order (Docket No. E-015/PA-01-539), Minnesota Power is required to report the following information as part of its AAA report:

- Section 2, Item C, Part 3 (a):

The Schedule 10 administrative charges paid to the MISO under MISO tariff.

- Section 2, Item C, Part 3 (b):

Any amount of MISO administrative charge deferred by the MISO for later recovery.

- Section 2, Item C, Part 5 (c):

Each instance where the MISO directed MP to curtail MP's own generation, for reliability reasons, that resulted in an interruption of firm retail electric service to MP's retail customers in Minnesota.

- Section 2, Item C, Part 5 (d):

Each instance where the MISO directed the curtailment of a delivery of a firm purchased power supply that subsequently resulted in an interruption of firm retail electric service to MP's retail customers in Minnesota.

- Section 2, Item C, Part 8 (b):

Changes to MISO tariffs that may ultimately affect the rates of retail customers in Minnesota, and on MP's efforts to minimize MISO transmission service costs.

- Section 2, Item C, Part 8 (c):

An annual analysis of how the transfer of operational control to the MISO has affected MP's overall transmission costs and revenues and its overall energy costs for retail customers, including -
i. an analysis of how MISO membership has affected MP's ability to use its own generating sources when they are the least-cost power source; and
ii. MP's ability to access low-cost power on the wholesale market for its retail customers.

- Section 2, Item C, Part 8 (d):

Each instance where the MISO directed MP to redispatch MP's own generation for reliability reasons, including an explanation of financial impact on rates, if any, and the reason for the redispatch, if known.

## 1. Section 2, Item C, Part 3 (a):

Schedule 10 Administrative Charges Paid by MP to MISO under MISO Tariff

| Period | Invoiced Amount | Minnesota Jurisdictional <br> Amount |
| :---: | :---: | :---: |
| July 2014 | $\$ 168,512.99$ | $\$ 130,715.52$ |
| August 2014 | $\$ 123,618.66$ | $\$ 95,891.00$ |
| September 2014 | $\$ 158,458.17$ | $\$ 122,916.00$ |
| October 2014 | $\$ 168,578.16$ | $\$ 130,766.08$ |
| November 2014 | $\$ 168,967.31$ | $\$ 131,067.94$ |
| December 2014 | $\$ 180,613.59$ | $\$ 140,101.96$ |
| January 2015 | $\$ 181,054.36$ | $\$ 140,443.87$ |
| February 2015 | $\$ 162,985.89$ | $\$ 126,428.15$ |
| March 2015 | $\$ 195,363.79$ | $\$ 151,543.69$ |
| April 2015 | $\$ 172,575.73$ | $\$ 133,866.99$ |
| May 2015 | $\$ 146,482.74$ | $\$ 113,626.66$ |
| June 2015 | $\$ 167,207.41$ | $\$ 129,702.79$ |
| Total | $\$ 1,994,418.80$ | $\$ 1,547,070.66$ |

The total Schedule 10 charges billed by MISO for the reporting period represents a $14.07 \%$ increase from the total Schedule 10 charges billed by MISO for the previous reporting period. This increase is attributable as follows: 1) Although Minnesota Power reported a $0.98 \%$ decrease in demand MWhs and $2.2 \%$ decrease in energy Mwhs, there was an increase in the average rate during the report period. 2) The average rate for demand MWhs increased by 14.0\% and the average rate for energy MWhs increased by 17.91\%.

The Minnesota Jurisdictional Amount in the above table was obtained using a Minnesota Jurisdictional percentage of $77.57 \%$ as approved in Minnesota Power's latest rate case.
2. Section 2, Item C, Part 3(b): MISO Administrative Charges Deferred by MISO for Later Recovery

MISO deferred \$2,500,000 per month for the ten month period March through December, 2003 for a total of \$25,000,000 (Dockets ER02-111002 and ER02-652-001), to be recovered monthly from Transmission Customers over a five-year period beginning Feb.1, 2008.

## 3. Section 2, Item C, Part 5 (c):

# Each Instance Where MISO Directed MP to Curtail MP's Own Generation, for Reliability Reasons, that Resulted in an Interruption of Firm Retail Electric Service to MP's Retail Customers in Minnesota 

There was no occurrence of said conditions during this reporting period.
4. Section 2, Item C, Part 5(d):

Each Instance where MISO Directed the Curtailment of a Delivery of a Firm Purchased Power Supply that subsequently resulted in an Interruption of Firm Retail Electric Service to MP's Retail Customers in Minnesota

There was no occurrence of said conditions during this reporting period.
5. Section 2, Item C, Part 8 (b):

Changes to MISO Tariffs That May Ultimately Affect the Rates of Retail Customers in Minnesota, and on MP's Efforts to Minimize MISO Transmission Service Costs

Minnesota Power continues to support ongoing efforts to minimize MISO transmission service costs. Minnesota Power representatives participate in the MISO Transmission Owners Committee and the Transmission Owners Tariff Working Group, which make decisions on certain rate and revenue distribution changes pursuant to the MISO Transmission Owners Agreement. These committees also monitor the MISO budget development process, as well as review year to date cost updates. Minnesota Power also has representatives closely monitoring the Market Sub-Committee and OATT Business Practices efforts. Minnesota Power knows of no tariff changes that may ultimately affect the rates of retail customers in Minnesota.
6. Section 2, Item C, Part 8 (c):

$$
\begin{aligned}
& \text { Annual Analysis of How the Transfer of Operational Control to the } \\
& \text { MISO Has Affected MP's Overall Transmission Costs and Revenues } \\
& \text { and Its Overall Energy Costs for Retail Customers, Including }
\end{aligned}
$$

i. An Analysis of How MISO Membership Has affected MP's Ability to Use Its Own Generating Sources When They Are the Least-Cost Power Source; and
ii. MP's Ability to Access Low-Cost Power on the Wholesale Market for Its Retail Customers

Prior to becoming a MISO member, Minnesota Power paid fees to MAPP (Regional Reliability and Regional Transmission), for use of the transmission systems under MAPP Schedule F Tariff. Currently, the majority of transmission transactions now take place under the MISO Tariff. MISO transmission charges include an administration fee (Schedule 10, similar to the fee collected by MAPP), network integration service, and point-to-point service charges. Minnesota Power also receives revenue from MISO for other MISO entities' utilization of the Minnesota Power transmission facilities. Considering the costs and revenues associated with the formation of the basic Day 1 RTO (Regional Transmission Organization), Minnesota Power's net difference in the fees, transmission revenues, and transmission expenses have increased slightly compared to pre-MISO.

Minnesota Power participates in the MISO Day-Ahead,Real-Time, and Ancillary Services Market, which commenced April 1, 2005. Minnesota Power's generation is dispatched in response to MISO market price signals. This has allowed Minnesota Power to use its generation resources to meet customer needs when Minnesota Power generation is the lowest cost resource, and to reduce its generation and purchase energy in the wholesale market when market energy is the lowest cost resource. As a result, the MISO market structure has allowed Minnesota Power to continue to make extensive use of the wholesale power market to secure low cost energy for its customers.

Other benefits of the MISO Market include increased purchase options, more transparent pricing, and the ability to purchase only the amount of energy needed each hour rather than buying energy blocks provided by a traditional bilateral market. All have provided savings for our retail customers. The benefits of MISO have more than offset the additional costs incurred to implement the market. In addition, the MISO market allows Minnesota Power and other MISO members' access to an expansive footprint consisting of a diverse set of generation and transmission resources, which, when coupled with appropriate rules and an independent market monitoring function, fosters a robust wholesale energy market.
7. Section 2, Item C, Part 8 (d):

Each Instance Where MISO Directed MP to Redispatch MP's Owned Generation for Reliability Reasons, Including an Explanation of Financial Impact on Rates, if any, and the Reason for the Redispatch, if known.

There was no occurrence of said conditions during this reporting period.

## Minnesota Power Network Resources Designated to Serve Native Load

Steam Generation ..... (1)
MW ..... (2)
Boswell Energy CenterUnit No. 167.8
Unit No. 2 ..... 68.1
Unit No. 3 ..... 362.9
Unit No. 4 ..... 469.6
Taconite Harbor Energy Center
Unit No. 1 ..... 76.0
Unit No. 2 ..... 76.6
Unit No. 3 ..... -
Laskin Energy Center Unit No. 1 ..... 44.6
Unit No. 2 ..... 44.7
Hibbard Energy Center Unit No. 3/4 ..... 61.5
Cloquet Energy Center (TG5) ..... 22.6
Hydro Generation ..... MW (2)
Thomson ..... 15.0
Blanchard ..... 12.0
Fond du Lac ..... 12.0
Other Hydro ..... 10.3
Wind Generation ..... MW (4)
Taconite Ridge ..... 3.6
Bison ..... 89.6
Long Term Purchase ..... MW (2)
Square Butte ..... (3) ..... 100.3
Oliver County 1 ..... 8.7
Oliver County 2 ..... 8.7
Wing River-
Notes:(1)
Steam Generation is also provided by MP Non-Regulated Units: Rapids EnergyCenter (29.3 MW). This unit is not included in MISO's definition of "NetworkResources" because it is generation behind the meter at the customers' site.
(2) All quantities relate to MISO Planning Year 2015-2016 as these quantities are currently in effect. Values are comprised from the MISO Planning Year 2015-2016 List of GVTC Test Results as found in the Planning Year 2015-2016 unit list of capacity.
(3)

Minnesota Power's share of Square Butte.
(4) All quantities relate to MISO Planning Year 2015-2016 as these quantities are currently in effect. Values are comprised from the MISO Planning Year 2015-2016 List of Capacity Credit Results as found in the Planning Year 2015-2016 unit list of capacity.

# Minnesota Power Additional Reporting Requirements Matrix Outlined In Dockets <br> E-015/M-05-277 <br> E-015/M-08-528 

## Order Establishing Accounting Treatment for MISO Day 2/ASM Costs E-015/M-05-277

|  | Reporting Requirement | Requirement Satisfied in Reporting Document |
| :---: | :---: | :---: |
| A. | Provide additional information regarding plans with respect to acquiring fuel and purchase energy: <br> 1) Overview of plans for acquiring fuel \& purchased energy and actions to minimize or lower fuel costs, including: <br> - Planned actions to minimize or lower fuel costs, including financial instruments and hedging <br> - Plans to cover fuel and energy risk during planned unit outages <br> - Plans for optimization of congestion cost hedging through FTR's <br> 2) Provide list of network resources designated to serve native load. | Annual AAA Report, Attachment No. 1 <br> Annual AAA Report, Attachment No. 7 |
| B. | Provide Annual FAC Forecast for next 12 months including: <br> - Fuel and energy costs <br> - MISO Day 2 Costs \& Revenues <br> - Major changes affecting stability of forecast due to changes in utility cost inputs <br> - Projected variance in fuel/purchased power due to increased volatility in markets <br> - An explanation of deviations between forecast and actual costs in previous year | Annual monthly FAC Forecast submitted after final budget is approved in December in the December fuel filing prepared the following January. <br> Explanations of major changes and deviations between forecast and actual costs for previous year will be included in the annual FAC report to customers, which will also be submitted to the DOC (and MPUC) by the beginning of March each year. |
| C. | Prepare a summary AAA filing stating key factors affecting costs including RSG \& RNU along with the FAC Forecast. The FAC Forecast shall be shared with customer representatives who sign a protective agreement. | Annual monthly FAC Forecast submitted after final budget is approved in December. <br> Annual FAC report to Key Account Customers will be finalized as soon after the end of each calendar year as possible, typically the beginning of March, and provided to customers who sign confidentiality agreements. |
| D. | Meet with customer representatives to discuss FCA forecast and new proposals in MISO Day 2 Market. | As requested by interested parties who have signed a confidentiality agreement |
| E. | Monthly FAC forecasts will be revised when forecast is expected to exceed the original budget by more than $10 \%$ | Monthly FAC Report |
| F. | When the FAC forecast deviates from actual costs by $15 \%$ or more, MP will explain and quantify the difference, including an explanation of the extent to which the costs can be controlled. | Monthly FAC Report |
| G. | Provide monthly and year-to-date MISO Day 2 costs by charge type category <br> Revised format in 2008 with clear allocations of MISO Day 2 costs and revenues between retail and wholesale customers. | Monthly FAC Report <br> Annually in AAA filing for 12 months of filing period and 1 summary for a total of 13 pages, Attachment No. 9 |
| H. | Supplement monthly FAC reports with any significant events affecting costs | Monthly FAC Report |

## Order Establishing Accounting Treatment for MISO Day 2/ASM Costs

## E-015/M-05-277

|  | Reporting Requirement | Requirement Satisfied in Reporting Document |
| :---: | :--- | :--- |
| I. | Summary of the ARR process and information | Annual AAA Filing, Attachment No. 11 |
| J. | Generation Maintenance Expenses with a comparison to <br> the maintenance budget filed in the utility's most recent <br> rate case | Annual AAA Filing, Attachment No. 12 |

## The Department of Commerce- Division of Energy Resources Recommendations for Reporting Requirements for ASM Cost Recovery <br> E-015-M-08-528

|  | Reporting Requirement | Requirement Satisfied in Reporting Document |
| :---: | :---: | :---: |
| A. | Not later than February 6, 2010, the utilities shall file a request to validate recovery to date and continue to recover ASM charges (credits and costs) including: <br> - Analysis of the costs and benefits of participation in ASM <br> - Address the potential for double recovery of such costs <br> Upon request from any party, the utility shall submit their request for recovery with supporting analysis within 30 days of the request. | Annual ASM Cost Benefit Filing completed and sent February 6, 2010 |
| B. | The utilities shall also provide quarterly reports addressing the costs and benefits resulting from their participation in ASM, beginning May 15, 2009. These reports will be submitted within 45 days after the end of the applicable calendar year. | Quarterly Filings sent 5/15/09, 8/15/09 and 11/15/09 |
| C. | The Department of Commerce- Division of Energy Resources recommends that the following be included in their final ASM Report: <br> - A list of whether and when MISO charged each utility for deployment failure in 2009 <br> - The amount of any such charge <br> - The cause for deployment failure or deployment that was late <br> - Why the utility should be allowed to recover any such deployment charges <br> Minnesota Power to follow up in reply comments regarding the following: <br> CRDFC- <br> - what the causes were for the penalties <br> - why they should be recovered from ratepayers <br> - how MP intends to address in the future <br> Regarding Excessive/Deficient- <br> - explain the causes for the charge <br> - why it should be recovered from ratepayers <br> The Department of Commerce- Division of Energy Resources recommends that the utility address whether the current Purchase Power Agreements (PPA) provide for compensation to the utility when the generation under the PPA does not show up due to an outage or other problem <br> If so, the utility should indicate whether that compensation is given back to ratepayers via the FCA <br> If not, utilities should: <br> - Explain why its appropriate for ratepayers to pay those penalties | Response comments filed 7-28-10 |

The Department of Commerce- Division of Energy Resources Recommendations for Reporting Requirements for ASM Cost Recovery

## E-015-M-08-528

|  | Reporting Requirement | Requirement Satisfied in Reporting Document |
| :---: | :---: | :---: |
| D. | The Department of Commerce- Division of Energy Resources recommends that ASM Cost Recovery Analysis be reviewed in future AAA Filings in the formats used by Xcel and Minnesota Power including the written narratives; <br> Format suggested: <br> - Minnesota Power's February 5, 2010 Attachment 1 for annual basis <br> - Xcel's February 5, 2010 Attachment A for daily activity of ASM and overall net savings created by ASM plus the addition of year end totals <br> - Written narrative consistent with Xcel and Minnesota Power's $4^{\text {th }}$ quarter ASM Report <br> January 2010- June 2010 on AAA report filed September 1, 2010 <br> July-2010- June 2011 on AAA report filed September 1, 2011 | Annual AAA Filing, Attachment No. 10 |

Attachment 9 - Minnesota Power's Monthly MISO Day 2 Charges and Allocation (Docket E, G-999/AA-07-1130).

## Description of the following categories shown in Attachment 9:

1) FAC Retail - Include sales MWh subject to the retail FAC allocation. Includes residential, commercial, industrial, seasonal firm loads that are allocated the retail fuel adjustment clause.
2) FAC Resale - Sales MWh subject to the resale FAC allocation. Includes municipal customers; for example; City of Nashwauk, City of Proctor, etc. that are allocated the resale fuel adjustment clause.
3) MISO Non-Liquidation - Asset based sales MWh from generation resources to MISO in the Day-Ahead or Real- Time markets.
4) MISO - Liquidation - Non- asset based MWh sales to MISO, the source of which was a purchase from another entity that was intended to serve customer load but was not needed because generation levels were higher than expected or loads were lower than expected.
5) Others - Liquidation - Non-asset based sales MWh to other entities (not MISO), the source of which was a purchase from another entity that was intended to serve customer load but was not needed because generation levels were higher than expected or loads were lower than expected.
6) Others - Non-Liquidation - Asset based sales MWh from generation resources to other entities (not MISO) and is not under a longer term contract. This group also includes retail non-firm sales that are not allocated fuel adjustment clause costs such as Large Power Interruptible and Large Power Incremental Productions Service Sales.
7) Contract Sales - Asset based sales MWh related to longer term contracts.

Day Ahead and Real-Time Energy costs assigned for categories 3-7 above:
Minnesota Power's Energy Pricing system assigns purchases and generation based on cost not category type. Minnesota Power assigns the highest cost generation or purchases to non-FCA sales first to help ensure that the FCA receives the lowest cost generation or purchases. Certain transactions do not follow this methodology. Output from our renewable resource generators and renewable energy contract purchases are dedicated to load to help meet our renewable mandate. Minnesota Power's then determines the source of the FCA MWh by a separate analysis. A similar analysis is not done for non-FCA sales because there has not been a need to report the sources of non-FCA sales. The company does not have a system in place and has not seen the need to identify the sources of non-FCA sales. We are unable to identify what portion of Day Ahead and Real Time Energy was assigned to the other non-FCA categories.

As indicated as a footnote to the spreadsheet in our filing, Day Ahead Asset Energy, Real Time Asset Energy, Day Ahead Non-Asset Energy and Real Time Non-Asset Energy are not shown to be allocated to 3) MISO Non-Liquidation, 4) MISO Liquidation, 5) Others-Liquidation, and 7) Contract Sales as these amounts are not tracked separately by Minnesota Power's systems as discussed above.


| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION |  | Account <br> Number | July 2014 | FPE Retail |  |  |  | FAC Resale |  |  |  | Subtotal FPE <br> and FAC <br> Cost/(Revenue) | MISO Non-Liquidation |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Mwh |  | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh |  | Cost | Mwh | Revenue |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1b | Day Ahead Congestion |  | $\begin{aligned} & 4477-0000 \text { or } \\ & 55500-0000 \\ & \text { or } 55500- \\ & 0050 \end{aligned}$ | 448.02 |  | 319.16 |  | - |  | 56.32 |  | - | 375.48 |  | - |  | (1.45) |
|  | Real Time Congestion | 4470-0000 or <br> 55500-0000 <br> or 55500- <br> 0050 | 224,146.09 |  | 159,675.53 |  | - |  | 28,178.03 |  | - | 187,853.56 |  | . |  | (725.76) |
| 13 b | Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | $224,146.09$ $233,394.95$ |  | 166,643.99 |  | . |  | 29,407.76 |  | . | 196,051.76 |  | . |  | (851.08) |
| 15 | Real Time Financial Biateral Transaction Congestion |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Auction Revenue Rights Transaction | 55500-0037 | (6,769.00) |  |  |  | (4,833.07) |  |  |  | (852.89) | $(5,685.96)$ |  |  |  |  |
|  | Amount ${ }^{\text {Alction }}$ | 55500-0058 | $(512,442.17)$ |  |  |  | (365,883.71) |  |  |  | (64,567.71) | (430,451.42) |  | - |  |  |
|  | Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 508,969.36 |  | 363,404.12 |  |  |  | 64,130.14 |  |  | 427,534.26 |  | - |  | (1,855.97) |
|  | Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 34,882.96 |  | 24,906.43 |  | . |  | 4,395.25 |  | - | $427,534.26$ <br> 29,301.69 |  | - |  | $(1,855.97)$ $(127.20)$ |
|  | Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | (111,645.09) |  | - |  | (79,714.59) |  | - |  | (14.067.28) | (93,781.88) |  | . |  | ) |
|  | Financial Transmission Rights Hourly Allocation | 55500-0032 | (106,195.22) |  |  |  | $(75,823.39)$ |  |  |  | $(14,067.28)$ $(13,380.60)$ | $(99,203.98)$ |  | . |  | . |
| 30 | Financial Transmission Rights Monthly Allocation | 55500-033 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Financial Transmission Rights Yearly | 55500-003 | (17,803.26) |  |  |  | (12,711.53) |  |  |  | $(2,243.21)$ | (14,954.74) |  |  |  |  |
| 31 | Allocation | 55500-0035 |  |  |  |  | - |  |  |  |  |  |  |  |  |  |
|  | Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 |  |  | 7,568.66 |  |  |  | 1,335.65 |  |  |  |  | - |  | (38.65) |
|  | Funding Guarantee Amount | 555000-0054 | $10,600.36$ $(10,682.66)$ |  | 7,568.66 |  | (7,627.42) |  | 1,335.65 |  | (1,346.02) | $8,904.30$ $(8,973.43)$ |  | - |  | (38.65) |
|  | Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | 55,082.60 |  | 39,328.98 |  |  |  | 6,940.41 |  |  | 46,269.38 |  |  |  | (200.86) |
|  | Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31 | Subtotal |  | 301,986.93 | 758,850 | 761,846.87 | 758,850 | (546,593.70) | 136,365 | 134,443.56 | 136,365 | (96,457.71) | 253,239.01 | 5,653 | - | 5,653 | $(3,800.98)$ |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 |  |  | 1572606 |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Day Ahead Revenue Sufficiency Guarantee Make Whole Payment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | 55500-0029 | (321.01) |  |  |  | (229.20) |  |  |  | (40. | (269.65) |  | - |  |  |
|  | Real Time Price Volatility Make Whole Payment | 55500-0057 | $(29,804.69)$ |  |  |  | $(21,280.55)$ |  |  |  | (3,755.39) | (25,035.94) |  | - |  |  |
| 2425 | Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 | 14,298.48 |  | 10,209.11 |  |  |  | 1,801.61 |  | - | 12,010.72 |  | . |  | (52.14) |
|  | Real Time Revenue Sufficiency | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Subtotal |  | 6,198.08 | 758,850 | 25,935.18 | 758,850 | (21,509.75) | 136,365 | 4,576.80 | 136,365 | $(3,795.84)$ | 5,206.39 | 5,653 | - | 5,653 | (132.46) |
|  | RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | Real Time Miscellaneous | 55500-0042 | $(10,372.75)$$36,790.65$ |  |  |  | (7,406.14) |  | - |  | (1,306.97) | (8,713.11) |  | - |  | - |
| 21 | Real Time Net Inadvertent Distribution | 55500-0044 |  |  | 26,268.52 |  | - |  | 4,635.62 |  | - | 30,904.15 |  | - |  | (134.16) |
| 23 | Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 78,461.32 |  | 56,021.38 |  | - |  | 9,886.13 |  | . | 65,907.51 |  | - |  | (286.11) |
| 26 | Real Time Uninstructed Deviation | 55500-0048 |  |  | - |  | - |  |  |  |  |  |  | - |  |  |
| Subtotal |  |  | 104,879.22 | 758,850 | 82,289.91 | 758,850 | $(7,406.14)$ | 136,365 | 14,521.75 | 136,365 | $(1,306.97)$ | 88,098.54 | 5,653 | - | 5,653 | (420.27) |




| MINNESOTA POWER MISO MONTHLY ALLOCATION | Account <br> Number | July 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | $\begin{aligned} & 4470-0000 \text { or } \\ & 55500-0000 \\ & \text { or } 55000- \\ & 0050 \end{aligned}$ | 448.02 |  |  |  |  |  |  |  |  |  |  |  | (5.35) |  | 79.34 |  |  |
| Real Time Congestion | $\begin{aligned} & 4470-0000 \text { or } \\ & 55500-0000 \\ & \text { or 55500- } \\ & 0050 \end{aligned}$ | 224,146.09 |  |  |  |  |  |  |  |  |  |  |  | $(2,674.54)$ |  | 39,692.82 |  |  |
| Day Ahead Financial Bilateral |  |  |  |  |  |  |  |  |  |  |  |  |  | (2,674.54) |  | 39,092.82 |  |  |
| Transaction Congestion | 55500-0021 | 233,394.95 |  |  |  |  |  |  |  |  |  |  |  | $(3,136.38)$ |  | 41,330.66 |  |  |
| Transaction Congestion | 55500-0037 | (6,769.00) |  |  |  |  |  |  |  |  |  | 115.65 |  |  |  |  |  | $(1,198.69)$ |
| Auction Revenue Rights Transaction Amount | 55500-0058 | (512,442.17) |  |  |  |  |  |  |  |  |  | 8,754.88 |  | - |  |  |  | (90,745.63) |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 508,969.36 |  |  |  |  |  |  |  |  |  |  |  | (6,839.57) |  | 90,130.64 |  |  |
| Auction Revenue Rights Infeasible Uplif Amount | 55500-0060 | 34,882.96 |  |  |  |  |  |  |  |  |  |  |  | (468.76) |  | $90,130.64$ $6,177.24$ |  |  |
| Auction Revenue Rights Stage 2 Distribution Amount | $55500-0061$ | (111,645.09) |  |  |  |  |  |  |  |  |  | 1,907.41 |  |  |  |  |  | (19,770.63) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (106,195.22) |  |  |  |  |  |  |  |  |  | $1,814.30$ |  |  |  |  |  | (18,805.54) |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | $(17,803.26)$ |  |  |  |  |  |  |  |  |  | 304.16 |  | - |  | - |  | $(3,152.68)$ |
| Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 |  |  |  |  |  |  |  |  |  |  |  |  | (142.45) |  | 1,877.16 |  |  |
| FTR Guarantee Uplift Amount | 55500-0055 | (10,682.66) |  |  |  |  |  |  |  |  |  | 182.51 |  | (12.4) |  |  |  | $(1,891.73)$ |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 |  |  |  |  |  |  |  |  |  |  |  |  | (740.20) |  | 9,754.28 |  |  |
| Financial Transmission Rights Transaction | $55500-0034$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 301,986.93 | 34,103 |  | 34,103 |  |  |  |  |  | 20,834 | 13,078.91 | 20,834 | $(14,007.26)$ | 191,686 | 189,042.14 | 191,686 | (135,564.90) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 22,025.30 |  |  |  |  |  |  |  |  |  |  |  | (295.98) |  | 3,900.34 |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | (321.01) |  |  |  |  |  |  |  |  |  | 5.48 |  |  |  |  |  | (56.85) |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | $(29,804.69)$ |  |  |  |  |  |  |  |  |  |  |  | - |  |  |  | (5,277.95) |
| Real Time Revenue Sufficiency |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Guarantee First Pass Dist | 55500-0046 | 14,298.48 |  |  |  |  |  |  |  |  |  |  |  | (192.14) |  | 2,532.04 |  |  |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 6,198.08 | 34,103 | - | 34,103 | - | - | - |  |  | 20,834 | 514.69 | 20,834 | (488.12) | 191,686 | 6,432.38 | 191,686 | (5,334.80) |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | (10,372.75) |  |  |  |  |  |  |  |  |  | 177.21 |  |  |  |  |  | (1,836.85) |
| Real Time Net Inadvertent Distribution | 55500-0044 | 36,790.65 |  |  |  |  |  |  |  |  |  | - |  | (494.40) |  | 6,515.06 |  | - |
| Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 78,461.32 |  |  |  |  |  |  |  |  |  | . |  | (1,054.37) |  | 13,894.29 |  | - |
| Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 104,879.22 | 34,103 | - | 34,103 |  | - | - |  | - | 20,834 | 177.21 | 20,834 | $(1,548.77)$ | 191,686 | 20,409.35 | 191,686 | $(1,836.85)$ |







| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION | Account <br> Number | August 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 |  | 196,929.32 |  |  |  |  |  |  |  |  |  |  |  | $(4,543.16)$ |  | 39,846.17 |  |  |
| Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | $(82,685.79)$ |  |  |  |  |  |  |  |  |  | 2,923.58 |  |  |  |  |  | (16,730.43) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 8,809.05 |  |  |  |  |  |  |  |  |  |  |  | (183.87) |  | 1,779.34 |  |  |
| Real Time Financial Bilateral Transaction Congestion | 55500-0037 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Auction Revenue Rights Transaction Amount | 55500-0058 | (512,442.17) |  |  |  |  |  |  |  |  |  | 16,392.87 |  |  |  |  |  | (103,508.04) |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | (512,442.17) <br> 508,969.36 |  |  |  |  |  |  |  |  |  | 16,392.87 |  | (10,623.45) |  | 102,806.56 |  | (103,508.04) |
| Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 500,969.36 34,882.60 |  |  |  |  |  |  |  |  |  |  |  | (728.09) |  | $102,806.56$ $7,045.93$ |  |  |
| Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | (111,805.97) |  |  |  |  |  |  |  |  |  | 3,576.64 |  | ) |  |  |  | (22,583.65) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (100,701.87) |  |  |  |  |  |  |  |  |  | 3221.42 |  |  |  |  |  | $(22,583.65)$ $(20,340.74)$ |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | (3,373.05) |  |  |  |  |  |  |  |  |  | $3,221.42$ 107.90 |  |  |  |  |  | $(20,340.74)$ $(681.32)$ |
| Financial Transmission Rights Yearly Allocation | $55500-0035$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (5,721.24) |  |  |  |  |  |  |  |  |  | 183.02 |  |  |  |  |  | (1,155.63) |
| FTR Guarantee Uplit Amount | 55500-0055 | 7,043.40 |  |  |  |  |  |  |  |  |  |  |  | (147.01) |  | 1,422.69 |  | (1,155.63) |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 |  |  |  |  |  |  |  |  |  |  |  |  | (303.68) |  |  |  |  |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | $(45,546.88)$ | 43,793 |  | 43,793 | - | - | - | - | - | 20,111 | 26,405.43 | 20,111 | $(16,529.25)$ | 217,209 | 155,839.54 | 217,209 | (164,999.81) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 39,897.69 |  |  |  |  |  |  |  |  |  |  |  | (832.76) |  | 8,058.92 |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | 72.49 |  |  |  |  |  |  |  |  |  |  |  | (1.51) |  | 14.64 |  |  |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | (18,615.14) |  |  |  |  |  |  |  |  |  | 595.49 |  |  |  |  |  | (3,760.07) |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 |  |  |  |  |  |  |  |  |  |  |  |  | (972.18) |  | 9,408.06 |  |  |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 9,400.06 |  |  |
| Subtotal |  | 67,931.95 | 43,793 | - | 43,793 |  | - |  | - |  | 20,111 | 595.49 | 20,111 | $(1,806.45)$ | 217,209 | 17,481.62 | 217,209 | $(3,760.07)$ |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | (1,770.41) |  |  |  |  |  |  |  |  |  | 56.63 |  | - |  | - |  | (357.60) |
| Real Time Net Inadvertent Distribution | 55500-0044 | (36,755.59) |  |  |  |  |  |  |  |  |  | 1,175.80 |  |  |  | - |  | (7,424.25) |
| Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 106,859.80 |  |  |  |  |  |  |  |  |  |  |  | $(2,230.43)$ |  | 21,584.58 |  |  |
| Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 68,333.80 | 43,793 | - | 43,793 |  | - |  | - | - | 20,111 | 1,232.43 | 20,111 | $(2,230.43)$ | 217,209 | 21,584.58 | 217,209 | (7,781.85) |


| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION | Account <br> Number | August 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
|  |  |  |  |  |  |  | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |
| Grandfathered Charge Types |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion Rebate on | 55500-0023 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Losses Rebate on CarveOut Grandfathered | 55500-0024 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion Rebate on Option B Grandfathered | 55500-0025 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Losses Rebate on Option B Grandfathered | 55500-0026 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Losses Rebate on Carve-Out Grandfathered | 55500-0040 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Congestion Rebate on Carve Out Grandfathered | 55500-0039 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 43,793 |  |  | 43,793 |  |  |  |  |  | 20,111 |  | 20,111 |  | 217,209 |  | 217,209 |  |
| ASM Charge Types (12 Other) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Regulation Amount | 5500-0062 | (17,571.48) |  |  |  |  |  |  |  |  |  | 562.11 |  |  |  | - |  | (3,549.26) |
| Day Ahead Spinning Reserve Amount | 55500-0063 | (22,952.17) |  |  |  |  |  |  |  |  |  | 734.23 |  | - |  | - |  | $(4,636.10)$ |
| Day Ahead Supplemental Reserve Amount | 55500-0064 |  |  |  |  |  |  |  |  |  |  |  |  | (0.15) |  | 1.41 |  |  |
| Contingency Reserve Deployment |  |  |  |  |  |  |  |  |  |  |  |  |  | (0.15) |  | , |  |  |
| Failure Charge Amount | 55500-0065 | 235.04 |  |  |  |  |  |  |  |  |  |  |  | (4.91) |  | 47.48 |  |  |
| Net Regulation Adjustment Amount | $55500-0068$ $55500-0070$ | 577.04 $10,194.26$ |  |  |  |  |  |  |  |  |  | $:$ |  | (1212.78) |  | 116.56 2,059.14 |  | - |
| Real Time Regulation Amount | 55500-0070 | 10,194.26 |  |  |  |  |  |  |  |  |  | - |  | (212.78) |  | 2,059.14 |  |  |
| Amount | 55500-0071 | 21,064.71 |  |  |  |  |  |  |  |  |  |  |  | (439.67) |  | 4,254.85 |  |  |
| Real-Time Excessive Deficient |  |  |  |  |  |  |  |  |  |  |  |  |  | (6312) |  | 85 |  |  |
| Deployment Charge Amount | 55500-0067 | 3,024.14 |  |  |  |  |  |  |  |  |  |  |  | (63.12) |  | 610.85 |  |  |
| Real Time Spinning Reserve Amount | 55500-0072 | (8,307.19) |  |  |  |  |  |  |  |  |  | 265.74 |  |  |  | - |  | (1,677.97) |
| Spinning Reserve Cost Distribution Amount | 55500-0073 | 18,571.51 |  |  |  |  |  |  |  |  |  | . |  | (387.63) |  | 3,751.25 |  |  |
| Real Time Supplemental Reserve Amount | 55500-0074 | (3.18) |  |  |  |  |  |  |  |  |  | 0.10 |  |  |  |  |  | (0.64) |
| Supplemental Reserve Cost Distribution Amount | 55500-0075 | 7,747.81 |  |  |  |  |  |  |  |  |  |  |  | (161.72) |  | 1,564.98 |  |  |
| Subtotal |  | 12,587.46 | - |  | - | - | - | - | - | - | - | 1,562.19 | - | $(1,282.02)$ | - | 12,406.51 |  | $(9,863.97)$ |
| Grand Total |  | 2,833,943.20 | 43,793 |  | 43,793 | - | - | - | - | - | 20,111 | 48,824.05 | 20,111 | (59,806.16) | 217,209 | 544,836.01 | 217,209 | (306,244.97) |






| minnesota power <br> MISO MONTHLY ALLOCATION | Account <br> Number | September 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
|  |  |  | Congestion, FTRs \& ARR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 | 253,648.44 |  |  |  |  |  |  |  |  |  |  |  | (1,551.70) |  | 47,564.77 |  | - |
| Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | (223,969.11) |  |  |  |  |  |  |  |  |  | 1,413.86 |  | - |  | - |  | (41,999.23) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 236,024.96 |  |  |  |  |  |  |  |  |  |  |  | (1,720.57) |  | 44,259.97 |  |  |
| Real Time Financial Bilateral Transaction Congestion | 55500-0037 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Auction Revenue Rights Transaction Amount | 55500-0037 | (567,228.70) |  |  |  |  |  |  |  |  |  | 4,266.92 |  | - |  | - |  | (106,368.09) |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 560,001.63 |  |  |  |  |  |  |  |  |  |  |  | (4,082.28) |  | 105,012.85 |  | (100,368.09) |
| Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 29,224.54 |  |  |  |  |  |  |  |  |  |  |  | $\begin{array}{r} (4,082.28) \\ (213.04) \end{array}$ |  | $105,012.85$ 5.480 .26 |  |  |
| Auction Revenue Rights Stage 2 Distribution Amount | $55500-0061$ | (55,720.16) |  |  |  |  |  |  |  |  |  | 419.15 |  | (21.04) |  | 5,480.26 |  | (10,448.78) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (334,094.17) |  |  |  |  |  |  |  |  |  | 2,513.19 |  | - |  | . |  | (62,650.14) |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | $(5,427.31)$ |  |  |  |  |  |  |  |  |  |  |  |  |  | - |  | $(1,017.74)$ |
| Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | - |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (21,226.15) |  |  |  |  |  |  |  |  |  | 159.67 |  | - |  |  |  | $(3,980.38)$ |
| FTR Guarantee Uplitit Amount | $55500-0055$ | 23,437.72 |  |  |  |  |  |  |  |  |  |  |  | (170.86) |  | 4,395.10 |  |  |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 |  |  |  |  |  |  |  |  |  |  | 42.76 |  | (17.8) |  |  |  | $(1,065.85)$ |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | (111,012.15) | 46,364 |  | 46,364 |  | - |  | - |  | 158,105 | 8,856.37 | 158,105 | (7,738.44) | 195,881 | 206,712.94 | 195,881 | (227,530.20) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 55,131.98 |  |  |  |  |  |  |  |  |  |  |  |  |  | 10,338.48 |  |  |
| Day Ahead Revenue Sufficiency | 55500-0029 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | (25,378.41) |  |  |  |  |  |  |  |  |  | 190.91 |  | - |  | - |  | (4,759.02) |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 | 29,955.19 |  |  |  |  |  |  |  |  |  |  |  | (218.37) |  | 5,617.27 |  | (4,750.02) |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 59,708.76 | 46,364 |  | 46,364 |  |  |  | - |  | 158,105 | 190.91 | 158,105 | (620.27) | 195,881 | 15,955.75 | 195,881 | (4,759.02) |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | $(1,321.58)$ |  |  |  |  |  |  |  |  |  | 9.94 |  | - |  | - |  | (247.83) |
| Real Time Net Inadvertent Distribution | 55500-0044 | (68,572.95) |  |  |  |  |  |  |  |  |  | 515.83 |  | - |  | - |  | (12,858.96) |
| Real Time Revenue Neutrality Uplift Amount <br> Real Time Uninstructed Deviation | $\begin{array}{\|l\|} 55500-0045 \\ 55500-0048 \end{array}$ | 210,914.02 |  |  |  |  |  |  |  |  |  |  |  | (1,537.51) |  | ${ }_{\text {39,551.10 }}$ |  | (12,888) - |
| Subtotal |  | 141,019.49 | 46,364 |  | 46,364 |  |  |  |  |  | 158,105 | 525.77 | 158,105 | $(1,537.51)$ | 195,881 | 39,551.10 | 195,881 | (13,106.79) |




| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION |  | Account <br> Number | October 2014 | FPE Retail |  |  |  | FAC Resale |  |  |  | Subtotal FPE <br> and FAC <br> Cost(Revenue) | MISO Non-Liquidation |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Mwh |  | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh |  | Cost | Mwh | Revenue |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 b | Day Ahead Congestion |  | 44700-0000 or 55500-0000 or 55500-0050 | (785,808.52) |  |  |  | $(553,829.86)$ |  |  |  | (97,734.68) | (651,564.54) |  |  |  |  |
|  | Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | $(226,043.83)$ |  |  |  | (159,313.40) |  |  |  | (28,114.13) | (187,427.52) |  |  |  |  |
| 13b | Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 511,462.34 |  | 360,836.68 |  |  |  | 63,677.06 |  |  | 424,513.74 |  |  |  | $(1,262.60)$ |
| 15 | Real Time Financial Bilateral Transaction Congestion | 55500-0037 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Auction Revenue Rights Transaction Amount | 55500-0058 | $(567,228.70)$ |  |  |  | (400,179.85) |  | - |  | (70,619.97) | (470,799.82) |  |  |  |  |
|  | Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 560,001.63 |  | 395,081.15 |  |  |  | 69,720.20 |  |  | 464,801.35 |  |  |  | $(1,382.43)$ |
|  | Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 29,224.06 |  | 20,617.57 |  |  |  | 3,638.40 |  |  | 24,255.97 |  |  |  | (72.14) |
|  | Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | $(55,637.02)$ |  |  |  | (39,251.92) |  |  |  | (6,926.81) | $(46,178.73)$ |  |  |  |  |
| 28 | Financial Transmission Rights Hourly Allocation | 55500-0032 | 13,376.67 |  | 9,437.24 |  |  |  | 1,665.40 |  |  | 11,102.64 |  |  |  | (33.02) |
|  | Financial Transmission Rights Monthly Allocation | 55500-0033 | (10,225.52) |  |  |  | (7,214.10) |  |  |  | (1,273.08) | (8,487.18) |  |  |  |  |
| 30 | Financial Transmission Rights Yearly Allocation | $55500-0035$ |  |  |  |  | (7,214.1) |  | - |  | (1,273.08) |  |  |  |  |  |
| 32 | Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (23,150.82) |  |  |  | (16,332.90) |  |  |  | (2,882.28) | (19,215.18) |  |  |  |  |
|  | FTR Guarantee Uplift Amount | $55500-0055$ | 25,322.10 |  | 17,864.74 |  | (16,332.90) |  | 3,152.60 |  | (2,882.28) | ${ }_{\text {21,017.34 }}$ |  | - |  | (62.51) |
|  | Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | 21,169.54 |  | 14,935.11 |  |  |  |  |  |  | 17,570.72 |  |  |  |  |
|  | Financial Transmission Rights Transaction | $55500-0034$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31 | Subtotal |  | $(507,538.07)$ | 726,495 | 818,772.50 | 726,495 | (1,176,122.02) | 132,001 | 144,489.26 | 132,001 | (207,550.95) | (420,411.21) | 5,939 |  | 5,939 | $(2,864.97)$ |
|  | RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 43,261.78 |  | 30,521.19 |  |  |  | 5,386.09 |  |  |  |  |  |  | (106.80) |
|  | Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | $55500-0029$ | (16,149.88) |  |  |  | (11,393.74) |  |  |  | (2,010.66) |  |  |  |  | (106.80) |
| 11 | Real Time Price Volatility Make Whole Payment | 55500-0057 | (33,722.09) |  |  |  | (23,790.93) |  | - |  | (4,198.40) | (27,989.33) |  | - |  | - |
|  | Real Time Revenue Sufficiency |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 | Guarantee First Pass Dist Real Time Revenue Sufficiency | 55500-0046 | 37,025.19 |  | 26,121.27 |  |  |  | 4,609.64 |  |  | 30,730.91 |  |  |  | (91.40) |
|  | Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | Subtotal |  | 30,415.00 | 726,495 | 56,642.46 | 726,495 | $(35,184.67)$ | 132,001 | 9,995.73 | 132,001 | $(6,209.06)$ | 25,244.45 | 5,939 |  | 5,939 | (198.20) |
|  | RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2021 | Real Time Miscellaneous | 55500-0042 | $(2,226.66)$ |  |  |  | (1,570.91) |  |  |  | (277.22) | (1,848.13) |  |  |  |  |
|  | Real Time Net Inadvertent Distribution | 55500-0044 | 20,021.59 |  | 14,125.23 |  |  |  | 2,492.69 |  |  | 16,617.92 |  |  |  |  |
| 21 | Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 261,922.06 |  | 184,786.01 |  |  |  | 32,609.30 |  | - | 217,395.31 |  |  |  | (646.59) |
| 26 | Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Subtotal |  | 279,716.99 | 726,495 | 198,911.25 | 726,495 | $(1,570.91)$ | 132,001 | 35,101.98 | 132,001 | (277.22) | 232,165.10 | 5,939 | - | 5,939 | (696.01) |




| MINNESOTA POWER MISO MONTHLY ALLOCATION | Account <br> Number | October 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | miso - Liquidation |  |  |  | Others-Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 |  | (785,808.52) |  |  |  |  |  |  |  |  |  | 15,119.96 |  | - |  | - |  | (149,363.95) |
| Real Time Congestion | $44700-0000$ or 55500-0000 or 55500-0050 | $(226,043.83)$ |  |  |  |  |  |  |  |  |  | 4,349.37 |  | - |  |  |  | $(42,965.68)$ |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 511,462.34 |  |  |  |  |  |  |  |  |  |  |  | ${ }_{(9,005.91)}$ |  | 97,217.11 |  | (42,965.68) |
| Real Time Financial Bilateral Transaction Congestion | 55500-0037 |  |  |  |  |  |  |  |  |  |  |  |  | (9,005.91) |  | 97,217.11 |  |  |
| Auction Revenue Rights Transaction Amount | 55500-0058 | (567,228.70) |  |  |  |  |  |  |  |  |  | 11,388.12 |  |  |  |  |  |  |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 560,001.63 |  |  |  |  |  |  |  |  |  | 11,388.12 |  |  |  | 106,443.30 |  | (107,817.00) |
| Auction Revenue Rights Infeasible Uplift Amount | $55500-0060$ | 560,001.03 29,224.06 |  |  |  |  |  |  |  |  |  |  |  | $(9,860.60)$ $(514.58)$ |  | $106,443.30$ $5,554.82$ |  | - |
| Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | (55,637.02) |  |  |  |  |  |  |  |  |  | 1,117.01 |  |  |  |  |  | (10,575.31) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | 13,376.67 |  |  |  |  |  |  |  |  |  |  |  | $(235.54)$ |  | 2,542.59 |  | (10,575.3) |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | (10,225.52) |  |  |  |  |  |  |  |  |  | 205.30 |  | , |  | . |  | (1,943.63) |
| Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | - |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (23,150.82) |  |  |  |  |  |  |  |  |  | 464.79 |  | - |  | - |  | (4,400.43) |
| FTR Guarantee Uplift Amount | 55500-0055 | 25,322.10 |  |  |  |  |  |  |  |  |  | 464.9 |  | (445.88) |  | 4,813.14 |  | (4,400.43) |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | 21,169.54 |  |  |  |  |  |  |  |  |  |  |  | (372.76) |  | 4.023.84 |  |  |
| Financial Transmission Rights Transaction | 55500-0034 | 2,16.54 |  |  |  |  |  |  |  |  |  |  |  |  |  | 4,023.84 |  |  |
| Subtotal |  | $(507,538.07)$ | 55,690 |  | 55,690 |  |  |  | - |  | 42,361 | 32,644.56 | 42,361 | $(20,435.26)$ | 203,245 | 220,594.81 | 203,245 | (317,066.00) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 43,261.78 |  |  |  |  |  |  |  |  |  |  |  | (761.76) |  | 8,223.06 |  | - |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | (16,149.88) |  |  |  |  |  |  |  |  |  | 324.24 |  | . |  |  |  | $(3,069.72)$ |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | (33,722.09) |  |  |  |  |  |  |  |  |  | 677.03 |  | - |  | - |  | (6,409.79) |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 | (33,722.09) $37,025.19$ |  |  |  |  |  |  |  |  |  |  |  | (651.95) |  | 7,037.63 |  | (6,409.79) |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 30,415.00 | 55,690 |  | 55,690 |  | - | - | - |  | 42,361 | 1,001.27 | 42,361 | (1,413.71) | 203,245 | 15,260.69 | 203,245 | (9,479.50) |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | $(2,226.66)$ |  |  |  |  |  |  |  |  |  | 44.70 |  |  |  |  |  | (423.24) |
| Real Time Net Inadvertent Distribution | 55500-0044 | 20,021.59 |  |  |  |  |  |  |  |  |  |  |  | (352.54) |  | 3,805.64 |  |  |
| Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 261,922.06 |  |  |  |  |  |  |  |  |  |  |  | (4,611.96) |  | 49,785.30 |  | - |
| Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 279,716.99 | 55,690 |  | 55,690 |  |  |  |  |  | 42,361 | 44.70 | 42,361 | (4,964.51) | 203,245 | 53,590.94 | 203,245 | (423.24) |




| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION |  | Account <br> Number | November 2014 | FPE Retail |  |  |  | FAC Resale |  |  |  | Subtotal FPE <br> and FAC <br> Cost(Revenue) | MISO Non-Liquidation |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Congestion, FTRs \& ARRs |  |  |  | Mwh | Cost | Mwh | Revenue | Mwh | Cost |  | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1b | Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 | 21,922.70 |  | 15,360.51 |  |  |  | 2,925.81 |  |  | 18,286.33 |  |  |  | (97.99) |
|  | Real Time Congestion | $44700-0000$ or 55500-0000 or 55500-0050 | $(38,283.05)$ |  |  |  | (26,823.68) |  | - |  | (5,109.27) | (31,932.95) |  |  |  |  |
| 13b | Day Ahead Financial Bilateral Transaction Congestion | $55500-0021$ | 257,177.26 |  | 179,303.99 |  | (20,823.68) |  | 34,153.14 |  | (5,109.27) | $\begin{array}{r}\text { (31,932.95) } \\ \hline 213,457.13\end{array}$ |  |  |  | (962.28) |
|  | Real Time Financial Bilateral Transaction Congestion | 55500-0037 |  |  |  |  |  |  | - |  |  |  |  |  |  |  |
| 15 | Auction Revenue Rights Transaction Amount | 55500-0058 | (567,228.70) |  |  |  | $(395,471.85)$ |  | - |  | (75,327.97) | (470,799.82) |  |  |  |  |
|  | Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 560,001.63 |  | 390,433.14 |  |  |  | 74,368.22 |  |  | 464,801.35 |  |  |  | $(2,095.35)$ |
|  | Auction Revenue Rights Infeasible Uplift <br> Amount | 55500-0060 | 29,224.06 |  | 20,375.01 |  |  |  | 3,880.96 |  |  | 24,255.97 |  |  |  | (109.35) |
|  | Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | $(53,964.84)$ |  |  |  | $(37,624.29)$ |  |  |  | (7,166.53) | (44,790.82) |  |  |  |  |
|  | Financial Transmission Rights Hourly Allocation | 55500-0032 | (267,165.25) |  |  |  | $(187,224.297 .61)$ |  | - |  | (35,479.55) | (221,747.16) |  | - |  | . |
| 28 30 | Financial Transmission Rights Monthly Allocation | 55500-0033 | (5,705.87) |  |  |  | (3,978.13) |  |  |  | (757.74) | (4,735.87) |  |  |  |  |
| 32 | Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  | . |  |  |  |  |  |  |  |
|  | Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | $(43,293.03)$ |  |  |  | (30,183.90) |  | - |  | (5,749.31) | (35,933.21) |  |  |  |  |
|  | FTR Guarantee Uplift Amount | $55500-0055$ | 49,645.29 |  | 34,612.70 |  | (30,183.0) |  | 6,592.89 |  | (5,74.31) | 41,205.59 |  | - |  | (185.76) |
|  | Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | 2,617.04 |  |  |  | . |  | 347.54 |  | - |  |  |  |  | (9.79) |
|  | Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31 | Subtotal |  | $(55,052.76)$ | 729,867 | 641,909.95 | 729,867 | (680,349.46) | 142,710 | 122,268.56 | 142,710 | $(129,590.37)$ | (45,761.32) | 10,181 |  | 10,181 | $(3,460.51)$ |
|  | RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1011 | Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 34,129.97 |  | 23,795.42 |  |  |  | 4,532.46 |  |  | 28,327.88 |  |  |  | (127.70) |
|  | Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | 3,646.75 |  |  |  |  |  | 484.29 |  |  | 3,026.80 |  |  |  | (13.64) |
| 11 | Real Time Price Volatility Make Whole Payment | 55500-0057 | (30,741.02) |  |  |  | (21,432.64) |  |  |  |  | (25,515,05) |  |  |  |  |
|  | Real Time Revenue Sufficiency |  | (30,741.02) |  |  |  | (21,432.64) |  |  |  | (4,082.41) | (25,515.05) |  |  |  |  |
| 2425 | $\frac{\text { Guarantee First Pass Dist }}{\text { Real Time Revenue Sufficiency }}$ | 55500-0046 | 50,450.85 |  | 35,174.33 |  |  |  | 6,699.87 |  |  | 41,874.21 |  |  |  | (188.77) |
|  | Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | Subtotal |  | 57,486.55 | 729,867 | 61,512.26 | 729,867 | $(21,432.64)$ | 142,710 | 11,716.62 | 142,710 | (4,082.41) | 47,713.84 | 10,181 |  | 10,181 | (330.12) |
|  | RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2021 | Real Time Miscellaneous | 55500-0042 | (318.58) |  |  |  | (222.11) |  | - |  | (42.31) | (264.42) |  |  |  |  |
|  | Real Time Net Inadvertent Distribution | 55500-0044 | $(6,987.68)$ |  |  |  | $(4,871.81)$ |  | - |  | (927.96) | (5,799.77) |  | - |  | - |
| 212326 | Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 384,322.67 |  | 267,949.77 |  |  |  | 51,038.05 |  | . | 318,987.82 |  |  |  | $(1,438.01)$ |
|  | Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  | 51,038.05 |  |  |  |  | - |  | (1,438.01) |
|  | Subtotal |  | 377,016.41 | 729,867 | 267,949.77 | 729,867 | $(5,093.92)$ | 142,710 | 51,038.05 | 142,710 | (970.27) | 312,923.62 | 10,181 |  | 10,181 | (1,438.01) |











| MINNESOTA POWER MISO MONTHLY ALLOCATION | Account <br> Number | December 2014 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
|  |  |  | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |
| Grandfathered Charge Types |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion Rebate on | 55500-0023 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Losses Rebate on CarveOut Grandfathered | 55500-0024 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion Rebate on Option B Grandfathered | 55500-0025 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Losses Rebate on Option B Grandfathered | 55500-0026 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Losses Rebate on Carve-Out Grandfathered | 55500-0040 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Congestion Rebate on Carve Out Grandfathered | 55500-0039 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | - | 44,589 |  | 44,589 |  |  |  |  |  | 62,822 | - | 62,822 |  | 219,734 |  | 219,734 |  |
| ASM Charge Types (12 Other) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Regulation Amount | 5500-0062 | (56,479.26) |  |  |  |  |  |  |  |  |  | 331.82 |  |  |  |  |  | (10,498.09) |
| Day Ahead Spinning Reserve Amount | 55500-0063 | $(22,005.69)$ |  |  |  |  |  |  |  |  |  | 129.29 |  | - |  | - |  | $(4,090.31)$ |
| Day Ahead Supplemental Reserve Amount | 55500-0064 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Contingency Reserve Deployment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Failure Charge Amount | 55500-0065 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 55500-0068 $55500-0070$ | $2,145.08$ 2,311.50 |  |  |  |  |  |  |  |  |  | : |  | $\left(\begin{array}{l}\text { (11.26) } \\ (11.05)\end{array}\right.$ |  | 398.72 |  | $:$ |
| Real Time Regulation Amount Regulation Reserve Cost Distribution | 55500-0070 | 2,311.50 |  |  |  |  |  |  |  |  |  |  |  | (11.05) |  | 429.65 |  |  |
| Amount | 55500-0071 | 25,543.05 |  |  |  |  |  |  |  |  |  |  |  | (122.16) |  | 4,747.82 |  | - |
| Real-Time Excessive Deficient Deployment Charge Amount | 55500-0067 | 10,008.90 |  |  |  |  |  |  |  |  |  | - |  | (47.87) |  | 1,860.41 |  | - |
| Real Time Spinning Reserve Amount | 55500-0072 | 3,686.06 |  |  |  |  |  |  |  |  |  | - |  | $(17.63)$ |  | 685.15 |  | - |
| Spinning Reserve Cost Distribution Amount | 55500-0073 | 17,434.20 |  |  |  |  |  |  |  |  |  |  |  | (83.38) |  | 3,240.58 |  |  |
| Real Time Supplemental Reserve Amount | 55500-0074 | 4.70 |  |  |  |  |  |  |  |  |  |  |  | (0.02) |  | 0.87 |  |  |
| Supplemental Reserve Cost Distribution Amount | 55500-0075 | 6,545.03 |  |  |  |  |  |  |  |  |  |  |  |  |  | 1,216.56 |  |  |
| Subtotal |  | (10,806.43) | - | - | - | - | - | - | - | - | - | 461.11 | - | (323.68) | - | 12,579.75 | - | $(14,588.40)$ |
| Grand Total |  | 3,629,249.59 | 44,589 | . | 44,589 | - | . | - | - | - | 62,822 | 11,844.12 | 62,822 | (16,038.96) | 219,734 | 575,557.78 | 219,734 | (360,707.46) |










| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION |  | Account <br> Number | February 2015 |  |  |  |  | FAC Resale |  |  |  | Subtotal FPE <br> and FAC <br> Cost/(Revenue) | MISO Non-Liquidation |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Mwh |  |  |  |  |  | Cost | Mwh | Revenue | Mwh |  | Cost | Mwh | Revenue |
| Grandfathered Charge Types |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Day Ahead Congestion Rebate on Carve-Out Grandfathered |  | 55500-0023 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Day Ahead Losses Rebate on Carve- | 5500-0023 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Out Grandfathered | 55500-0024 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Day Ahead Congestion Rebate on Option B Grandfathered | 55500-0025 |  |  |  |  |  |  |  |  |  | - |  |  |  |  |
| , | Day Ahead Losses Rebate on Option B Grandfathered | $55500-002$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Real Time Losses Rebate on Carve-Out | 55500-0026 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | Grandfathered | 55500-0040 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | Real Time Congestion Rebate on Carve Out Grandfathered | $55500-0039$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Subtotal |  | - | 754,014 | - | 754,014 | - | 144,715 | - | 144,715 | - | - | 13,449 | - | 13,449 | - |
| ASM Charge Types (12 Other) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Day Ahead Regulation Amount | 55500-0062 | (26,510.73) |  | - |  | (18,483.28) |  |  |  | (3,520.62) | (22,003.91) |  |  |  | - |
|  | Day Ahead Spinning Reserve Amount | 55500-0063 | (20,152.97) |  | - |  | $(14,050.65)$ |  | - |  | $(2,676.31)$ | (16,726.97) |  |  |  | - |
|  | Day Ahead Supplemental Reserve Amount | 55500-0064 |  |  |  |  |  |  |  |  |  |  |  |  |  | . |
|  | Contingency Reserve Deployment Failure Charge Amount | 55500-0065 |  |  |  |  | - |  |  |  |  |  |  |  |  |  |
|  | $\stackrel{\text { Failure Charge Amount }}{\text { Net Regulation Adjustment Amount }}$ | 555000-00068 | (582.06) |  | - |  | (405.81) |  | - |  | (77.30) | (483.11) |  |  |  | - |
|  | Real Time Regulation Amount | 55500-0070 | 4,058.85 |  | 2,829.83 |  |  |  | 539.02 |  |  | 3,368.85 |  |  |  | (14.20) |
|  | Regulation Reserve Cost Distribution Amount | 55500-0071 | 19,027.81 |  | 13,266.19 |  | - |  | 2,526.89 |  |  | 15,793.08 |  |  |  | (66.58) |
|  | Real-Time Excessive Deficient Deployment Charge Amount | 55500-0067 | 3,852.55 |  | 2,686.00 |  | . |  | 511.62 |  |  | 3,197.62 |  |  |  | (13.48) |
|  | Real Time Spinning Reserve Amount | 55500-0072 | 5,979.96 |  | 4,169.23 |  | - |  | 794.14 |  | - | 4,963.37 |  |  |  | (20.93) |
|  | Spinning Reserve Cost Distribution Amount | 55500-0073 | 16,877.36 |  | 11,766.90 |  | . |  | 2,241.31 |  |  | 14,008.21 |  |  |  | (59.06) |
|  | Real Time Supplemental Reserve Amount | 55500-0074 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Supplemental Reserve Cost Distribution Amount | 55500-0075 | 8,131.13 |  | 5.669 .02 |  |  |  | 1,07981 |  |  | 6.748 .84 |  |  |  | (28.45) |
|  | Subtotal |  | 10,681.90 | 754,014 | 40,387.16 | - | (32,939.74) | 144,715 | 7,692.79 | - | $(6,274.24)$ | 8,865.98 | - |  | - | (202.71) |
|  | Grand Total |  | 4,247,570.61 | 754,014 | 5,154,016.12 | 754,014 | (1,178,362.57) | 144,715 | 981,717.36 | 144,715 | (224,450.01) | 4,732,920.89 | 13,449 | . | 13,449 | (13,878.58) |
| 1/ All Administration Charges reflected in the Retail column are now in the base cost of fuel (not recovered in the FPE) <br> $2 /$ Accounts 5551-0051 through 5551-0053 are not recovered through the FPE <br> 3/ Accounts 5551-0076 are not recovered through FPE for Resource Adequacy since it relates to capacity <br> NOTE: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DA and RT Asset Energy amounts have been reduced by the generation to load LMP differences (RE) which are then shown in the Day Ahead Loss, Real Time Loss, Day Ahead Congestion and Real Time Congestion lines |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are allocated to the FPE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-Liquidation, Others-Non-Liquidation and Contract sales as these amounts are not tracked separately by Minnesota Power's systems |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION | Account <br> Number | February 2015 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARRs |  |  | Mwh |  | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 | 19,050.14 |  |  |  |  |  |  |  |  |  |  |  | (334.88) |  | 3,568.95 |  |  |
| Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | (113,632.30) |  |  |  |  |  |  |  |  |  | 2,502.38 |  | - |  | - |  | (21,288.44) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 575,290.45 |  |  |  |  |  |  |  |  |  |  |  | (7,965.29) |  | 107.777.79 |  | (21,288.4) |
| Real Time Financial Bilateral |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Transaction Congestion | 55500-0037 | 336.88 |  |  |  |  |  |  |  |  |  |  |  | (4.66) |  | 63.11 |  |  |
| Auction Revenue Rights Transaction Amount | 55500-0058 | (665,271.99) |  |  |  |  |  |  |  |  |  | 11,539.15 |  |  |  |  |  | (124,635.38) |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 666,236.20 |  |  |  |  |  |  |  |  |  |  |  | (9,224.50) |  | 124,816.02 |  |  |
| Auction Revenue Rights Infeasible Uplif Amount | 55500-0060 | 39,067.46 |  |  |  |  |  |  |  |  |  |  |  | (540.92) |  | $124,816.02$ $7,319.09$ |  |  |
| Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | (50,988.00) |  |  |  |  |  |  |  |  |  | 884.39 |  | (540.92) |  |  |  | (9,552.35) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (67,897.00) |  |  |  |  |  |  |  |  |  | 884.39 1,177.67 |  | - |  | - |  | $(9,552.35)$ $(12.720 .16)$ |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | $(4,031.10)$ |  |  |  |  |  |  |  |  |  |  |  | . |  | . |  | (755.21) |
| Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (1,630.93) |  |  |  |  |  |  |  |  |  | 28.29 |  | - |  |  |  | (305.55) |
| FTR Guarantee Uplitt Amount | 55500-0055 | 1,750.34 |  |  |  |  |  |  |  |  |  |  |  | (24.23) |  | 327.92 |  |  |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 |  |  |  |  |  |  |  |  |  |  |  |  | (105.10) |  |  |  |  |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 405,870.66 | 42,774 |  | 42,774 | - | - | - | - | - | 53,213 | 16,201.79 | 53,213 | $(18,199.58)$ | 208,939 | 245,294.93 | 208,939 | (169,257.09) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 47,101.48 |  |  |  |  |  |  |  |  |  |  |  | (652.15) |  | 8,824.23 |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | - |  |  |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | $(25,284.00)$ |  |  |  |  |  |  |  |  |  | 438.55 |  | - |  |  |  | (4,736.83) |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 | 24,159.64 |  |  |  |  |  |  |  |  |  |  |  | (334.51) |  | 4,526.19 |  |  |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 | 24,159.64 |  |  |  |  |  |  |  |  |  |  |  |  |  | 4,526.19 |  |  |
| Subtotal |  | 45,977.12 | 42,774 | - | 42,774 |  |  |  | - |  | 53,213 | 438.55 | 53,213 | (986.66) | 208,939 | 13,350.41 | 208,939 | (4,736.83) |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | (70,826.30) |  |  |  |  |  |  |  |  |  | 1,228.48 |  | - |  | - |  | (13,268.95) |
| Real Time Net Inadvertent Distribution | 55500-0044 | $(16,989.03)$ |  |  |  |  |  |  |  |  |  | 294.67 |  |  |  | - |  | $(3,182.81)$ |
| Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 206,835.38 |  |  |  |  |  |  |  |  |  |  |  | $(2,863.78)$ |  | 38,749.57 |  |  |
| Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  | (2,83.7) |  |  |  |  |
| Subtotal |  | 119,020.05 | 42,774 | - | 42,774 |  | - | - | - | - | 53,213 | 1,523.16 | 53,213 | $(2,863.78)$ | 208,939 | 38,749.57 | 208,939 | $(16,451.76)$ |







| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION | Account <br> Number | March 2015 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 |  | 12,520.69 |  |  |  |  |  |  |  |  |  |  |  | (40.61) |  | 2,289.72 |  |  |
| Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | (112,143.44) |  |  |  |  |  |  |  |  |  | 550.46 |  |  |  |  |  | (20,508.26) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 458,160.90 |  |  |  |  |  |  |  |  |  |  |  | (870.46) |  | 83,786.31 |  |  |
| Real Time Financial Bilateral Transaction Congestion | $55500-0037$ | 458,100.00 |  |  |  |  |  |  |  |  |  |  |  | (870.46) |  | 83,786.31 |  | - |
| Auction Revenue Rights Transaction Amount | 55500-0037 | (672,652.43) |  |  |  |  |  |  |  |  |  | 1,934.07 |  |  |  |  |  | (123,011.51) |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 668,456.65 |  |  |  |  |  |  |  |  |  |  |  | (1,270.00) |  | 122,244.20 |  |  |
| Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | $668,456.05$ $53,275.48$ |  |  |  |  |  |  |  |  |  |  |  | $\begin{array}{r} (1,270.00) \\ (101.22) \end{array}$ |  | $122,244.20$ $9,742.77$ |  |  |
| Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | $(62,026.94)$ |  |  |  |  |  |  |  |  |  | 178.35 |  |  |  |  |  | $(11,343.19)$ |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | $(171,321.98)$ |  |  |  |  |  |  |  |  |  | 492.60 |  |  |  |  |  | (31,330.56) |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | $(3,629.88)$ |  |  |  |  |  |  |  |  |  | 10.44 |  |  |  |  |  | (663.82) |
| Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (3,521.27) |  |  |  |  |  |  |  |  |  | 10.12 |  |  |  |  |  | (643.95) |
| FTR Guarantee Uplift Amount | $55500-0055$ | 3,634.75 |  |  |  |  |  |  |  |  |  |  |  | (6.91) |  | 664.71 |  | (es) |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 170,752.53 | 72,111 |  | 72,111 | - | - | - | - | - | 44,286 | 3,176.04 | 44,286 | $(2,289.18)$ | 209,385 | 218,727.71 | 209,385 | (187,501.29) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 152,245.65 |  |  |  |  |  |  |  |  |  |  |  | (289.25) |  | 27,841.97 |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | (38.04) |  |  |  |  |  |  |  |  |  | 0.11 |  |  |  |  |  | (6.96) |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | $(27,003.58)$ |  |  |  |  |  |  |  |  |  | 77.64 |  |  |  |  |  | $(4,938.29)$ |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 |  |  |  |  |  |  |  |  |  |  |  |  | (130.58) |  | 12,568.85 |  |  |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  | (130.58) |  | 12,56.85 |  |  |
| Subtotal |  | 193,933.11 | 72,111 |  | 72,111 | - |  | - |  | - | 44,286 | 77.75 | 44,286 | (419.83) | 209,385 | 40,410.82 | 209,385 | (4,945.24) |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | (73,689.16) |  |  |  |  |  |  |  |  |  | 211.88 |  |  |  |  |  | (13,475.93) |
| Real Time Net Inadvertent Distribution | 55500-0044 | 10,938.28 |  |  |  |  |  |  |  |  |  |  |  | (20.78) |  | 2,000.34 |  | - |
| Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 109,155.35 |  |  |  |  |  |  |  |  |  |  |  | (207.38) |  | 19,961.82 |  | - |
| Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | - |
| Subtotal |  | 46,404.47 | 72,111 |  | 72,111 | - | - | - | - | - | 44,286 | 211.88 | 44,286 | (228.16) | 209,385 | 21,962.16 | 209,385 | $(13,475.93)$ |







| MINNESOTA POWER MISO MONTHLY ALLOCATION | Account <br> Number | April 2015 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 |  | (50,670.24) |  |  |  |  |  |  |  |  |  | 3,138.20 |  |  |  |  |  | (11,409.62) |
| Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | $(46,052.35)$ |  |  |  |  |  |  |  |  |  | 2,852.20 |  |  |  |  |  | (10,369.79) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 264,004.60 |  |  |  |  |  |  |  |  |  | 20 |  | (14.864.94) |  | 59,446.95 |  | (1, 369.7 ) |
| Real Time Financial Bilateral Transaction Congestion |  | (19,390.43) |  |  |  |  |  |  |  |  |  | 1,263.75 |  |  |  |  |  | (4,366.22) |
| Auction Revenue Rights Transaction Amount | 55500-0037 | (19,390.43) $(672.652 .43)$ |  |  |  |  |  |  |  |  |  | $\begin{array}{r} 1,263.75 \\ 43,839.40 \end{array}$ |  |  |  |  |  | $(4,366.22)$ $(151.463 .78)$ |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 668,456.65 |  |  |  |  |  |  |  |  |  |  |  | $(37,637.87)$ |  | 150,519.00 |  |  |
| Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 53,275.48 |  |  |  |  |  |  |  |  |  |  |  | $(2,999.71)$ |  | $150,519.00$ $11,996.25$ |  |  |
| Auction Revenue Rights Stage 2 Distribution Amoun | 55500-0061 | (61,007.97) |  |  |  |  |  |  |  |  |  | 3,976.13 |  |  |  |  |  | (13,737.40) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (43,782.22) |  |  |  |  |  |  |  |  |  | 2,853.46 |  |  |  |  |  | (9,858.61) |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | $(6,250.63)$ |  |  |  |  |  |  |  |  |  | 407.38 |  | - |  |  |  | (1,407.48) |
| Financial Transmission Rights Yearly Allocation | 55500-0035 | $(82,670.14)$ |  |  |  |  |  |  |  |  |  | 5,387.94 |  | - |  |  |  | (18,615.16) |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 |  |  |  |  |  |  |  |  |  |  |  |  | (4,811.96) |  | 19,243.67 |  | (18,615.16) |
| FTR Guarantee Uplitit Amount | 55500-0055 | (20,079.40) |  |  |  |  |  |  |  |  |  | 1,308.65 |  | (4,011.96) |  | 19,243.67 |  | (4,521.36) |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | 61,431.17 |  |  |  |  |  |  |  |  |  |  |  | $(3,458.92)$ |  | 13,832.70 |  | - |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 130,073.47 | 68,944 |  | 68,944 |  |  |  |  | - | 25,401 | 65,027.10 | 25,401 | (63,773.40) | 229,688 | 255,038.58 | 229,688 | (225,749.42) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 4,336.19 |  |  |  |  |  |  |  |  |  |  |  | (244.15) |  | 976.40 |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | $55500-0029$ | 8.09 |  |  |  |  |  |  |  |  |  |  |  | (0.46) |  | 1.82 |  |  |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | (17,060.05) |  |  |  |  |  |  |  |  |  | 1,111.87 |  | - |  |  |  | (3,841.48) |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | $55500-0046$ | 6,754.97 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Revenue Sufficiency |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Guarantee Make Whole Payment | 55500-0047 | (145.77) |  |  |  |  |  |  |  |  |  | 9.50 |  |  |  |  |  | (32.82) |
| Subtotal |  | (6,106.57) | 68,944 |  | 68,944 |  | - |  | - |  | 25,401 | 1,121.37 | 25,401 | (624.95) | 229,688 | 2,499.26 | 229,688 | $(3,874.30)$ |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | 1,411.56 |  |  |  |  |  |  |  |  |  |  |  | (79.48) |  | 317.85 |  |  |
| Real Time Net Inadvertent Distribution | 55500-0044 | (13,602.31) |  |  |  |  |  |  |  |  |  | 886.52 |  |  |  |  |  | $(3,062.89)$ |
| Real Time Revenue Neutrality Uplift Amount | $55500-0045$ | 101,497.49 |  |  |  |  |  |  |  |  |  | - |  | (5,714.88) |  | 22,854.59 |  | - |
| Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 89,306.74 | 68,944 | 68,944 |  |  | - - |  | - - |  | 25,401 | 886.52 | 25,401 | (5,794.36) | 229,688 | 23,172.43 | 229,688 | $(3,062.89)$ |










| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION |  | Account <br> Number | June 2015 | FPE Retail |  |  |  | FAC Resale |  |  |  | $\begin{array}{c}\text { Subtotal FPE } \\ \text { and FAC }\end{array}$ <br> Cost/(Revenue) | MISO Non-Liquidation |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Congestion, FTRs \& ARRs |  |  |  | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |  | Mwh | Cost | Mwh | Revenue |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 b | Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 |  | 125,686.81 |  | 76,065.37 |  |  |  | 16,697.28 |  |  | 92,762.65 |  | 1,529.34 |  |  |
| 13b | Real Time Congestion | 44700-0000 or 55500-0000 or 55500-0050 | (15,893.28) |  |  |  | (9,618.58) |  | - |  | (2,111.39) | (11,729.97) |  | - |  | (193.39) |
| 2 | Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 569,577.02 |  | 345,619.34 |  |  |  | 75,867.66 |  |  | 421,486.99 |  | 6,595.07 |  |  |
| 15 | Real Time Financial Bilateral Transaction Congestion | 55500-0037 |  |  |  |  |  |  | - |  | - |  |  | . |  |  |
|  | Auction Revenue Rights Transaction Amount | 55500-0058 | (192,548.92) |  |  |  | $(116,838.68)$ |  | . |  | (25,647.52) | (142,486.20) |  | - |  | $(2,229.50)$ |
|  | Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 282,534.72 |  | 171,442.07 |  |  |  | 37,633.62 |  |  | 209,075.69 |  | 3,271.44 |  |  |
|  | Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 12,122.28 |  | 7,355.80 |  |  |  | 1,614.69 |  |  | 8,970.49 |  | 140.36 |  |  |
|  | Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | $(57,432.89)$ |  |  |  | (34,850.28) |  |  |  | (7,650.06) | (42,500.34) |  |  |  | (665.01) |
| 28 | Financial Transmission Rights Hourly Allocation | 55500-0032 | (355,457.21) |  |  |  | (215,691.44) |  | - |  | (47,346.90) | (263,038.34) |  | - |  | $(4,115.80)$ |
| 30 | Financial Transmission Rights Monthly Allocation | 55500-0033 | (6,919.15) |  |  |  | $(4,198.54)$ |  |  |  | (921.63) | (5,120.17) |  | . |  | (80.12) |
| 32 | Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  | - |  |  |  |  |  |  |  |
|  | Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (638.91) |  |  |  | (387.69) |  | - |  | (85.10) | (472.79) |  |  |  | (7.40) |
|  | FTR Guarante Uplit Amount | 55500-0055 | 638.91 |  | 387.69 |  | (387, |  | 85.10 |  | (85) | 472.79 |  | 7.40 |  | (70) |
|  | Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | . |  |  |  | . |  |  |  | - |  |  | . |  |  |
|  | Financial Transmission Rights Transaction | 55500-0034 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31 | Subtotal |  | 361,669.38 | 552,283 | 600,870.27 | 552,283 | (381,585.20) | 122,205 | 131,898.35 | 122,205 | (83,762.61) | 267,420.81 | 33,032 | 11,543.61 | 33,032 | (7,291.21) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 5,243.27 |  | 3,181.62 |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | $55500-0029$ | $5,243.27$ <br> $(56.51)$ |  |  |  | (34.29) |  |  |  | (7.53) | $3,880.02$ <br> $(41.82)$ |  | 60.71 |  | ${ }^{(0.65)}$ |
|  | Real Time Price Volatility Make Whole Payment | 55500-0057 | $(18,187.96)$ |  |  |  | (11,036.45) |  |  |  | (2,422.64) | (13,459.09) |  |  |  | (210.60) |
| 24 | Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 | 36,198.05 |  | 21,964.98 |  |  |  | 4,821.58 |  |  | 26,786.56 |  | 419.13 |  |  |
|  | Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Subtotal |  | 23,196.85 | 552,283 | 25,146.59 | 552,283 | (11,070.74) | 122,205 | 5,519.98 | 122,205 | $(2,430.16)$ | 17,165.67 | 33,032 | 479.84 | 33,032 | (211.25) |
|  | RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | Real Time Miscellaneous | 55500-0042 | 4,193.65 |  | 2,544.71 |  | - |  | 558.59 |  | - | 3,103.30 |  | 48.56 |  | - |
| 21 | Real Time Net Inadvertent Distribution | 55500-0044 | 2,658.53 |  | 1,613.20 |  |  |  | 354.12 |  | - | 1,967.31 |  | 30.78 |  | - |
| 23 | Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 126,707.64 |  | 76,886.20 |  |  |  | 16,877.46 |  | - | 93,763.65 |  | 1,467.13 |  | - |
| 26 | Real Time Uninstructed Deviation | 55500-0048 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |




| MINNESOTA POWER <br> MISO MONTHLY ALLOCATION | Account <br> Number | June 2015 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | 44700-0000 or 55500-0000 or 55500-0050 |  | 125,686.81 |  |  |  |  |  |  |  |  |  | 3,544.44 |  | - |  | 27,850.38 |  | - |
| Real Time Congestion | $44700-0000$ or 55500-0000 or 55500-0050 | (15,893.28) |  |  |  |  |  |  |  |  |  | - |  | (448.20) |  | - |  | (3,521.72) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 569,577.02 |  |  |  |  |  |  |  |  |  | 15,284.91 |  | (48.20) |  | 126,210.04 |  | (3,521.72) |
| Real Time Financial Bilateral Transaction Congestion | $55500-0037$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 126,210.04 |  |  |
| Auction Revenue Rights Transaction Amount | 55500-0058 | (192,548.92) |  |  |  |  |  |  |  |  |  |  |  | (5,167.16) |  |  |  |  |
| Financial Transmission Rights Annual Transaction Amount | 55500-0059 | 282,534.72 |  |  |  |  |  |  |  |  |  | 7.581 .97 |  | (5,167.16) |  | 62,605.62 |  | $(42,666.06)$ |
| Auction Revenue Rights Infeasible Uplift Amount | $55500-0060$ | 282,534.72 <br> 12,122.28 |  |  |  |  |  |  |  |  |  | $7,581.97$ 325.31 |  | - |  | $62,605.62$ $2,686.12$ |  | - |
| Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | $12,122.28$ $(57,432.89)$ |  |  |  |  |  |  |  |  |  |  |  | (1,541.24) |  |  |  | (12,726.30) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (355,457.21) |  |  |  |  |  |  |  |  |  |  |  | $\begin{gathered} (1,541 . \angle 4) \\ (9,538.89) \end{gathered}$ |  | . |  | (78,764.19) |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | $(6,919.15)$ |  |  |  |  |  |  |  |  |  |  |  | (185.68) |  | . |  | (1,533.18) |
| Financial Transmission Rights Yearly Allocation | 55500-0035 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | - |  |  |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | . |  | (141.57) |
| FTR Guarantee Uplift Amount | $55500-0055$ | 638.91 |  |  |  |  |  |  |  |  |  | 17.15 |  |  |  | 141.57 |  |  |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 361,669.38 | 68,785 | - | 68,785 | - | - | - | - | - | 76,555 | 26,753.77 | 76,555 | (16,898.31) | 211,637 | 219,493.74 | 211,637 | (139,353.02) |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 5,243.27 |  |  |  |  |  |  |  |  |  | 140.71 |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | (56.51) |  |  |  |  |  |  |  |  |  | 140.71 |  | (1.52) |  | 1,161.83 |  | (1252) |
| Real Time Price Volatility Make Whole Payment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | (12.52) |
| Payment | 55500-0057 | (18,187.96) |  |  |  |  |  |  |  |  |  |  |  | (488.08) |  |  |  | $(4,030.19)$ |
| Guarantee First Pass Dist | 55500-0046 | 36,198.05 |  |  |  |  |  |  |  |  |  | 971.39 |  | - |  | 8,020.97 |  | - |
| Real Time Revenue Sufficiency Guarantee Make Whole Payment | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 23,196.85 | 68,785 |  | 68,785 | - |  |  |  |  | 76,555 | 1,112.10 | 76,555 | (489.60) | 211,637 | 9,182.80 | 211,637 | $(4,042.71)$ |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | 4,193.65 |  |  |  |  |  |  |  |  |  | 112.54 |  | - |  | 929.25 |  | - |
| Real Time Net Inadvertent Distribution | 55500-0044 | 2,658.53 |  |  |  |  |  |  |  |  |  | 71.34 |  |  |  | 589.09 |  |  |
| Real Time Revenue Neutrality Uplift Amount | 55500-0045 | 126,707.64 |  |  |  |  |  |  |  |  |  | 3,400.27 |  |  |  | 28,076.58 |  |  |
| Real Time Uninstructed Deviation | 55500-0048 | 126,707.64 |  |  |  |  |  |  |  |  |  |  |  | - |  | 28,076.58 |  | - |
| Subtotal |  | 133,559.82 | 68,785 |  | 68,785 |  |  |  |  |  | 76,555 | 3,584.15 | 76,555 |  | 211,637 | 29,594.93 | 211,637 |  |




\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{2}{|r|}{\multirow[t]{2}{*}{\begin{tabular}{l}
MINNESOTA POWER \\
MISO MONTHLY ALLOCATION
\end{tabular}}} \& Account Number \& \multirow[t]{2}{*}{July 2014-June 2015} \& \multicolumn{4}{|c|}{FPE Retail} \& \multicolumn{4}{|c|}{FAC Resale} \& Subtotal FAC \& \multicolumn{4}{|c|}{MISO Non-Liquidation} \\
\hline \& \& \& \& Mwh \& Cost \& Mwh \& Revenue \& Mwh \& Cost \& Mwh \& Revenue \& Cost/(Revenue) \& Mwh \& Cost \& Mwh \& Revenue \\
\hline \multirow[b]{2}{*}{1 l} \& Congestion, FTRs \& ARRs \& 4470000000 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline \& Day Ahead Congestion \& 55500-0000 \& \((294,306.65)\) \& \& 599,597.24 \& \& (797,198.64) \& \& 116,810.14 \& \& (143,585.89) \& (224,377.15) \& \& 1,529.34 \& \& \((13,623.79)\) \\
\hline 13b \& Real Time Congestion \& 55500-0000 \& (914,464.85) \& \& 159,675.53 \& \& (784,116.74) \& \& 28,178.03 \& \& \((147,210.53)\) \& (743,473.71) \& \& - \& \& (3,331.40) \\
\hline b \& Day Ahead Financial Bilateral Transaction Congestion \& 55500-0021 \& 4,125,947.32 \& \& 2,783,797.80 \& \& \& \& 527,999.36 \& \& \& 3,311,797.16 \& \& 22,404.66 \& \& (8,505.24) \\
\hline \& Real Time Financial Bilateral Transaction Congestion \& 55500-0037 \& \[
(22,790.00)
\] \& \& 3,009.25 \& \& (19,705.44) \& \& 573.19 \& \& \((3,491.82)\) \& (19,614.82) \& \& 130.35 \& \& (1.18) \\
\hline \multirow{5}{*}{15} \& Auction Revenue Rights Transaction Amount \& 55500-0058 \& (6,932,892.62) \& \& \& \& (4,767,847.27) \& \& - \& \& (888,005.65) \& (5,65,852.92) \& \& . \& \& (21,608.21) \\
\hline \& Financial Transmission Rights Annual Transaction Amount \& 55500-0059 \& 6,984,556.88 \& \& 4,795,972.29 \& \& \& \& 895,101.08 \& \& \& 5,691,073.37 \& \& 22,529.27 \& \& (21,416.40) \\
\hline \& Auction Revenue Rights Infeasible Uplift Amount \& 55500-0060 \& 446,588.54 \& \& 306,651.57 \& \& \& \& 56,873.60 \& \& \& 363,525.18 \& \& 1,675.20 \& \& \((1,445.50)\) \\
\hline \& Auction Revenue Rights Stage 2 Distribution Amount \& 55500-0061 \& (781,967.01) \& \& \& \& \((537,382.39)\) \& \& \& \& (99,927.87) \& (637,310.27) \& \& \& \& \((2,420.80)\) \\
\hline \& Financial Transmission Rights Hourly Allocation \& 55500-0032 \& (1,575,197.06) \& \& 28,032.23 \& \& \((1,091,791.66)\) \& \& 5,207.30 \& \& (213,317.30) \& (1,271,869.43) \& \& 454.87 \& \& \((4,161.54)\) \\
\hline 28 \& Financial Transmission Rights Monthly
Allocation \& 55500-0033 \& (80,318.23) \& \& \& \& (55,365.99) \& \& . \& \& (10,310.45) \& \((65,676.45)\) \& \& . \& \& (190.68) \\
\hline \multirow[t]{5}{*}{30
32

31} \& | Financial Transmission Rights Yearly |
| :--- |
| Allocation | \& 55500-0035 \& (82,670.14) \& \& \& \& (59,026.48) \& \& - \& \& (10,416.44) \& (69,442.92) \& \& - \& \& - <br>

\hline \& Financial Transmission Rights Full Funding Guarantee Amount \& 55500-0054 \& \& \& 71,839.71 \& \& (70,852.03) \& \& 12,723.14 \& \& $$
(13,394.43)
$$ \& 316.39 \& \& \& \& (855.20) <br>

\hline \& FTR Guarantee Uplift Amount \& 55500-0055 \& 98,210.52 \& \& 89,472.81 \& \& (21,964.11) \& \& 16,927.21 \& \& $\underset{(3,876.02)}{(13,54.4)}$ \& 80,559.89 \& \& 53.49 \& \& (358.43) <br>
\hline \& Financial Transmission Rights Monthly Transaction Amount \& 55500-0056 \& 189,254.58 \& \& 136,781.47 \& \& (3,868.42) \& \& 24,535.54 \& \& (792.33) \& 156,656.26 \& \& 423.19 \& \& (1,013.51) <br>

\hline \& | Financial Transmission Rights |
| :--- |
| Transaction | \& 55500-0034 \& . \& \& . \& \& . \& \& . \& \& - \& \& \& \& \& <br>

\hline \& Subtotal \& \& 1,158,656.18 \& 8,647,649 \& 8,974,829.90 \& 8,647,649 \& (8,209,119.18) \& 1,638,110 \& 1,684,928.60 \& 1,638,110 \& $(1,534,328.74)$ \& 916,310.59 \& 247,164 \& 49,200.36 \& 247,164 \& $(78,931.89)$ <br>
\hline \& \multicolumn{16}{|l|}{RSG \& Make Whole Payments} <br>
\hline \& Day Ahead Revenue Sufficiency \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \multirow[t]{2}{*}{10} \& Guarantee Distribution \& 55500-0028 \& 482,798.48 \& \& 335,542.64 \& \& \& \& 61,971.94 \& \& \& 397,514.58 \& \& 102.92 \& \& $(1,204.37)$ <br>

\hline \& Day Ahead Revenue Sufficiency Guarantee Make Whole Payment \& 55500-0029 \& $(12,851.66)$ \& \& 2,599.43 \& \& (11,692.05) \& \& 494.33 \& \& $(2,064.90)$ \& $$
(10,663.19)
$$ \& \& \& \& (15.57) <br>

\hline 11 \& Real Time Price Volatility Make Whole Payment \& 55500-0057 \& (287,485.53) \& \& \& \& (197,531.38) \& \& \& \& (36,943.82) \& $$
(234,475.20)
$$ \& \& \& \& (796.01) <br>

\hline \& Real Time Revenue Sufficiency Guarantee First Pass Dist \& 55500-0046 \& 384,776.29 \& \& 263,014.64 \& \& \& \& 49,320.69 \& \& (36, \& $$
\text { (204,450, } 20,
$$ \& \& 1,151.72 \& \& <br>

