MONTANA-DAKOTA
UTILITIES CO.
A Division of MDU Resources Group, Inc.

400 North Fourth Street
Bismarck, ND 58501
(701) 222-7900

December 28, 2011

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
Office of the Secretary
888 First St., NE
Washington, D.C. 20426

RE: Montana-Dakota Utilities Co.
Triennial Review
Docket Nos. ER98-4289-___

Dear Secretary Bose:

Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc., herewith electronically files its Updated Market Power Analysis. Montana-Dakota's updated market analysis filed pursuant to the Commission's Order granting authority to sell electric energy and capacity at market based rates, was accepted by the Commission in its Order issued on November 18, 2005 in Docket Nos. ER98-4289-003, ER98-4289-004 and ER98-4289-005.

Sincerely,

*/s/ Tamie A. Aberle*

Tamie A. Aberle
Regulatory Affairs Manager
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Enclosure
Cc: Service List

Montana-Dakota Utilities Co.
Docket No. ER98-4289-___
Updated Market Analysis

Service List

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Robert Nelson
Montana Consumer Counsel
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Helena, MT 59620-1703

Ms. Kate Whitney, Administrator
Utility Division
Montana Public Service Commission
1701 Prospect Avenue
P.O. Box 202601
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Executive Secretary
North Dakota Public Service Commission
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Ms. Patricia Van Gerpen
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Secretary & Chief Counsel
Wyoming Public Service Commission
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Cheyenne, WY 82002

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

Montana-Dakota Utilities Co. Docket No. ER98-4289-___

# UPDATED MARKET POWER ANALYSIS

Pursuant to section 205 of the Federal Power Act (FPA), 16 U.S.C. §824d (2000), Rules 205 and 207 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (Commission), 18 C.F.R. § 385.205 (2007) and 18 C.F.R § 385.207 (2007), and Part 35 of the Commission's regulations, 18 C.F.R Part 35 (2007), Montana-Dakota Utilities Co., a Division of MDU Resources Group Inc. (Montana-Dakota) hereby submits for filing its updated market power analysis in support of its continued authority to sell energy, capacity and ancillary services under its FERC Electric Tariff, Original Volume No. 2.

## I. Communications

All communications and service related to this application should be directed to the following:


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## II. Description of Applicant

Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc. is a public utility engaged inter alia, in the production, transmission, distribution and sale of electricity in the states of Montana, North Dakota, South Dakota and Wyoming. Montana-Dakota provides retail electric service to approximately 120,000 customers located in 176 communities within this four-state region. Montana-Dakota's operations in the State of Wyoming

constitute a separate system. Montana-Dakota operates an integrated electric system in Montana, North and South Dakota.

Montana-Dakota owns 555 MW of generating capacity, and also purchases 110 MW of capacity during the months of May through September through a long-term contract to supply its integrated system. This generation is located in the Central region as identified in Appendix D of Order No. 697-A. Montana-Dakota is a transmission owning member of the Midwest Independent Transmission System Operator (MISO). MISO is a FERC approved Regional Transmission Organization that currently administers region-wide day-ahead and real-time energy markets. See Attachment A, page 1, for Montana-Dakota's market based rate authority and a description of its generation assets and Attachment A, page 2, for a description of its electric transmission assets.

## III. Updated Market Power Analysis

The Commission allows power sales at market-based rates if the seller and its affiliates do not have, or have adequately mitigated, horizontal and vertical market power. The Commission has also codified affiliate restrictions in its regulations which must be satisfied on an ongoing basis.

### A. Horizontal Market Power

In Order No. 697 the Commission codified two indicative screens for assessing horizontal market power and stated that there is a rebuttable presumption of market power if a seller fails either.

Montana-Dakota has prepared the indicative screens for assessing horizontal market power; the Pivotal Supplier screen and the Wholesale Market Share screen as shown on Attachment B. Montana-Dakota passed both indicative screen tests. On the Pivotal Supplier screen, Montana-Dakota's uncommitted capacity is 339 MW compared to the net uncommitted capacity of 23,332 MW in MISO's Balancing Authority area. The results of the Market Share Analysis screen for Montana-Dakota for each of the four seasonal period shows a total uncommitted capacity of less than 1.0% of total uncommitted capacity, which is well below the 20% threshold requirement of the screen test. As noted, Montana-Dakota used integrated hourly data plus losses for the Average Peak Native Load in the Season as the "needle peak" or instantaneous peak demand, is not available. Included in this filing as Attachment C are workpapers containing data used to perform the two screen tests. Attachment C, pages 36-57 are the data/analysis and description of information provided by MISO for the aggregate MISO data for the two indicative screens.

B. Vertical Market Power

In January 2002, the FERC authorized Montana-Dakota to transfer operational control of its transmission facilities that operate at 100 kV or above in the states of Montana, North Dakota and South Dakota to MISO, Montana-Dakota Utilities Co., 98 FERC ¶62,049 (2002). MISO assumed responsibility as Transmission Provider over the systems of its member utilities, including Montana-Dakota, on February 1, 2002. The rates, terms and conditions of transmission service being provided by MISO are prescribed in the MISO OATT. In early January 2009, when the MISO Ancillary Services Market becomes operational, Montana-Dakota became a Local Balancing Authority (LBA) within the MISO Balancing Authority (BA).

C. Barriers to Entry

Montana-Dakota is a Division of MDU Resources Group Inc., (MDU Resources), a natural resources company. Williston Basin Interstate Pipeline Company, a subsidiary of MDU Resources provides interstate natural gas transmission, storage and production in the same territory as Montana-Dakota. Great Plains Natural Gas Co., a Division of MDU Resources distributes natural gas in western Minnesota and southeastern North Dakota. Cascade Natural Gas Corporation and Intermountain Gas Company are also public utilities and are subsidiaries of MDU Resources distributing natural gas to 252,000 natural gas customers in portions of Washington and Oregon and 300,000 natural gas customers in southern Idaho respectively. While Montana-Dakota is affiliated with natural gas pipelines and local distribution companies, the Commission has established a presumption that such affiliation does not create barriers to entry. Montana-Dakota does not own or control any sites for generation capacity development that can be used to erect barriers to entry in MISO. Montana-Dakota does not own or control physical sources of coal supplies or have control over who may access transportation of coal. Montana-Dakota has not erected barriers to entry into the relevant market and will not erect barriers to entry into the relevant market. Accordingly, Montana-Dakota satisfies the Commission's standards with regard to vertical market power.

IV. Seller Category

Montana-Dakota's available generating capacity of 665 MW is located in FERC's Central Geographic Region and Montana-Dakota owns transmission facilities located in the same region, which are in the MISO control area. Pursuant to the definition of Category 1 and 2 sellers in 18 CFR 35.36 (a), Montana-Dakota submits it is a Category 2 seller.

V. Conclusion

Based on the foregoing facts and the attached analysis, Montana-Dakota requests that the Commission issue an order accepting its updated market power analysis as satisfying the Commission's requirements for continued market-based rate authorization.

Dated this 28th day of December 2011.

Montana-Dakota Utilities Co.
A Division of MDU Resources Group, Inc.

*/s/ Tamie A. Aberle*

Tamie A. Aberle
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## MONTANA-DAKOTA UTILITIES CO.
## MARKET-BASED RATE AUTHORITY AND GENERATION ASSETS

| Filing Entity and its Energy Affiliates | Docket # where MBR authority was granted | Generation Name | Owned By | Controlled By | Date Control Transferred | Location | | In-Service Date | Nameplate Rating-MW |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Balancing Authority Area | Geographic Region (per Appendix D Order 697-A | | |
| Montana-Dakota Utilities Co. | ER98-4289-000 | RM Heskett Station | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Nov. 1954 | 115.0 |
| | | Glendive Combustion Turbine | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Jun. 1979 | 85.5 |
| | | Lewis & Clark Station | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Oct. 1958 | 50.0 |
| | | Diamond Willow | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Dec. 2007 | 30.0 |
| | | Miles City Combustion Turbine | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Jun. 1972 | 23.3 |
| | | Cedar Hills | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Jun. 2010 | 19.5 |
| | | Williston Combustion Turbine | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Nov. 1953 | 10.0 |
| | | Glen Ullin Station 6 | Montana-Dakota | Montana-Dakota | 2/1/2002 | MISO | Central | Jul. 2009 | 5.3 |
| | | Big Stone I | Montana-Dakota 1/ | Partners | 2/1/2002 | MISO | Central | May 1975 | 103.7 |
| | | Coyote Station | Montana-Dakota 2/ | Partners | 2/1/2002 | MISO | Central | May 1981 | 112.5 |

1/ Montana-Dakota owns 22.7% share of the Big Stone Plant's 457 MW of Capacity, Otter Tail Power Co. owns 53.9% and Northwestern Energy owns 23.4%.
2/ Montana-Dakota owns 25.0% share of the Coyote Station's 450 MW of Capacity, Otter Tail Power Co. owns 35%, and Minnkota owns 30% and Northwestern Energy owns 10%.

**MONTANA-DAKOTA UTILITIES CO.**
**ELECTRIC TRANSMISSION ASSETS and/or**
**NATURAL GAS INTRASTATE PIPELINES**
**and/or GAS STORAGE FACILITIES**

| Filing Entity and its Energy Affiliates | Asset Name and Use | Owned By | Controlled By | Date Control Transferred | Balancing Authority Area | Location Geographic Region (per Appendix D Order 697-A | Size |
|---|---|---|---|---|---|---|---|
| Montana-Dakota Utilities Co. | Transmission Facilities | Montana-Dakota Utilities Co. | Montana-Dakota Utilities Co. | 2/1/2002 | MISO | Central | Various Sizes = 3,063 Miles |

**MONTANA-DAKOTA UTILITIES CO.**
**PIVOTAL SUPPLIER ANALYSIS**
**HISTORICAL DATA DECEMBER 2009-NOVEMBER 2010**

**Part I - Pivotal Supplier Analysis**

| | | MW | Reference |
|---|---|---|---|
| | **Seller and Affliate Capacity** | | |
| A | Installed Capacity | 555 | Attachment C, Page 1 |
| B | Long-Term Firm Purchases | 110 | Attachment C, Page 1 |
| C | Long-Term Firm Sales | 0 | |
| D | Imported Power | 0 | |
| | **Non-Affiliate Capacity** | | |
| E | Installed Capacity | 134,924 | Attachment C, Page 54 |
| F | Long-Term Firm Purchases | 5,474 | Attachment C, Page 54 |
| G | Long-Term Firm Sales | (11,858) | Attachment C, Page 54 |
| H | Imported Power | 8,402 | Attachment C, Page 54 |
| I | Balancing Authority Area Reserve Requirement | (3,354) | Attachment C, Page 56 |
| J | Amount of Line I Attributable to Seller, if any | | |
| K | Total Uncommitted Supply (Sum A,B,C,D,E,F,G,H,I,M) | 37,986 | |
| | **Load** | | |
| L | Balancing Authority Area Annual Peak Load | 110,921 | Attachment C, Page 57 |
| M | Average Daily Peak Native Load in Peak Month | (96,267) | Attachment C, Page 57 |
| N | Amount of Line M Attributable to Seller, if any | (326) | Attachment C, Page 11 |
| O | Wholesale Load (Sum L,M) | 14,654 | |
| P | Net Uncommitted Capacity (K-O) | 23,332 | |
| Q | Seller's Uncommitted Capacity (Sum A,B,C,D,J,N) | 339 | |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P)<br>(Fail if Line Q > Line P) | PASS | |

MONTANA-DAKOTA UTILITIES CO.
MARKET SHARE ANALYSIS
HISTORICAL DATA DECEMBER 2009-NOVEMBER 2010

| | Part II - Market Share Analysis | Dec 09-Feb 10 Winter (MW) | Mar 10-May 10 Spring (MW) | Jun 10-Aug 10 Summer (MW) | Sep 10-Nov 10 Fall (MW) | Reference |
|---|---|---|---|---|---|---|
| | **Seller and Affiliate Capacity** | | | | | |
| A | Installed Capacity | 555 | 555 | 555 | 555 | Attachment C, Page 1 |
| B | Long-Term Firm Purchases | 0 | 110 | 110 | 110 | Attachment C, Page 1 |
| C | Long-Term Firm Sales | 0 | 0 | 0 | 0 | |
| D | Seasonal Average Planned Outages | (5) | (36) | (17) | (27) | Attachment C, Pages 27-35 |
| E | Imported Power | 0 | 0 | 0 | 0 | |
| | **Capacity Deductions** | | | | | |
| F | Average Peak Native Load in the Season 1/ | (78,837) | (69,209) | (92,755) | (71,825) | Attachment C, Page 45 |
| G | Amount of Line F Attributable to Seller, if any 1/ | (350) | (288) | (309) | (291) | Attachment C, Pages 11-26 |
| H | Amount of Line F Attributable to Others, if any | (78,487) | (68,921) | (92,446) | (71,534) | |
| I | Balancing Authority Area Reserve Requirement | (3,354) | (3,354) | (3,354) | (3,354) | Attachment C, Page 44 |
| J | Amount of Line I Attributable to Seller, if any | | | | | |
| K | Amount of Line I Attributable to Others, if any | (3,354) | (3,354) | (3,354) | (3,354) | |
| | **Non-Affiliate Capacity** | | | | | |
| L | Installed Capacity | 133,601 | 135,335 | 134,924 | 137,323 | Attachment C, Page 54 |
| M | Long-Term Firm Purchases | 6,475 | 5,791 | 5,474 | 5,383 | Attachment C, Page 54 |
| N | Long-Term Firm Sales | (12,195) | (11,491) | (11,858) | (11,218) | Attachment C, Page 54 |
| O | Local Seasonal Average Planned Outages | (8,966) | (6,240) | (1,432) | (1,332) | Attachment C, Page 54 |
| P | Uncommitted Capacity Imports | 13,879 | 13,080 | 8,402 | 9,117 | Attachment C, Page 54 |
| | **Supply Calculation** | | | | | |
| Q | Total Competing Supply (Sum L,M,N,O,P,H,K) | 50,953 | 64,200 | 39,710 | 64,385 | |
| R | Seller's Uncommitted Capacity (Sum A,B,C,D,E,G,J) | 200 | 341 | 339 | 347 | |
| S | Total Seasonal Uncommitted Capacity (Sum Q,R) | 51,153 | 64,541 | 40,049 | 64,732 | |
| T | **Seller's Market Share (R/S)** | Pass | Pass | Pass | Pass | |
| | Result's (Pass if < 20%) | 0.4% | 0.5% | 0.8% | 0.5% | |
| | (Fail if >= 20%) | | | | | |

1/ Integrated Hourly + Losses

**MONTANA-DAKOTA UTILITIES CO.**
**AVAILABLE GENERATING CAPACITY**
**AS OF CALENDAR YEAR 2010**

| **Capacity:** | **MW 1/** |
|---|---|
| RM Heskett Station | 115.0 |
| Glendive Combustion Turbine | 85.5 |
| Lewis & Clark Station | 50.0 |
| Diamond Willow Wind Stations | 30.0 |
| Miles City Combustion Turbine | 23.3 |
| Cedar Hills | 19.5 |
| Williston Combustion Turbine | 10.0 |
| Glen Ullin Station 6 | 5.3 |
| Big Stone Plant 2/ | 103.7 |
| Coyote Station 3/ | 112.5 |
| | 554.8 |
| **Purchased Capacity:** | |
| Northern States Power 4/ | 110.0 |
| Total Montana-Dakota Available Capacity | 664.8 |

1/ As Reported on the 2007 EIA-860 Report-Nameplate Capacity. See Attachment D workpapers, pages 2-8.
2/ Represents Montana-Dakota's 22.7% share of Big Stone Plant's 457 MW of Capacity
3/ Represents Montana-Dakota's 25.0% share of Coyote Station's 450 MW of Capacity
4/ The NSP capacity contract is applicable for the months of May-September.

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
|---|---|---|

NOTICE: This report is mandatory under the Federal Energy Administration Act of 1974 (Public Law 93-275). Failure to comply may result in criminal fines, civil penalties and other sanctions as provided by law. For further information concerning sanctions and data protections see the provision on sanctions and the provision concerning confidentiality of information in the instructions. **Title 18 USC 1001 makes it a criminal offense for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction.**

## SCHEDULE 1. IDENTIFICATION

### Survey Contact

Contact Person: Brian Giggee
Title: Electrical Systems Engineer
Address: 400 N 4th St
City/State/Zip: Bismarck ND 58501
Email: brian.giggee@mdu.com
Telephone: (701) 222-7907 Fax:

### Supervisor for Contact Person for Survey

Contact Person: Darcy Neigum
Title: System Ops. and Planning Mngr
Address: 400 N 4th St
City/State/Zip: Bismarck ND 58501
Email: darcy.neigum@mdu.com
Telephone: (701) 222-7757 Fax: (701) 222-7806

**REPORT FOR: Operator** Montana-Dakota Utilities Co 12199
**Reporting as of December 31** 2010

### Operator and Preparer Information

Operator Legal Name: Montana-Dakota Utilities Co
Address: 400 North Fourth Street
City/State/Zip: Bismarck ND 58501

Is the Operator an Electric Utility? [Y]

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
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## SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code R M Heskett 2790

| | | | |
|---|---|---|---|
| Generator ID | | 1 | 2 |
| 1 Generator Nameplate Capacity (Megawatts) | | 40.0 | 75.0 |
| 2 Net Capacity (Megawatts) | Summer | 29.6 | 74.8 |
| | Winter | 29.6 | 74.8 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | 14.0 | 20.0 |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | 9.0 | 20.0 |
| 4 Status Code | | OP | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | | |
| 6 Initial Date of Operation (MM-YYYY) | | 11/1954 | 11/1963 |
| 7 Retirement Date (MM-YYYY) | | / | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | | |
| | | Energy Sources | Energy Sources |
| 9 Predominant Energy Source | | LIG | LIG |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | [Y] Pulverized Coal | [Y] Pulverized Coal |
| | | [N] Fluidized Bed | [Y] Fluidized Bed |
| | | [Y] Sub-Critical | Sub-Critical |
| | | Super-critical | Super-critical |
| | | Ultra Super-critical | Ultra Super-critical |
| | | Carbon-capture | Carbon-capture |
| 10 Start up and flame stabilization fuels. | | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | SUB | SUB |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | TDF | TDF |

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|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code Glendive GT 2176

| | | | | |
|---|---|---|---|---|
| Generator ID | | GT-2 | GT1 | IC1 |
| 1 Generator Nameplate Capacity (Megawatts) | | 43.0 | 40.7 | 1.8 |
| 2 Net Capacity (Megawatts) | Summer | 40.4 | 34.7 | 2.0 |
| | Winter | 43.2 | 40.9 | 2.0 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | 29.0 | 16.0 | |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | 21.0 | 17.0 | |
| 4 Status Code | | OP | OP | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | | | |
| 6 Initial Date of Operation (MM-YYYY) | | 5/2003 | 6/1979 | 2/2005 |
| 7 Retirement Date (MM-YYYY) | | / | / | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N | N | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | | | |
| | | Energy Sources | Energy Sources | Energy Sources |
| 9 Predominant Energy Source | | NG | NG | DFO |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture |
| 10 Start up and flame stabilization fuels. | | | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | DFO | DFO | |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | | | |

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|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code Lewis & Clark 6089

| | | |
|---|---|---|
| Generator ID | | 1 |
| 1 Generator Nameplate Capacity (Megawatts) | | 50.0 |
| 2 Net Capacity (Megawatts) | Summer | 52.3 |
| | Winter | 44.0 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | 25.0 |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | 20.0 |
| 4 Status Code | | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | |
| 6 Initial Date of Operation (MM-YYYY) | | 10/1958 |
| 7 Retirement Date (MM-YYYY) | | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | |
| | | Energy Sources |
| 9 Predominant Energy Source | | LIG |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | [Y] Pulverized Coal |
| | | Fluidized Bed |
| | | [Y] Sub-Critical |
| | | Super-critical |
| | | Ultra Super-critical |
| | | Carbon-capture |
| 10 Start up and flame stabilization fuels. | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | NG |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | |

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code: Diamond Willow Wind Facility 56782

| | | |
|---|---|---|
| Generator ID | | DIAW |
| 1 Generator Nameplate Capacity (Megawatts) | | 30.0 |
| 2 Net Capacity (Megawatts) | Summer | 30.0 |
| | Winter | 30.0 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | |
| 4 Status Code | | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | |
| 6 Initial Date of Operation (MM-YYYY) | | 12/2007 |
| 7 Retirement Date (MM-YYYY) | | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | |
| | | Energy Sources |
| 9 Predominant Energy Source | | WND |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture |
| 10 Start up and flame stabilization fuels. | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | |

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code Miles City GT 2177

| | | |
|---|---|---|
| Generator ID | | 1 |
| 1 Generator Nameplate Capacity (Megawatts) | | 23.3 |
| 2 Net Capacity (Megawatts) | Summer | 23.8 |
| | Winter | 27.5 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | 10.0 |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | 10.0 |
| 4 Status Code | | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | |
| 6 Initial Date of Operation (MM-YYYY) | | 5/1972 |
| 7 Retirement Date (MM-YYYY) | | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | |
| | | Energy Sources |
| 9 Predominant Energy Source | | NG |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture |
| 10 Start up and flame stabilization fuels. | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | DFO |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | |

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code Cedar Hills 57171

| | | |
|---|---|---|
| Generator ID | | 1 |
| 1 Generator Nameplate Capacity (Megawatts) | | 19.5 |
| 2 Net Capacity (Megawatts) | Summer | 19.5 |
| | Winter | 19.5 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | |
| 4 Status Code | | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | |
| 6 Initial Date of Operation (MM-YYYY) | | 6/2010 |
| 7 Retirement Date (MM-YYYY) | | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | |
| | | Energy Sources |
| 9 Predominant Energy Source | | WND |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture |
| 10 Start up and flame stabilization fuels. | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | |

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code Williston 2791

| | | | |
|---|---|---|---|
| Generator ID | | 2 | 3 |
| 1 Generator Nameplate Capacity (Megawatts) | | 5.0 | 5.0 |
| 2 Net Capacity (Megawatts) | Summer | 4.7 | 4.9 |
| | Winter | 5.2 | 5.4 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | | |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | | |
| 4 Status Code | | OP | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | | |
| 6 Initial Date of Operation (MM-YYYY) | | 11/1953 | 12/1953 |
| 7 Retirement Date (MM-YYYY) | | / | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | | |
| | | Energy Sources | Energy Sources |
| 9 Predominant Energy Source | | NG | NG |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture |
| 10 Start up and flame stabilization fuels. | | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | | |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | | |

| US Department of Energy<br>Energy Information Administration<br>Form EIA-860 2010 | *ANNUAL ELECTRIC GENERATOR REPORT* | Form Approval<br>OMB No. 1905-0129<br>Approval Expires 12/31/2013 |
|---|---|---|

**SCHEDULE 3. PART B. GENERATOR INFORMATION - EXISTING GENERATORS**
**(Complete One Column for Each Generator, by Plant)**

Report For Operator: Montana-Dakota Utilities Co 12199

Reporting as of December 31, 2010

1 & 2 Plant Name/EIA Plant Code Glen Ullin Station 6 57172

| | | |
|---|---|---|
| Generator ID | | 1 |
| 1 Generator Nameplate Capacity (Megawatts) | | 5.3 |
| 2 Net Capacity (Megawatts) | Summer | 5.3 |
| | Winter | 5.3 |
| 3a Maximum Reactive Power Output (MVAR) for generators with nameplate capacity 10 MW or greater. | | |
| 3b MAximum Reactive Power Absorption (MVAR) for generators with nameplate capacity 10 MW or greater. | | |
| 4 Status Code | | OP |
| 5 If Status Code is Standby, can the generator be synchronized to the grid? | | Y |
| 6 Initial Date of Operation (MM-YYYY) | | 7/2009 |
| 7 Retirement Date (MM-YYYY) | | / |
| 8 Is this generator associated with a Combined Heat and Power system (fuel input is used to produce both electricity and useful thermal output)? | | N |
| If Yes: Is this generator part of a topping cycle or a bottoming cycle? | | |
| | | Energy Sources |
| 9 Predominant Energy Source | | WH |
| 9a If coal-fired or petroleum coke fired, check all combustion technologies that apply to the associated boiler(s) and steam conditions | | Pulverized Coal<br>Fluidized Bed<br>Sub-Critical<br>Super-critical<br>Ultra Super-critical<br>Carbon-capture |
| 10 Start up and flame stabilization fuels. | | |
| 11 Second Most Predominant Energy Source (prime mover = ST (steam units only)) | | |
| **Other Energy Sources** Enter up to four codes in order of expected quantity used (measured in Btus). | | |

**MONTANA-DAKOTA UTILITIES CO.**
**AVERAGE DAILY PEAK NATIVE**
**LOAD IN PEAK MONTH - AUGUST 2010**

| | | | |
|---|---|---|---|
| 1 | 325 | 17 | 316 |
| 2 | 356 | 18 | 306 |
| 3 | 333 | 19 | 311 |
| 4 | 319 | 20 | 341 |
| 5 | 319 | 21 | 327 |
| 6 | 337 | 22 | 365 |
| 7 | 343 | 23 | 326 |
| 8 | 350 | 24 | 289 |
| 9 | 386 | 25 | 299 |
| 10 | 383 | 26 | 337 |
| 11 | 384 | 27 | 345 |
| 12 | 364 | 28 | 300 |
| 13 | 321 | 29 | 294 |
| 14 | 274 | 30 | 304 |
| 15 | 268 | 31 | 288 |
| 16 | 294 | | |