\hline 24 \& Real Time Revenue Sufficiency \& \& \& \& \& \& \& \& \& \& \& 12,33 \& \& \& \& <br>
\hline \multirow[t]{3}{*}{25} \& Guarantee Make Whole Payment \& 55500-0047 \& (145.77) \& \& \& \& (104.08) \& \& \& \& (18.37) \& (122.45) \& \& \& \& <br>
\hline \& Subtotal \& \& 567,091.81 \& 8,647,649 \& 601,156.72 \& 8,647,649 \& (209,327.51) \& 1,638,110 \& 111,786.97 \& 1,638,110 \& $(39,027.09)$ \& 464,589.09 \& 247,164 \& 1,254.63 \& 247,164 \& $(3,130.78)$ <br>
\hline \& \multicolumn{16}{|l|}{RNU \& Misc Charges} <br>
\hline 20 \& Real Time Miscellaneous \& 55500-0042 \& (290,680.15) \& \& 3,552.56 \& \& (202,584.45) \& \& 736.45 \& \& (37,737.85) \& (236,033.28) \& \& ${ }^{48.56}$ \& \& (1,161.88) <br>
\hline \multirow[t]{2}{*}{21} \& Real Time Net Inadvertent Distribution \& 55500-0044 \& $(99,090.79)$ \& \& 49,977.72 \& \& (117,162.87) \& \& 8,893.89 \& \& $(22,486.94)$ \& (80,778.20) \& \& 30.78 \& \& (397.20) <br>
\hline \& Real Time Revenue Neutrality Uplift Amount \& 55500-0045 \& \& \& \& \& \& \& \& \& - \& 1,585,675.52 \& \& \& \& (5,574.19) <br>
\hline \multirow[t]{2}{*}{26} \& Real Time Uninstructed Deviation \& 55500-0048 \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \& Subtotal \& \& 1,555,303.21 \& 8,647,649 \& 1,387,360.56 \& 8,647,649 \& (319,747.32) \& 1,638,110 \& 261,475.57 \& 1,638,110 \& $(60,224.78)$ \& 1,268,864.04 \& 247,164 \& 5,498.88 \& 247,164 \& (7,133.26) <br>
\hline \multicolumn{17}{|c|}{Grandfathered Charge Types} <br>
\hline \multirow[b]{2}{*}{6} \& Day Ahead Congestion Rebate on Carve-Out Grandfathered \& 55500-0023 \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \& Day Ahead Losses Rebate on Carve- \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \multirow[t]{2}{*}{7} \& Out Grandfathered \& 55500-0024 \& - \& \& \& \& \& \& \& \& \& - \& \& \& \& <br>
\hline \& Day Ahead Congestion Rebate on Option B Grandfathered \& 55500-0025 \& - \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \multirow[t]{2}{*}{8} \& Day Ahead Losses Rebate on Option B \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \& Grandfathered \& 55500-0026 \& - \& \& - \& \& - \& \& - \& \& - \& - \& \& - \& \& - <br>
\hline 17 \& Reandfathered \& 55500-0040 \& \& \& \& \& \& \& \& \& - \& \& \& \& \& - <br>
\hline 17 \& Real Time Congestion Rebate on Carve Out Grandfathered \& 55500-0039 \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline \multicolumn{3}{|c|}{Subtotal} \& \multicolumn{2}{|r|}{8,647,649} \& \multicolumn{2}{|r|}{- 8,647,649} \& - \& 1,638,110 \& - \& 1,638,110 \& - \& - \& 247,164 \& \& 247,164 \& - <br>
\hline
\end{tabular}

| MINNESOTA POWER MISO MONTHLY ALLOCATION | Account Numbe | July 2014 - June 2015 | FPE Retail |  |  |  | FAC Resale |  |  |  | Subtotal FAC | MISO Non-Liquidation |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | wh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Cost/(Revenue) | Mwh | Cost | Mwh | Revenue |
| ASM Charge Types (12 Other) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Regulation Amount | 55500-0062 | (408,237.91) |  |  |  | (278,683.59) |  |  |  | (52,322.35) | (331,005.95) |  |  |  | $(1,571.87)$ |
| Day Ahead Spinning Reserve Amount | 55500-0063 | (234,245.37) |  |  |  | $(159,990.64)$ |  |  |  | (30,158.25) | (190,148.89) |  |  |  | (780.62) |
| Day Ahead Supplemental Reserve Amount Amount | 55500-0064 | (91.26) |  | 23.07 |  | (85.43) |  | 4.20 |  | (16.60) | (74.76) |  |  |  | (0.18) |
| Contingency Reserve Deployment | 55500-0065 | 287.55 |  | 201.99 |  |  |  | 36.15 |  |  | 238.14 |  |  |  | (2.66) |
| Net Regulation Adjustment Amount | 55500-0068 | 4,996.46 |  | 4,736.37 |  | $(1,301.97)$ |  | 891.48 |  | (250.85) | 4,075.03 |  | 13.66 |  | (31.54) |
| Real Time Regulation Amount | 55500-0070 | 45,851.73 |  | 36,358.32 |  | $(4,060.94)$ |  | 6,643.99 |  | (802.65) | 38,138.72 |  | 63.09 |  | (244.05) |
| Regulation Reserve Cost Distribution Amount | 55500-0071 | 300,775.63 |  | 206,585.49 |  |  |  | 38,598.01 |  |  | 245,183.50 |  | 875.09 |  | (880.52) |
| Real-Time Excessive Deficient Deployment Charge Amount | 55500-0067 | 79,765.60 |  | 54,832.64 |  |  |  | 10,248.45 |  |  | 65,081.09 |  | 186.97 |  | (190.66) |
| Real Time Spinning Reserve Amount | 55500-0072 | (2,770.40) |  | 13,893.63 |  | $(16,420.02)$ |  | 2,713.30 |  | (3,049.32) | (2,862.41) |  | 112.57 |  | (41.20) |
| Spinning Reserve Cost Distribution Amount | 55500-0073 | 265,906.65 |  | 182,629.07 |  |  |  | 34,157.48 |  |  | 216,786.55 |  | 730.21 |  | (797.63) |
| Real Time Supplemental Reserve Amount | 55500-0074 | 19.18 |  | 33.66 |  | (21.17) |  | 6.79 |  | (3.95) | 15.32 |  | 0.02 |  | (0.02) |
| Supplemental Reserve Cost Distribution Amount | 55500-0075 | 111,221.85 |  | 76,747.35 |  |  |  | 14,268.90 |  |  | 91,016.25 |  | 246.34 |  | (330.12) |
| Subtotal |  | 163,479.71 | 8,647,649 | 576,041.59 | 8,647,649 | (460,563.76) | 1,638,110 | 107,568.74 | 1,638,110 | $(86,603.97)$ | 136,442.60 | 247,164 | 2,227.95 | 247,164 | $(4,871.07)$ |
| Grand Total |  | 39,194,797.66 | 8,647,649 | 54,391,297.88 | 8,647,649 | (13,541,784.15) | 1,638,110 | 10,154,888.81 | 1,638,110 | $(2,535,449.34)$ | 48,468,953.21 | 247,164 | 118,382.09 | 247,164 | (163,015.79) |
|  |  |  | $1 /$ All Administration Charges reflected in the Retail column are now in the base cost of fuel (not recovered in the FAC) <br> 2/ Accounts 5551-0051 through 5551-0053 are not recovered through the FAC <br> 3/ Accounts 5551-0076 are not recovered through FPE for Resource Adequacy since it relates to capacity NOTE: |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | DA and RT Asset Energy amounts have been reduced by the generation to load LMP differences (RE) which are then shown in the Day Ahead Loss, Real Time Loss, Day Ahead Congestion and Real Time Congestion lines |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are allocated to the FAC |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-Liquidation, Others-NonLiquidation and Contract sales as these amounts are not tracked separately by Minnesota Power's systems |  |  |  |  |  |  |  |  |  |  |  |  |



| MINNESOTA POWER MISO MONTHLY ALLOCATION | Account Numbe | July 2014 - June 2015 | MISO-Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mwh | Cost | Mwh | Revenue |  |  |  |  | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |
| Congestion, FTRs \& ARRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion | ${ }^{55550} \mathbf{4 4 0 - 0 0 0 0}$ | $(294,306.65)$ |  |  |  |  |  |  |  |  |  | 21,802.60 |  | (14,477.43) |  | 171,677.03 |  | (236,837.24) |
| Real Time Congestion | - $454500-00000$ | (914,464.85) |  |  |  | - |  |  |  | - |  | 16,467.31 |  | $(4,590.59)$ |  | 39,692.82 |  | (219,229.28) |
| Day Ahead Financial Bilateral Transaction Congestion | 55500-0021 | 4,125,947.32 |  | - |  | - |  |  |  | - |  | 24,904.96 |  | $(43,560.31)$ |  | 818,906.09 |  | - |
| Real Time Financial Bilateral Transaction Congestion | 55500-0037 | $(22,790.00)$ |  |  |  |  |  |  |  | . |  | 1,462.58 |  | (4.66) |  | 1,075.05 |  | (5,837.31) |
| Auction Revenue Rights Transaction | 55500005 |  |  |  |  |  |  |  |  |  |  |  |  | (4.69) |  |  |  |  |
| Amount Financial Transmission Rights Annual | 55500-0058 | (6,932,892.62) |  |  |  |  |  |  |  |  |  | 115,779.58 |  | $(16,958.99)$ |  |  |  | (1,354,252.07) |
| Transaction Amount | 55500-0059 | 6,984,556.88 |  |  |  |  |  |  |  | - |  | 19,300.26 |  | (93,579.35) |  | 1,366,649.73 |  |  |
| Auction Revenue Rights Infeasible Uplift Amount | 55500-0060 | 446,588.54 |  |  |  |  |  |  |  |  |  | 1,259.25 |  | (6,326.53) |  | 87,900.94 |  |  |
| Auction Revenue Rights Stage 2 Distribution Amount | 55500-0061 | (781,967.01) |  | - |  | - |  |  |  | - |  | 13,667.30 |  | $(2,609.63)$ |  | - |  | (153,293.60) |
| Financial Transmission Rights Hourly Allocation | 55500-0032 | (1,575,197.06) |  |  |  |  |  |  |  |  |  | 19,019.36 |  | (9,795.24) |  | 8,436.71 |  | $(317,281.79)$ |
| Financial Transmission Rights Monthly Allocation | 55500-0033 | (80,318.23) |  |  |  |  |  |  |  |  |  | 1,336.14 |  | (252.96) |  |  |  | (15,534.28) |
| Financial Transmission Rights Yearly Allocation | 55500-0035 | (82,670.14) |  | - |  |  |  |  |  | - |  | 5,387.94 |  | - |  |  |  | (18,615.16) |
| Financial Transmission Rights Full Funding Guarantee Amount | 55500-0054 | (1,295.11) |  |  |  |  |  |  |  |  |  | 1.767 .59 |  | (5,022.17) |  | 21,998.30 |  | (19,500.01) |
| FTR Guarantee Uplift Amount | 55500-0055 | 98,210.52 |  | - |  | - |  |  |  | - |  | 1,536.35 |  | (1,719.96) |  | 24,552.26 |  | $(6,413.09)$ |
| Financial Transmission Rights Monthly Transaction Amount | 55500-0056 | 189,254.58 |  | - |  |  |  |  |  | - |  | 300.26 |  | $(5,055.02)$ |  | 39,009.24 |  | $(1,065.85)$ |
| Financial Transmission Rights Transaction | 55500-0034 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subtotal |  | 1,158,656.18 | 672,585 | - | 672,585 | - |  |  |  | - | 659,216 | 243,991.47 | 659,216 | (203,952.84) | 2,554,122 | 2,579,898.18 | 2,554,122 | $(2,347,859.68)$ |
| RSG \& Make Whole Payments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Revenue Sufficiency Guarantee Distribution | 55500-0028 | 482,798.48 |  |  |  |  |  |  |  |  |  | 166.39 |  | $(4,337.99)$ |  | 90,556.95 |  |  |
| Day Ahead Revenue Sufficiency Guarantee Make Whole Payment | 55500-0029 | (12,851.66) |  | - |  |  |  |  |  |  |  | 329.83 |  | (67.43) |  | 713.77 |  | $(3,149.07)$ |
| Real Time Price Volatility Make Whole Payment | 55500-0057 | (287,485.53) |  | - |  |  |  |  |  | - |  | 4,417.75 |  | (844.30) |  |  |  | (55,787.77) |
| Real Time Revenue Sufficiency Guarantee First Pass Dist | 55500-0046 | 384,776.29 |  |  |  |  |  |  |  |  |  | 1,417.17 |  | (3,887.55) |  | 74,874.46 |  |  |
| Real Time Revenue Sufficiency | 55500-0047 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | (3282) |
| Subtotal |  | 567,091.81 | 672,585 | - | 672,585 |  |  |  |  | - | 659,216 | 6,340.63 | 659,216 | (9,137.28) | 2,554,122 | 166,145.18 | 2,554,122 | $(58,969.66)$ |
| RNU \& Misc Charges |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Miscellaneous | 55500-0042 | (290,680.15) |  |  |  |  |  |  |  | - |  | 2,183.08 |  | (778.86) |  | 1,247.10 |  | $(56,184.87)$ |
| Real Time Net Inadvertent Distribution | 55500-0044 | (99,090.79) |  | - |  | - |  |  |  | - |  | 3,144.39 |  | (993.28) |  | 13,003.71 |  | $(33,100.99)$ |
| Real Time Revenue Neutrality Uplift Amount <br> Real Time Uninstructed Deviation | $55500-0045$ $55500-0048$ | 1,945,074.15 |  | - |  | - |  |  |  | - |  | 5,805.29 |  | (25,830.27) |  | 379,578.26 |  | - |
| Subtotal |  | 1,555,303.21 | 672,585 | - | 672,585 | - |  |  |  | - | 659,216 | 11,132.76 | 659,216 | (27,602.41) | 2,554,122 | 393,829.07 | 2,554,122 | (89,285.86) |
| Grandfathered Charge Types |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion Rebate on Carve-Out Grandfathered | 55500-0023 | - |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |  |
| Day Ahead Losses Rebate on CarveOut Grandfathered | 55500-0024 | - |  | . |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Congestion Rebate on |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Option B Grandfathered | 55500-0025 |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |  |
| Day Ahead Losses Rebate on Option B Grandfathered | 55500-0026 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Real Time Losses Rebate on Carve-Out Grandfathered | 55500-0040 | - |  | - |  |  |  |  |  | - |  |  |  | - |  | - |  |  |
| Real Time Congestion Rebate on Carve Out Grandfathered | $155500-0039$ | . |  | - |  | . |  |  |  |  |  |  |  | . |  |  |  |  |
| Subtotal |  | - | 672,585 | - | 672,585 | - | - |  | - | - | 659,216 | - | 659,216 | - | 2,554,122 | - | 2,554,122 |  |


| minnesota power MISO MONTHLY ALLOCATION | Account Number | July 2014 - June 2015 | MISO - Liquidation |  |  |  | Others - Liquidation |  |  |  | Others - Non-Liquidation |  |  |  | Contract Sales |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue | Mwh | Cost | Mwh | Revenue |
| ASM Charge Types (12 Other) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Day Ahead Regulation Amount | 55500-0062 | (408,237.91) |  |  |  | - |  | - |  | - |  | 4,827.47 |  | (1,503.26) |  | - |  | (78,984.30) |
| Day Ahead Spinning Reserve Amount | 55500-0063 | $(234,245.37)$ |  | - |  | - |  | - |  | - |  | 3,415.63 |  | (931.15) |  | - |  | (45,800.34) |
| Day Ahead Supplemental Reserve Amount | 55500-0064 | (91.26) |  | . |  |  |  | . |  |  |  | 1.39 |  | (0.61) |  | 6.21 |  | (23.31) |
| Contingency Reserve Deployment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Failure Charge Amount | 55500-0065 | 287.55 |  |  |  |  |  |  |  | - |  |  |  | 99) |  | 57.06 |  |  |
| Net Regulation Adjustment Amount | 55500-0068 | 4,996.46 |  |  |  |  |  |  |  | - |  | 51.90 |  | (67.92) |  | 1,336.58 |  | ${ }^{(381.25)}$ |
| Real Time Regulation Amount | 55500-0070 | 45,851.73 |  |  |  |  |  |  |  |  |  | 108.44 |  | (683.18) |  | 9,762.47 |  | $(1,293.76)$ |
| Amount | 55500-0071 | 300,775.63 |  |  |  |  |  |  |  | - |  | 853.50 |  | $(3,841.10)$ |  | 58,585.16 |  |  |
| Real-Time Excessive Deficient Deployment Charge Amount | 55500-0067 | 79,765.60 |  | - |  |  |  |  |  | - |  | 207.68 |  | (804.35) |  | 15,284.86 |  |  |
| Real Time Spinning Reserve Amount | 55500-0072 | (2,770.40) |  | - |  |  |  | - |  | - |  | 517.48 |  | (183.03) |  | 4,177.57 |  | $(4,491.39)$ |
| Spinning Reserve Cost Distribution Amount | 55500-0073 | 265,906.65 |  |  |  |  |  |  |  |  |  | 802.34 |  | (3,572.51) |  | 51,957.69 |  |  |
| Real Time Supplemental Reserve Amount | 55500-0074 | 19.18 |  |  |  |  |  |  |  |  |  | 0.82 |  | (0.33) |  | -9,26 |  | (5.90) |
| Supplemental Reserve Cost Distribution Amount | $55500-0075$ | 111,221.85 |  | . |  | . |  | . |  | . |  | 256.80 |  | (1,523.62) |  | 21,556.21 |  |  |
| Subtotal |  | 163,479.71 | 672,585 | - | 672,585 | - | - | - |  | - | 659,216 | 11,043.45 | 659,216 | $(13,116.04)$ | 2,554,122 | 162,733.07 | 2,554,122 | (130,980.25) |
| Grand Total |  | 39,194,797.66 | 672,585 | . | 672,585 | . | - | - | - | - | 659,216 | 431,825.37 | 659,216 | (483,567.45) | 2,554,122 | 6,727,807.61 | 2,554,122 | (3,843,388.00) |

## Attachment 10

## Minnesota Power's July 2014 through June 2015 ASM Cost and Benefit Compliance Filing

## Overview

Minnesota Power has been participating in Midcontinent ISO’s (MISO) Ancillary Service Market (ASM) since it started on January 6, 2009. Since market start, Minnesota Power has not seen any major changes to operation or clearing our units for energy in the market. We have had some additional opportunities in the ASM to optimize generation portfolio revenues by providing regulation and spinning reserve without creating a negative impact on available energy necessary to meet customer needs.

## Spinning Reserves

Currently, Minnesota Power has 8 generating resources that are qualified to supply energy, regulation, and spinning reserves service for MISO. Minnesota Power can fully utilize these resources for energy and spinning reserves at $100 \%$ utilization within the ASM. Under normal operating conditions Minnesota Power has the potential of carrying approximately 45MW of spinning reserves above the cruise operating level on these generation facilities without reducing energy available for customers. Prior to the ASM, Minnesota Power’s share of the spinning reserves obligation was 21MW. Under ASM, Minnesota Power can currently clear up to approximately 45MW of spinning reserves on thermal generation without impacting energy availability. The additional ancillary service revenues reduce overall customer costs because the spinning reserve revenues are allocated to the FCA through our MISO allocation process.

The ASM has also added value for customers when generating units have backed down to minimum generation levels due to low energy prices. The generators can be backed down and still provide spinning reserves at the lower operating levels. MISO could also back down generation to acquire the market's required spinning reserves, however to date Minnesota Power's thermal generators have been almost exclusively selected to supply energy and have not been backed down to supply spinning reserves.

Including ASM charge type impact only, MISO’s Spinning Reserves process had a net cost of $\$ 29,296.87$ in July 2014 through June 2015. The Spinning Reserve costs and revenues are provided in Attachment 10-A. The true benefit of ASM Spinning Reserves is far greater.

## Supplemental Reserves

Minnesota Power’s cost allocation for supplemental reserves was $\$ 111,914.38$ for July 2014 through June 2015. Prior to the ASM, Minnesota Power utilized interruptible loads
at our large power customers to cover our supplemental reserves requirements. Due to low prices for this product under ASM, Minnesota Power has elected not to offer MISO supplemental reserves from our large industrial customers because the benefit is too small for the risk it provides to our customers. The impact to our customers due to lost production if interrupted for deployment of supplemental reserves greatly exceeds the cost of purchasing supplemental reserves from MISO. Minnesota Power will continue to monitor prices and work with customers as conditions change to see if supplying additional supplemental reserves is appropriate in the future. The Supplemental Reserve costs and revenues are provided in Attachment 10-A.

## Regulation

Prior to ASM, Minnesota Power scheduled approximately 8 MW of regulation on our system on an hourly basis to meet Balancing Authority control performance criteria requirements. Under ASM, Minnesota Power units are only selected by MISO for regulation when it is cost effective. Most of the time our units are cleared for energy instead of being held back to provide the 8 MW we used to reserve for regulation. Under ASM, due to regulation clearing and our ability to purchase affordable regulation service, we have more economic energy available from our low cost generation facilities to serve our customers. Including ASM charge type impact only, MISO’s Regulation process provided a net benefit of \$63,231.29 in July 2014 through June 2015. The Regulation costs and revenues are provided in Attachment 10-A. The true benefit of ASM Regulation is far greater.

## ASM Charge Summary

Operation in the ASM market has been smooth and there continues to be a positive economic benefit for Minnesota Power's customers. We are now able to maximize the capabilities of our units to a greater extent, which ultimately has led to greater operational efficiencies for Minnesota Power. We have developed many tools and reports to track the benefit of the ASM on a unit by unit and day by day basis. Our overall strategy is to continue to develop strategies in the ASM that have a positive impact for our customers.

Minnesota Power reviews all MISO charges and credits including ASM charge types on a daily basis. Attachment 10-A provides the July 2014 through June 2015 summary of ASM hourly charges which has provided a net cost of $\$ 161,919.66$. Minnesota Power allocates all ASM charges in the same manner as it has allocated MISO Day 2 charge types - on a per MWh approach netting costs and benefits of the various charges. During July 2014 through June 2015, a net cost of $\$ 115,477.84$ was allocated to the Retail FCA.

Attachment 10-B provides a summary of July 2014 through June 2015 hourly MWh related to ASM products. The table provides Minnesota Power's net position for each of the three ASM products which indicate that Minnesota Power was a net buyer of Regulation Service and Spinning and Supplemental Reserves for July 2014 through June 2015.

## Schedule 17 Costs

MISO took on additional responsibilities with the start of the ASM and related to this increased systems responsibilities and analysis; additional costs were incurred at MISO. These costs were recovered from Market Participants including Minnesota Power through increased Schedule 17 charges. Attachment 10-C provides a summary of the Schedule 17 costs before and after the start of ASM. Prior to the start of ASM, Schedule 17 rates averaged $\$ 0.07223$ for an average monthly billing of $\$ 140,922.50$ per month. For July 2014 through June 2015, the Schedule 17 rate averaged $\$ 0.07337$ for an average monthly billing of $\$ 156,071.78$.

## Daily Detail / Negative Benefits

Attachment 10-D provides the daily details supporting the monthly and quarterly benefits shown in Attachment 10-A. For the reporting period, 256 days or $70 \%$ show a net negative benefit. With the exception of 34 days, the negative benefit was not caused by Contingency Reserve Deployment Failure Charges (CRDFC) or Real Time Excessive Deficient Energy Deployment Charges (EDEDC). The negative benefits appear to be caused by a reduction in cleared ASM products. Fewer MWh of Regulation, Spinning and Supplemental reserves were supplied by Minnesota Power during the current reporting period as compared to the prior reporting period.

Net negative benefits can be caused by various factors, including but not limited to: the amount of energy cleared at each unit, the amount of reserves cleared, reserve clearing price, reserve distribution costs and load ratio share. Most of these factors are out of Minnesota Power's control.

## Contingency Reserve Deployment Failure Charge (CRDFC)

For the period of July 2014 through June 2015, Minnesota Power incurred \$287.55 in CRDFC. These charges occurred on 3 operating days.

As shown in Attachment10-E, the Shortfall MWh totaled 7.2 for an average cost of $\$ 39.94$ per MWh of shortfall. During all CRD events, Minnesota Power’s generating units responded to the reserve deployments; however, in these few instances they fell short of delivering $100 \%$ of the energy requested.

## Real Time Excessive Deficient Energy Deployment Charge Amount (EDEDC)

For the period of July 2014 through June 2015, Minnesota Power incurred \$78,916.23 in EDEDC as shown in Attachment 10-D. The majority of the instances when EDEDC occurs are during start-up, shut downs, set point deviations or when the unit is having equipment problems and the unit is not considered dispatchable by MISO.

## Summary of 12 ASM Charge Types



Negative numbers indicate a payment from MISO
Positive numbers indicate a charge from MiSo

|  | Summary of MWh of ASM products Purchased and Supplied |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | July 14 | August 14 | Seperember 14 | 3 c d Quater 14 Total | October 14 | November 14 | December 14 | 4th Quater 14 Total | January 15 | Februay ${ }^{15}$ | March 15 | 1st Quater ' 15 Total | April 15 | May 15 | June 15 | 2 2nd Quater 15 Total | Periodto-date Total |
| $\begin{array}{\|l\|l} \hline \begin{array}{l} \text { Total MISO } \\ \text { Reg Procured } \\ \text { (MWh } \end{array} \end{array}$ | 295.184.81 | 294,602.02 | 285.536.29 | 875.323.12 | 295.192.40 | 284,997.49 | 295.188.41 | 875.378.30 | 294,900.38 | 266.390.11 | 294.864.01 | 856,154.50 | 280.584.65 | 294.558.00 | 285,569.38 | 860.712.03 | 3,467.567.95 |
| $\begin{aligned} & \text { MP Share of } \\ & \text { Reg Procured } \\ & \text { by MISO } \end{aligned}$ | 5.023.69 | 4,787.51 | 5,139.95 | 14,951.15 | 5,717.41 | 5.563.81 | 5,547.97 | 16.829.19 | 5,258.91 | 4.820.87 | 5.502.57 | 15.582.35 | 5,316.18 | 4.517.63 | 3,638.42 | 13.472.23 | 60,834.92 |
| MP Suppied Reg volume | 4.800.57 | 1,493.18 | 2,053.40 | 8,347.15 | 1,264.30 | 3,052.87 | 6,338.85 | 10,656.02 | 3,940.80 | 3,979.25 | 3,943.22 | 11,863.27 | 3,572.65 | 4.512.23 | 4,047.14 | 12,132.02 | 42,998.46 |
| $\begin{array}{\|l} \hline \text { MP Net Buyer } \\ \text { or (Seller) of } \\ \text { Regulation } \\ \hline \end{array}$ | 223.12 | 3,294,33 | 3,086.55 | 6,604.00 | 4,453.11 | 2,510.94 | (790.88) | 6,173.17 | 1,388.11 | 841.62 | 1,559.35 | 3,719.08 | 1,743.53 | 5.40 | (408.72) | 1,340.21 | 17,836.46 |
| $\begin{array}{\|l\|l\|} \hline \begin{array}{l} \text { Total MISO } \\ \text { Spin procrued } \\ \text { sivh } \end{array} \\ \hline \end{array}$ | 736,95.77 | 733,201.69 | 700,996.30 | 2,171,153.76 | 734,458.94 | 717,655.54 | 722,988.22 | 2,175,102.70 | 780,773.94 | 668,185.23 | 732,688.36 | 2,181,647.53 | 728,738.84 | 742,277.54 | 693,594.20 | 2,164,610.58 | 8,992,514.57 |
| $\begin{aligned} & \hline \text { MP Share of } \\ & \text { Spin Procured } \\ & \text { by MISO } \end{aligned}$ | 12,684.85 | 12,030.22 | 12,717.70 | 37,432.77 | 14,306.09 | 14,066.25 | 13,680.34 | 42,052.68 | 13,984.20 | 12,156.45 | 13,741.75 | 39,882.40 | 13,709.31 | 11.523.49 | 8,915.79 | 34,188.59 | 153.516.44 |
| MP Supplied |  |  |  | 55.835.18 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MP Net Buyer <br> or (Seller) of <br> Spinning Reserves | $(4,89.86)$ | (13,526.13) | 19.58 | (18,402.41) | 5,343,30 | 2,957.64 | 2,658.13 | 10,959.07 | 1,037.42 | 673.28 | 5,196.39 | 6,907.09 | 7,951.09 | 3,223.73 | (409.75) | 10,765.07 | 10,228.82 |
|  | 783,829.49 | 787,061.87 | 770,630.14 | 2,341,521.50 | 786,244.69 | 774,611.33 | 800,490.34 | 2,367,347.36 | 775,404.31 | 705,364.11 | 787,428.48 | 2,268,196.90 | 743,025.39 | 775,464.19 | 778,050.96 | 2,296,540.54 | 9,273,606.30 |
| MP Share of <br> Supp Procured <br> by MISO | 13,327.28 | 12,814.95 | 13,908.80 | 40,051.03 | 15,292.62 | 15,143.51 | 15,164.96 | 45,01.09 | 13,831.55 | 12,771.88 | 14,725.09 | 41,328.52 | 13,816.06 | 11,881.36 | 9,924.72 | 35,622.14 | 162,602.78 |
| $\begin{array}{\|c} \hline \text { Mp Suppied } \\ \text { Supp volume } \end{array}$ |  |  |  |  |  |  |  | 60.13 | . |  |  |  |  |  |  |  | 63.13 |
| MP Net Buyer <br> or (Seller) of <br> Supplemental <br> Reserves | 13,327.28 | 12,814.95 | 13,908.80 | 40,051.03 | 15,291.30 | 15,084.70 | 15,164.96 | 45,54.96 | 13,831.55 | 12,771.88 | 14,725.09 | 41,38.52 | 13,813.06 | 11,881.36 | 9,924.72 | 35,69.14 | 162,539.65 |