**Pivotal Supplier Analysis Screen**
**Average Daily Peak for August** **326**

**Market Share Analysis Screen**
**Average Daily Peak Load within Season:**

| | |
|---|---|
| Winter (Dec -Feb) | 350 |
| Spring (Mar-May) | 288 |
| Summer (Jun-Aug) | 309 |
| Fall (Sep-Nov) | 291 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2009**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1201091 | 259 | 253 | 248 | 252 | 257 | 259 | 292 | 328 | 347 | 355 | 348 | 354 |
| 1201092 | 354 | 349 | 346 | 344 | 348 | 376 | 380 | 373 | 363 | 349 | 331 | 296 |
| 1202091 | 274 | 272 | 266 | 260 | 266 | 276 | 302 | 342 | 359 | 363 | 361 | 365 |
| 1202092 | 360 | 355 | 353 | 359 | 360 | 389 | 394 | 391 | 382 | 371 | 342 | 312 |
| 1203091 | 296 | 288 | 282 | 284 | 281 | 298 | 319 | 362 | 374 | 373 | 373 | 380 |
| 1203092 | 372 | 365 | 363 | 360 | 364 | 394 | 406 | 395 | 391 | 376 | 355 | 325 |
| 1204091 | 300 | 303 | 292 | 291 | 293 | 307 | 325 | 368 | 380 | 385 | 374 | 373 |
| 1204092 | 363 | 349 | 354 | 339 | 338 | 381 | 382 | 379 | 366 | 360 | 347 | 321 |
| 1205091 | 311 | 297 | 292 | 293 | 284 | 294 | 308 | 322 | 332 | 345 | 351 | 347 |
| 1205092 | 349 | 343 | 340 | 328 | 341 | 372 | 380 | 369 | 376 | 356 | 348 | 327 |
| 1206091 | 307 | 304 | 300 | 296 | 293 | 299 | 310 | 325 | 328 | 341 | 338 | 344 |
| 1206092 | 343 | 340 | 336 | 336 | 350 | 380 | 395 | 390 | 385 | 375 | 349 | 324 |
| 1207091 | 311 | 299 | 304 | 299 | 305 | 317 | 339 | 381 | 395 | 402 | 399 | 394 |
| 1207092 | 391 | 380 | 380 | 379 | 379 | 424 | 431 | 425 | 421 | 403 | 380 | 347 |
| 1208091 | 330 | 329 | 317 | 319 | 321 | 335 | 350 | 391 | 414 | 403 | 413 | 404 |
| 1208092 | 406 | 400 | 403 | 389 | 398 | 434 | 435 | 428 | 424 | 414 | 389 | 355 |
| 1209091 | 334 | 329 | 326 | 324 | 330 | 339 | 362 | 410 | 422 | 423 | 416 | 414 |
| 1209092 | 410 | 398 | 402 | 396 | 402 | 435 | 452 | 436 | 433 | 426 | 387 | 360 |
| 1210091 | 332 | 329 | 324 | 325 | 326 | 333 | 367 | 407 | 423 | 415 | 413 | 409 |
| 1210092 | 404 | 397 | 384 | 385 | 389 | 425 | 431 | 427 | 415 | 405 | 383 | 354 |
| 1211091 | 337 | 330 | 322 | 329 | 329 | 334 | 359 | 396 | 412 | 411 | 399 | 395 |
| 1211092 | 385 | 380 | 374 | 361 | 369 | 396 | 404 | 393 | 384 | 378 | 358 | 333 |
| 1212091 | 318 | 310 | 307 | 298 | 303 | 305 | 319 | 346 | 348 | 363 | 367 | 366 |
| 1212092 | 361 | 354 | 355 | 351 | 352 | 398 | 406 | 408 | 399 | 395 | 385 | 360 |
| 1213091 | 345 | 339 | 327 | 330 | 324 | 329 | 341 | 355 | 367 | 370 | 384 | 385 |
| 1213092 | 385 | 378 | 381 | 377 | 375 | 429 | 433 | 432 | 422 | 413 | 388 | 360 |
| 1214091 | 342 | 338 | 333 | 331 | 333 | 339 | 368 | 407 | 424 | 424 | 422 | 425 |
| 1214092 | 413 | 406 | 412 | 402 | 413 | 447 | 460 | 456 | 451 | 436 | 415 | 380 |
| 1215091 | 364 | 356 | 355 | 349 | 349 | 359 | 389 | 426 | 444 | 439 | 435 | 426 |
| 1215092 | 421 | 416 | 403 | 409 | 410 | 439 | 450 | 446 | 434 | 420 | 394 | 362 |
| 1216091 | 347 | 334 | 328 | 328 | 333 | 337 | 359 | 399 | 418 | 406 | 400 | 400 |
| 1216092 | 382 | 383 | 375 | 377 | 373 | 408 | 416 | 414 | 399 | 386 | 360 | 330 |
| 1217091 | 304 | 302 | 292 | 293 | 298 | 303 | 329 | 369 | 383 | 382 | 375 | 373 |
| 1217092 | 354 | 350 | 350 | 339 | 345 | 382 | 390 | 381 | 379 | 361 | 352 | 315 |
| 1218091 | 298 | 287 | 287 | 283 | 291 | 296 | 321 | 363 | 383 | 372 | 389 | 382 |
| 1218092 | 382 | 371 | 368 | 360 | 363 | 385 | 396 | 388 | 385 | 369 | 363 | 330 |
| 1219091 | 318 | 303 | 299 | 299 | 297 | 306 | 311 | 334 | 346 | 361 | 366 | 359 |
| 1219092 | 359 | 349 | 342 | 341 | 345 | 378 | 380 | 373 | 365 | 368 | 347 | 325 |
| 1220091 | 304 | 300 | 290 | 292 | 289 | 296 | 304 | 314 | 325 | 333 | 346 | 350 |
| 1220092 | 348 | 349 | 344 | 345 | 352 | 388 | 395 | 391 | 384 | 372 | 357 | 326 |
| 1221091 | 306 | 302 | 295 | 295 | 298 | 305 | 328 | 371 | 385 | 386 | 388 | 392 |
| 1221092 | 389 | 385 | 381 | 376 | 382 | 397 | 415 | 409 | 400 | 387 | 371 | 339 |
| 1222091 | 319 | 307 | 301 | 307 | 302 | 311 | 330 | 372 | 387 | 388 | 385 | 384 |
| 1222092 | 382 | 375 | 378 | 374 | 376 | 406 | 410 | 405 | 396 | 392 | 363 | 331 |
| 1223091 | 324 | 304 | 291 | 301 | 298 | 309 | 328 | 356 | 373 | 386 | 381 | 390 |
| 1223092 | 378 | 371 | 372 | 375 | 374 | 403 | 407 | 412 | 399 | 392 | 376 | 353 |
| 1224091 | 334 | 326 | 321 | 317 | 319 | 338 | 350 | 372 | 396 | 406 | 410 | 406 |
| 1224092 | 400 | 393 | 383 | 370 | 374 | 398 | 402 | 393 | 388 | 380 | 374 | 359 |
| 1225091 | 349 | 333 | 332 | 327 | 326 | 305 | 304 | 318 | 344 | 352 | 355 | 365 |
| 1225092 | 357 | 361 | 350 | 353 | 347 | 379 | 383 | 385 | 384 | 381 | 365 | 347 |
| 1226091 | 340 | 324 | 313 | 319 | 317 | 322 | 333 | 341 | 344 | 351 | 358 | 372 |
| 1226092 | 369 | 368 | 362 | 361 | 362 | 391 | 402 | 389 | 387 | 373 | 360 | 344 |
| 1227091 | 321 | 314 | 301 | 300 | 295 | 307 | 312 | 320 | 334 | 338 | 345 | 347 |
| 1227092 | 345 | 340 | 334 | 330 | 337 | 374 | 394 | 393 | 385 | 373 | 360 | 337 |
| 1228091 | 324 | 315 | 307 | 306 | 311 | 314 | 334 | 359 | 375 | 382 | 387 | 385 |
| 1228092 | 382 | 372 | 372 | 361 | 366 | 398 | 411 | 409 | 401 | 390 | 367 | 349 |
| 1229091 | 329 | 321 | 320 | 317 | 321 | 326 | 341 | 376 | 397 | 400 | 394 | 396 |
| 1229092 | 392 | 375 | 376 | 371 | 371 | 402 | 413 | 413 | 403 | 392 | 373 | 340 |
| 1230091 | 331 | 315 | 316 | 315 | 311 | 324 | 343 | 366 | 391 | 401 | 394 | 395 |
| 1230092 | 392 | 384 | 383 | 382 | 388 | 406 | 416 | 412 | 408 | 396 | 375 | 346 |
| 1231091 | 330 | 327 | 323 | 318 | 320 | 333 | 343 | 377 | 387 | 400 | 395 | 395 |
| 1231092 | 395 | 381 | 375 | 373 | 370 | 401 | 416 | 407 | 403 | 387 | 383 | 364 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 101101 | 339 | 334 | 328 | 321 | 333 | 329 | 343 | 352 | 360 | 370 | 374 | 380 |
| 101102 | 373 | 365 | 362 | 361 | 370 | 399 | 412 | 410 | 402 | 396 | 382 | 366 |
| 102101 | 349 | 342 | 336 | 337 | 345 | 329 | 353 | 362 | 374 | 380 | 386 | 391 |
| 102102 | 388 | 378 | 374 | 368 | 370 | 398 | 405 | 402 | 397 | 378 | 363 | 347 |
| 103101 | 332 | 328 | 320 | 317 | 313 | 322 | 321 | 340 | 341 | 351 | 356 | 359 |
| 103102 | 365 | 359 | 354 | 352 | 361 | 385 | 403 | 399 | 389 | 376 | 361 | 338 |
| 104101 | 313 | 310 | 307 | 304 | 309 | 317 | 341 | 373 | 387 | 389 | 388 | 392 |
| 104102 | 386 | 377 | 382 | 370 | 375 | 395 | 411 | 405 | 394 | 388 | 361 | 337 |
| 105101 | 320 | 311 | 305 | 304 | 309 | 319 | 337 | 381 | 392 | 393 | 395 | 390 |
| 105102 | 385 | 391 | 379 | 387 | 387 | 405 | 410 | 409 | 403 | 389 | 365 | 343 |
| 106101 | 324 | 317 | 309 | 317 | 316 | 324 | 349 | 377 | 397 | 399 | 399 | 404 |
| 106102 | 408 | 402 | 400 | 402 | 400 | 423 | 439 | 431 | 427 | 409 | 389 | 369 |
| 107101 | 353 | 346 | 344 | 343 | 346 | 353 | 376 | 413 | 427 | 434 | 428 | 426 |
| 107102 | 423 | 417 | 408 | 407 | 407 | 427 | 443 | 441 | 442 | 419 | 404 | 380 |
| 108101 | 365 | 361 | 347 | 355 | 357 | 366 | 389 | 423 | 443 | 442 | 434 | 429 |
| 108102 | 421 | 413 | 406 | 395 | 405 | 414 | 435 | 419 | 417 | 408 | 392 | 374 |
| 109101 | 367 | 352 | 347 | 346 | 347 | 346 | 358 | 376 | 386 | 393 | 389 | 392 |
| 109102 | 383 | 374 | 364 | 355 | 357 | 381 | 404 | 391 | 383 | 375 | 360 | 337 |
| 110101 | 330 | 319 | 311 | 302 | 307 | 304 | 309 | 323 | 331 | 336 | 333 | 328 |
| 110102 | 332 | 327 | 326 | 315 | 323 | 342 | 361 | 374 | 360 | 352 | 333 | 312 |
| 111101 | 299 | 292 | 297 | 294 | 296 | 309 | 332 | 368 | 389 | 389 | 386 | 381 |
| 111102 | 376 | 366 | 360 | 360 | 355 | 379 | 394 | 386 | 380 | 371 | 353 | 327 |
| 112101 | 306 | 301 | 295 | 299 | 297 | 308 | 329 | 363 | 387 | 374 | 366 | 362 |
| 112102 | 353 | 345 | 339 | 334 | 332 | 351 | 370 | 364 | 355 | 347 | 328 | 303 |
| 113101 | 292 | 282 | 282 | 279 | 277 | 289 | 319 | 355 | 369 | 369 | 362 | 348 |
| 113102 | 356 | 345 | 337 | 331 | 331 | 349 | 369 | 365 | 358 | 341 | 324 | 301 |
| 114101 | 281 | 277 | 273 | 273 | 280 | 290 | 308 | 353 | 367 | 359 | 365 | 349 |
| 114102 | 349 | 340 | 337 | 328 | 334 | 348 | 371 | 358 | 354 | 343 | 325 | 295 |
| 115101 | 285 | 285 | 268 | 275 | 282 | 288 | 308 | 343 | 366 | 362 | 358 | 352 |
| 115102 | 350 | 336 | 331 | 332 | 338 | 338 | 359 | 348 | 340 | 326 | 320 | 295 |
| 116101 | 284 | 278 | 271 | 263 | 269 | 266 | 280 | 298 | 311 | 316 | 327 | 317 |
| 116102 | 321 | 301 | 304 | 292 | 298 | 313 | 335 | 329 | 320 | 312 | 310 | 281 |
| 117101 | 277 | 262 | 262 | 256 | 253 | 267 | 267 | 289 | 290 | 302 | 302 | 306 |
| 117102 | 302 | 305 | 292 | 299 | 288 | 315 | 338 | 342 | 337 | 332 | 320 | 295 |
| 118101 | 290 | 289 | 277 | 282 | 284 | 292 | 312 | 343 | 362 | 370 | 373 | 370 |
| 118102 | 363 | 347 | 349 | 342 | 340 | 363 | 385 | 369 | 371 | 352 | 336 | 316 |
| 119101 | 291 | 289 | 287 | 287 | 290 | 297 | 317 | 355 | 374 | 378 | 375 | 373 |
| 119102 | 373 | 356 | 362 | 353 | 351 | 374 | 379 | 381 | 374 | 360 | 340 | 314 |
| 120101 | 294 | 292 | 291 | 284 | 289 | 299 | 313 | 354 | 376 | 371 | 374 | 370 |
| 120102 | 367 | 355 | 350 | 354 | 359 | 365 | 383 | 378 | 366 | 361 | 334 | 305 |
| 121101 | 295 | 283 | 283 | 278 | 278 | 288 | 311 | 356 | 368 | 369 | 369 | 371 |
| 121102 | 365 | 355 | 352 | 347 | 355 | 362 | 382 | 364 | 345 | 328 | 319 | 291 |
| 122101 | 286 | 278 | 277 | 269 | 273 | 281 | 311 | 321 | 335 | 345 | 352 | 339 |
| 122102 | 347 | 342 | 329 | 335 | 342 | 354 | 373 | 350 | 346 | 331 | 316 | 299 |
| 123101 | 277 | 272 | 262 | 269 | 254 | 266 | 269 | 281 | 292 | 303 | 320 | 322 |
| 123102 | 314 | 301 | 301 | 296 | 301 | 328 | 344 | 343 | 327 | 314 | 305 | 293 |
| 124101 | 271 | 268 | 269 | 255 | 257 | 263 | 273 | 285 | 291 | 306 | 314 | 325 |
| 124102 | 314 | 290 | 317 | 321 | 331 | 346 | 332 | 339 | 336 | 334 | 314 | 296 |
| 125101 | 283 | 278 | 275 | 273 | 280 | 284 | 306 | 334 | 347 | 354 | 366 | 354 |