## Negative uumbers indicate a payment from MISO Positive numbers indicate a charge from MISO

## Comparison of MISO Schedule 17 Rates and Amounts

 before and after the start of the ASM MarketMonthly Average Schedule 17 Amount
April '05 through December '08
\$ 140,922.50
July '14 through June '15
\$ 156,071.78
Average Monthly Increase
\$ $15,149.28$

Monthly Average Schedule 17 Rate per MWh
April '05 through December '08 \$ 0.07223
July '14 through June '15
\$ 0.07337
Average Monthly Increase
\$ 0.00114

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Date \& \[
\begin{aligned}
\& \text { Day Anead } \\
\& \text { Regulation }
\end{aligned}
\]
Amount \& \[
\begin{aligned}
\& \text { Real Time } \\
\& \text { Regulation }
\end{aligned}
\] \& Regulation Cost Distribution Amount \& Regulation SubTotal \& Day Ahead Spinning Reserve Amount \& \[
\begin{gathered}
\text { Real Time } \\
\text { Spinning Reserve } \\
\text { Amount }
\end{gathered}
\] \& \begin{tabular}{l}
Spinning Reserve \\
Cost Distribution \\
Amount
\end{tabular} \& Spinning Reserve
SubTotal \& Day Ahead
Supplemental Reserve Amount \& Real Time Supplemental Reserve Amount \& Supplemental Reserve Cost Amount \& Supplemental Reserve
SubTota \& \[
\begin{gathered}
\text { Contigency } \\
\text { Reserve } \\
\text { Deployment } \\
\text { Failure Charge }
\end{gathered}
\] \&  \& Net Regulation
Adjustment Amount \& Other Charge SubTotal \& \& Benefit \\
\hline 71/2014 \& (2,136.72) \& 839.03 \& 848.48 \& (449.21) \& (1,038.20) \& 144.02 \& 573.80 \& (320.38) \& \& \& 265.92 \& 265.92 \& \& 48.84 \& 6.54 \& 55.38 \& s \& (448.29) \\
\hline 71/2014 \& \({ }_{(949.98)}\) \& 77.26 \& 648.79 \& (223.93) \& \({ }_{(694.53)}\) \& 67.55 \& 546.44 \& (80.54) \& \& \& \& 254.56 \& \& 71.99 \& \& 103.16 \& s \& 53.25 \\
\hline 713/2014 \& (1,133.16) \& (1,390.69) \& \({ }^{700.36}\) \& (1,817.49) \& (551.61) \& 4.94 \& 694.23 \& 147.56 \& \& \& 248.17 \& 248.17 \& \& 187.20 \& (70.71) \& 116.49 \& s \& (1,305.27) \\
\hline 71412014 \& (2,080.47) \& \({ }^{918.93}\) \& 877.31 \& (284.23) \& (346.24) \& 2.77 \& 339.53 \& \({ }^{(3.94)}\) \& (23.90) \& 10.90 \& 251.14 \& 2388.14 \& \& 408.89 \& (244.43) \& \$ 164.46 \& s \& 114.43 \\
\hline 75/2014 \& \& 642.39 \& 1,091.14 \& (532.50) \& (392.16) \& (0.73) \& 470.17 \& 77.28 \& \& \& \& \& \& 434.94 \& \& s 515.52 \& s \& \\
\hline 716/2014 \& (1,519.37) \& (966.44) \& 85.98 \& (1,632.83) \& (772.76) \& 184.54 \& 557.24 \& (30.98) \& \& \& 245.74 \& 245.74 \& \& 1,010.92 \& (31.01) \& 979.91 \& s \& (438.16) \\
\hline 7712014 \& (1,981.74) \& 2.87 \& 605.30 \& (1,352.57) \& \((1,389.18)\) \& 454.78 \& 1,022.06 \& 37.66 \& \& \& 223.03 \& 223.03 \& \& 963.96 \& 564.22 \& 1,528.18 \& s \& 486.30 \\
\hline 718/2014 \& (2,251.93) \& 186.54 \& 777.44 \& (1,287.95) \& (1,061.19) \& 98.68 \& 743.57 \& (218.94) \& \& \& 391.15 \& 391.15 \& \& \({ }^{350.75}\) \& (14.88) \& 335.87 \& s \& (779.87) \\
\hline 7/912014 \& \({ }^{(1,360.09)}\) \& (338.59) \& 770.58 \& (928.10) \& (678.83) \& 37.63 \& 695.41 \& 54.21 \& \& \& 271.30 \& 271.30 \& \& 76.66 \& 12.93 \& 89.59 \& s \& (513.00) \\
\hline 711012014 \& (1,741.76) \& 411.00 \& 665.45 \& (665.31) \& (596.51) \& 29.17 \& 593.29 \& 25.95 \& \& \& 247.37 \& 247.37 \& \& 253.36 \& 66.86 \& \({ }^{320.22}\) \& s \& (71.77) \\
\hline 771122014 \& (710.50) \& (143.81) \& 655.85 \& (198.46) \& (612.29) \& 50.28 \& 590.06 \& \({ }^{28.05}\) \& \& \& 493.35 \& 493.35 \& \& 90.64 \& (4.76) \& 85.88 \& s \& 408.82 \\
\hline 711212014 \& \({ }^{(2,849.14)}\) \& \({ }^{876.06}\) \& 611.19 \& (1,361.89) \& (634.85) \& 67.14 \& 665.11 \& 97.40 \& \& \& 598.97 \& 59.97 \& \& 263.75 \& 1.19 \& 264.94 \& s \& (400.58) \\
\hline \(7113 / 2014\) \& (2,901.86) \& (968.57) \& 551.58 \& (3,318.85) \& (599.36) \& (638.58) \& 466.40 \& (764.54) \& \& \& 394.80 \& 394.80 \& \& 1.308.06 \& 487.19 \& 1,795.25 \& s \& (1,893.34) \\
\hline \(7 / 1412014\) \& (2,175.05) \& 1,197.83 \& 723.97 \& (253.25) \& (498.18) \& (14.48) \& 429.48 \& (83.18) \& \& \& 288.61 \& 288.61 \& \& 39.40 \& (42.36) \& (2.96) \& s \& (50.78) \\
\hline 7/15/2014 \& (2,590.52) \& \({ }^{856.23}\) \& 820.27 \& (914.02) \& (470.45) \& 18.60 \& 452.22 \& 0.37 \& \& \& 260.28 \& 260.28 \& \& 268.21 \& (20.21) \& \$ 248.00 \& s \& (405.37) \\
\hline \({ }_{7}^{711612014}\) \& \((2,798.60)\)
\((2,90566)\) \& 䰲994.03 \& 817.60
680.01 \& \({ }_{\text {c }}^{(1,386.97)}\) \& (503.23) \& 21.68
1947 \& 535.36
5755 \& ( \({ }_{5}^{53.81}\) \& \& \& 261.76
27703 \& 261.76
277.03 \& \& 509.22
53599 \& \({ }_{(18.13)}^{39.13}\) \& 548.35
51786 \& s \& (523.05)
\((463.98)\) \\
\hline \({ }_{7111812014}\) \& \(\underset{\substack{\text { (2,905.66) } \\(3,45.21)}}{(2,59,2 .}\) \& 1.6723.11
1, \& \({ }^{680.01}\) \& \({ }_{(0)}^{(1,099.11)}\) \& \({ }_{\text {(530.47) }}^{(71.37)}\) \&  \& 5588.00 \& ¢ \({ }_{5}^{58.89}\) \& \& \& 277.03
285.48 \& 277.03
2858 \& \& 5359.99
5298 \& \(\underset{\substack{\text { (18.13) }}}{(186)}\) \& \({ }_{533.30}^{517.86}\) \& s \&  \\
\hline \(7119 / 2014\) \& \({ }_{(2,559.34)}\) \& 1,030.39 \& 908.20 \& \({ }_{(620.75)}\) \& (478.63) \& (159.53) \& 533.50 \& (104.66) \& \& \& 283.95 \& 283.95 \& \& 334.63 \& (19.01) \& \({ }_{315.62}\) \& s \& (125.84) \\
\hline 712012014 \& \((1,342.89)\) \& 84.11 \& 831.89 \& (426.89) \& (663.71) \& (994.32) \& 508.51 \& (249.52) \& \& \& 281.94 \& 281.94 \& \& 350.94 \& 64.42 \& \({ }^{415.36}\) \& s \& 20.89 \\
\hline 7/21/2014 \& (975.20) \& (16.13) \& 894.36 \& (96.97) \& (744.55) \& 159.37 \& 562.56 \& (23.62) \& \& \& 499.48 \& 499.48 \& \& 213.28 \& 9.21 \& 222.49 \& s \& 601.38 \\
\hline 712212014 \& (726.32) \& 176.87 \& 1,103.11 \& 553.66 \& (1,501.72) \& (10.54) \& 1,116.41 \& (3995.85) \& \& \& 986.11 \& 986.11 \& \& 29.63 \& (8.36) \& 21.27 \& s \& 1,165.19 \\
\hline \(7123 / 2014\) \& (892.65) \& 295.13 \& \({ }^{686.62}\) \& 89.10 \& (1,028.41) \& 74.90 \& 716.17 \& (237.34) \& \& \& 238.19 \& 238.19 \& \& 45.76 \& 41.92 \& 87.68 \& s \& 177.63 \\
\hline \(7 / 2412014\) \& (2,185.54) \& 2,996.60 \& 428.97 \& 740.03 \& (597.31) \& 70.07 \& 436.19 \& (91.05) \& \& \& 247.22 \& 247.22 \& \& 83.22 \& (73.03) \& 10.19 \& s \& 906.39 \\
\hline 7/25/2014 \& (712.98) \& 64.71 \& 67.21 \& 27.94 \& (592.30) \& (53.30) \& 483.31 \& (162.29) \& - \& \& 273.32 \& 273.32 \& \& 73.28 \& (66.98) \& 6.30 \& s \& 145.27 \\
\hline \(7 / 26612014\)
\(7 / 272014\) \&  \&  \& 792.99
764.07 \& \({ }_{\substack{\text { (1,601.23) } \\ 560.60}}^{(1,29}\) \& (855.80) \& (20.56) \& 845.18
2838 \& \(\underset{\text { (235.71) }}{(31.8)}\) \& \& \& 324.94
240.63 \& 324.94

240.63 \& \& 137.63
41.15 \& $\underset{\substack{26.65 \\(0.94)}}{(130)}$ \& 164.28
40.21 \& s \& ${ }_{\text {(1,143.19) }}^{545.73}$ <br>
\hline 7/2812014 \&  \& ${ }^{1} 7330.07$ \& 728.80 \& (117.11) \& (620.81) \& (103.56) \& 478.55 \& (245.82) \& \& \& 255.63 \& ${ }_{255.63}^{24.93}$ \& \& 219.62 \& 36.43 \& 256.05 \& s \& ${ }_{148.75}^{54545}$ <br>
\hline 7/29/2014 \& ${ }_{(2,094.21)}$ \& 327.81 \& 723.62 \& (1,042.78) \& (526.55) \& (22.44) \& 406.18 \& (112.81) \& \& \& 260.30 \& ${ }^{260.30}$ \& \& 163.40 \& 44.12 \& 207.52 \& s \& (717.77) <br>
\hline 7/3012014 \& (1,383.41) \& 609.64 \& 437.59 \& (336.18) \& (600.99) \& 53.42 \& 455.08 \& (92.49) \& \& \& 250.67 \& 250.67 \& \& 599.13 \& 166.28 \& 757.41 \& s \& 579.41 <br>
\hline 7/31/2014 \& (2,266.26) \& 1,732.71 \& 67.175 \& 138.20 \& (866.95) \& 629.30 \& 582.48 \& 344.83 \& \& \& 279.32 \& 279.32 \& \& 291.58 \& (21.51) \& 27.07 \& s \& 1,032.42 <br>
\hline July Total \& (57,944.04) \& 13,703.76 \& 23,083.47 \& (21,156.81) \& (21,531.52) \& S 1,044.02 \& 17,945.84 \& $(2,541.66)$ \& (23.90) \& 10.90 \& 9,948.68 \& 9,935.68 \& s \& 9,927.6 \& 1,046. \& 10,973.85 \& s \& (2,788.94) <br>
\hline
\end{tabular}

| Date | Day Ahead Regulation Amou | Real Time Regulation | Regulation Cost Distribution Amount | Regulation SubTotal | Day Ahead Spining Reserve Amount | $\begin{gathered} \text { Real Time } \\ \text { Spinning Reserve } \\ \text { Amount } \end{gathered}$ | Spinning Reserve Cost Distribution Amount | Spinning Reserve subtotal | Day Ahead Supplemental Reserve Amount | Real Time Supplemental Reserve Amount | Supplemental Reserve Cost Amount | Supplementa Reserve SubTota | $\begin{gathered} \text { Contigency } \\ \text { Reserve } \\ \text { Deployment } \\ \text { Failure Charge } \end{gathered}$ | $\begin{gathered} \text { Real Time } \\ \text { Excessive } \\ \text { DDificint } \\ \text { Energy } \\ \text { Deployment } \\ \text { Charge Amount } \end{gathered}$ | Net Regulation Adjustment Amount | Other Charge SubTotal | Net Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8112014 | (792.66) | (36.25) | 814.21 | \$ (14.70) | (494.54) | (137.75) | 749.32 | 117.03 |  |  | 269.94 | 269.94 |  | 164.14 | 105.16 | 269.30 | \$ 64.15 |
|  |  |  | 864.78 | \$ 864.78 | (399.40) | (647.83) | 67.42 | (366.81) |  |  | 284.68 | 284.68 |  | 9.61 |  | 9.61 | 792.26 |
| ${ }^{81 / 12014}$ | (531.08) | 293.46 | ${ }_{684.70}$ | \$ 447.08 | (288.78) | (1,069.09) | 418.39 | (939.48) |  |  | 270.74 | ${ }^{270.74}$ |  | 19.14 | (2.18) | 16.96 | s (204.70) |
| 81412014 | (388.95) | 249.47 | 753.07 | \$ 612.59 | (542.92) | (100.58) | ${ }^{634.07}$ | (9.43) |  |  | 275.58 | ${ }^{275.58}$ |  | 49.71 | 0.60 | 50.31 | s 929.05 |
| 815/2014 | (935.22) | 88.72 | ${ }^{680.66}$ | \$ ${ }^{624.16}$ | (598.52) | (209.08) | 688.43 | (119.17) |  |  | ${ }_{2}^{263.67}$ | ${ }_{2}^{263.67}$ |  | 24.46 8.69 | 2.69 | ${ }_{8,275}^{27.15}$ |  |
| 88612014 | (1,007.92) | 1,489.77 | 45.78 | \$ 934.63 | (384.92) | (190.64) | 494.10 | (81.46) |  |  | ${ }^{230.53}$ | ${ }^{230.53}$ |  | 86.69 | (2.13) | ${ }^{84.56}$ | \$ 1,168.26 |
| 87/2014 | (1,344.82) | 1,023.07 | 516.05 | \$ 194.30 | (589.52) | ${ }^{(236.71)}$ | ${ }^{656.21}$ | (170.02) |  |  | 266.87 | 266.87 |  | 48.57 | 35.60 | 84.17 | \$ ${ }^{375.32}$ |
| 818/2014 | (990.65) | ${ }^{417.38}$ | 640.89 | \$ 67.62 | (569.26) | (278.38) | 73.80 | (113.84) |  |  | 255.64 | 255.64 |  | ${ }^{113.46}$ | 8.36 | 121.82 | s 331.24 |
| 891/2014 | (344.20) | (59.56) | 718.25 | 314.49 | (165.64) | (1,009.96) | 465.21 | (710.39) |  |  | 265.34 | 265.34 | 26.92 | ${ }^{234.38}$ | 41.82 | 403.12 | \$ 272.56 |
| 81012014 | (297.70) | 147.98 | 700.62 | 556.90 | (224.86) | (735.61) | 602.51 | (357.96) |  |  | 267.40 | 267.40 |  | ${ }^{31.42}$ | (5.66) | 25.76 | ${ }^{492.10}$ |
| $8 / 1112014$ | ${ }^{(1,478.71)}$ | ${ }^{412.07}$ | 936.49 | (130.15) | (617.38) | (166.20) | 766.30 | (17.28) |  |  | 256.99 | 256.99 |  | 15.33 | 2.59 | 17.92 | \$ 127.48 |
| $8 / 1212014$ $8 / 132014$ | ${ }_{\substack{\text { a }}}^{(1,400.22)}$ |  | 688.30 69982 | $\begin{array}{ll}\text { s } & (479.68) \\ \text { s } & \\ 568.64\end{array}$ | (1322.92) | (129.28) | ${ }_{486}^{472.14}$ | $\stackrel{(40.06)}{(71155)}$ |  |  | 196.90 210.98 | 196.90 210.98 |  | 32.35 50.22 50, | $\underset{\substack{\text { (17.41) } \\ 0.01}}{\text { a }}$ | 14.94 50.23 | $\begin{array}{cc}\text { s } & (387.90) \\ \text { s } & 117.60\end{array}$ |
| 81142014 | ${ }_{(1,317.97)}$ | 103.73 | 549.45 | (664.79) | (589.58) | ${ }_{24.47}$ | 488.07 | (77.04) |  |  | 218.23 | 218.23 |  | 431.74 | 92.26 | 524.00 | ${ }_{0.40}^{17.60}$ |
| 8/1512014 | (1,485.11) | 1,522.54 | ${ }_{735} 730$ | ${ }^{772.73}$ | (468.06) | (131.01) | 405.07 | (194.00) |  |  | 238.53 | ${ }^{238.53}$ |  | 23.59 | 73.42 | 97.01 | \$ 914.27 |
| 81612014 |  |  | 744.47 | 744.47 | (1,831.42) | 22.07 | 590.71 | (1,218.64) |  |  | 256.40 | 256.40 | 108.12 | 34.44 |  | 142.56 | s (75.21) |
| 81172014 | (64.70) | 47.22 | 571.64 | 554.16 | (1,278.08) | (24.60) | 42.03 | (880.65) |  |  | 242.44 | 242.44 |  | 27.20 |  | 27.20 | (56.85) |
| 81812014 | (748.27) | (454.07) | 484.53 | (717.81) | (746.48) | (27.25) | 594.67 | (179.06) |  |  | 240.56 | 240.56 |  | 33.91 | 86.32 | ${ }^{120.23}$ | \$ (536.08) |
| 8/1912014 | (774.16) | 251.71 | ${ }^{623.86}$ | 101.41 | (879.48) | (2.64) | 701.21 | (180.91) |  |  | 215.00 | 215.00 |  | 7.09 | 27.51 | 34.60 | \$ 1770.10 |
| 8/2012014 | (218.13) | 88.86 | 729.36 | 600.09 | ${ }_{(1,229.24)}$ | 15.51 | 904.57 | (309.16) |  |  | 294.79 | 294.79 |  | 41.87 | 2.08 | 43.95 | ${ }^{629.67}$ |
| 8/212014 | (363.96) | ${ }^{150.23}$ | 939.77 | 726.04 | (1,013.00) | (66.49) | 872.46 | (207.03) |  |  | 510.44 | 510.44 |  | 22.82 | 10.46 | 33.28 | 1,062.73 |
| 8/22/2014 | (643.32) | 12.48 | 910.74 | 279.90 | (1,276.28) | (245.37) | 1,121.91 | (399.74) |  |  | 338.11 | 338.11 |  | 35.72 | 37.11 | 72.83 | s 291.10 |
| $8 / 23 / 2014$ $8 / 2412014$ | (34.90) | ${ }_{\text {(11.45) }}^{(0.31)}$ | 590.85 661.40 | $\begin{array}{ll}\text { s } & \text { 555.64 } \\ \text { s } & 649.95\end{array}$ |  | (3.24) | ${ }_{4}^{416.81}$ | ${ }_{\substack{\text { a }}}^{(1,062.19)}$ |  |  | ${ }_{265127}^{242.21}$ | ${ }_{245.27}^{242.21}$ |  | 41.56 42.25 | 0.56 | 42.12 42.00 | $\begin{array}{ll}\text { s } & (222.22) \\ \text { s } & (56776)^{\text {a }}\end{array}$ |
| ${ }_{81 / 2512014}$ | (464.53) | (56.36) | 937.28 | \$ 416.39 | ${ }_{(1,424.08)}$ | (63.45) | 1,355.51 | ${ }_{(132.02)}$ |  |  | 1,214.57 | 1,214.57 |  | 59.28 | (20.93) | 38.35 | \$ 1.537 .29 |
| 8/26/2014 | (1,477.63) | (294.62) | 742.50 | (1,029.75) | (2,723.02) | 263.07 | ${ }^{952.72}$ | (1,507.23) |  |  | 387.09 | 387.09 |  | 50.06 | (11.51) | 38.55 | (2,111.34) |
| $81 / 2712014$ | (322.19) | ${ }^{(626.71)}$ | ${ }^{517.53}$ | (431.37) | (713.80) | (68.23) | ${ }^{637.95}$ | (144.08) |  |  | 388.17 | 388.17 |  | 62.169 | 204.12 | 825.81 | ${ }^{638.53}$ |
| 8/28/2014 | (1,022.12) | (158.53) | 498.39 | (682.26) | (699.92) | (27.39) | 620.68 | (106.63) |  |  | 262.82 | 262.82 |  | 147.07 | 215.04 | 362.11 | (163.96) |
| 8/2922014 | (163.79) | (117.28) | ${ }^{656.54}$ | 375.47 | (714.44) | 42.12 | 616.91 | (55.41) |  |  | 267.93 | 267.93 |  | 37.55 | (1.97) | 35.58 | ${ }^{623.57}$ |
| 8 8/3012014 | (123.54) | (139.02) | ${ }^{696.33}$ | 433.77 | (717.38) | (16.37) | 612.02 | (121.73) |  |  | 286.09 | 286.09 |  | 213.57 | (4.10) | 209.47 | ${ }^{807.60}$ |
| 8/312014 | (899.70) | 243.21 | 631.81 | (24.68) | (489.96) | (49.79) | 544.45 | 4.70 |  |  | 267.24 | 267.24 |  | 30.55 | 17.28 | 47.83 | 295.09 |
| Aug Total | (19,705.05) | 5,546.70 | 21,378.37 | 7,220.02 | (25,672.20) | \$ (6,397.40) | s 20,262.38 | (11,807.22) | s | s | $9,441.45$ | 9,441.45 | \$ 235.04 | 2,781 | 896 | 3,913.33 | 8,767.58 |





| Date | Day Ahead Regulation | Real Time Regulatio | Regulation Cost | Regulation | Day Ahead Spinning | $\begin{aligned} & \text { Real Time } \\ & \text { Spinning Reserve } \end{aligned}$ | Spinning Reserve Cost Distribution | Spinning Reserve | Day Ahead Supplemental Reserve |  | Supplemental Reserve Cost Distribution Distribution | Supplemental Reserve SubTota | $\begin{gathered} \text { Contigency } \\ \text { Reserve } \\ \text { Deployment } \\ \text { Failure Charge } \end{gathered}$ | Excessive <br> Deficient <br> Energy <br> Deploymen | Net Regulation Adjustmen | Other Charge |  | Een |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12112014 | (787.38) | (476.79) | 1,660.26 | \$ 396.09 | (1,122.82) | 128.55 | 905.80 | (88.47) |  |  | 226.79 | 226.79 |  | 296.58 | (26.91) | 269.67 | \$ | ${ }_{804.08}$ |
| ${ }^{1212122014}$ | ${ }^{(1,377.49)}$ | (748.03) | ${ }^{856.36}$ | s (1,229.16) | ${ }_{(6573808)}$ | 124.57 | ${ }^{902.20}$ | ${ }^{373.09}$ |  |  | ${ }^{220.34}$ | ${ }^{220.34}$ |  | ${ }^{471.21}$ | 290.99 | 762.20 <br> 393 | \$ | 126.47 |
| 12/3/2014 | (1,524.45) | (4.51) | 1,242.03 | \$ (286.93) | (773.70) | 88.85 | 820.86 | 136.01 |  |  | 218.91 | 218.91 |  | 345.08 | 48.71 | 393.79 | s | 461.78 |
| $121 / 42014$ | (2,039.59) | 1,092.01 | 1,126.40 | \$ 1788.82 | (1,051.45) | 207.94 | 894.90 | ${ }_{51.39}$ |  |  | 279.10 | ${ }^{279.10}$ |  | 19.74 | 23.82 | 43.56 | s | ${ }^{552.87}$ |
| $12 / 5 / 2014$ | (1,077.32) | (2,531.15) | 1,081.38 | \$ (2,527.09) | (1,306.85) | ${ }^{598.53}$ | 1,155.73 | 447.41 |  |  | 259.67 | 259.67 |  | ${ }^{421.15}$ | 370.15 | 791.30 | s | (1,028.71) |
| 1226/2014 | ${ }_{(1,633.58)}$ | (684.07) | 1,011.78 | $(1,305.87)$ | (762.09) | 113.43 | 786.36 | 137.70 |  |  | 239.72 | 239.72 |  | 509.48 | 37.79 | 547.27 | s | (381.18) |
| $127 / 12014$ | ${ }^{(2,560.55)}$ | 226.91 | ${ }^{634.56}$ | (1,699.08) | (57.80) | 68.46 | 499.87 | (6.47) |  |  | 228.42 | ${ }^{228.42}$ |  | 541.51 | 64.66 | 606.17 | s | (870.96) |
| 12/8/2014 | (1,795.47) | (91.23) | 804.54 | $(1,082.16)$ | (780.59) | 68.49 | 555.76 | (156.34) |  |  | 205.90 | 205.90 |  | 326.02 | 56.59 | 22.61 | s | (649.99) |
| 12/9/2014 | (604.78) | ${ }^{(287.34)}$ | ${ }^{883.81}$ | (8.31) | (1,035.50) | ${ }^{62.80}$ | ${ }^{783.67}$ | (189.03) |  |  | 204.53 | ${ }^{204.53}$ |  | ${ }^{139.31}$ | 71.74 | 211.05 | s | 218.24 |
| 12/10/2014 | (1,132.19) |  | 900.75 | (72.92) | (1,036.97) | 46.51 | 777.76 | (212.70) |  |  | 202.76 | ${ }^{202.76}$ |  | 208.10 | 44.50 | ${ }^{252.60}$ | s | ${ }^{169.74}$ |
| $12711 / 2014$ | (574.76) | ( | 808.72 | (99.38) |  | (0.56) | 836.50 5648 5648 | ${ }^{(65.36)}$ |  |  | ${ }_{2}^{207.22}$ | 207.22 |  | 267.75 <br> 35144 | $\begin{array}{r}50.50 \\ (4756 \\ \hline\end{array}$ | 318.25 <br> 3038 | s | 360.73 |
| ${ }^{12121212014}$ | ${ }_{(0}^{(1,7724.89)}$ | - ${ }_{\text {1,347. } 15}^{(510.92)}$ | 714.00 768.10 | ${ }_{(1,688.84)}^{(1,26.81)}$ | ${ }_{(641.36)}^{(701.59)}$ | 50.36 72.65 | 564.48 559.79 | $\underset{(8.92)}{(86.75)}$ |  |  | 202.94 223.12 | 2023.94 223 |  | ${ }^{3557.68}$ | ${ }_{(21.43)}^{(47.56)}$ | 303.88 736.25 | s | ${ }_{\text {(658.39) }}$ |
| 121/14/2014 | (3,809.72) | 2,698.85 | ${ }^{918.55}$ | (192.32) | (618.25) | 99.30 | 541.48 | ${ }^{22.53}$ |  |  | 245.52 | 245.52 |  | 386.97 | 43.33 | ${ }^{430.30}$ | s | 506.03 |
| $12151 / 2014$ | (2,596.58) | 1,607.17 | 791.20 | (198.21) | (565.80) | 118.79 | 429.84 | (17.17) |  |  | 220.92 | 220.92 |  | 346.78 | 48.55 | 395.33 | s | 400.87 |
| 1271612014 | ${ }_{(1,908.23)}^{(7571)}$ | ${ }^{242.35}$ | ${ }^{934.78}$ | (731.10) | (711.42) | 44.86 | 513.96 | (152.60) |  |  | 213.38 | 213.38 |  | 427.11 | 43.47 | 470.58 | s | (199.74) |
| 1221712014 | (774.71) | 50.52 | 885.34 | 648.15 | (645.50) | 88.75 | 599.31 | 42.56 |  |  | 250.45 | 250.45 |  | 45.83 | (5.67) | 40.16 | s | 981.32 |
| 12118/2014 | (339.15) | (604.69) | 751.79 | (192.05) | (559.52) | (20.49) | 624.58 | 44.57 |  |  | 207.41 | ${ }^{207.41}$ |  | 164.54 | 13.46 | 178.00 | \$ | ${ }^{237.93}$ |
| 1219192014 | (442.03) | (469.02) | 616.71 | (294.34) | (633.24) | 50.38 | 7095.54 | ${ }^{122.68}$ |  |  | 223.12 | ${ }^{223.12}$ |  | 267 | 30,58 | 298.40 | s | 349.86 |
| 12120/2014 | (1,066.94) | (180.72) | ${ }^{625.32}$ | (622.34) | (311.71) | 4.76 | 540.74 | 233.79 |  |  | 234.41 | ${ }^{234.41}$ |  | ${ }^{231.52}$ | 190.45 | ${ }^{421.97}$ | \$ | ${ }^{267.83}$ |
| 12/212/2014 | (1,783.48) | 241.56 | ${ }^{613.27}$ | (928.65) | (411.98) | 177.44 | 536.94 | ${ }^{297740}$ |  |  | ${ }^{234.96}$ | ${ }^{234.96}$ |  | 167.90 | (2.07) | ${ }^{165.83}$ | \$ | (230.46) |
| 12122/2014 | (858.33) | ${ }^{(251.20)}$ | ${ }^{648.03}$ | (461.50) | (563.64) | 51.30 | 669.66 | ${ }^{157.32}$ |  |  | ${ }^{237.86}$ | ${ }^{237.86}$ |  | ${ }^{160.91}$ | 58.98 | 219.89 | s | 153.57 |
| ${ }^{12123212014}$ | (1, | 82.71 | 855.19 55629 | (795.61) | ${ }_{(47118)}^{(602.35)}$ | ${ }_{\text {116.15 }}^{116.15}$ | 725.35 56899 | 239.15 <br> 14.38 |  |  | ${ }_{2}^{235.21}$ | ${ }_{236.22}^{235}$ |  | ${ }_{\text {cker }}^{137.75}$ | 3.24 | - 140.99 | s | (180.26) |
| 1212412014 | (1,550.37) | (522.17) | ${ }_{71856.21}^{556}$ | $\underset{(891.34)}{(1,520.25)}$ | ${ }_{\text {(377 } 30}$ | 46.57 50.18 | 568.99 <br> 3855 <br> 15 | 144.38 58.63 |  |  | 246.22 250.00 | 246.22 25000 |  | 502.11 3158 | 95.14 59.54 | 597.25 3754 | s | $(532.40)$ <br> $(20737)$ |
| ${ }_{12126 / 2014}^{121214}$ | (3, ${ }_{(0,244.14)}^{(1,59.4)}$ | 1,255.95 | 1,034.67 17812 | ${ }_{(12,933.52)}^{(18924)}$ | ${ }_{\text {(585.04) }}$ | ${ }_{5}^{50.18} 5$ | ${ }_{705.14}^{385}$ | 178.20 185 |  |  | ${ }_{2}^{251.35}$ | ${ }_{251.35}^{250.00}$ |  | ${ }_{720.88}$ | (28.38) | ${ }_{692} 50$ | s | (831.47) |
| 1212720014 | ${ }^{(3,190.77)}$ | ${ }^{425.47}$ | ${ }^{728.25}$ | (2,037.05) | (505.15) | 74.33 | 582.82 | 152.00 |  |  | ${ }^{254.28}$ | 254.28 |  | 1,034.36 | 20.37 | 1,054.73 | \$ | (576.04) |
| 12288/2014 | $(2,193.15)$ | (197.10) | 886.14 | (1,504.11) | (594.52) | 112.20 | 719.31 | ${ }^{236.99}$ |  |  | 251.32 | 251.32 |  | 344.04 | 35.87 | 379.91 | s | (635.89) |
| 12129212014 | ${ }_{(1,323.43)}$ | ${ }^{(370.67)}$ | 817.58 | (876.52) | (609.92) | 134.47 | ${ }^{643.03}$ | 167.58 |  |  | ${ }^{231.02}$ | ${ }^{231.02}$ |  | ${ }^{457.39}$ | 47.11 | ${ }^{504.50}$ | \$ | 26.58 |
| ${ }^{121 / 3012014}$ | $\begin{aligned} & (642.34 \\ & (2,2859 \end{aligned}$ | ${ }_{5}^{(3391.39)}$ | $\begin{aligned} & 621.76 \\ & 852.17 \end{aligned}$ | ${ }_{(890.07)}^{(359.67)}$ | $(573.61)$ $(483.51)$ (483.51) | 247.01 61.05 | 748.36 614.12 | ${ }_{191.66}^{421.76}$ |  |  | 233.26 218.65 | 218.65 |  | 283.05 526.60 | $\underset{\substack{71.10 \\(1.06)}}{ }$ | 354.15 52.54 | s | 649.50 45.78 |
| Total | (53,345.13) | 2,576.05 | 26,353.94 | [24,415 | (21,166.34) | \$ 3,140.73 | 20,898.60 | 2,872.99 |  |  | 76 | 7,158. |  | s 11,17 | 1,687.56 | 12,863 |  | ) |




| Date | Day Ahead <br> Regulation <br> Amount | Real Time Amount | Regulation Cost Distribution Amount |  |  | Day Ahead Spinning Reserve Amount | $\begin{gathered} \text { Real Time } \\ \text { Spininngn Reserve } \\ \text { Amount } \end{gathered}$ | Spinning Reserve <br> Cost Distribution Amount Amount |  | nning Reserve <br> SubTota | $\begin{gathered} \text { Day Ahead } \\ \text { Supplemental } \\ \text { Resereve } \\ \text { Amount } \end{gathered}$ | Real Time Supplemental Reserve Amount | Supplemental Reserve Cost Amount |  | plementa Reserve ubTotal | $\begin{gathered} \text { Contigency } \\ \text { Reserve } \\ \text { Depioyment } \\ \text { Failurene Charge } \\ \text { Amount } \end{gathered}$ | $\begin{gathered} \text { Real Time } \\ \text { EXecssive } \\ \text { Deficiont } \\ \text { Eniery } \\ \text { Denoyment } \\ \text { Charge Amount } \end{gathered}$ | Net Regulation Adjustment Amount |  | her Charge SubTotal |  | Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 31/2015 | (2,332.49) | 1,910.42 | 827.41 |  | 405.34 | (638.52) | 250.27 | 764.38 |  | 376.13 |  |  | 179.43 |  | 179.43 |  | 555.58 | (3.03) |  | 552.55 | \$ | 1,513.45 |
| 3/2/2015 | $(1,331.89)$ | 1,169.39 | 941.23 | s | 778.73 | (424.08) | 94.13 | 808.03 | s | 478.08 |  |  | 308.76 | \$ | 308.76 |  | 184.19 |  | \$ | 184.19 | s | 1,749.76 |
| 3/3/2015 | (161.45) | (522.02) | 796.21 | s | 112.74 | (287.23) | 12.16 | 560.78 | s | 285.71 |  |  | 217.07 | \$ | 217.07 |  | 270.15 | (33.65) |  | 236.50 | s | 85.02 |
| 3142015 | (778.88) | (93.57) | 1,203.20 |  | 330.75 | (384.20) | (77.15) | 705.93 | s | 24.58 | (5.00) | 2.20 | 199.67 | \$ | 196.87 |  | 380.65 | (3.70) | s | 376.95 | s | 1,149.15 |
| 3/5/2015 | (1,118.09) | (849.94) | 1,353.38 | s | (614.65) | (777.54) | 433.73 | 1,134.87 | s | 791.06 |  |  | 1,078.45 | \$ | 1,078.45 |  | 1,137.38 | 295.81 | s | 1,433.19 | s | 2,688.05 |
| 3/6/2015 | $(5,693.20)$ | (588.27) | 1,296.42 | s | $(4,985.05)$ | $(1,090.30)$ | 923.79 | 1,415.69 | s | 1,249.18 |  |  | (441.31) | \$ | (441.31) |  | 1,727.02 | 316.78 | \$ | 2,043.80 | s | (2,13,38) |
| 37/2015 | (2,135.94) | 1,159.63 | 1,079.27 | s | 102.96 | (491.13) | 47.59 | 755.52 | s | 311.98 |  |  | 253.15 | s | 253.15 |  | 61.17 | 1.20 | \$ | 62.37 | s | 730.46 |
| 3/1/2015 | (728.25) | 223.87 | 824.75 | s | 320.37 | (358.97) | 33.92 | 586.83 | s | 261.78 |  |  | 251.39 | \$ | 251.39 |  | 153.23 | (2.52) |  | 150.71 | s | 984.25 |
| 3/1/2015 | (932.75) | 305.74 | 1,015.00 |  | 387.99 | (760.54) | 49.74 | 1,055.64 | s | 344.84 |  |  | 207.98 | \$ | 207.98 |  | 115.79 | (1.63) |  | 114.16 | s | 1,054.97 |
| 311012015 | (2,073.12) | 71.42 | 1,036.19 | s | (965.51) | (479.00) | 25.45 | 582.96 | s | 129.41 |  |  | 220.23 | \$ | 220.23 |  | 945.90 | (33.88) |  | 912.02 |  | 296.15 |
| 3/1122015 | (1,790.16) | 143.20 | 938.07 | S | (708.89) | (657.71) | 37.06 | 783.25 | s | 162.60 |  |  | 228.75 | \$ | 228.75 |  | 667.99 | 61.49 | \$ | 729.48 | s | 411.94 |
| 31222015 | (1,344.67) | 626.52 | 587.09 |  | (101.06) | (707.66) | (12.19) | 609.50 | s | (110.35) |  |  | 241.12 | \$ | 241.12 |  | 340.57 | (8.26) |  | 332.31 | s | 362.02 |
| 3/13/2015 | (2,272.81) | 1,261.24 | 1,014.23 | s | 2.66 | (614.62) | 20.59 | 610.18 | s | 16.15 |  |  | 229.54 | \$ | 229.54 |  | 175.99 | 4.70 | s | 180.69 | s | 429.04 |
| 3/142015 | (1,598.05) | 780.57 | 840.35 | s | 22.87 | (408.65) | 79.74 | 387.14 | s | 58.23 |  |  | 255.18 | \$ | 255.18 |  | 411.70 | (5.29) |  | 406.41 | s | 742.69 |
| 3/1512015 | (310.49) | (118.15) | 591.87 | s | 163.23 | (390.73) | (296.69) | 361.07 | s | (326.35) |  |  | 26.00 | \$ | 26.00 |  | 313.95 | (21.42) |  | 292.53 | s | 389.41 |
| 3166/2015 | (1,077.03) | 320.53 | 1,033.22 | s | 276.72 | (524.12) | (15.20) | 648.74 | s | 109.42 |  |  | 241.94 | \$ | 24.94 |  | 153.72 | (17.44) |  | 136.28 | \$ | 764.36 |
| 31172015 | (1,561.34) | 16.04 | 1,084.93 | s | (460.37) | (607.96) | (320.08) | 794.51 | s | (133.53) |  |  | 351.36 | s | ${ }^{351.36}$ |  | 508.69 | 117.66 | s | 626.35 | s | ${ }^{383.81}$ |
| 3/182015 | (1,458.31) | (0.54) | 1,011.56 | s | (447.29) | (333.16) | 42.72 | 611.08 | s | 320.64 |  |  | 251.41 | \$ | 251.41 |  | 352.42 | (31.83) | s | 320.59 | s | 445.35 |
| 3/19/2015 | (2,250.47) | 256.62 | 985.13 | s | (1,008.72) | (364.00) | (266.15) | 731.70 | s | 101.55 |  |  | 316.65 | \$ | 316.65 |  | 651.43 | 21.81 | s | 673.24 | s | 82.72 |
| 3/2012015 | (1,454.83) | 92.96 | 944.39 | s | (417.48) | (419.48) | 55.92 | 781.02 | s | 417.46 |  |  | 248.41 | \$ | 248.41 |  | 270.15 | 16.66 | s | 286.81 | s | 535.20 |
| 3/21/2015 | (1,588.79) | (161.00) | 752.59 | s | (997.20) | (380.37) | 56.00 | 604.52 | s | 280.15 |  |  | 263.18 | \$ | 263.18 |  | 651.18 | 51.63 | s | 702.81 | \$ | 248.94 |
| 3/22/2015 | (1,212.07) | (28.30) | 669.91 | s | (570.46) | (466.00) | 67.73 | 501.09 | s | 102.82 |  |  | 254.73 | \$ | 254.73 |  | 421.60 | (16.60) | s | 405.00 | s | 192.09 |
| 3/23/2015 | (1,242.17) | 160.54 | 957.22 | s | (124.41) | (659.96) | 102.56 | 833.92 | s | 276.52 |  |  | 223.46 | s | 223.46 |  | 205.76 | (22.44) | s | 183.32 | s | 55.89 |
| ${ }^{3 / 24242015}$ | $(1,284.02)$ | 339.70 | 864.49 | s | (79.83) | ${ }^{(400.36)}$ | ${ }^{70.66}$ | 532.75 | s | 203.05 |  |  | 247.58 | \$ | 24.58 |  | 199.08 | 39.80 | s | 238.88 | s | 609.68 |
| 3/25/2015 | (1,029.38) | 269.32 | 671.45 | s | (88.61) | (262.97) | 60.47 | 438.92 | s | 236.42 |  |  | 204.35 | \$ | 204.35 |  | 64.20 | 19.73 | s | 83.93 | s | 436.09 |
| 3/26/2015 | (504.40) | (1.14) | 843.40 | S | 337.86 | (469.86) | 118.01 | 742.06 | s | 390.21 |  |  | 277.11 | \$ | 277.11 |  | 45.62 | 14.46 | s | 60.08 | s | 1,065.26 |
| 3/27/2015 | (474.65) | 64.77 | 882.85 | s | 472.97 | (442.48) | 36.34 | 1,156.19 | s | 750.05 | - |  | 256.67 | s | 25.67 |  | 91.43 | (1.17) | s | 90.26 | s | 1,569.95 |
| 3/28/2015 | (1,637.73) | 900.64 | 834.61 | s | 97.52 | (549.29) | 94.92 | 686.74 | s | 232.37 |  |  | 242.32 | s | 242.32 |  | 95.18 | 2.32 | s | 97.50 | s | 699.71 |
| 3/29/2015 | (348.13) | 141.29 | 649.75 | s | 442.91 | (459.32) | 75.74 | 410.20 | s | 26.62 |  |  | 233.46 | \$ | 233.46 |  | 20.06 | (2.35) | s | 17.71 | s | 720.70 |
| 3/3012015 | (1,063.34) | 116.40 | 816.00 |  | (130.94) | (612.58) | 80.62 | 659.13 | s | 127.17 |  |  | 245.87 | \$ | 245.87 |  | 108.36 | (3.75) | \$ | 104.61 | \$ | 346.71 |
| 3/312015 | (538.80) | (261.46) | 636.96 | s | (163.30) | (472.91) | 66.99 | 701.40 | \$ | 295.48 |  |  | 228.31 | s | 228.31 |  | 101.46 | 7.48 | s | 108.94 | \$ | 469.43 |
| Mar Total | $(43,29.70)$ s | 7,706.42 | 27,983.13 | s | (7,608.15) | (15,895.70) | s 1,949.39 | s 21,955.74 | s | 8,09.43 | 0) |  | 7,776.22 | s | 7,773.42 | s | 11,381.60 | 762.57 |  | 12,144.17 | s | 20,318.87 |



| Date | Day Ahead Regulation Amoun | Real Time Regulation | Regulation Cost Distribution Amount |  | gulation | Day Ahead Spinning Reserve Amount | Real Time Spinning Reserve Amount | Spinning Reserve Cost Distribution Amount |  | nning Reserve <br> SubTotal | Day Ahead Supplemental Reserve and | Real Time Supplemental Reserve Amount | Supplemental Reserve Cost Amount |  | plemental SubTota | $\begin{gathered} \text { Contigency } \\ \text { Reserve } \\ \text { Deployment } \\ \text { Failure Charge } \\ \text { Amount } \end{gathered}$ |  | Net Regulation Adjustment Amount |  | er Charge subTotal |  | Eenefit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 51/2015 | (940.50) | (28.83) | 428.67 | s | (540.66) | (256.96) | 50.48 | 403.43 | s | 196.95 |  |  | 197.57 | s | 197.57 |  | 231.21 | (52.04) |  | 179.17 | \$ | 33.03 |
| 5/2/2015 | (1,057.90) | 842.22 | 480.23 | s | 264.55 | (317.37) | 26.01 | 452.58 | s | 161.22 |  |  | 204.11 | s | 204.11 |  | 188.58 | (40.08) |  | 148.50 | s | 778.38 |
| 5/3/2015 | (1,160.91) | (38.32) | 729.81 | s | (469.42) | (529.23) | 103.70 | 589.37 | s | 163.84 |  |  | 211.62 | s | 211.62 |  | 111.04 | (50.18) |  | 60.86 | s | (33.10) |
| 51412015 | (1,289.44) | (16.62) | 837.23 | s | (468.83) | (475.69) | 17.99 | 778.01 | s | 320.31 |  |  | 222.85 | s | 222.85 |  | 179.96 | 4.46 | s | 184.42 | s | 258.75 |
| 5/5/2015 | (1,324.17) | 64.34 | 835.14 | s | (424.69) | (347.07) | 16.97 | 485.78 | s | 155.68 |  |  | 227.25 | s | 227.25 |  | 43.67 | 31.07 | s | 74.74 | s | 32.98 |
| 56/12015 | (1,420.50) | 582.81 | 886.74 | s | 49.05 | (370.19) | 27.46 | 442.90 | s | 100.17 |  |  | 204.69 | \$ | 204.69 |  | 150.58 | 0.32 | s | 150.90 | \$ | 504.81 |
| 57712015 | (1,722.73) | 265.63 | 1,011.61 | s | (445.49) | (438.90) | 14.75 | 529.46 | s | 105.31 |  |  | 207.08 | s | 207.08 |  | 30.72 | (11.36) |  | 19.36 | s | (113.74) |
| 518/2015 | (800.86) | (506.62) | 974.35 | s | (33.13) | (878.12) | 22.46 | 1,032.49 | s | 176.83 |  |  | 170.70 | s | 170.70 |  | 108.92 | 67.14 | s | 176.06 | s | 190.46 |
| 5/9/2015 | (1,581.86) | 34.40 | 700.60 | s | (846.86) | (773.07) | 189.18 | 602.20 | s | 18.31 |  |  | 216.41 | s | 216.41 |  | 406.16 | (19.47) |  | 386.69 | s | (225.45) |
| 5/10/2015 | (1,235.68) | (22.77) | 713.36 | s | (545.09) | (366.46) | 65.76 | 365.18 | s | 64.48 |  |  | 214.62 | s | 214.62 |  | 87.91 | (17.18) | s | 70.73 | s | (195.26) |
| 5/112015 | (1,55.42) | 307.50 | 686.62 | s | (561.30) | (583.81) | 71.55 | 550.63 | s | 38.37 |  |  | 270.94 | s | 270.94 |  | 72.23 | (8.01) |  | 64.22 | s | (187.77) |
| 5/1212015 | (1,54.99) | 46.57 | 572.26 | s | (933.16) | (572.19) | 82.32 | 532.63 | s | 42.76 |  |  | 231.77 | s | 231.77 |  | 162.64 | 14.88 | s | 177.52 | s | (479.11) |
| 5/13/2015 | (106.55) | (271.53) | 548.75 | s | 170.67 | (375.03) | 172.49 | 280.02 | s | 77.48 |  |  | 247.05 | s | 247.05 |  | 91.19 | 9.19 | s | 100.38 | s | 59.58 |
| 5/14/2015 | (371.43) | (324.19) | 635.24 | s | (60.38) | (433.81) | 85.28 | 426.67 | s | 78.14 |  |  | 223.43 | s | 223.43 |  | 58.93 | 22.30 | s | 81.23 | s | 322.42 |
| 5/15/2015 | (1,703.30) | 173.92 | 791.26 |  | (738.12) | (786.60) | 131.58 | 774.20 | s | 119.18 |  |  | 222.12 | s | 222.12 |  | 455.79 | 46.42 | s | 502.21 | s | 10.39 |
| 5/16/2015 | (2,221.27) | 7.04 | 730.90 | s | $(1,483.33)$ | (639.50) | 78.30 | 603.81 | s | 42.61 |  |  | 190.28 | s | 190.28 |  | 298.97 | (68.55) | s | 230.42 | s | (1,020.02) |
| 51772015 | (1,801.31) | 292.82 | 726.67 | s | (781.82) | (911.44) | 145.99 | 578.69 | s | (186.76) |  |  | 183.64 | s | 183.64 |  | 125.09 | (84.93) |  | 40.16 | s | (744.78) |
| 5/18/2015 | $(2,410.54)$ | 463.91 | 1,025.31 |  | (921.32) | (790.30) | (423.25) | 713.84 | s | (499.71) |  |  | 151.28 | s | 151.28 |  | 250.89 | (145.21) |  | 105.68 | s | $(1,164.07)$ |
| 5/19/2015 | (1,932.75) | 405.64 | 789.20 | s | (737.91) | (819.46) | (46.14) | 809.07 | s | (56.53) |  |  | 210.38 | s | 210.38 |  | 60.55 | 73.67 | s | 134.22 | s | (449.84) |
| 5/20/2015 | (777.94) | (658.71) | 816.95 | s | (619.70) | (716.15) | 44.85 | 711.44 | s | 40.14 |  |  | 187.34 | s | 187.34 |  | 48.96 | 28.24 | s | 77.20 | s | (315.02) |
| 5/21/2015 | (1,751.55) | 497.37 | 737.40 |  | (516.78) | (911.13) | 99.61 | 831.90 | s | 20.38 |  |  | 184.29 | \$ | 184.29 |  | 22.50 | (14.93) | s | 7.57 | s | (304.54) |
| 5/22/2015 | (1,583.72) | (152.97) | 742.67 | S | (994.02) | (634.91) | 50.02 | 663.25 | s | ${ }^{78.36}$ |  |  | 196.85 | s | 196.85 |  | 252.00 | 17.32 | s | 269.32 | s | (499.49) |
| 5/23/2015 | (732.01) | (624.86) | 566.99 | s | (789.88) | (604.64) | 74.95 | 606.29 | s | 76.60 |  |  | 188.61 | \$ | 188.61 |  | 56.49 | (4.11) | s | 52.38 | s | (472.29) |
| 5/24/2015 | (471.82) | (429.57) | 635.21 | s | (266.18) | (467.25) | 70.12 | 496.96 | s | 99.83 |  |  | 192.22 | s | 192.22 |  | 86.49 | (9.76) | s | 76.73 | s | 102.60 |
| 5/25/2015 | (1,122.23) | (939.66) | 630.86 | S | $(1,431.03)$ | (507.76) | 52.47 | 505.22 | s | 49.93 |  |  | 181.23 | \$ | 181.23 |  | 218.02 | 66.25 | s | 284.27 | s | (915.60) |
| 5/26/2015 | (495.61) | (929.70) | 797.68 | s | (627.63) | (821.10) | 117.33 | 788.14 | s | 84.37 |  |  | 195.16 | s | 195.16 |  | 117.56 | 43.75 | s | 161.31 | s | (186.79) |
| 5/27/2015 | (664.99) | 150.01 | 908.76 | s | 393.78 | (893.27) | 27.11 | 984.09 | s | 117.93 |  |  | 177.08 | s | 177.08 |  | 75.59 | (1.33) | s | 74.26 | s | 763.05 |
| 5/2812015 | (1,406.42) | 445.36 | 577.31 | s | (383.75) | (737.92) | 37.25 | 695.93 | s | (4.74) | - | - | 178.37 | s | 178.37 | - | 120.19 | 14.80 | s | 134.99 | s | (75.13) |
| 5/29/2015 | (1,537.65) | 84.96 | 565.92 | \$ | (886.77) | (874.79) | 56.05 | 702.54 | s | (116.20) |  |  | 179.64 | s | 179.64 |  | 367.20 | 18.59 | s | 385.79 | s | (437.54) |
| 5/30/2015 | (1,062.91) | (477.79) | 483.51 | \$ | $(1,057.19)$ | (499.82) | (6.52) | 446.53 | s | ${ }^{(9.81)}$ |  |  | 168.97 | s | 168.97 |  | 305.05 | 61.79 | s | 366.84 | s | (531.19) |
| 5/31/2015 | (1,450.98) | (420.86) | 658.85 | \$ | $(1,212.99)$ | (355.62) | 83.17 | 331.30 | s | 58.55 |  |  | 184.10 | s | 184.10 | - | 366.69 | 40.24 | s | 406.93 | s | (563.11) |
| May Total | $(39,244.94)$ \$ | (1,178.50) | \$ 22,226.06 |  | (18,197.38) | (18,639.56) | \$ 1,539.29 | 18,714.55 | s | 1,614.28 | s | s | 6,221.65 |  | 6,221.65 |  |  |  |  | 5,18, |  | (5,176.39) |



## CRD Events

| Date | Day of Week | Node | Contigency Reserve Deployment Failure Charge Amount |  | HE | Shortfall Mw | Event MW Provided |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8/9/2014 | Saturday | MP.LASKIN2 | \$ | 126.92 | 17 | 2.0 | 6.0 |
| 8/16/2014 | Saturday | MP.TACHB3 | \$ | 108.12 | 20 | 3.0 | 8.2 |
| 1/23/2015 | Friday | MP.LASKIN1 | \$ | 52.51 | 13 | 2.2 | 2.2 |

# Minnesota Power Report on Addressing Treatment of Auction Revenue Rights (ARRs) <br> Docket No. E-015/M-05-277 

Minnesota Power's response to how the ARR process will be treated for retail and wholesale purposes:
[TRADE SECRET DATA HAS BEEN EXCISED]

Minnesota Power's Self Scheduled FTRs from the 2014/2015 and 2015/2016 Annual Allocation:


## Annual FTR Allocation Continued:



PUBLIC DOCUMENT -
TRADE SECRET DATA HAS BEEN EXCISED


Minnesota Power's FTRs purchased in the Monthly Auction for the requested time period:

| Monthly FTR Purchases |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Source | Sink | Class Period | Month | Awarded FTRs | Clearing \$/MW Month | Total Monthly Cost |
| [TRADE SECRET DATA EXCISED] |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| [TRADE SECRET DATA EXCISED] |  |  |  |  |  |  |

Minnesota Power's FTRs purchased in the Annual Auction for the requested time period:


Minnesota Power's Total ARR/FTR revenues and costs for the requested time period:


Below is monthly detail of different MISO charge type costs included in the ARR/FTR Revenue and Cost Table. Charge types labeled "COST" are included in the Cost to Hold FTRs calculation and charge types labeled "REVENUE" are included in the Revenues Generated from ARRs/FTRs calculation.