| Average Daily Peak Load within Season Winter (Dec 2009 - Feb 2010) |
|---|
| 350 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 125102 | 364 | 356 | 354 | 351 | 360 | 365 | 391 | 386 | 380 | 359 | 347 | 317 |
| 126101 | 308 | 300 | 294 | 297 | 294 | 303 | 327 | 358 | 369 | 377 | 376 | 371 |
| 126102 | 368 | 366 | 361 | 359 | 358 | 365 | 400 | 393 | 380 | 376 | 354 | 330 |
| 127101 | 318 | 302 | 306 | 306 | 306 | 314 | 345 | 369 | 390 | 346 | 425 | 384 |
| 127102 | 382 | 374 | 377 | 351 | 379 | 376 | 410 | 413 | 402 | 400 | 365 | 345 |
| 128101 | 331 | 326 | 321 | 320 | 322 | 336 | 356 | 391 | 409 | 398 | 396 | 393 |
| 128102 | 384 | 374 | 367 | 356 | 359 | 373 | 400 | 400 | 395 | 391 | 373 | 340 |
| 129101 | 334 | 326 | 323 | 320 | 321 | 331 | 351 | 388 | 402 | 402 | 403 | 383 |
| 129102 | 354 | 378 | 362 | 360 | 356 | 363 | 377 | 383 | 374 | 372 | 353 | 332 |
| 130101 | 324 | 318 | 320 | 312 | 315 | 318 | 327 | 348 | 352 | 364 | 369 | 369 |
| 130102 | 356 | 349 | 342 | 342 | 339 | 349 | 370 | 370 | 368 | 360 | 344 | 334 |
| 131101 | 315 | 310 | 311 | 301 | 306 | 310 | 319 | 331 | 337 | 345 | 352 | 353 |
| 131102 | 353 | 353 | 342 | 350 | 344 | 365 | 391 | 396 | 386 | 379 | 362 | 333 |
| 201101 | 325 | 314 | 310 | 308 | 312 | 325 | 338 | 378 | 392 | 400 | 391 | 395 |
| 201102 | 388 | 374 | 373 | 368 | 370 | 377 | 398 | 402 | 387 | 377 | 362 | 332 |
| 202101 | 318 | 319 | 303 | 311 | 311 | 327 | 343 | 387 | 403 | 400 | 390 | 390 |
| 202102 | 380 | 368 | 363 | 360 | 360 | 375 | 390 | 395 | 380 | 375 | 348 | 329 |
| 203101 | 309 | 300 | 299 | 292 | 295 | 311 | 337 | 370 | 388 | 380 | 376 | 363 |
| 203102 | 359 | 350 | 352 | 343 | 347 | 347 | 382 | 380 | 388 | 366 | 350 | 321 |
| 204101 | 303 | 307 | 302 | 297 | 298 | 314 | 334 | 376 | 385 | 386 | 388 | 388 |
| 204102 | 377 | 371 | 373 | 367 | 363 | 367 | 390 | 385 | 379 | 361 | 341 | 321 |
| 205101 | 303 | 294 | 289 | 293 | 287 | 297 | 323 | 354 | 372 | 369 | 374 | 370 |
| 205102 | 364 | 351 | 350 | 346 | 343 | 346 | 362 | 367 | 358 | 343 | 334 | 309 |
| 206101 | 303 | 289 | 283 | 284 | 285 | 284 | 304 | 314 | 320 | 338 | 341 | 340 |
| 206102 | 339 | 325 | 321 | 322 | 317 | 327 | 354 | 356 | 342 | 340 | 327 | 305 |
| 207101 | 292 | 284 | 284 | 275 | 275 | 286 | 285 | 309 | 310 | 323 | 329 | 337 |
| 207102 | 331 | 335 | 333 | 337 | 341 | 344 | 361 | 380 | 370 | 378 | 361 | 339 |
| 208101 | 331 | 325 | 324 | 326 | 324 | 339 | 360 | 395 | 415 | 410 | 406 | 403 |
| 208102 | 399 | 391 | 390 | 386 | 381 | 387 | 408 | 412 | 406 | 392 | 372 | 344 |
| 209101 | 328 | 325 | 317 | 317 | 318 | 326 | 352 | 387 | 399 | 398 | 388 | 386 |
| 209102 | 377 | 375 | 366 | 363 | 361 | 362 | 392 | 403 | 397 | 391 | 366 | 347 |
| 210101 | 335 | 323 | 326 | 324 | 327 | 337 | 357 | 396 | 409 | 409 | 402 | 395 |
| 210102 | 391 | 380 | 371 | 371 | 364 | 370 | 394 | 403 | 391 | 378 | 352 | 328 |
| 211101 | 315 | 308 | 295 | 303 | 299 | 309 | 329 | 368 | 378 | 378 | 388 | 363 |
| 211102 | 370 | 360 | 355 | 351 | 348 | 350 | 381 | 378 | 375 | 369 | 348 | 326 |
| 212101 | 309 | 306 | 302 | 302 | 312 | 319 | 339 | 373 | 390 | 395 | 393 | 385 |
| 212102 | 381 | 369 | 368 | 357 | 353 | 361 | 367 | 379 | 362 | 355 | 339 | 324 |
| 213101 | 308 | 297 | 298 | 289 | 296 | 300 | 309 | 326 | 337 | 353 | 354 | 354 |
| 213102 | 355 | 345 | 346 | 335 | 343 | 352 | 367 | 385 | 373 | 366 | 358 | 336 |
| 214101 | 325 | 314 | 319 | 310 | 314 | 320 | 327 | 335 | 341 | 357 | 353 | 349 |
| 214102 | 347 | 340 | 340 | 335 | 337 | 340 | 371 | 394 | 385 | 379 | 364 | 344 |
| 215101 | 331 | 322 | 319 | 318 | 327 | 329 | 352 | 377 | 391 | 395 | 397 | 390 |
| 215102 | 388 | 376 | 366 | 363 | 358 | 359 | 380 | 399 | 399 | 384 | 363 | 340 |
| 216101 | 327 | 328 | 315 | 324 | 320 | 332 | 349 | 391 | 406 | 407 | 406 | 398 |
| 216102 | 382 | 375 | 372 | 363 | 358 | 364 | 380 | 396 | 386 | 377 | 354 | 328 |
| 217101 | 317 | 306 | 309 | 302 | 302 | 320 | 337 | 370 | 384 | 376 | 383 | 382 |
| 217102 | 372 | 361 | 361 | 360 | 359 | 357 | 371 | 385 | 373 | 362 | 342 | 317 |
| 218101 | 297 | 296 | 289 | 293 | 292 | 300 | 332 | 362 | 382 | 386 | 384 | 377 |
| 218102 | 366 | 358 | 354 | 352 | 350 | 345 | 358 | 374 | 360 | 354 | 331 | 310 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 219101 | 292 | 285 | 280 | 286 | 284 | 294 | 316 | 346 | 360 | 366 | 371 | 362 |
| 219102 | 358 | 349 | 346 | 339 | 342 | 340 | 346 | 354 | 351 | 335 | 328 | 304 |
| 220101 | 293 | 290 | 278 | 284 | 281 | 284 | 298 | 308 | 318 | 330 | 341 | 335 |
| 220102 | 332 | 325 | 345 | 311 | 314 | 317 | 337 | 356 | 342 | 336 | 321 | 311 |
| 221101 | 298 | 282 | 288 | 281 | 278 | 285 | 294 | 300 | 306 | 326 | 322 | 329 |
| 221102 | 322 | 322 | 316 | 310 | 314 | 326 | 344 | 361 | 363 | 349 | 340 | 311 |
| 222101 | 299 | 291 | 291 | 293 | 293 | 306 | 331 | 368 | 379 | 390 | 381 | 373 |
| 222102 | 367 | 357 | 353 | 349 | 352 | 351 | 370 | 385 | 384 | 371 | 353 | 318 |
| 223101 | 313 | 308 | 295 | 300 | 297 | 309 | 334 | 364 | 377 | 374 | 375 | 369 |
| 223102 | 366 | 353 | 351 | 347 | 340 | 349 | 355 | 384 | 374 | 375 | 348 | 333 |
| 224101 | 315 | 307 | 313 | 306 | 311 | 319 | 348 | 381 | 393 | 388 | 385 | 378 |
| 224102 | 373 | 366 | 360 | 361 | 357 | 360 | 371 | 393 | 390 | 377 | 356 | 335 |
| 225101 | 319 | 312 | 309 | 313 | 308 | 324 | 336 | 374 | 384 | 386 | 381 | 375 |
| 225102 | 370 | 355 | 351 | 348 | 349 | 350 | 362 | 375 | 375 | 362 | 336 | 325 |
| 226101 | 306 | 299 | 294 | 302 | 298 | 309 | 327 | 363 | 374 | 381 | 369 | 363 |
| 226102 | 356 | 349 | 339 | 332 | 330 | 327 | 327 | 352 | 350 | 341 | 327 | 317 |
| 227101 | 303 | 290 | 292 | 287 | 289 | 291 | 309 | 322 | 336 | 351 | 349 | 344 |
| 227102 | 336 | 325 | 319 | 312 | 316 | 317 | 335 | 356 | 354 | 339 | 331 | 312 |
| 228101 | 304 | 296 | 293 | 287 | 290 | 293 | 304 | 297 | 318 | 324 | 325 | 325 |
| 228102 | 324 | 322 | 313 | 315 | 315 | 327 | 344 | 366 | 356 | 352 | 332 | 299 |
| 301101 | 292 | 286 | 289 | 286 | 290 | 301 | 323 | 348 | 373 | 373 | 367 | 363 |
| 301102 | 355 | 341 | 343 | 346 | 337 | 338 | 349 | 362 | 361 | 346 | 327 | 304 |
| 302101 | 299 | 286 | 282 | 282 | 286 | 292 | 321 | 343 | 364 | 366 | 370 | 361 |
| 302102 | 362 | 349 | 349 | 342 | 345 | 344 | 352 | 370 | 363 | 355 | 331 | 309 |
| 303101 | 289 | 283 | 281 | 283 | 286 | 288 | 318 | 347 | 367 | 369 | 364 | 363 |
| 303102 | 356 | 349 | 342 | 334 | 340 | 341 | 347 | 361 | 357 | 351 | 324 | 300 |
| 304101 | 289 | 281 | 280 | 278 | 279 | 291 | 314 | 340 | 357 | 358 | 340 | 351 |
| 304102 | 338 | 328 | 321 | 321 | 317 | 318 | 319 | 347 | 340 | 335 | 314 | 290 |
| 305101 | 279 | 275 | 267 | 272 | 275 | 276 | 310 | 332 | 351 | 356 | 355 | 348 |
| 305102 | 341 | 329 | 331 | 319 | 316 | 316 | 324 | 335 | 339 | 327 | 306 | 291 |
| 306101 | 281 | 266 | 271 | 265 | 263 | 265 | 277 | 285 | 302 | 317 | 321 | 329 |
| 306102 | 321 | 309 | 305 | 305 | 294 | 300 | 311 | 327 | 324 | 317 | 302 | 280 |
| 307101 | 271 | 263 | 262 | 258 | 262 | 260 | 270 | 278 | 291 | 295 | 309 | 303 |
| 307102 | 309 | 300 | 293 | 295 | 302 | 308 | 320 | 344 | 333 | 327 | 307 | 283 |
| 308101 | 271 | 262 | 254 | 260 | 258 | 269 | 282 | 324 | 331 | 342 | 339 | 341 |
| 308102 | 339 | 329 | 326 | 327 | 323 | 328 | 329 | 339 | 339 | 328 | 306 | 278 |
| 309101 | 267 | 253 | 260 | 253 | 256 | 267 | 288 | 317 | 337 | 340 | 351 | 338 |
| 309102 | 348 | 342 | 337 | 341 | 332 | 338 | 341 | 352 | 352 | 331 | 319 | 285 |
| 310101 | 273 | 267 | 262 | 262 | 257 | 272 | 298 | 323 | 335 | 348 | 344 | 347 |
| 310102 | 344 | 338 | 331 | 334 | 335 | 335 | 336 | 347 | 348 | 328 | 315 | 283 |
| 311101 | 266 | 261 | 260 | 252 | 263 | 266 | 290 | 318 | 335 | 342 | 343 | 337 |
| 311102 | 342 | 328 | 326 | 325 | 328 | 326 | 325 | 341 | 342 | 328 | 309 | 285 |
| 312101 | 275 | 266 | 264 | 261 | 262 | 272 | 292 | 312 | 337 | 336 | 335 | 332 |
| 312102 | 329 | 319 | 308 | 311 | 301 | 299 | 294 | 321 | 317 | 305 | 295 | 281 |
| 313101 | 264 | 261 | 256 | 252 | 258 | 262 | 272 | 277 | 291 | 304 | 303 | 305 |
| 313102 | 301 | 290 | 288 | 282 | 282 | 287 | 294 | 313 | 304 | 301 | 282 | 274 |
| 314101 | 257 | 6 | 252 | 252 | 243 | 248 | 251 | 262 | 261 | 283 | 284 | 288 |
| 314102 | 291 | 287 | 288 | 289 | 281 | 286 | 293 | 296 | 323 | 310 | 302 | 277 |
| 315101 | 262 | 259 | 250 | 250 | 253 | 255 | 286 | 319 | 335 | 338 | 342 | 335 |