Note: Charges/Credits are shown in the month in which they were recorded in 555 of the General Ledger and included in the FAC recovery.

| Charge Type |  | July '13 | August '13 | September '13 | October '13 | November '13 | December '13 | January '14 | February ' 14 | March '14 | April '14 | May '14 | June '14 | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Financial Transmission <br> Riights Market <br> Admministration Amount | Cost | 7,435.60 | 7,576.48 | 5,041.60 | 6,535.76 | 6,006.40 | 6,901.84 | 6,657.36 | 7,367.36 | 7,598.88 | 6,758.88 | 7,234.80 | 7,152.10 | 82,267.06 |
| Auction Revenue Rights <br> Transaction Amount | Revenue | $(372,830.26)$ | $(372,830.26)$ | $(298,018.27)$ | $(298,018.27)$ | $(298,018.27)$ | $(273,408.92)$ | $(273,408.92)$ | (273,408.92) | $(397,783.73)$ | $(397,783.73)$ | $(397,783.73)$ | $(512,442.17)$ | $(4,165,735.45)$ |
| Financial Transmission Rights Annual Transaction Amount | Cost | 372,796.73 | 372,796.73 | 298,003.38 | 298,003.38 | 298,003.38 | 273,410.55 | 273,410.55 | 273,410.55 | 397,778.38 | 397,778.38 | 397,778.38 | 508,969.36 | 4,162,139.75 |
| $\begin{aligned} & \text { Auction Revenue Rights } \\ & \text { Infeasible Uplift Amount } \end{aligned}$ | Revenue | 35,414.26 | 35,320.72 | 43,608.64 | 43,608.64 | 43,608.64 | 28,317.92 | 28,317.92 | 28,317.92 | 45,902.58 | 45,902.58 | 45,902.58 | 34,883.02 | 459,105.42 |
| Auction Revenue Rights <br> Stage 2 Distribution <br> Amount | Revenue | (142,724.95) | $(141,305.23)$ | $(194,887.55)$ | $(195,179.85)$ | $(195,183.51)$ | $(175,275.46)$ | $(177,839.68)$ | (177,839.68) | $(137,449.11)$ | $(137,951.38)$ | $(138,073.86)$ | (111,642.38) | (1,925,352.64) |
| Financial Transmission Rights Hourly Allocation Amount | Revenue | (456,780.00) | $(75,851.45)$ | $(2,377,793.52)$ | $(132,551.68)$ | $(315,153.83)$ | (758,960.83) | $(2,950,350.43)$ | (3,317,732.54) | (1,844,710.10) | $(522,443.24)$ | $(626,676.76)$ | $(269,706.17)$ | $(13,648,710.55)$ |
| Financial Transmission <br> Rights Monthly <br> Allocation Amount | Revenue | (13,747.95) | $(6,904.22)$ | (92,958.54) | $(2,860.53)$ | $(10,366.22)$ | (31,932.27) | $(86,003.14)$ | $(125,792.38)$ | $(123,796.91)$ | $(22,144.98)$ | $(23,314.38)$ | - | $(539,821.52)$ |
| $\qquad$ Rights Transaction Amount | Cost |  |  |  |  |  |  |  |  |  |  |  |  | - |
| $\begin{aligned} & \text { Finnancial Transmission } \\ & \text { Rights Yearly Allocation } \\ & \text { Amount } \end{aligned}$ | Revenue | - | - | - | - | - | $(22,931.48)$ | - | - | - | - | - | - | $(22,931.48)$ |
| Financial Transmission <br> Rights Full Funding <br> Guarantee Amount | Revenue | - | - | - | $(7,159.56)$ | $(24,425.42)$ | 14,552.03 | - | $(147,981.60)$ | (9,617.53) | $(121,887.23)$ | $(19,889.88)$ | $(17,795.48)$ | $(334,204.67)$ |
| FTR Guarantee Uplifit Amount | Revenue | - | - | - | 11,162.93 | 25,317.09 | 148,659.44 | - | 113,903.37 | 13,050.58 | 124,440.80 | 24,444.97 | 17,795.48 | 478,774.66 |
| $\begin{aligned} & \text { Financial Transmission } \\ & \text { Rights Monthly } \\ & \text { Transaction Amount } \\ & \hline \end{aligned}$ | Cost | 94,339.67 | 11,154.14 | 4,565.80 | 2,954.79 | 6,158.59 | 3,661.84 | 22,132.96 | - | 12,281.54 | 92,646.69 | 19,538.41 | 41,483.21 | 310,917.64 |
| Costs of hold FTRs | Cost | 474,572.00 | 391,527.35 | 307,610.78 | 307,493.93 | 310,168.37 | 283,974.23 | 302,200.87 | 280,777.91 | 417,658.80 | 497,183.95 | 424,551.59 | 557,604.67 | 4,555,324.45 |
| Revenue Gienerated from <br> ARRIFTRis | Revenue | (950,668.90) | $(561,570.44)$ | (2,920,049.24) | $(580,998.32)$ | $(774,221.52)$ | $(1,070,979.57)$ | $(3,459,284.25)$ | $(3,900,533.83)$ | (2,454,404.22) | (1,031,867.18) | (1,135,391.06) | (858,907.70) | $(19,698,876.23)$ |

## Minnesota Power’s Generation Facilities Maintenance Expenses

(Docket No. E999/AA-06-1208 dated February 6, 2008)


## Hydraulic Power Generation

| Maintenance Supervision and Engineering | 541 | 550,753 | 1,255,984 | 572,946 |
| :---: | :---: | :---: | :---: | :---: |
| Maintenance of Structures | 542 | 196,550 | 950,000 | 261,524 |
| Maintenance of Reservoirs, Dams and Waterways | 543 | 781,297 | - | 960,020 |
| Maintenance of Electric Plant | 544 | 1,167,143 | 980,640 | 1,295,548 |
| Maintenance of Misc. Hydraulic Plant | 545 | 1,584,546 | - | 945,605 |
|  |  | 4,280,289 | 3,186,624 | 4,035,643 |

[^1]

Note: Classification of expenses between demand and energy are based on FERC methodolgy used in prior rate cases. Accounts $501,510,512,513$, \& 544 are energy related, all others are demand.

|  | Minnesota Power | FERC <br> Acct No. | Amounts | Final <br> Adjustments | Total Company Cost of Service Model | Allocator |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 41 Transmission |  |  |  |  |  |  |
| 42 | Operation Supervision \& Engineering | 560 | 1,902,682 |  |  |  |
| 43 | Load Dispatching | 561 | - |  |  |  |
| 44 | Load Dispatching -Reliability | 561.1 | 2,611,659 |  |  |  |
| 45 | Load Disp.-monitoring/operate trans sys. | 561.2 | 110,893 |  |  |  |
| 46 | Scheduling, system control \& dispatch | 561.4 | 1,496,009 |  |  |  |
| 47 | Reliability, Planning \& Stds. Develop. | 561.5 | 1,780,506 |  |  |  |
| 48 | Transmission Service Studies | 561.6 | 229,702 |  |  |  |
| 49 | Generation Interconnection Studies | 561.7 | 194,702 |  |  |  |
| 50 | Reliability, Planning \& Stds. Develop. | 561.8 | 90,310 |  |  |  |
|  | Overhead Line Expenses | 563 | - |  |  |  |
| 52 | Transmission of Electricity by Others | 565 | 22,375,224 |  |  |  |
| 53 | Rents | 567 | 958,500 |  |  |  |
|  | Total Operation |  | 31,750,187 |  |  |  |
|  | Maintenance |  |  |  |  |  |
| 55 | Supervision \& Engineering | 568 | - |  |  |  |
| 56 | Maint Computer Hardware | 569.1 | 383,644 |  |  |  |
| 57 | Maint Computer Software | 569.2 | 329,881 |  |  |  |
| 58 | Maint Communications Equip. | 569.3 | 451,155 |  |  |  |
| 59 | Station Equipment | 570 | 4,925,642 |  |  |  |
| 60 | Overhead Lines | 571 | 1,464,707 |  |  |  |
| 61 | Total Maintenance |  | 7,555,029 |  |  |  |
|  | Total Transmission Exp. |  | 39,305,216 | $(5,899,008)$ |  |  |
| 63 | Total Transmisson Vol I |  |  |  | 33,406,208 | TRANPLT |
| 64 MP Compliance Filing Section IX COSS page 10 line 13 |  |  |  |  |  |  |
| 65 | Regional Market Expenses | 575.7 | 43,071 |  |  |  |
|  | Total Regional Mkt Vol I MP Exhibit __(SJS) |  | 43,071 |  | 43,071 | DTRAN |
| 67 MP Compliance Filing Section IX COSS page 10 line 14 Distribution |  |  |  |  |  |  |
| 68 | Meters | 586 | 1,770,672 |  |  | CMETERS |
| 69 | Bulk Delivery |  |  |  |  | DSUB46 |
| 70 | Other Distribution |  |  |  |  | DISTPLMS |
| 71 | Supervision \& Engineering | 580 | 1,838,910 |  |  |  |
| 72 | Overhead Line Expenses | 583 | 649,843 |  |  |  |
| 73 | Underground Line Expenses | 584 | - |  |  |  |
| 74 | Miscellaneous | 588 | - |  |  |  |
| 75 | Rents | 589 | - |  |  |  |
| 76 | Total Operation |  | 4,259,425 |  | - |  |
| Distribution Maintenance: |  |  |  |  |  |  |
| 77 | Supervision \& Engineering | 590 | 1,030,446 |  |  |  |
| 78 | Station Equipment | 592 | 3,303,251 |  |  |  |
| 79 | Overhead Lines | 593 | 11,382,501 |  |  |  |
| 80 | Underground Lines | 594 | 2,061,119 |  |  |  |
| 81 | Street Lighting\& Signal Systems | 596 | 150,148 |  |  |  |
| 82 | Meter Expenses | 597 | - |  |  |  |
| 83 | Miscellaneous | 598 | - |  |  |  |
| 84 | Total Maintenance |  | 17,927,465 |  |  |  |
|  | Total Distribution |  | 22,186,890 |  |  |  |
|  | Total Distribution Vol II |  |  |  | 22,186,890 |  |
| 87 MP Compliance Filing Section IX COSS page 10 line 19 |  |  |  |  |  |  |


| Minnesota Power |  |  |  |  | Total Company |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | FERC <br> Acct No. | Amounts | Final <br> Adjustments | Cost of Service Model | Allocator |
| Customer Accounts Expenses |  |  |  |  |  |  |
| 88 | Meter Reading Expenses | 902 | 666,985 |  |  |  |
| 89 | Customer Records \& Collection Exp | 903 | 6,012,441 |  |  |  |
| 90 | Uncollectible Accounts | 904 | 600,000 |  |  |  |
|  | Total Customer Accting Vol I |  | 7,279,426 |  | 7,279,426 | CACCTS |
| 92 MP Compliance Filing Section IX COSS page 10 line 20 Customer Service \& Info |  |  |  |  |  |  |
| 93 | Operation |  |  |  |  |  |
| 94 | Supervision | 907 | - |  |  |  |
| 95 | Customer Assistance Expenses | 908 | 3,965,076 |  | 4,266,923 | CUSTSERV |
| 96 | Misc Customer Service \& Informational Exp | 910 | 301,847 |  |  |  |
| 97 | Conserv Improve Prog-energy |  | 6,886,647 | $(2,262,539)$ | 4,624,108 | CIPEXPE |
| 98 | Total Customer Service \& Info Expenses |  | 11,153,570 |  | 8,891,031 |  |
| 99 | Total Customer Serv. Vol II |  |  |  | 8,891,031 |  |
| 100 MP Compliance Filing IX COSS page 10 line 21 \& 22 |  |  |  |  |  |  |
| 101 | Sales | 913 | 445,060 |  |  |  |
| 102 | less rate making adj. for disallowed advertis |  |  | $(404,578)$ |  |  |
| 103 | MP Compliance Filing Section IX COSS pag |  | 445,060 |  | 40,482 | CSALES |
|  | Administration \& General |  |  |  |  |  |
| 104 | Property Insurance | 924 | 5,319,449 |  |  | PLANT |
| 105 | Regulatory Expenses- see note below at 2. | 928 | 1,325,691 | $(849,481)$ | 476,210 | PLANT |
| 106 | Regulatory Expenses- see note below at 1. | 928 | 1,619,558 | $(1,139,210)$ | 480,348 | DTRAN |
| 107 | Advertising | 930.1 | 177,500 | $(162,500)$ | 15,000 | LABLAG |
| 108 | Franchise Requirement | 927 | 1,117,000 |  |  | RSALESJ |
| 109 | EPRI Dues | 921 | - |  |  | RSALESJ |
| 110 | Disallowed Organizational dues | n/a | 0 |  |  | RSALESJ |
| 111 | General Plant | 935 | 7,322,068 |  |  | LABLAG |
| 112 | Other A\&G |  | 49,116,265 | $(5,207,882)$ | 43,908,383 | LABLAG |
| 113 | Total A\&G |  | 65,997,531 | $(7,359,073)$ | 58,638,458 |  |
| 114 | Customer Deposits Interest Expense |  | 18,000 |  |  | CUSTDEP |
| 115 | Charitable Contributions |  | 1,198,000 | $(682,735)$ |  | LABLAG |
| 116 | Credit for Expedited Billing |  | 572,000 |  |  | LABLAG |
| 117 Total Operations \& Maintenance Exp. |  |  |  |  |  |  |
| 118 | MP Compliance Filing Section IX COSS pag |  | 569,163,880 | $(20,576,652)$ | 548,587,228 |  |
| 119 | * Other A\&G includes the following FERC acc | 21,923,92 | 926,930.2. |  |  |  |

# Minnesota Power Transformer Emergency Replacement Guide Large Power Transformers All load Serving Windings Greater than 100kV 

## Background

Minnesota Power has several autotransformers which meet the criteria in which all load serving windings are greater than 100kV. Minnesota Powers' backbone transmission system is 230 kV with underlying 115 kV which serve distribution substations. All of the transformation between the 230 kV and 115 kV system is accomplished with autotransformers. Additionally Minnesota Power is interconnected, at $115 \mathrm{kV}, 138 \mathrm{kV}, 345 \mathrm{kV}$, as well as 500 kV . All of these higher voltage (greater than 100 kV ) transformations, except for the 115 kV , are accomplished by autotransformers. (An autotransformer is simply a special connection/winding of a transformer which is useful to reduce the complexity and therefore cost of the transformer) Minnesota Power does have autotransformers in this class which connect separate portions internal to the Minnesota Power grid and form no interconnection externally.

## Backup Strategies

## [TRADE SECRET DATA HAS BEEN EXCISED]

Transmission Level Transformers Inventory (greater than 100 kV on the low side)

## [TRADE SECRET DATA HAS BEEN EXCISED]

HVDC System Transmission Level Transformers Inventory (greater than 100 kV on the low side)
[TRADE SECRET DATA HAS BEEN EXCISED]

# Minnesota Power's Report Addressing the Purchase Power Agreement with Manitoba Hydro 

(Docket No. E015/M-10-961; order dated 3-11-11)

The Commission’s March 11, 2011 Order in Docket No. E-015/M-10-961 required MP to provide in its annual automatic adjustment report the following regarding the Purchase Power Agreement with Manitoba Hydro for the period of July 2014 through June 2015:
a) the number of times Manitba Hydro offered Product $B$ and/or $C$ to Minnesota Power

See Appendix A
b) whether or not Minnesota Power accepted the power

See Appendix A
c) Minnesota Power's efforts to determine whether lower cost energy exists

The current bilateral energy market is thinly traded. Minnesota Power has undertaken efforts to procure energy from sources in the bilateral market, though to-date most energy purchased for MP load is purchased from the MISO market.
d) the prices of alternative energy

Prices for alternative energy (MISO purchases) are equivalent to Product B \& C energy purchased from MH.
e) the cost comparison of energy under Product $B$ and/or Product $C$ and the alternative energy sources

The price paid for Product $B$ \& $C$ energy is defined as the [TRADE SECRET DATA HAS BEEN EXCISED]. This [TRADE SECRET DATA HAS BEEN EXCISED] price is equivalent to the [TRADE SECRET DATA HAS BEEN EXCISED]. Since most energy purchased is transacted with MISO, the price for Product B \& C is the same as the alternate energy sources.

PUBLIC DOCUMENT TRADE SECRET DATA HAS BEEN EXCISED

Appendix A
2015 MHEB Product B \& C
Minnesota Pover - Short-term Non-firm Energy Sale Agreement

| Offered (MWh) | Jul-14 | Aug-14 | Sep-14 | Oct-14 | Nov-14 | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | [TRADE SECRET DATA HAS BEEN EXCISED] |  |  |  |  |  |  |  |  |  |  |  |
| Product B |  |  |  |  |  |
| Product C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |  |  |  |  |  |
| Accepted (MWh) |  |  |  |  |  |  |  |  |  |  |  |  |
| Product B |  |  |  |  |  |  |  |  |  |  |  |  |
| Product ${ }^{\text {Total }}$ |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Curtailment (MWh) |  |  |  |  |  |  |  |  |  |  |  |  |
| Product ${ }^{\text {B }}$ |  |  |  |  |  |  |  |  |  |  |  |  |
| Product C Total |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Accepted less Curtailment (MWh) |  |  |  |  |  |  |  |  |  |  |  |  |
| Product B |  |  |  |  |  |  |  |  |  |  |  |  |
| Product C <br> Total |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Number of Instances Offered |  |  |  |  |  |  |  |  |  |  |  |  |
| Product B |  |  |  |  |  |  |  |  |  |  |  |  |
| Product C |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Number of Instances Accepted |  |  |  |  |  |  |  |  |  |  |  |  |
| Product B |  |  |  |  |  |  |  |  |  |  |  |  |
| Product C |  |  |  |  |  |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |  |  |  |  |  |

For the Reporting Period of July 1, 2014 through June 30, 2015


Filed in monthly fuel filings Docket No.

| Fuel Cost Month | Docket No. |
| ---: | ---: | :---: |
| July 2014 | $14-724$ |
| August 2014 | $14-833$ |
| September 2014 | $14-927$ |
| October 2014 | $14-999$ |
| November 2014 | $14-1071$ |
| December 2014 | $15-107$ |
| January 2015 | $15-181$ |
| February 2015 | $15-297$ |
| March 2015 | $15-403$ |
| April 2015 | $15-507$ |
| May 2015 | $15-636$ |
| June 2015 | $15-710$ |

The costs associated with the Contract MWh used to support the sales shown above were included in the "Less Fuel Costs Recovered through Inter System Sales" line in the Fuel Clause calculation. The revenues associated with all purchased power contracts except for Wing River, Oliver County I, and Oliver County II, are for the sale of purchases that were no longer needed to cover load. The margins from these sales were passed through to the ratepayers in the Fuel Clause.

Annual Identification of Forced Outages, Lessons Learned and Mechanism for Information Sharing

## Annual Identification of Forced Outages and Lessons Learned

See MP AAA Table-1 on page 6 for details related to forced outages.
Our maintenance practices and reliability programs are constantly being evaluated to ensure continuous improvement of our employees’ skills and equipment reliability. All of our craftspeople are required to be trained on precision maintenance as part of their apprenticeship. We also require classroom training for all of the operating staff for asset care and preservation. Those individuals are taught operational best practices for operating pumps, motors, valves etc. Since January 2011, over 60 employees at the leadership level - maintenance leads, operations and maintenance superintendents, maintenance planners, and engineers - have participated in Reliability University. Reliability University is a program that teaches students the best practices of equipment maintenance along with the tools needed to be proactive rather than reactive to ensure equipment reliability. Elements of Reliability University include condition monitoring, vibration analysis, system and components, troubleshooting, precision equipment installation and assembly, instrument and process variability and root cause failure analysis. Additionally, we have increased our expectations and requirements around specifications of new and rebuilt equipment and parts with enhanced use of overhaul specifications and visits to repair shops by engineers and technicians.

We are also in the process of instituting a program called Operational Excellence. The focus of Operational Excellence is to teach Human Performance tools to employees (3 way communication, Peer Checking, Labeling, Procedure Use and Adherence etc.) resulting in increased elimination of potential errors occurring in the field. In addition to the Human Performance tool usage, a "lessons learned" process is completed when an event does occur and those learnings are shared throughout the facilities.

See Attachment 1 for information related to Minnesota Power’s Coal and Transportation Procurement Strategy.

## Tube Leaks

Tube leaks are statistically the most common cause of outages in coal fired power plants. The most common causes of tube leaks:
o thermal fatigue
o soot blower erosion
o fly ash erosion
o chemical attack

Thermal fatigue manifests itself as cracking of the boiler tubes - sometimes as very small "micro" cracks and sometimes as large cracks. This occurs as a result of changing boiler temperatures, usually when the boiler swings up or down to follow load and when the boilers start up and shut down. This is a similar effect to bending a paper clip back and forth - after so many cycles it eventually breaks. Minimizing boiler "swings" (base loading) helps minimize the impact of thermal fatigue. However, with the energy markets being what they are with the ever increasing impacts of intermittent wind generation, we are seeing more and more swings in output.

Soot blower erosion occurs in areas where soot blowers are used to 'blow off' ash or slag which accumulates on boiler tubes. Soot blowers use high pressure steam or high pressure air to do the cleaning. The ash removal is necessary to improve heat transfer which improves boiler thermal efficiency. Common practices to mitigate soot blower erosion are to add a weld overlay (commonly called "pad welding") to existing tubes, add tube shields which are essential sacrificial attachments to the tubes, changing soot blower media pressure (usually not an option) and tube replacement in the affected areas. The use of the soot blowers is essential in keeping the units on line. Coal composition can differ from mine to mine or even within the same mine. As we look to find the best low cost fuel blend for our customers, certain coals may cause more fouling than others. The increased potential of this fouling requires both the frequency and duration of soot blowing to increase which minimizes the buildup on the boiler tubes. We are increasing using higher alloy weld overlay to provide increased tube longevity.

Fly ash erosion occurs when fly ash and combustion gases pass rapidly across superheated boiler tube surfaces. Because of the abrasiveness of fly ash, the surface of boiler tubes in the high flow areas slowly erode. Many things contribute to the amount of erosion, such a gas path restrictions (plugging- see reasons for soot blowing above), variations in coal quality (higher ash content), other additives which are added to the fuel mix typically for emission control, etc.

Chemical attack is becoming a common source of tube failures due to the corrosiveness of many of the additives being used to control emissions. When these chemicals come in contact with very hot boiler tubes, their normal corrosiveness is significantly increased. Since there tend to be few options for using alternate less corrosive additives, a common solution is to look at tube materials which perform better in the corrosive environment. This is usually a very expensive fix and can have environmental compliance implications.

Minnesota Power has a boiler reliability program which is very effective in proactively identifying areas of the boilers where tube leaks are likely to occur and minimizing that risk with proactive maintenance practices. The program
uses a combination of visual inspections, non-destructive testing methods (NDT), tube sample analysis, tube failure history, and industry experiences to avoid forced outages due to unexpected tube leaks.

To give some perspective on the challenges with any boiler reliability program, consider the following:

Boswell-3 boiler has 473,891 ft (89.7 miles) of varying diameter boiler tubes Boswell-4 boiler has 779,905 ft (147.6 miles) of varying diameter boiler tubes

The boiler tube surface area where a leak can occur is several hundred thousand square feet in either boiler.

A tube leak usually begins as a very small hole ( 0.10 inch or less) in the tube wall which can expand rapidly due to the high temperature and pressure. Considering the huge surface area in a boiler and the very small size of the hole or microscopic crack which results in a tube leak, it is very difficult to effectively screen the entire boiler to prevent all tube leaks. As part of our boiler reliability program, whenever there is an opportunity to get into the boiler to do an inspection - a forced or schedule outage - critical areas are inspected to evaluate erosion rates and to determine if repairs are needed. This information is used to plan for future capital expenditures to help minimize future tube leaks. During these inspection opportunities, small leaks are sometimes found and repaired. Similar proactive maintenance practices are routinely followed at the other Minnesota Power thermal facilities.

## - Non Boiler related outages

Minnesota Power has a Generation Reliability Group that is dedicated to monitoring and improving the reliability of not only the boiler but also the rotating equipment. The group is comprised of boiler, turbine and pulverizer engineers/specialists as well as specialists in predictive maintenance technologies. They work on a daily basis with the operating and maintenance groups at all facilities to improve the daily operating practices, planning for work and repairs to occur in future outages and establishing 5 and 10 year maintenance plans.

Rotating equipment that is monitored through various predictive technologies is summarized in a monthly reliability meeting with the specific plant. The manager is provided with a monthly scorecard as to their performance as well as identifying concerns and upcoming needs.

## - Mechanism for Some Level of Information Sharing

Minnesota Power is open to sharing lessons learned on a generic basis with the other utilities on an annual basis.

However, the concept of sharing lessons learned is more attractive in theory than in practice. Each utility's generating units are unique (manufacturer, date of installation, fuel type and mixture, base loaded vs. cyclic loading etc.), as is each company's operation and maintenance practices. Furthermore, sharing best practices regarding planned outages over and above what companies have already described in public filings borders on releasing confidential information about outage planning and energy marketing. This could work to harm that utility's customers if it were made available to other parties, since those practices provide the utility its best protection in acquiring replacement energy at the lowest cost possible.

Minnesota Power will continue to provide information on forced outages and what steps, if any, could have helped in avoiding or alleviating outages.

| Unit | Outage Category | DOC Primary Reason for the Outage | GADS Start Date/Time of Actual Outage | GADS End Date/Time of Actual Outage | DOC Equipment or Condition that Resulted in the Outage | DOC Description of Equipment Failure (including identified root cause) | DOC Steps Taken to Alleviate Reoccurrence |  | hange in rgy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BEC 3 | Unplanned | Boiler RH Tube Leak - 6th Floor, Down 1. | 6/27/2015 13:00 | 6/29/2015 17:39 | Reheat tube failure caused tube to break apart and corkscrew in boiler, this caused 5 additional tube leaks in adjacent vicinity. | Dissimilar metal weld failure. | Replaced damaged tube section. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 101,793 |
| THEC 2 | Unplanned | Boiler RH Tube Leak. | 6/26/2015 0:41 | 6/29/2015 4:57 | Reheat tube leak. | Sootblower erosion caused tube failure. | Repaired tube leak. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Repaired 22 heater tube leaks and 22 heater vent line leaks. | \$ | 7,123 |
| BEC 4 | Unplanned | Boiler SH Tube Leak. | 6/17/2015 21:23 | 6/20/2015 21:50 | South division panel tube leak. | Samples sent for analysis to OEM and outside metallurgist. The root cause was indeterminate. | Sectioned out and replaced failed tube area. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. We have identified tubes to be replaced in the planned outage in the fall of 2015. | \$ | 132,406 |
| BEC 2 | Unplanned | 2U Main Transformer - Center Phase Unlatched. | 6/11/2015 0:53 | 6/12/2015 23:38 | Phase imbalance caused a bus differential which tripped the relay. The tripped relay took the unit offline. | Improperly seated switch on center phase of 2U1, switch was not fully latched. | Tested transformer \& reseated switch. | \$ | 11,162 |
| BEC 4 | Unplanned | Boiler Tube Leak. | 5/16/15 0:32 | 5/18/15 7:19 | Nose tube leak, 2nd tube from east rear wall hanger | Tube erosion resulted in tube leak | Tube repaired. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Additional leak was found and repaired as well. We have identified tubes to be replaced in the planned outage in the fall 2015. | \$ | 8,011 |
| BEC 4 | Unplanned | Boiler Waterwall Leak. | 4/21/15 13:39 | 4/23/15 18:27 | Waterwall tube leak, \#1 corner, 4th floor. | Sootblower erosion caused tube failure. | Investigating full arc and partial arc soot blower for this application. UT thickness testing performed on adjoining tubes, and boiler air test performed once tube was sectioned and weld repaired. | \$ | 183,412 |
| BEC 2 | Unplanned | Economizer inlet tube leak external. | 4/19/15 0:01 | 4/20/15 5:11 | External tube leak occurred on startup from spring outage. Drum level non-sustainable. | Economizer tube disconnected from economizer inlet header. | Weld repairs and inspected header for other damager. Non destructive testing done on all the tubes going into the economizer header. | \$ | 712 |
| BEC 3 | Unplanned | Main boiler feed pump inboard bearing repair. | 4/11/15 22:01 | 4/30/15 5:23 | Main boiler feed pump element seized on turning gear, unable to start pump during unit startup. | The check valve failed to seal resulting in temperature expansion on the main boiler feed pump, which seized the element. | Disassemble check valve and repaired it. The block valve was upgraded to provide secondary protection. | \$ |  |
| BEC 3 | Unplanned | Main boiler feed pump inboard bearing repair. | 4/11/15 0:01 | 4/11/15 20:59 | Main boiler feed pump high vibration on inboard bearing. | The unit was taken offline to inspect the bearing. | Inboard bearing was shimmed .002 in to alleviate inboard bearing vibration. | \$ | 402,646 |
| THEC 2 | Unplanned | Boiler reheat tube leak. | 4/1/15 8:52 | 4/2/15 20:52 | Water Wall tube leak. | Ash erosion. | Repaired knee wall wear, inspected tubes added refractory between tubes and knee wall. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 3,680 |
| THEC 1 | Unplanned | Boiler Waterwall Leak. | 3/6/15 22:29 | 3/9/15 5:15 | Water wall tube leak north wall 2 1/2 level | Two holes in water wall tube on north side 2 $1 / 2$ level. Holes are at the top and bottom of a pad weld likely caused by porosity in the starts and stops of the weld. | Previous owner was responsible for the original repairs. Minnesota Power has a qualified weld repair program in place. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | $(2,751)$ |
| BEC 3 | Unplanned | Boiler Waterwall Leak - 4th Floor North Side. | 2/28/15 1:13 | 3/1/15 9:46 | 2 waterwall tube leaks on 4th floor. Both leaks at membrane connection. | Sootblower erosion caused tube failure. | Root Pass welding of the two leaks and pad welded repairs of the membrane and small adjacent washout areas. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Lead box was removed in panel replacement during 2015 Spring Outage. | \$ | 90,242 |
| LEC 2 | Unplanned | Boiler Tube Leak - Superheat. | 2/6/15 21:46 | 2/8/15 13:18 | Superheat tube leak. | Fatigue Stress cracking - overheating. | Made proper weld repairs. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | (968) |
| LEC 1 | Unplanned | Steam Temp Controller Issue. | 2/1/15 21:14 | 2/3/15 5:04 | Boiler steam temperature control. | Spray valve no functioning properly. | Replaced valve controller. | \$ | 10,292 |


| Unit | Outage Category | DOC Primary Reason for the Outage | GADS Start Date/Time of Actual Outage | GADS End Date/Time of Actual Outage | DOC Equipment or Condition that Resulted in the Outage | DOC Description of Equipment Failure (including identified root cause) | DOC Steps Taken to Alleviate Reoccurrence |  | ange in gy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BEC 4 | Unplanned | Boiler Waterwall Leak. | 1/30/15 10:05 | 2/1/15 15:39 | Waterwall tube leak in tube 29. | A secondary leak in the seal trough that resulted in overheating of tube 29. Overheating of tube 29 resulted in a failure on the 10th floor. | Repaired both leaks. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Due to the difficult access of the area, the full area will be inspected in the 2015 fall planned outage. | \$ | 271,552 |
| THEC 3 | Unplanned | Boiler Waterwall Leak. | 1/23/15 21:31 | 1/26/15 4:15 | Water wall tube leak 4 level SW corner corner | Sootblower erosion caused tube failure. | Repaired leak. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | $(8,163)$ |
| BEC 3 | Unplanned | Boiler Waterwall Leak. | 1/16/15 2:16 | 1/17/15 13:25 | External waterwall tube leak, found additional leak(non-critical) spraying in bottom ash hopper. | Old IR Sootblower penetration lead box caused improper heat transfer on waterwall tube. Bottom Ash Hopper leak was caused by seal plate rubbing damage. | Root Pass welding of external leak and pad welding of damaged membrane. Lead box was removed in panel replacement during 2015 Spring Outage. Bottom Ash Hopper leak was weld repaired and seal plate was trimmed back. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 89,956 |
| LEC 1 | Unplanned | Economizer tube leak. | 1/8/15 8:35 | 1/11/15 8:42 | Economizer tube leak. | Sootblower erosion caused tube failure. | Made proper weld repairs. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 7,707 |
| BEC 1 | Unplanned | EHC Low Pressure Alarm. | 12/27/14 15:22 | 12/28/14 20:17 | Turbine tripped as designed due to low EHC pressure. | Relief valve on pump was stuck open due to debris. | Valve was cleaned and checked for proper operation. Installation of predictive maintenance flow indications. | \$ | 15,511 |
| BEC 3 | Unplanned | Boiler RH tube leak. | 12/22/14 23:59 | 12/24/14 11:00 | Reheat tube leak. | Thermal fatigue during previous shut down and start-up | Damaged tube section was repaired. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ |  |
| LEC 1 | Unplanned | Low RO System Water Recovery Rate. | 12/22/14 20:28 | 12/24/14 4:16 | Economizer tube leak caused the RO system to have a low water recovery rate | Sootblower erosion caused tube failure. | Made proper weld repairs. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 7,225 |
| BEC 3 | Unplanned | Boiler RH tube leak. | 12/20/14 1:12 | 12/22/14 6:17 | Reheat tube leak. Additionally, startup was delayed briefly due to an issue with the cold fill check valve. | Dissimilar metal weld failure. | Damaged tube section was replaced. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ |  |
| LEC 2 | Unplanned | Boiler Waterwall Leak - 7th Floor. | 12/19/14 23:59 | 12/21/14 1:47 | Waterwall tube leak on 7th floor. | Fatigue Stress cracking - overheating. | Made proper weld repairs. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 22,109 |
| BEC 3 | Unplanned | Waterwall Tube Leak 5-1/2 floor NW Corner. | 12/13/14 0:54 | 12/14/14 8:10 | Hole in waterwall tube off the slope of the nose on north wall. | Sootblower erosion caused tube failure. | Pad weld repair of leak. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 128,791 |
| BEC 2 | Unplanned | Boiler Waterwall Leak. | 12/5/14 21:57 | 12/7/14 8:29 | Waterwall tube leak on west wall near inspection port in SW Corner. | Sootblower erosion caused tube failure. | Window weld repair of leak. Window replaced and welded. Area surrounding area inspected and repaired as required. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 6,545 |
| LEC 1 | Unplanned | Boiler SH Tube Leak - Primary Pendant. | 11/25/14 23:38 | 11/27/14 15:11 | Superheat tube leak. | Fatigue Stress cracking - overheating. | Made proper weld repairs. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 18,011 |
| BEC 3 | Unplanned | Boiler tube leak. | 11/22/14 0:00 | 11/23/14 5:22 | 3 Waterwall tube leaks found on north side of waterwall tubes. | Sootblower erosion caused tube failure. | Weld repair of leaks and pad welding of washout on adjacent tubes. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ |  |
| THEC 2 | Unplanned | Generator Relay Protection. | 11/19/14 18:44 | 11/21/14 10:06 | Generator relay protection | Generation ground relay provided false trip signal. | Repaired the bad relay. A routine maintenance plan in place for testing relays. | \$ | 19,984 |
| LEC 2 | Unplanned | Boiler tube leak. | 11/17/14 14:28 | 11/18/14 17:44 | Boiler tube leak. | Fatigue Stress cracking - overheating. | Made proper weld repairs. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | \$ | 11,754 |