| Average Daily Peak Load within Season Spring (Mar-May) |
|---|
| 288 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 315102 | 335 | 322 | 321 | 310 | 311 | 298 | 299 | 297 | 315 | 317 | 299 | 268 |
| 316101 | 260 | 247 | 250 | 249 | 252 | 253 | 282 | 321 | 340 | 342 | 336 | 324 |
| 316102 | 325 | 319 | 311 | 310 | 305 | 297 | 293 | 291 | 317 | 316 | 297 | 276 |
| 317101 | 262 | 257 | 246 | 257 | 255 | 256 | 291 | 326 | 343 | 346 | 340 | 333 |
| 317102 | 327 | 323 | 316 | 313 | 303 | 293 | 286 | 282 | 308 | 302 | 284 | 261 |
| 318101 | 249 | 242 | 236 | 240 | 235 | 250 | 265 | 307 | 323 | 325 | 331 | 332 |
| 318102 | 324 | 317 | 320 | 312 | 312 | 313 | 303 | 302 | 329 | 321 | 300 | 280 |
| 319101 | 266 | 256 | 254 | 255 | 254 | 258 | 288 | 321 | 334 | 346 | 351 | 342 |
| 319102 | 342 | 337 | 327 | 326 | 320 | 316 | 305 | 303 | 319 | 319 | 306 | 288 |
| 320101 | 276 | 267 | 263 | 266 | 259 | 268 | 276 | 289 | 298 | 308 | 313 | 322 |
| 320102 | 307 | 294 | 290 | 281 | 285 | 279 | 272 | 274 | 303 | 300 | 293 | 275 |
| 321101 | 264 | 258 | 247 | 248 | 249 | 249 | 258 | 268 | 273 | 282 | 289 | 287 |
| 321102 | 283 | 275 | 276 | 273 | 264 | 270 | 269 | 278 | 301 | 296 | 285 | 260 |
| 322101 | 247 | 237 | 236 | 232 | 235 | 242 | 264 | 303 | 319 | 326 | 330 | 318 |
| 322102 | 325 | 313 | 314 | 302 | 308 | 303 | 291 | 295 | 312 | 309 | 283 | 268 |
| 323101 | 246 | 248 | 239 | 245 | 245 | 248 | 276 | 310 | 333 | 329 | 332 | 327 |
| 323102 | 327 | 316 | 313 | 309 | 301 | 301 | 294 | 290 | 313 | 311 | 293 | 265 |
| 324101 | 253 | 246 | 241 | 243 | 249 | 259 | 282 | 319 | 335 | 326 | 329 | 320 |
| 324102 | 314 | 315 | 309 | 303 | 307 | 294 | 292 | 289 | 308 | 308 | 294 | 272 |
| 325101 | 255 | 250 | 244 | 248 | 249 | 257 | 284 | 322 | 341 | 348 | 348 | 350 |
| 325102 | 348 | 341 | 340 | 334 | 334 | 326 | 321 | 316 | 327 | 331 | 310 | 288 |
| 326101 | 271 | 266 | 255 | 261 | 261 | 267 | 292 | 314 | 338 | 333 | 333 | 319 |
| 326102 | 326 | 317 | 306 | 304 | 292 | 290 | 276 | 272 | 293 | 290 | 281 | 269 |
| 327101 | 246 | 246 | 236 | 234 | 244 | 245 | 261 | 264 | 285 | 302 | 310 | 308 |
| 327102 | 307 | 304 | 290 | 287 | 275 | 282 | 274 | 265 | 292 | 290 | 283 | 266 |
| 328101 | 251 | 249 | 238 | 238 | 241 | 239 | 249 | 255 | 269 | 274 | 273 | 277 |
| 328102 | 266 | 278 | 266 | 260 | 257 | 256 | 263 | 257 | 281 | 286 | 274 | 249 |
| 329101 | 236 | 227 | 226 | 229 | 227 | 236 | 263 | 294 | 308 | 314 | 310 | 314 |
| 329102 | 307 | 303 | 299 | 292 | 295 | 285 | 284 | 274 | 289 | 283 | 277 | 238 |
| 330101 | 223 | 223 | 218 | 210 | 215 | 228 | 245 | 285 | 306 | 306 | 309 | 311 |
| 330102 | 313 | 302 | 303 | 298 | 294 | 290 | 281 | 280 | 291 | 293 | 248 | 261 |
| 331101 | 195 | 246 | 206 | 209 | 214 | 225 | 242 | 293 | 294 | 312 | 305 | 304 |
| 331102 | 299 | 296 | 291 | 298 | 281 | 284 | 276 | 274 | 276 | 287 | 273 | 242 |
| 401101 | 283 | 282 | 279 | 277 | 281 | 281 | 294 | 313 | 317 | 324 | 326 | 327 |
| 401102 | 322 | 322 | 320 | 318 | 319 | 317 | 313 | 314 | 317 | 314 | 307 | 295 |
| 402101 | 289 | 286 | 282 | 283 | 286 | 287 | 295 | 307 | 316 | 322 | 325 | 321 |
| 402102 | 319 | 315 | 318 | 317 | 310 | 313 | 310 | 307 | 311 | 312 | 308 | 301 |
| 403101 | 291 | 289 | 289 | 288 | 289 | 290 | 294 | 299 | 304 | 306 | 312 | 310 |
| 403102 | 308 | 306 | 303 | 300 | 298 | 300 | 298 | 297 | 303 | 309 | 304 | 295 |
| 404101 | 289 | 288 | 285 | 283 | 283 | 285 | 290 | 293 | 299 | 302 | 305 | 304 |
| 404102 | 301 | 299 | 294 | 294 | 292 | 291 | 293 | 294 | 303 | 306 | 305 | 294 |
| 405101 | 289 | 287 | 286 | 286 | 290 | 289 | 301 | 313 | 319 | 326 | 324 | 327 |
| 405102 | 322 | 323 | 319 | 320 | 317 | 312 | 313 | 309 | 315 | 317 | 309 | 297 |
| 406101 | 289 | 286 | 283 | 285 | 286 | 289 | 302 | 314 | 321 | 327 | 322 | 324 |
| 406102 | 322 | 320 | 319 | 320 | 315 | 312 | 308 | 305 | 311 | 311 | 307 | 295 |
| 407101 | 288 | 283 | 284 | 281 | 284 | 290 | 303 | 314 | 325 | 324 | 326 | 322 |
| 407102 | 322 | 319 | 317 | 316 | 318 | 309 | 308 | 306 | 308 | 314 | 308 | 294 |
| 408101 | 289 | 283 | 285 | 282 | 285 | 293 | 300 | 313 | 324 | 323 | 321 | 322 |
| 408102 | 320 | 317 | 318 | 317 | 313 | 311 | 307 | 303 | 308 | 311 | 305 | 289 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 409101 | 285 | 280 | 281 | 278 | 281 | 285 | 297 | 307 | 316 | 319 | 323 | 325 |
| 409102 | 323 | 319 | 318 | 318 | 313 | 314 | 305 | 302 | 309 | 312 | 308 | 299 |
| 410101 | 292 | 291 | 288 | 289 | 290 | 295 | 295 | 301 | 310 | 313 | 316 | 314 |
| 410102 | 313 | 309 | 306 | 305 | 304 | 304 | 297 | 300 | 301 | 308 | 307 | 299 |
| 411101 | 292 | 291 | 286 | 287 | 286 | 289 | 290 | 292 | 297 | 300 | 305 | 305 |
| 411102 | 306 | 305 | 303 | 303 | 301 | 301 | 302 | 304 | 309 | 312 | 305 | 296 |
| 412101 | 286 | 286 | 282 | 283 | 286 | 289 | 301 | 314 | 324 | 328 | 329 | 333 |
| 412102 | 329 | 325 | 327 | 322 | 320 | 320 | 319 | 316 | 316 | 321 | 308 | 297 |
| 413101 | 289 | 285 | 283 | 283 | 283 | 285 | 299 | 308 | 320 | 325 | 325 | 326 |
| 413102 | 327 | 323 | 324 | 323 | 322 | 321 | 317 | 311 | 313 | 314 | 307 | 291 |
| 414101 | 287 | 281 | 279 | 277 | 281 | 283 | 297 | 308 | 317 | 319 | 322 | 323 |
| 414102 | 323 | 321 | 319 | 319 | 318 | 319 | 311 | 313 | 310 | 319 | 307 | 296 |
| 415101 | 287 | 286 | 282 | 281 | 282 | 287 | 298 | 308 | 319 | 325 | 325 | 325 |
| 415102 | 324 | 324 | 322 | 319 | 319 | 317 | 312 | 308 | 314 | 319 | 309 | 297 |
| 416101 | 289 | 286 | 282 | 282 | 282 | 289 | 300 | 311 | 317 | 320 | 320 | 318 |
| 416102 | 318 | 317 | 314 | 311 | 310 | 307 | 300 | 296 | 296 | 305 | 301 | 290 |
| 417101 | 286 | 284 | 279 | 278 | 280 | 283 | 290 | 289 | 300 | 302 | 305 | 308 |
| 417102 | 306 | 303 | 301 | 296 | 298 | 295 | 295 | 296 | 293 | 301 | 299 | 291 |
| 418101 | 287 | 282 | 278 | 280 | 276 | 277 | 283 | 281 | 287 | 294 | 296 | 298 |
| 418102 | 302 | 298 | 296 | 297 | 294 | 297 | 298 | 297 | 300 | 306 | 303 | 289 |
| 419101 | 282 | 280 | 275 | 277 | 276 | 280 | 291 | 303 | 313 | 317 | 316 | 318 |
| 419102 | 318 | 317 | 317 | 314 | 313 | 312 | 308 | 303 | 301 | 312 | 302 | 290 |
| 420101 | 283 | 276 | 275 | 277 | 276 | 279 | 290 | 301 | 312 | 314 | 315 | 318 |
| 420102 | 319 | 315 | 316 | 314 | 314 | 311 | 307 | 304 | 303 | 310 | 305 | 290 |
| 421101 | 282 | 276 | 275 | 275 | 276 | 280 | 287 | 300 | 309 | 314 | 315 | 317 |
| 421102 | 315 | 315 | 313 | 311 | 314 | 310 | 306 | 300 | 303 | 308 | 303 | 288 |
| 422101 | 283 | 275 | 273 | 273 | 277 | 280 | 290 | 297 | 314 | 314 | 318 | 318 |
| 422102 | 319 | 317 | 318 | 316 | 316 | 313 | 305 | 302 | 304 | 306 | 303 | 291 |
| 423101 | 282 | 277 | 274 | 274 | 274 | 276 | 286 | 297 | 309 | 313 | 316 | 317 |
| 423102 | 317 | 318 | 312 | 313 | 312 | 309 | 302 | 302 | 300 | 305 | 300 | 291 |
| 424101 | 280 | 279 | 278 | 277 | 273 | 280 | 282 | 285 | 294 | 302 | 305 | 306 |
| 424102 | 307 | 302 | 302 | 297 | 300 | 296 | 295 | 295 | 288 | 301 | 296 | 288 |
| 425101 | 280 | 278 | 274 | 274 | 273 | 276 | 278 | 277 | 283 | 291 | 294 | 297 |
| 425102 | 300 | 298 | 297 | 299 | 301 | 297 | 301 | 305 | 305 | 311 | 305 | 293 |
| 426101 | 287 | 283 | 280 | 283 | 284 | 287 | 298 | 309 | 321 | 328 | 327 | 330 |
| 426102 | 327 | 326 | 323 | 323 | 319 | 320 | 316 | 312 | 312 | 316 | 310 | 295 |
| 427101 | 290 | 286 | 281 | 285 | 283 | 289 | 299 | 309 | 318 | 321 | 320 | 319 |
| 427102 | 316 | 317 | 313 | 315 | 312 | 312 | 305 | 304 | 305 | 311 | 306 | 291 |
| 428101 | 285 | 279 | 279 | 278 | 280 | 281 | 293 | 305 | 316 | 320 | 319 | 319 |
| 428102 | 320 | 313 | 319 | 314 | 313 | 312 | 312 | 305 | 304 | 309 | 304 | 288 |
| 429101 | 281 | 280 | 279 | 278 | 276 | 282 | 293 | 304 | 313 | 316 | 319 | 317 |
| 429102 | 320 | 318 | 314 | 313 | 310 | 307 | 303 | 300 | 299 | 310 | 303 | 290 |
| 430101 | 284 | 278 | 275 | 276 | 280 | 282 | 288 | 304 | 314 | 315 | 314 | 315 |
| 430102 | 315 | 309 | 314 | 310 | 310 | 308 | 302 | 304 | 300 | 307 | 301 | 291 |
| 501101 | 236 | 224 | 223 | 220 | 221 | 223 | 234 | 239 | 257 | 270 | 290 | 287 |
| 501102 | 294 | 284 | 278 | 274 | 280 | 281 | 274 | 278 | 271 | 290 | 272 | 262 |
| 502101 | 243 | 244 | 235 | 229 | 232 | 236 | 234 | 236 | 254 | 267 | 283 | 280 |
| 502102 | 284 | 283 | 285 | 270 | 277 | 279 | 283 | 278 | 280 | 286 | 277 | 259 |
| 503101 | 236 | 235 | 226 | 229 | 228 | 236 | 258 | 279 | 303 | 312 | 303 | 302 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 503102 | 306 | 301 | 294 | 295 | 284 | 279 | 276 | 264 | 267 | 282 | 266 | 252 |
| 504101 | 228 | 222 | 217 | 210 | 221 | 227 | 240 | 264 | 292 | 298 | 306 | 304 |
| 504102 | 303 | 298 | 297 | 292 | 292 | 283 | 280 | 279 | 276 | 294 | 276 | 263 |
| 505101 | 237 | 223 | 224 | 220 | 229 | 235 | 254 | 273 | 308 | 306 | 320 | 311 |
| 505102 | 307 | 314 | 305 | 299 | 292 | 294 | 292 | 287 | 282 | 294 | 283 | 254 |
| 506101 | 236 | 229 | 230 | 224 | 232 | 233 | 253 | 286 | 302 | 313 | 314 | 315 |
| 506102 | 316 | 307 | 307 | 304 | 308 | 300 | 302 | 295 | 296 | 307 | 283 | 266 |
| 507101 | 245 | 243 | 236 | 236 | 240 | 244 | 263 | 295 | 316 | 319 | 323 | 327 |
| 507102 | 317 | 314 | 309 | 298 | 297 | 286 | 279 | 269 | 265 | 275 | 278 | 254 |
| 508101 | 257 | 239 | 234 | 245 | 241 | 242 | 242 | 254 | 265 | 277 | 274 | 270 |
| 508102 | 273 | 258 | 262 | 260 | 247 | 259 | 252 | 248 | 251 | 259 | 270 | 245 |
| 509101 | 238 | 228 | 229 | 222 | 228 | 223 | 228 | 229 | 246 | 259 | 268 | 276 |
| 509102 | 268 | 270 | 271 | 271 | 273 | 270 | 269 | 271 | 273 | 281 | 269 | 250 |
| 510101 | 237 | 223 | 224 | 224 | 222 | 239 | 253 | 273 | 302 | 314 | 312 | 305 |
| 510102 | 304 | 303 | 301 | 296 | 296 | 300 | 285 | 285 | 284 | 288 | 271 | 255 |
| 511101 | 235 | 228 | 226 | 224 | 223 | 234 | 247 | 273 | 299 | 302 | 306 | 309 |
| 511102 | 305 | 304 | 303 | 293 | 302 | 289 | 281 | 280 | 273 | 291 | 267 | 262 |
| 512101 | 231 | 232 | 226 | 222 | 223 | 239 | 247 | 276 | 294 | 301 | 305 | 304 |
| 512102 | 310 | 299 | 300 | 296 | 294 | 298 | 285 | 286 | 284 | 291 | 274 | 252 |
| 513101 | 238 | 231 | 230 | 230 | 228 | 235 | 254 | 288 | 299 | 310 | 312 | 309 |
| 513102 | 314 | 303 | 301 | 291 | 292 | 283 | 279 | 269 | 267 | 273 | 274 | 246 |
| 514101 | 237 | 226 | 222 | 223 | 224 | 235 | 241 | 273 | 282 | 292 | 291 | 296 |
| 514102 | 291 | 294 | 294 | 290 | 288 | 282 | 270 | 264 | 251 | 267 | 268 | 250 |
| 515101 | 234 | 223 | 217 | 215 | 215 | 217 | 216 | 225 | 244 | 255 | 269 | 269 |
| 515102 | 273 | 269 | 267 | 267 | 266 | 266 | 260 | 261 | 252 | 262 | 262 | 249 |
| 516101 | 226 | 222 | 214 | 217 | 205 | 211 | 207 | 217 | 228 | 247 | 253 | 260 |
| 516102 | 264 | 267 | 269 | 262 | 266 | 266 | 273 | 261 | 263 | 271 | 272 | 246 |
| 517101 | 230 | 218 | 212 | 212 | 212 | 213 | 234 | 256 | 282 | 295 | 301 | 309 |
| 517102 | 311 | 309 | 310 | 312 | 314 | 308 | 303 | 291 | 282 | 284 | 282 | 261 |
| 518101 | 226 | 222 | 211 | 211 | 214 | 214 | 230 | 252 | 279 | 297 | 306 | 308 |
| 518102 | 318 | 318 | 317 | 325 | 320 | 317 | 308 | 294 | 293 | 280 | 283 | 251 |
| 519101 | 229 | 217 | 208 | 206 | 210 | 216 | 226 | 253 | 285 | 299 | 307 | 314 |
| 519102 | 321 | 322 | 321 | 327 | 325 | 316 | 311 | 294 | 289 | 286 | 280 | 256 |
| 520101 | 231 | 219 | 212 | 207 | 209 | 215 | 226 | 253 | 277 | 294 | 305 | 307 |
| 520102 | 303 | 313 | 314 | 313 | 306 | 304 | 297 | 283 | 282 | 283 | 270 | 247 |
| 521101 | 229 | 214 | 212 | 206 | 206 | 213 | 223 | 242 | 277 | 287 | 297 | 294 |
| 521102 | 298 | 294 | 296 | 296 | 297 | 282 | 274 | 261 | 264 | 266 | 258 | 248 |
| 522101 | 228 | 221 | 203 | 203 | 211 | 205 | 209 | 209 | 235 | 253 | 273 | 273 |
| 522102 | 274 | 274 | 269 | 270 | 265 | 265 | 268 | 262 | 257 | 260 | 262 | 240 |
| 523101 | 224 | 213 | 209 | 203 | 201 | 205 | 197 | 203 | 221 | 238 | 249 | 250 |
| 523102 | 261 | 258 | 254 | 257 | 252 | 256 | 261 | 254 | 251 | 256 | 266 | 236 |
| 524101 | 225 | 210 | 205 | 204 | 206 | 212 | 228 | 245 | 276 | 289 | 296 | 298 |
| 524102 | 301 | 304 | 308 | 298 | 307 | 310 | 302 | 297 | 289 | 294 | 278 | 238 |
| 525101 | 230 | 221 | 217 | 215 | 218 | 228 | 232 | 258 | 287 | 298 | 300 | 311 |
| 525102 | 306 | 305 | 310 | 305 | 302 | 295 | 289 | 282 | 274 | 268 | 280 | 254 |
| 526101 | 238 | 220 | 216 | 216 | 215 | 225 | 233 | 254 | 282 | 291 | 301 | 303 |
| 526102 | 314 | 306 | 306 | 307 | 308 | 297 | 294 | 284 | 280 | 281 | 278 | 259 |
| 527101 | 232 | 221 | 214 | 212 | 212 | 222 | 225 | 255 | 282 | 303 | 317 | 324 |
| 527102 | 331 | 326 | 337 | 334 | 335 | 337 | 315 | 318 | 298 | 303 | 313 | 278 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 528101 | 253 | 240 | 234 | 225 | 229 | 233 | 236 | 266 | 303 | 314 | 327 | 341 |
| 528102 | 350 | 358 | 355 | 359 | 361 | 361 | 346 | 333 | 329 | 321 | 323 | 299 |
| 529101 | 264 | 252 | 237 | 235 | 230 | 229 | 223 | 236 | 264 | 289 | 296 | 295 |
| 529102 | 295 | 294 | 284 | 271 | 270 | 265 | 258 | 247 | 252 | 239 | 251 | 242 |
| 530101 | 231 | 219 | 210 | 208 | 208 | 204 | 200 | 205 | 227 | 233 | 240 | 245 |
| 530102 | 254 | 249 | 246 | 250 | 248 | 254 | 254 | 253 | 248 | 253 | 257 | 245 |
| 531101 | 226 | 214 | 213 | 207 | 206 | 206 | 205 | 210 | 226 | 245 | 254 | 268 |
| 531102 | 269 | 269 | 272 | 272 | 274 | 277 | 276 | 272 | 270 | 264 | 274 | 250 |
| 601101 | 224 | 213 | 212 | 202 | 204 | 211 | 219 | 238 | 269 | 281 | 288 | 302 |
| 601102 | 298 | 307 | 304 | 297 | 298 | 296 | 281 | 273 | 266 | 260 | 270 | 247 |
| 602101 | 231 | 213 | 206 | 204 | 202 | 214 | 220 | 246 | 275 | 285 | 295 | 299 |
| 602102 | 301 | 308 | 307 | 310 | 308 | 300 | 293 | 279 | 276 | 278 | 278 | 253 |
| 603101 | 234 | 216 | 212 | 204 | 215 | 211 | 222 | 246 | 278 | 287 | 301 | 307 |
| 603102 | 310 | 311 | 318 | 315 | 314 | 308 | 302 | 289 | 283 | 272 | 280 | 251 |
| 604101 | 229 | 219 | 215 | 206 | 204 | 214 | 216 | 238 | 271 | 294 | 304 | 306 |
| 604102 | 315 | 313 | 328 | 319 | 314 | 311 | 295 | 283 | 265 | 273 | 269 | 253 |
| 605101 | 239 | 221 | 213 | 207 | 209 | 208 | 206 | 215 | 227 | 253 | 267 | 289 |
| 605102 | 291 | 292 | 290 | 296 | 291 | 293 | 285 | 277 | 263 | 256 | 262 | 250 |
| 606101 | 228 | 219 | 208 | 205 | 203 | 198 | 195 | 195 | 220 | 231 | 246 | 255 |
| 606102 | 264 | 268 | 268 | 272 | 276 | 281 | 286 | 280 | 276 | 265 | 278 | 258 |
| 607101 | 229 | 220 | 214 | 210 | 209 | 211 | 220 | 240 | 284 | 290 | 315 | 316 |
| 607102 | 322 | 325 | 324 | 324 | 316 | 315 | 301 | 289 | 281 | 285 | 271 | 254 |
| 608101 | 229 | 219 | 216 | 207 | 215 | 215 | 222 | 247 | 277 | 290 | 306 | 317 |
| 608102 | 319 | 318 | 347 | 333 | 327 | 321 | 306 | 296 | 287 | 277 | 279 | 257 |
| 609101 | 226 | 221 | 211 | 208 | 205 | 208 | 218 | 244 | 268 | 283 | 290 | 306 |
| 609102 | 303 | 317 | 315 | 318 | 318 | 315 | 299 | 290 | 279 | 272 | 284 | 256 |
| 610101 | 230 | 215 | 214 | 203 | 201 | 215 | 214 | 243 | 269 | 281 | 301 | 300 |
| 610102 | 303 | 309 | 306 | 311 | 313 | 305 | 296 | 285 | 280 | 279 | 279 | 246 |
| 611101 | 232 | 219 | 217 | 206 | 205 | 220 | 228 | 251 | 268 | 292 | 306 | 308 |
| 611102 | 306 | 312 | 310 | 307 | 296 | 291 | 276 | 272 | 251 | 262 | 262 | 242 |
| 612101 | 225 | 220 | 212 | 204 | 205 | 206 | 203 | 206 | 231 | 249 | 256 | 267 |
| 612102 | 266 | 261 | 260 | 259 | 257 | 254 | 254 | 252 | 245 | 245 | 253 | 242 |
| 613101 | 230 | 210 | 210 | 199 | 204 | 201 | 193 | 202 | 217 | 235 | 242 | 256 |
| 613102 | 262 | 264 | 262 | 265 | 269 | 268 | 277 | 276 | 265 | 253 | 268 | 250 |
| 614101 | 224 | 216 | 202 | 197 | 195 | 203 | 212 | 238 | 263 | 281 | 293 | 303 |
| 614102 | 304 | 309 | 316 | 311 | 305 | 310 | 295 | 291 | 283 | 276 | 275 | 253 |
| 615101 | 227 | 216 | 210 | 207 | 206 | 213 | 215 | 244 | 270 | 292 | 295 | 312 |
| 615102 | 310 | 321 | 346 | 325 | 332 | 323 | 318 | 306 | 305 | 290 | 291 | 268 |
| 616101 | 238 | 222 | 215 | 207 | 209 | 220 | 223 | 249 | 281 | 302 | 315 | 329 |
| 616102 | 340 | 346 | 363 | 374 | 381 | 377 | 377 | 359 | 340 | 324 | 303 | 285 |
| 617101 | 251 | 241 | 230 | 186 | 184 | 217 | 222 | 237 | 279 | 293 | 314 | 330 |
| 617102 | 332 | 340 | 326 | 326 | 324 | 313 | 300 | 295 | 273 | 272 | 277 | 252 |
| 618101 | 228 | 217 | 206 | 206 | 203 | 212 | 215 | 244 | 269 | 290 | 299 | 301 |
| 618102 | 304 | 298 | 297 | 293 | 297 | 288 | 278 | 271 | 262 | 256 | 269 | 246 |
| 619101 | 230 | 208 | 214 | 204 | 203 | 203 | 194 | 213 | 229 | 250 | 270 | 280 |
| 619102 | 285 | 279 | 277 | 287 | 290 | 289 | 279 | 267 | 269 | 258 | 267 | 253 |
| 620101 | 234 | 225 | 211 | 209 | 206 | 201 | 193 | 209 | 228 | 242 | 261 | 279 |
| 620102 | 291 | 300 | 305 | 317 | 320 | 325 | 322 | 321 | 310 | 310 | 315 | 277 |
| 621101 | 256 | 235 | 222 | 213 | 221 | 221 | 227 | 257 | 291 | 314 | 334 | 345 |

| Average Daily Peak Load within Season |
|---|
| Summer (Jun-Aug) |
| 309 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 621102 | 357 | 370 | 370 | 379 | 395 | 387 | 376 | 365 | 343 | 328 | 322 | 286 |
| 622101 | 260 | 235 | 216 | 214 | 212 | 215 | 212 | 242 | 282 | 302 | 326 | 332 |
| 622102 | 349 | 360 | 368 | 371 | 372 | 374 | 362 | 349 | 333 | 318 | 314 | 285 |
| 623101 | 249 | 238 | 232 | 227 | 224 | 228 | 232 | 254 | 280 | 302 | 315 | 324 |
| 623102 | 340 | 343 | 357 | 357 | 366 | 367 | 365 | 350 | 336 | 319 | 319 | 294 |
| 624101 | 260 | 238 | 231 | 220 | 219 | 230 | 221 | 260 | 296 | 323 | 346 | 356 |
| 624102 | 377 | 389 | 399 | 403 | 421 | 417 | 405 | 394 | 374 | 363 | 350 | 319 |
| 625101 | 285 | 264 | 250 | 240 | 233 | 242 | 241 | 270 | 308 | 333 | 353 | 384 |
| 625102 | 395 | 412 | 421 | 430 | 427 | 409 | 395 | 377 | 369 | 346 | 338 | 315 |
| 626101 | 286 | 262 | 250 | 231 | 223 | 236 | 227 | 236 | 262 | 286 | 314 | 326 |
| 626102 | 347 | 348 | 342 | 342 | 329 | 332 | 324 | 317 | 303 | 290 | 289 | 277 |
| 627101 | 255 | 237 | 225 | 222 | 210 | 214 | 205 | 212 | 230 | 261 | 275 | 290 |
| 627102 | 303 | 313 | 313 | 312 | 331 | 336 | 331 | 338 | 320 | 304 | 307 | 287 |
| 628101 | 251 | 231 | 226 | 215 | 218 | 222 | 226 | 253 | 289 | 309 | 327 | 340 |
| 628102 | 357 | 362 | 376 | 380 | 400 | 393 | 392 | 379 | 355 | 337 | 347 | 302 |
| 629101 | 267 | 248 | 237 | 230 | 221 | 216 | 224 | 264 | 299 | 334 | 348 | 371 |
| 629102 | 389 | 399 | 405 | 429 | 439 | 436 | 425 | 420 | 394 | 374 | 368 | 335 |
| 630101 | 297 | 258 | 244 | 240 | 238 | 240 | 252 | 273 | 321 | 344 | 373 | 401 |
| 630102 | 417 | 433 | 457 | 464 | 481 | 485 | 469 | 452 | 436 | 423 | 406 | 365 |
| 701101 | 322 | 299 | 280 | 268 | 259 | 262 | 270 | 300 | 332 | 371 | 388 | 415 |
| 701102 | 428 | 445 | 457 | 469 | 481 | 477 | 471 | 456 | 435 | 414 | 408 | 370 |
| 702101 | 329 | 306 | 285 | 271 | 269 | 268 | 269 | 302 | 349 | 372 | 397 | 419 |
| 702102 | 431 | 442 | 465 | 466 | 481 | 473 | 474 | 452 | 432 | 406 | 402 | 366 |
| 703101 | 335 | 310 | 286 | 278 | 266 | 261 | 250 | 261 | 289 | 315 | 339 | 344 |
| 703102 | 350 | 352 | 349 | 348 | 340 | 343 | 337 | 339 | 308 | 297 | 288 | 276 |
| 704101 | 258 | 241 | 224 | 224 | 213 | 217 | 206 | 213 | 237 | 253 | 273 | 287 |
| 704102 | 296 | 302 | 308 | 310 | 312 | 311 | 300 | 294 | 272 | 282 | 272 | 261 |
| 705101 | 255 | 238 | 232 | 222 | 219 | 221 | 223 | 227 | 246 | 269 | 290 | 306 |
| 705102 | 312 | 314 | 314 | 315 | 329 | 335 | 336 | 319 | 319 | 303 | 299 | 274 |
| 706101 | 248 | 230 | 223 | 216 | 218 | 226 | 235 | 255 | 281 | 309 | 310 | 326 |
| 706102 | 328 | 329 | 326 | 332 | 327 | 326 | 313 | 302 | 298 | 284 | 290 | 265 |
| 707101 | 244 | 226 | 219 | 216 | 221 | 225 | 224 | 256 | 276 | 298 | 318 | 326 |
| 707102 | 337 | 338 | 346 | 350 | 354 | 356 | 348 | 343 | 320 | 313 | 312 | 279 |
| 708101 | 259 | 240 | 226 | 227 | 222 | 228 | 231 | 255 | 285 | 307 | 328 | 343 |
| 708102 | 357 | 364 | 371 | 385 | 387 | 387 | 384 | 366 | 355 | 332 | 333 | 303 |
| 709101 | 271 | 253 | 233 | 233 | 228 | 229 | 239 | 261 | 292 | 321 | 349 | 366 |
| 709102 | 386 | 393 | 408 | 412 | 422 | 421 | 413 | 404 | 390 | 359 | 350 | 323 |
| 710101 | 290 | 266 | 248 | 243 | 232 | 235 | 222 | 235 | 262 | 295 | 327 | 345 |
| 710102 | 370 | 388 | 399 | 406 | 420 | 418 | 417 | 402 | 378 | 349 | 336 | 313 |
| 711101 | 281 | 260 | 248 | 245 | 236 | 235 | 220 | 234 | 249 | 268 | 285 | 305 |
| 711102 | 314 | 310 | 315 | 318 | 316 | 315 | 315 | 311 | 294 | 290 | 302 | 273 |
| 712101 | 246 | 229 | 229 | 217 | 226 | 229 | 238 | 253 | 298 | 309 | 327 | 335 |
| 712102 | 341 | 350 | 362 | 369 | 376 | 381 | 383 | 374 | 360 | 342 | 338 | 301 |
| 713101 | 275 | 251 | 243 | 232 | 237 | 245 | 245 | 273 | 306 | 330 | 351 | 371 |
| 713102 | 386 | 397 | 409 | 407 | 413 | 414 | 403 | 384 | 379 | 350 | 342 | 311 |
| 714101 | 283 | 263 | 241 | 241 | 235 | 242 | 248 | 267 | 293 | 320 | 321 | 329 |
| 714102 | 339 | 345 | 342 | 361 | 360 | 358 | 341 | 338 | 324 | 308 | 302 | 285 |
| 715101 | 260 | 240 | 231 | 225 | 222 | 229 | 233 | 253 | 290 | 311 | 334 | 340 |
| 715102 | 364 | 376 | 380 | 394 | 408 | 404 | 402 | 394 | 374 | 350 | 350 | 310 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 716101 | 283 | 257 | 237 | 234 | 233 | 226 | 235 | 260 | 288 | 326 | 348 | 372 |
| 716102 | 393 | 408 | 420 | 433 | 445 | 441 | 437 | 426 | 407 | 387 | 368 | 341 |
| 717101 | 304 | 281 | 271 | 264 | 247 | 253 | 246 | 252 | 278 | 305 | 327 | 354 |
| 717102 | 370 | 376 | 387 | 390 | 392 | 391 | 387 | 374 | 348 | 327 | 321 | 291 |
| 718101 | 271 | 258 | 234 | 229 | 223 | 227 | 213 | 219 | 238 | 260 | 283 | 292 |
| 718102 | 319 | 326 | 333 | 350 | 362 | 370 | 369 | 370 | 348 | 327 | 329 | 297 |
| 719101 | 274 | 252 | 239 | 238 | 235 | 240 | 241 | 272 | 301 | 328 | 351 | 367 |
| 719102 | 383 | 391 | 398 | 397 | 402 | 385 | 376 | 356 | 343 | 328 | 324 | 287 |
| 720101 | 273 | 247 | 237 | 232 | 226 | 239 | 242 | 258 | 289 | 319 | 336 | 349 |
| 720102 | 361 | 371 | 386 | 388 | 392 | 404 | 385 | 371 | 353 | 336 | 331 | 297 |
| 721101 | 268 | 253 | 239 | 238 | 234 | 241 | 243 | 268 | 296 | 313 | 327 | 343 |
| 721102 | 349 | 359 | 362 | 362 | 371 | 367 | 365 | 351 | 335 | 332 | 323 | 295 |
| 722101 | 271 | 256 | 243 | 236 | 239 | 245 | 255 | 276 | 300 | 318 | 347 | 347 |
| 722102 | 350 | 354 | 361 | 375 | 379 | 371 | 374 | 361 | 352 | 329 | 330 | 294 |
| 723101 | 273 | 255 | 242 | 236 | 236 | 236 | 247 | 264 | 290 | 303 | 322 | 332 |
| 723102 | 330 | 330 | 328 | 320 | 315 | 311 | 299 | 294 | 283 | 275 | 276 | 267 |
| 724101 | 239 | 237 | 228 | 222 | 222 | 219 | 213 | 225 | 236 | 261 | 281 | 290 |
| 724102 | 299 | 307 | 308 | 320 | 324 | 330 | 332 | 326 | 315 | 312 | 305 | 280 |
| 725101 | 257 | 243 | 231 | 218 | 220 | 223 | 212 | 214 | 238 | 258 | 276 | 303 |
| 725102 | 320 | 340 | 348 | 368 | 385 | 388 | 402 | 404 | 389 | 382 | 376 | 343 |
| 726101 | 303 | 278 | 269 | 255 | 256 | 260 | 266 | 284 | 323 | 358 | 386 | 419 |
| 726102 | 440 | 459 | 481 | 489 | 487 | 491 | 474 | 456 | 434 | 427 | 400 | 363 |
| 727101 | 325 | 302 | 283 | 274 | 271 | 270 | 279 | 302 | 323 | 352 | 364 | 375 |
| 727102 | 377 | 375 | 382 | 382 | 391 | 388 | 382 | 366 | 349 | 338 | 320 | 297 |
| 728101 | 260 | 244 | 239 | 233 | 230 | 240 | 245 | 268 | 299 | 318 | 330 | 349 |
| 728102 | 360 | 368 | 386 | 392 | 399 | 401 | 393 | 376 | 365 | 351 | 344 | 310 |
| 729101 | 286 | 262 | 253 | 246 | 243 | 248 | 258 | 273 | 309 | 328 | 347 | 367 |
| 729102 | 379 | 398 | 414 | 428 | 437 | 447 | 432 | 413 | 388 | 371 | 365 | 323 |
| 730101 | 280 | 270 | 252 | 248 | 246 | 251 | 254 | 279 | 312 | 339 | 360 | 385 |
| 730102 | 402 | 411 | 425 | 435 | 447 | 446 | 441 | 411 | 399 | 376 | 364 | 332 |
| 731101 | 304 | 277 | 266 | 264 | 251 | 260 | 251 | 259 | 292 | 319 | 351 | 366 |
| 731102 | 383 | 395 | 385 | 388 | 386 | 393 | 383 | 377 | 353 | 350 | 346 | 312 |
| 801101 | 290 | 269 | 255 | 248 | 236 | 237 | 235 | 234 | 261 | 284 | 305 | 329 |
| 801102 | 348 | 368 | 381 | 401 | 405 | 410 | 411 | 414 | 399 | 386 | 368 | 335 |
| 802101 | 302 | 274 | 265 | 255 | 256 | 259 | 265 | 292 | 322 | 351 | 370 | 393 |
| 802102 | 412 | 432 | 446 | 439 | 437 | 436 | 434 | 419 | 395 | 386 | 372 | 325 |
| 803101 | 296 | 275 | 262 | 253 | 250 | 256 | 265 | 281 | 309 | 343 | 364 | 377 |
| 803102 | 389 | 401 | 392 | 407 | 400 | 396 | 383 | 369 | 353 | 342 | 332 | 297 |
| 804101 | 273 | 254 | 242 | 239 | 242 | 243 | 251 | 273 | 307 | 321 | 344 | 360 |
| 804102 | 366 | 371 | 377 | 386 | 393 | 389 | 377 | 366 | 343 | 329 | 329 | 292 |
| 805101 | 262 | 253 | 235 | 231 | 236 | 235 | 247 | 260 | 298 | 313 | 334 | 352 |
| 805102 | 363 | 370 | 386 | 390 | 396 | 396 | 389 | 375 | 351 | 341 | 336 | 296 |
| 806101 | 277 | 254 | 243 | 245 | 234 | 243 | 247 | 270 | 297 | 323 | 344 | 362 |
| 806102 | 382 | 386 | 407 | 421 | 433 | 432 | 424 | 406 | 386 | 373 | 364 | 327 |
| 807101 | 299 | 272 | 269 | 255 | 249 | 247 | 248 | 251 | 282 | 311 | 342 | 363 |
| 807102 | 392 | 394 | 411 | 422 | 434 | 437 | 434 | 423 | 402 | 385 | 372 | 336 |
| 808101 | 313 | 301 | 274 | 271 | 262 | 258 | 254 | 252 | 274 | 297 | 324 | 357 |
| 808102 | 380 | 396 | 408 | 423 | 433 | 445 | 445 | 442 | 422 | 416 | 395 | 355 |
| 809101 | 312 | 295 | 279 | 272 | 270 | 275 | 279 | 295 | 334 | 370 | 392 | 417 |