| Unit | Outage Category | DOC Primary Reason for the Outage | GADS Start Date/Time of Actual Outage | GADS End Date/Time of Actual Outage | DOC Equipment or Condition that Resulted in the Outage | DOC Description of Equipment Failure (including identified root cause) | DOC Steps Taken to Alleviate Reoccurrence | DOC Change in Energy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BEC 4 | Unplanned | Boiler superheat tube leak. | 11/6/14 5:40 | 11/8/14 12:14 | Dissimilar metal weld failure on tube 11 of panel 12 from the west. | Dissimilar metal weld failure. | Repaired tube. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Due to the numerous dissimilar metal welds in the boiler, a long term inspection plan is in place that rotates inspections based on planned outage schedules. In addition, in the fall of $2015,100 \%$ of this area will be inspected due to the outage duration. | \$ - |
| BEC 4 | Unplanned | SH Division Panel Tube Leak. | 11/3/14 10:43 | 11/5/14 4:36 | Division panel two tube failure followed by 14th floor corner tube external wall tube leak. | Buckstay clip wear and thermal/contractor wear on tube. | Repaired tube. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Additional leak was found and repaired as well. We have identified tubes to be replaced in the planned outage in the fall of 2015. | 548,507 |
| BEC 3 | Unplanned | Waterwall Tube leak 4th Floor. | 11/1/14 9:30 | 11/2/14 8:43 | Waterwall tube leak on 2nd corner tube from the west. | Sootblower erosion caused tube failure. | Weld repair of leak and pad welding of washout on adjacent tube. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | 179,823 |
| BEC 3 | Unplanned | C' Phase on Main Breaker | 10/28/14 11:35 | 10/29/14 1:27 | Unit was taken offline to prevent damage to Main Breaker. | During routine round inspection, "C" Phase switch was found to have and incomplete connection. Hot spot temperature increased exponentially while monitoring with IR Camera | "C" Phase switch was cleaned and exercised to ensure complete connection. All the other switches and phases were inspected. | 107,619 |
| BEC 4 | Unplanned | Waterwall Tube Leak - Nose of Boiler - Center | 9/26/14 22:21 | 9/28/14 0:00 | Nose tube failure | Tube failure due to fire side erosion. | Tube repaired. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. We have identified tubes to be replaced in the planned outage in the fall 2015. | 201,272 |
| BEC 4 | Unplanned | Boiler Tube Leaks. | 8/26/14 23:16 | 8/29/14 9:22 | Nose tube failure and division panel SH tube (2nd panel from east, vertical twin crack) | Tube failure due to fire side erosion. | Tube repaired. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Additional leak was found and repaired as well. We have identified tubes to be replaced in the planned outage in the fall 2015. | 395,067 |
| BEC 3 | Unplanned | Water Wall Tube Leak 2-1/2 <br> Floor \#4 Corner. | 8/2/14 0:01 | 8/3/14 8:53 | The leak was below view port on the north wall just above the slope of coutant bottom on the 2-1/2 level. | Sootblower erosion caused tube failure. | Weld repair and weld overlay of pinhole leak and washout leak of adjacent tube. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | 125,395 |
| THEC 3 | Unplanned | Boiler superheat tube leak. | 7/25/14 9:37 | 7/30/14 10:45 | Low temp super heat tube leak. | Sootblower erosion caused tube failure. | Added $\sim 30$ shields to super heat tubes to alleviate soot blower wash out. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. Waterwall tubes were pad welded. | 48,761 |
| BEC 3 | Unplanned | Boiler tube leak. | 6/30/14 0:43 | 7/1/14 12:52 | Boiler water wall tube leak on the \#4 corner. | Water wall tube was eroded by flyash. | Tube repair completed. During this outage opportunity, additional tubes in the surrounding area where inspected and repaired as needed. | 30,061 |

Minnesota Power's Comparison and Reconciliation of the MISO Accredited Value of the Company's Generators Using MISO Accredited UCAP Values and Integrated Resource Plan Capacity Ratings.

Docket No. E-999/AA-09-961
and
Docket No. E-999/AA-10-884
Dated August 31, 2015

Order Point 28 of the Commission Order states:

Interstate, Minnesota Power, Otter Tail and Xcel shall continue to provide a comparison and reconciliation of the MISO accredited value of their generators using MISO accredited UCAP values and integrated resource plan capacity ratings in future AAA filings. This comparison and reconciliation should be prepared in sufficient detail to allow the Department to understand: (a) the impacts of generation resources that are not network deliverable (i.e., not interconnected), and (b) the possible constraints of utilities' systems and the impact of those constraints.

## MISO Accredited UCAP Values and 2013 Resource Plan Capacity Ratings

Minnesota Power has attached to this filing a comparison of the MISO accredited UCAP values for its generating resources from the MISO Planning Year 15/16 to the capacity ratings used in its 2013 Resource Plan (See attached file named: Attachment 17-Table A which contains Trade Secret Data). The capacity values used in Minnesota Power's 2013 Resource Plan were based on MISO Planning Year 12-13 capacity values; therefore, there are a couple differences between the UCAP values and is noted below.

## Wind Generation

There is an approximate 28 MW difference in the wind UCAP capacity values between MISO Planning Year 15/16 and the 2013 Resource Plan. The higher wind UCAP capacity value used in the MISO Planning Year 15/16 is due to Minnesota Power's investment in additional wind capacity in North Dakota. This is the Bison 4 facility with a nameplate capacity of 205 MW.

## Square Butte

There is an approximate 132 MW difference in the UCAP capacity values between MISO Planning Year 15/16 and the 2013 Resource Plan for the Square Butte generator. The higher Square Butte UCAP capacity value in the 2013 Resource Plan represents Minnesota Power’s share of Square Butte Capacity in 2012, where the Planning Year 15/16 UCAP capacity value represents Minnesota Power’s share of Square Butte capacity in 2015, which decreased by approximately 132 UCAP MW from 2012 to 2015. The decrease in Square Butte capacity share was part of Minnesota Power’s DC Line Purchase and Minnesota Power's broader North Dakota wind initiative that was approved as part of the 2011 and 2013 Resource Plans. This decrease in Minnesota Power’s share of capacity from Square Butte was included in the 2013 Resource Plan, although the decrease is not reflected in Attachment 17 Table A because the 2013 Resource Plan
capacity is a snapshot of MP's capacity in the Summer of Planning Year 12-13 and the decrease takes place 2014.

## Thomson Hydro

There is an approximate 56 MW difference in the pondage hydro UCAP capacity values between MISO Planning Year 15/16 and the 2013 Resource Plan. The pondage hydro generation represents the Thomson hydro capacity. Due to the catastrophic outage from flooding that occurred in June 2012, only a portion of the Thomson hydro facility that has returned to service since the flood was able to be accredited for the Planning Year 15/16. When the entire Thomson hydro returns to service the UCAP values will be comparable to the 2013 Resource Plan.

Taconite Harbor 3: The capacity of this unit has not been accredited since the unit was suspended per the MISO Attachment Y submittal in 2014

## Bilateral Purchase Transactions

There are two bilateral power purchase agreements that start in Planning Year 15/16. Minnesota Power purchased 50 MW of UCAP capacity from Xcel for the Planning Year 15/16. This purchase was made to replace the capacity loss at Thomson hydro due to station being offline from the 2012 flooding. Minnesota Power also purchased 49 MW of UCAP capacity from Manitoba Hydro for the duration of June 1, 2015 through May 31, 2020. The purchased capacity from Manitoba Hydro was entered into after the filing of Minnesota Power’s 2013 Resource Plan and was entered into as part of the Company’s Bilateral Bridge Strategy in its Near Term Action Plan.

There was one bilateral power purchase agreement that started prior to Planning Year 15/16. Minnesota Power purchased 50 MW of UCAP capacity from Minnkota Power Cooperative, Inc. for the duration of January 1, 2014 through May 31, 2020. The purchased capacity from Minnkota was included in the resource plan as a capacity resource as part of the Company's Bilateral Bridge Strategy in its Near Term Action Plan.

## Minnesota Power Generation with Non-Network Interconnection Agreements with MISO

The Midcontinent ISO Generation Deliverability Test Results can be found on the MISO website at the following link:

## https://www.misoenergy.org/Library/Agreements/Pages/InterconnectionAgreements.aspx

We have attached to this filing the current Midcontinent ISO Generation Deliverability Results file that has been formatted to highlight the Minnesota Power generating resources and their interconnection service designations. (See attached file named: Attachment 17-Table B)

It should be noted that under MISO’s annual resource adequacy program that started June 1, 2013 there is no longer a "local" designation of capacity resources. All capacity resources are considered equal as long as all the requirements are met per the MISO Module E tariff. There remain two types of interconnection transmission service for generating sources: Network Resource Interconnection Service (NRIS) and Energy Resource Interconnection Service (ERIS). Under the previous MISO monthly resource adequacy program a generator with ERIS status was designated "local" capacity, where under the new MISO resource adequacy program a generator with ERIS status and transmission rights to a load in MISO is designated as a capacity resource similar to a generator with NRIS within its Local Resource Zone.

With the new resource adequacy program no longer designating capacity with ERIS status as "Local", Minnesota Power will address the following questions by discussing capacity resources on its system with ERIS interconnection service.

## Identification of resources assigned, in full or in part, ERIS status based on Minnesota Power's Deliverability Results from MISO and why these resources are designated as such.

Minnesota Power has two capacity resources that currently have ERIS interconnection service with MISO; the Taconite Ridge wind farm and the Taconite Harbor thermal generating facility. Details for each are provided below:

Taconite Ridge: An ERIS generation interconnection was utilized during the project implementation for this wind farm. To make this resource eligible for capacity credit Minnesota Power worked with the MISO transmission request process to gain 25MW of transmission rights from the generator to Minnesota Power's load. With this transmission service the generation from the Taconite Ridge facility would be eligible for capacity credit to serve Minnesota Power's customers.

To acquire enough transmission service to allow the Taconite Ridge wind farm to be eligible to serve any MISO customer, or become network deliverable, there would be bulk transmission upgrades required. Minnesota Power did not see the economic benefit of having customers pay for additional transmission upgrades to allow capacity from the wind farm to be eligible to be transferred to other Midwest ISO footprint customers.

Taconite Harbor: This resource has a small portion (approximately 25MW) of its total
transmission service (225MW) that is ERIS due to a transmission limitation on Minnesota Power's northeastern system. Since Taconite Harbor Unit 3 was suspended and the combined accredited capacity of the first two units does not exceed the 200MW of NRIS attributed to the station, the ERIS was allocated to Unit 3 and is not planned to be used

## Impact to Minnesota Power's Integrated Resource Plan (as a result of these resources having ERIS interconnection service)

As Minnesota Power's 2013Resource Plan identifies how Minnesota Power will serve its local customers with available generation and power purchases, the definition of ERIS vs. NRIS does not impact its long-term plan as all of the capacity that has ERIS service is able to count for Minnesota Power's capacity requirement. These MISO Resource Adequacy capacity attributes are included as part of the larger capacity position for each resource as it is being added to Minnesota Power's long-term expansion plan.

## Minnesota Power's plan to address the ERIS resources and make them NRIS

See paragraph on Impact to Minnesota Power’s Integrated Resource Plan above. Minnesota Power continues to ensure its customers receive the maximum economic capacity available from its resources.

| MN Power Thermal Generation |  | Planning Year 1516 UCAP Value | 2013 Resource Plan Capacity ICAP Values | 2013 Resource <br> Plan Capacity UCAP Values Per DOC IR 4 |
| :---: | :---: | :---: | :---: | :---: |
| Boswell 1 | [TRADE SECRET DATA HAS BEEN EXCISED] |  |  |  |
|  |  |  |  |  |
| Boswell 2 |  |  |  |  |
| Boswell 3 |  |  |  |  |
| Boswell 4 |  |  |  |  |
| Hibbard 3\&4 |  |  |  |  |
| Laskin 1 |  |  |  |  |
| Laskin 2 |  |  |  |  |
| Young 2/Square Butte |  |  |  |  |
| Taconite Harbor 1 |  |  |  |  |
| Taconite Harbor 2 |  |  |  |  |
| Taconite Harbor 3 |  |  |  |  |
| SAPPI TG 5 |  |  |  |  |
| Total |  |  |  |  |
| MN Pow | dro Generation | Planning Year 1516 UCAP Value | 2013 Resource <br> Plan Capacity ICAP Values | 2013 Resource <br> Plan Capacity UCAP Values Per DOC IR 4 |
|  | [TRADE SECRET DATA HAS BEEN EXCISED] |  |  |  |
| Pondage [TRADE |  |  |  |  |
| Run of River |  |  |  |  |
| Rapids Energy Center |  |  |  |  |
| Total |  |  |  |  |



TABLE B

Midwest ISO Interconnection Service

| CPNode | Operator Name | Total Interconnection Service | NRIS | NRIS (Local) | ERIS |
| :---: | :---: | :---: | :---: | :---: | :---: |
| MP.BISON1 |  | 496.6 | 496.6 | 0 |  |
| MP.BLNCHR123 | BLANCHARD 1 | 18 | 18 | 0 |  |
| MP.BOS111 | BOSWELL 1 | 75 | 75 | 0 |  |
| MP.BOS112 | BOSWELL 2 | 75 | 75 | 0 |  |
| MP.BOS233 | BOSWELL 3 | 364.5 | 364.5 | 0 |  |
| MP.FONDLA1 | FOND-DU-LAC 1 | 12 | 12 | 0 |  |
| MP.HIBBAR3 | HIBBARD 3 | 34 | 34 | 0 |  |
| MP.HIBBAR4 | HIBBARD 4 | 35 | 35 | 0 |  |
| MP.LASKIN1 | LASKIN 1 | 60.5 | 60.5 | 0 |  |
| MP.LASKIN2 | LASKIN 2 | 60.5 | 60.5 | 0 |  |
| MP.MP_BOS4 | BOSWELL 4 JOU MP (MP Share) | 476 | 476 | 0 |  |
| MP.OLIVER12 | MP OLIVERCO OLIVER_1-2_UNIT | 101 |  | 0 | 101 |
| MP.POTLTUN_5 | POTLATCH 5 | 41.5 | 41.5 | 0 |  |
| MP.TACHB1 | TACONITE HARBOR 1 | 76.0 | 76 | 0 |  |
| MP.TACHB2 | TACONITE HARBOR 2 | 74.0 | 74 | 0 |  |
| MP.TACHB3 | TACONITE HARBOR 3 | 75.0 | 50 | 0 | 25 |
| MP.TACRIDGE1 | MP MINNTAC MINNTA_1_UNIT | 25 | 0 | 0 | 25 |
| MP.THOMSON |  | 77.3 | 39.3 | 0 |  |
| OTP.Y2ACGEN.MP | YOUNG 2 JOU MP | 134.9 | 134.9 | 0 |  |

## Congestion Costs Analysis

Minnesota Power is providing, in a separate Access database, hourly Day-Ahead Locational Marginal Price data, including energy, line losses and congestion charges for each of its generation nodes, load node and Minnesota Hub for the time period of July 2014 through June 2015. The Access database also includes all hours in which congestion costs were incurred between our generator and load nodes (paths). Please note the access database is considered Trade Secret Data and will be provided separately on a cd as it is not in a format that can be filed.

Below is the reference guide to the Access database
The table "MP DA LMP" includes the Day Ahead LMPs for each of Minnesota Power's generation nodes, our load node and Minnesota Hub node for each hour from July 1, 2014 through June 30, 2015. The table columns are defined as follows:

- Localday - calendar day of the year.
- HE - hour ending
- Location - MISO node name
- Market - Day Ahead market
- Lmp - Locational Marginal Price
- Mcc - Marginal Congestion Component of the LMP
- Mlc - Marginal Loss Component of the LMP
- Energy - Energy Component of the LMP

The table "DA Congestion" includes the data related to Minnesota Power's calculation of Day Ahead Congestion costs for the paths between our generation nodes and our load node for July 1, 2014 through June 30, 2015. The table columns are defined as follows:

- Localday - calendar day of the year.
- HE - hour ending
- Mmi Nodename - MISO node name
- DA RE Mwh - Day Ahead cleared MWh at the generation node that are used in the calculation of the Day Ahead Congestion for the path between the generator and load
- Da Mcc Gen - Day Ahead Marginal Congestion Component of the Day Ahead LMP at the generator
- Da Mcc Load - Day Ahead Marginal Congestion Component of the Day Ahead LMP at Minnesota Power's load node for the corresponding day and hour ending
- DA Congestion - the calculated congestion between the generator and load for the given day and hour ending.

The table "HVDC Utilization" included data related to the hedged congestion due to the transfer of energy across the HVDC line for July 1, 2014 through June 30, 2015. The table columns are defined as follows:

- Localday - calendar day of the year.
- HE - hour ending
- Mmi Nodename - MISO node name
- DA RE Mwh - Day Ahead cleared MWh on the DC line that are used in the calculation of the Day Ahead Congestion hedging on the DC line
- Da Mcc Gen - Day Ahead Marginal Congestion Component of the Day Ahead LMP at the west end of the DC line - MISO node name MP.HVDCW
- Da Mcc Load - Day Ahead Marginal Congestion Component of the Day Ahead LMP at the east end of the DC line - MISO node name MP.HVDCE
- DA Congestion - the calculated congestion between the west end of the DC line and east end of the DC line for the given day and hour ending.

The table below shows the sum of the qualifying congestion costs by path along with the FTR revenues for the top 10 paths.

As shown by the information provided, Minnesota Power has no FTRs associated with the MP.BISON1 to MP.MP path. This is because at the time of requesting ARR's for 2013 Minnesota Power did not have firm transmission from MP.BISON1 to MP.MP. It should also be noted that the FTRs associated with the MP.HVDCE to MP.MP path, are allocated to MP.Y2ACGEN.MP, MP.BISON1 and MP.OLIVER12. This represents the path between the east end of the DC line and Minnesota Power's load zone. MP.HVDCE is the node at the east end of the DC line where Minnesota Power sells power to the MISO market. HVDC Utilization is allocated to MP.Y2ACGEN.MP, MP.BISON1 and MP.OLIVER12 on a pro-rata basis based on the total DA Congestion on these paths.

Minnesota Power is always looking at ways to provide cost-effective delivery. Minnesota Power’s ARR strategy has been to schedule FTRs up to the amount that MISO allows between generation and the load zone in order to sell electricity into the MISO market at the same price as it is being purchased.

Day Ahead Congestion
by Path
July 2014 - June 2015
Path

|  | Total DA | HVDC |
| :--- | :--- | :--- |
| Node to MP.MP | Congestion | Utilization | FTR Revenues Net Congestion

MP.BISON1
2,659,249.13 (3,621,271.47)
OTP.Y2ACGEN.MP
1,876,136.31
$(2,554,856.12) \quad 307,361.72$
(962,022.34)
$(371,358.09)$
MP.OLIVER12
929,230.52 (1,265,393.28)
$(49,499.26)$
$(385,662.02)$
263,466.46
$(467,840.68)$
$(458,944.44)$
$(1,012,846.78)$
$722,410.90$

545,006.10

|  |  | $134,523.18$ | $(129,235.94)$ | $5,287.24$ |
| ---: | :--- | ---: | ---: | ---: |
| 7 | MP.BOS111 | $126,682.78$ | $(110,612.58)$ | $16,070.20$ |
| 8 | MP.BLNCHR123 | $51,819.03$ | $(17,416.90)$ | $34,402.13$ |
| 9 | MP.TACHB3 | $51,473.24$ | $(34,604.42)$ | $16,868.82$ |
| 10 | MP.TACHB1 | $40,331.04$ | $(18,555.96)$ | $21,775.08$ |

subtotal of top $10 \quad 7,136,862.24 \quad(7,441,520.87)(1,524,354.56)(1,829,013.19)$

| MP.TACHB2 | $40,009.41$ | $40,009.41$ |
| :--- | ---: | ---: |
| MP.SLVRBAY2 | $13,398.73$ | $13,398.73$ |
| MP.LASKIN2 | $10,152.59$ | $10,152.59$ |
| MP.LASKIN1 | $7,633.88$ | $7,633.88$ |
| MP.SLVRBAY1 | $6,727.28$ | $6,727.28$ |
| MP.TACRIDGE1 | $6,091.94$ | $6,091.94$ |
| MP.HIBBAR3 | - | - |
| MINN.HUB | - | - |

(226.15)
(226.15)

MP.FONDLA1

| MP.THOMSON | $(15,056.09)$ |
| :--- | :--- |
| MP.POTLTUN 5 | $(24,232.01)$ |

Grand Total $\quad 7,173,344.51 \quad(7,441,520.87)(1,524,354.56)(1,792,530.92)$

## Plant Outage Contingency Plans

## Docket No. E-999/AA-08-995 dated March 15, 2010

## Plant Outage Contingency Plans to address the following for the period of July 2014-June 2015:

1. Identification for the period of July 2014-June 2015 any and all contractors (and associated contracts) that increased replacement energy costs due to an extension of the plant outage days as a result of delays and/or lack of performance.
2. Please provide a narrative fully explaining the reasons for the delays and/or lack of performance for each of the contracts identified above.
3. Please describe the lessons learned and the contingency plans developed by the Company to mitigate against future risk of delays or lack of performance, when contractors perform poorly and increase costs during plant outages.

## Identification and explanation of outage delays

During this period, there were no delays or lack of performance by contractors identified which impacted the length of the outages and/or the replacement energy costs.

## Reasons for Delay and/or Lack of Performance

During this period, there were no delays or lack of performance by contractors identified which impacted the length of the outages and/or the replacement energy costs.

## Lessons Learned and Contingency plans utilized

During this period, there were no delays or lack of performance by contractors identified which impacted the length of the outages and/or the replacement energy costs.

## Oliver I and II Wind Curtailment Reporting

 Docket No. E015/M-05-975; Dated December 20, 2005Minnesota Power
Wind Energy Purchase Agreement with FPL
Reporting Period: July 1, 2014 - June 30, 2015

| FPL Wind <br> Energy in <br> FAC (MWh) | Curtailments <br> of Wind <br> Energy MWh | Curtailment <br> Payments <br> by MP | Reason <br> Codes | Oliver County I |
| :---: | :---: | :---: | :---: | :---: |
| [TRADE SECRET <br> DATA HAS BEEN <br> EXCISED] |  |  |  |  |


| Jul-14 | None |  | None | None | None |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Aug-14 | 2 |  | \$120.12 | 2 | Oliver County is a Dispatchable Intermittent Unit (DIR) within MISO. The offer price is set so that if the Locational Marginal Price (LMP) drops below the amount of a compensated curtailment payment amount on the PPA, then the unit will be curtailed. When this happens, the LMP is negative and Minnesota Power would be paying MISO to generate at this unit, or being paid not to generate. With the LMP this negative, the cost paid under the PPA is less than what Minnesota Power would have paid MISO if we would have generated. |
| Sep-14 | None |  | None | None | None |
| Oct-14 | None |  | None | None | None |
| Nov-14 | 2 |  | \$153.18 | 2 | Oliver County is a Dispatchable Intermittent Unit (DIR) within MISO. The offer price is set so that if the Locational Marginal Price (LMP) drops below the amount of a compensated curtailment payment amount on the PPA, then the unit will be curtailed. When this happens, the LMP is negative and Minnesota Power would be paying MISO to generate at this unit, or being paid not to generate. With the LMP this negative, the cost paid under the PPA is less than what Minnesota Power would have paid MISO if we would have generated. |
| Dec-14 | None |  | None | None | None |
| Jan-15 | None |  | None | None | None |
| Feb-15 | None |  | None | None | None |
| Mar-15 | $<1$ |  | \$18.35 | 2 | Oliver County is a Dispatchable Intermittent Unit (DIR) within MISO. The offer price is set so that if the Locational Marginal Price (LMP) drops below the amount of a compensated curtailment payment amount on the PPA, then the unit will be curtailed. When this happens, the LMP is negative and Minnesota Power would be paying MISO to generate at this unit, or being paid not to generate. With the LMP this negative, the cost paid under the PPA is less than what Minnesota Power would have paid MISO if we would have generated. |
| Apr-15 | None |  | None | None | None |
| May-15 | None |  | None | None | None |
| Jun-15 | None |  | None | None | None |
| Total | 4 | \$ | 291.65 |  |  |

1. Minnesota Power's refusal to accept Contract Energy at the Point of Delivery as a result of low
load conditions that justify not accepting Contract Energy; or
2. The availability of less expensive energy from another source; or
3. Minnesota Power's election to use non-firm transmission services to deliver Contract Energy.

Minnesota Power
Wind Energy Purchase Agreement with FPL
Reporting Period: July 1, 2014 - June 30, 2015


| Jul-14 | None |  | None | None | None |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Aug-14 | 1 |  | \$86.62 | 2 | Oliver County is a Dispatchable Intermittent Unit (DIR) within MISO. The offer price is set so that if the Locational Marginal Price (LMP) drops below the amount of a compensated curtailment payment amount on the PPA, then the unit will be curtailed. When this happens, the LMP is negative and Minnesota Power would be paying MISO to generate at this unit, or being paid not to generate. With the LMP this negative, the cost paid under the PPA is less than what Minnesota Power would have paid MISO if we would have generated. |
| Sep-14 | None |  | None | None | None |
| Oct-14 | None |  | None | None | None |
| Nov-14 | 2 |  | \$163.42 | 2 | Oliver County is a Dispatchable Intermittent Unit (DIR) within MISO. The offer price is set so that if the Locational Marginal Price (LMP) drops below the amount of a compensated curtailment payment amount on the PPA, then the unit will be curtailed. When this happens, the LMP is negative and Minnesota Power would be paying MISO to generate at this unit, or being paid not to generate. With the LMP this negative, the cost paid under the PPA is less than what Minnesota Power would have paid MISO if we would have generated. |
| Dec-14 | None |  | None | None | None |
| Jan-15 | None |  | None | None | None |
| Feb-15 | None |  | None | None | None |
| Mar-15 | 2 |  | \$150.32 | 2 | Oliver County is a Dispatchable Intermittent Unit (DIR) within MISO. The offer price is set so that if the Locational Marginal Price (LMP) drops below the amount of a compensated curtailment payment amount on the PPA, then the unit will be curtailed. When this happens, the LMP is negative and Minnesota Power would be paying MISO to generate at this unit, or being paid not to generate. With the LMP this negative, the cost paid under the PPA is less than what Minnesota Power would have paid MISO if we would have generated. |
| Apr-15 | None |  | None | None | None |
| May-15 | None |  | None | None | None |
| Jun-15 | None |  | None | None | None |
| Total | 5 | \$ | 400.36 |  |  |

1. Minnesota Power's refusal to accept Contract Energy at the Point of Delivery as a result of low load conditions that justify not accepting Contract Energy; or
2. The availability of less expensive energy from another source; or
. Minnesota Power's election to use non-firm transmission services to deliver Contract Energy.

# Bison Wind Energy Curtailment Reporting 

Docket No. E015/M-11-234; Dated September 8, 2011 Docket No. E015/M-11-626; Dated November 2, 2011

## Minnesota Power

Bison Wind Energy Curtailment Reporting
HAS BEEN EXCISED
Reporting Period: July 1, 2014 - June 30, 2015

| Delivered | Lost |
| :---: | :---: |
| MWh | MWh |

[TRADE SECRET
DATA HAS BEEN EXCISED]



[^0]:    Sr
    Enc.
    c: John Lindell (via U.S. Mail)
    Service List

[^1]:    1/ 2014 FERC Form 1 page 320.
    2/Attachment 12 page 3 of 5, lines 10, 6, 11, 12, 7, 20, 21 and 23. 3/ 2013 FERC Form 1 page 320.