| Average Daily Peak |
|---|
| 325 |
| 356 |
| 333 |
| 319 |
| 319 |
| 337 |
| 343 |
| 350 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
| 809102 | 446 | 456 | 474 | 491 | 503 | 497 | 484 | 469 | 443 | 436 | 406 | 361 | 386 |
| 810101 | 330 | 307 | 295 | 286 | 278 | 276 | 301 | 312 | 355 | 368 | 390 | 406 | |
| 810102 | 433 | 448 | 451 | 474 | 475 | 486 | 468 | 456 | 429 | 417 | 391 | 354 | 383 |
| 811101 | 317 | 291 | 281 | 272 | 266 | 269 | 280 | 300 | 334 | 364 | 389 | 422 | |
| 811102 | 448 | 463 | 473 | 485 | 493 | 490 | 479 | 464 | 438 | 431 | 402 | 356 | 384 |
| 812101 | 319 | 299 | 285 | 272 | 267 | 267 | 288 | 289 | 327 | 354 | 375 | 395 | |
| 812102 | 407 | 426 | 435 | 448 | 456 | 454 | 443 | 427 | 406 | 396 | 375 | 330 | 364 |
| 813101 | 293 | 268 | 252 | 255 | 254 | 251 | 265 | 280 | 308 | 333 | 349 | 363 | |
| 813102 | 375 | 385 | 387 | 390 | 391 | 381 | 360 | 337 | 319 | 318 | 305 | 291 | 321 |
| 814101 | 260 | 248 | 240 | 236 | 232 | 237 | 237 | 241 | 254 | 277 | 292 | 299 | |
| 814102 | 300 | 305 | 300 | 305 | 293 | 299 | 298 | 292 | 282 | 287 | 284 | 267 | 274 |
| 815101 | 254 | 243 | 231 | 223 | 222 | 228 | 226 | 219 | 228 | 254 | 267 | 278 | |
| 815102 | 285 | 293 | 292 | 292 | 305 | 308 | 311 | 303 | 296 | 301 | 291 | 270 | 268 |
| 816101 | 250 | 233 | 227 | 225 | 221 | 232 | 241 | 250 | 279 | 298 | 315 | 323 | |
| 816102 | 330 | 331 | 341 | 352 | 355 | 353 | 343 | 338 | 324 | 315 | 306 | 266 | 294 |
| 817101 | 250 | 233 | 227 | 221 | 218 | 222 | 246 | 249 | 280 | 308 | 325 | 337 | |
| 817102 | 355 | 371 | 392 | 399 | 406 | 415 | 394 | 384 | 356 | 361 | 332 | 294 | 316 |
| 818101 | 265 | 247 | 241 | 224 | 224 | 227 | 243 | 259 | 281 | 297 | 315 | 320 | |
| 818102 | 334 | 346 | 354 | 357 | 398 | 383 | 378 | 363 | 342 | 347 | 322 | 288 | 306 |
| 819101 | 260 | 243 | 238 | 228 | 230 | 231 | 254 | 272 | 297 | 312 | 332 | 334 | |
| 819102 | 346 | 358 | 366 | 378 | 383 | 373 | 364 | 352 | 344 | 341 | 321 | 297 | 311 |
| 820101 | 271 | 252 | 247 | 239 | 240 | 242 | 262 | 277 | 305 | 326 | 353 | 377 | |
| 820102 | 398 | 409 | 431 | 438 | 445 | 437 | 427 | 409 | 380 | 372 | 342 | 307 | 341 |
| 821101 | 274 | 258 | 246 | 238 | 235 | 229 | 234 | 236 | 257 | 285 | 317 | 336 | |
| 821102 | 365 | 379 | 396 | 406 | 418 | 425 | 427 | 412 | 392 | 384 | 361 | 333 | 327 |
| 822101 | 305 | 281 | 280 | 264 | 260 | 260 | 262 | 255 | 281 | 314 | 355 | 383 | |
| 822102 | 408 | 427 | 444 | 456 | 467 | 475 | 478 | 455 | 444 | 436 | 403 | 359 | 365 |
| 823101 | 328 | 304 | 297 | 282 | 283 | 281 | 296 | 320 | 329 | 350 | 358 | 358 | |
| 823102 | 363 | 363 | 365 | 367 | 358 | 361 | 345 | 334 | 313 | 320 | 302 | 258 | 326 |
| 824101 | 247 | 238 | 221 | 223 | 222 | 228 | 242 | 255 | 279 | 299 | 309 | 321 | |
| 824102 | 327 | 329 | 331 | 357 | 343 | 343 | 331 | 321 | 311 | 305 | 292 | 262 | 289 |
| 825101 | 239 | 222 | 219 | 216 | 214 | 221 | 237 | 266 | 285 | 300 | 316 | 323 | |
| 825102 | 331 | 341 | 342 | 359 | 373 | 372 | 367 | 361 | 341 | 341 | 314 | 276 | 299 |
| 826101 | 252 | 240 | 252 | 224 | 230 | 226 | 247 | 271 | 301 | 319 | 338 | 353 | |
| 826102 | 368 | 393 | 410 | 429 | 442 | 448 | 443 | 431 | 405 | 395 | 362 | 315 | 337 |
| 827101 | 286 | 266 | 256 | 243 | 242 | 242 | 257 | 285 | 314 | 343 | 366 | 375 | |
| 827102 | 398 | 413 | 431 | 443 | 447 | 448 | 420 | 408 | 373 | 366 | 341 | 308 | 345 |
| 828101 | 280 | 265 | 258 | 249 | 242 | 248 | 246 | 253 | 271 | 293 | 310 | 313 | |
| 828102 | 327 | 329 | 329 | 342 | 352 | 353 | 352 | 345 | 324 | 330 | 311 | 284 | 300 |
| 829101 | 268 | 249 | 243 | 232 | 232 | 230 | 237 | 232 | 251 | 261 | 283 | 293 | |
| 829102 | 305 | 313 | 326 | 343 | 352 | 369 | 365 | 362 | 350 | 352 | 331 | 287 | 294 |
| 830101 | 271 | 250 | 245 | 239 | 241 | 242 | 262 | 291 | 319 | 326 | 333 | 345 | |
| 830102 | 348 | 351 | 350 | 347 | 346 | 346 | 330 | 319 | 315 | 316 | 293 | 274 | 304 |
| 831101 | 239 | 233 | 226 | 226 | 230 | 224 | 250 | 278 | 297 | 309 | 317 | 322 | |
| 831102 | 324 | 328 | 330 | 330 | 329 | 326 | 318 | 307 | 305 | 305 | 291 | 259 | 288 |
| 901101 | 241 | 222 | 220 | 213 | 210 | 225 | 244 | 266 | 289 | 296 | 313 | 309 | |
| 901102 | 319 | 314 | 317 | 316 | 320 | 312 | 301 | 297 | 299 | 300 | 280 | 255 | |
| 902101 | 233 | 222 | 219 | 214 | 215 | 221 | 241 | 270 | 286 | 302 | 302 | 313 | |
| 902102 | 308 | 311 | 314 | 306 | 304 | 300 | 291 | 279 | 285 | 290 | 269 | 244 | |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 903101 | 230 | 216 | 209 | 211 | 214 | 216 | 233 | 261 | 281 | 289 | 303 | 299 |
| 903102 | 306 | 308 | 309 | 306 | 306 | 299 | 292 | 278 | 275 | 284 | 267 | 242 |
| 904101 | 233 | 220 | 218 | 209 | 209 | 208 | 220 | 216 | 238 | 257 | 266 | 274 |
| 904102 | 281 | 286 | 287 | 281 | 303 | 301 | 299 | 286 | 282 | 291 | 277 | 254 |
| 905101 | 238 | 226 | 222 | 213 | 216 | 210 | 218 | 218 | 227 | 239 | 255 | 268 |
| 905102 | 275 | 279 | 288 | 286 | 284 | 285 | 284 | 274 | 277 | 282 | 269 | 251 |
| 906101 | 229 | 222 | 218 | 209 | 216 | 217 | 218 | 232 | 242 | 258 | 270 | 286 |
| 906102 | 286 | 278 | 288 | 282 | 280 | 291 | 286 | 278 | 292 | 288 | 269 | 243 |
| 907101 | 223 | 217 | 207 | 208 | 213 | 216 | 239 | 269 | 283 | 293 | 296 | 309 |
| 907102 | 311 | 305 | 314 | 311 | 312 | 305 | 298 | 285 | 300 | 291 | 285 | 246 |
| 908101 | 228 | 225 | 211 | 217 | 210 | 222 | 243 | 266 | 286 | 291 | 302 | 308 |
| 908102 | 312 | 308 | 313 | 316 | 313 | 317 | 307 | 296 | 311 | 301 | 287 | 253 |
| 909101 | 232 | 226 | 217 | 212 | 216 | 225 | 250 | 278 | 296 | 310 | 321 | 325 |
| 909102 | 326 | 326 | 326 | 316 | 319 | 326 | 310 | 312 | 312 | 307 | 280 | 253 |
| 910101 | 235 | 226 | 221 | 208 | 222 | 226 | 235 | 273 | 287 | 298 | 315 | 320 |
| 910102 | 322 | 316 | 316 | 309 | 304 | 292 | 291 | 276 | 283 | 282 | 268 | 245 |
| 911101 | 225 | 219 | 214 | 209 | 203 | 236 | 225 | 228 | 240 | 260 | 273 | 278 |
| 911102 | 275 | 282 | 280 | 277 | 291 | 278 | 282 | 270 | 279 | 279 | 268 | 251 |
| 912101 | 231 | 214 | 213 | 209 | 205 | 207 | 212 | 217 | 225 | 244 | 253 | 267 |
| 912102 | 271 | 277 | 279 | 280 | 282 | 287 | 286 | 285 | 290 | 296 | 271 | 247 |
| 913101 | 231 | 210 | 214 | 204 | 212 | 222 | 239 | 263 | 286 | 298 | 304 | 315 |
| 913102 | 319 | 323 | 322 | 329 | 329 | 324 | 316 | 310 | 312 | 309 | 282 | 256 |
| 914101 | 233 | 222 | 214 | 215 | 208 | 222 | 241 | 267 | 286 | 293 | 300 | 304 |
| 914102 | 305 | 311 | 308 | 313 | 310 | 302 | 297 | 287 | 296 | 294 | 277 | 253 |
| 915101 | 225 | 220 | 212 | 216 | 211 | 217 | 244 | 272 | 292 | 298 | 300 | 310 |
| 915102 | 313 | 310 | 304 | 301 | 303 | 295 | 293 | 283 | 299 | 295 | 266 | 247 |
| 916101 | 225 | 212 | 212 | 217 | 211 | 225 | 243 | 272 | 296 | 300 | 302 | 311 |
| 916102 | 311 | 311 | 314 | 310 | 308 | 299 | 294 | 293 | 300 | 301 | 274 | 245 |
| 917101 | 227 | 219 | 209 | 208 | 213 | 217 | 241 | 267 | 285 | 300 | 298 | 310 |
| 917102 | 303 | 304 | 302 | 295 | 302 | 293 | 284 | 287 | 293 | 294 | 279 | 257 |
| 918101 | 246 | 233 | 229 | 221 | 222 | 231 | 241 | 247 | 260 | 275 | 277 | 279 |
| 918102 | 273 | 272 | 267 | 262 | 269 | 265 | 269 | 267 | 283 | 282 | 264 | 251 |
| 919101 | 229 | 227 | 224 | 215 | 217 | 220 | 226 | 230 | 240 | 257 | 267 | 270 |
| 919102 | 273 | 278 | 264 | 267 | 270 | 269 | 278 | 278 | 290 | 292 | 267 | 249 |
| 920101 | 234 | 224 | 221 | 216 | 222 | 225 | 247 | 289 | 306 | 309 | 317 | 324 |
| 920102 | 316 | 314 | 310 | 310 | 302 | 297 | 284 | 275 | 299 | 293 | 273 | 239 |
| 921101 | 228 | 227 | 213 | 219 | 216 | 227 | 249 | 285 | 298 | 307 | 305 | 306 |
| 921102 | 305 | 296 | 298 | 298 | 292 | 294 | 284 | 283 | 301 | 295 | 269 | 243 |
| 922101 | 226 | 219 | 212 | 214 | 219 | 219 | 246 | 280 | 294 | 300 | 303 | 313 |
| 922102 | 307 | 316 | 307 | 309 | 305 | 300 | 297 | 298 | 303 | 298 | 268 | 247 |
| 923101 | 230 | 222 | 222 | 216 | 223 | 230 | 247 | 288 | 309 | 308 | 317 | 319 |
| 923102 | 318 | 315 | 308 | 308 | 303 | 304 | 292 | 293 | 307 | 293 | 278 | 246 |
| 924101 | 230 | 221 | 218 | 216 | 218 | 232 | 247 | 278 | 293 | 298 | 308 | 299 |
| 924102 | 300 | 297 | 295 | 291 | 285 | 282 | 271 | 271 | 278 | 282 | 257 | 246 |
| 925101 | 225 | 223 | 217 | 212 | 211 | 216 | 223 | 240 | 248 | 261 | 262 | 273 |
| 925102 | 277 | 263 | 270 | 263 | 267 | 269 | 262 | 265 | 282 | 274 | 252 | 252 |
| 926101 | 227 | 216 | 214 | 211 | 205 | 210 | 220 | 219 | 228 | 239 | 252 | 263 |
| 926102 | 275 | 275 | 279 | 281 | 283 | 292 | 298 | 299 | 315 | 296 | 281 | 256 |
| 927101 | 239 | 222 | 220 | 216 | 215 | 220 | 247 | 271 | 294 | 299 | 312 | 322 |

| Average Daily Peak Load within Season |
|---|
| Fall (Sep-Nov) |
| 291 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 927102 | 327 | 328 | 329 | 334 | 334 | 324 | 314 | 309 | 316 | 312 | 281 | 246 |
| 928101 | 234 | 226 | 220 | 219 | 217 | 225 | 250 | 278 | 295 | 302 | 318 | 321 |
| 928102 | 324 | 333 | 342 | 343 | 346 | 349 | 332 | 327 | 336 | 318 | 293 | 258 |
| 929101 | 239 | 231 | 222 | 218 | 219 | 229 | 243 | 279 | 293 | 302 | 311 | 327 |
| 929102 | 317 | 324 | 316 | 321 | 326 | 311 | 305 | 299 | 311 | 300 | 275 | 244 |
| 930101 | 230 | 216 | 217 | 210 | 213 | 221 | 250 | 276 | 294 | 298 | 296 | 307 |
| 930102 | 316 | 313 | 316 | 321 | 315 | 316 | 302 | 300 | 311 | 295 | 280 | 249 |
| 1001101 | 221 | 222 | 211 | 215 | 217 | 218 | 243 | 276 | 286 | 294 | 295 | 305 |
| 1001102 | 297 | 298 | 296 | 295 | 292 | 285 | 269 | 276 | 282 | 277 | 265 | 245 |
| 1002101 | 232 | 219 | 221 | 217 | 213 | 219 | 229 | 246 | 250 | 269 | 276 | 272 |
| 1002102 | 274 | 274 | 268 | 267 | 271 | 264 | 262 | 268 | 284 | 284 | 263 | 250 |
| 1003101 | 228 | 226 | 220 | 216 | 217 | 217 | 227 | 241 | 240 | 256 | 260 | 272 |
| 1003102 | 271 | 274 | 273 | 273 | 271 | 276 | 277 | 282 | 302 | 292 | 269 | 244 |
| 1004101 | 228 | 217 | 215 | 211 | 214 | 227 | 242 | 280 | 300 | 295 | 304 | 312 |
| 1004102 | 313 | 315 | 313 | 323 | 321 | 314 | 308 | 310 | 321 | 310 | 284 | 247 |
| 1005101 | 237 | 220 | 217 | 222 | 218 | 230 | 243 | 275 | 279 | 288 | 310 | 324 |
| 1005102 | 322 | 318 | 324 | 334 | 335 | 324 | 310 | 313 | 322 | 303 | 277 | 253 |
| 1006101 | 233 | 220 | 221 | 215 | 215 | 226 | 248 | 277 | 294 | 295 | 294 | 300 |
| 1006102 | 308 | 306 | 307 | 312 | 310 | 297 | 295 | 291 | 306 | 292 | 272 | 246 |
| 1007101 | 231 | 218 | 216 | 206 | 218 | 221 | 243 | 278 | 292 | 297 | 306 | 309 |
| 1007102 | 323 | 315 | 325 | 324 | 333 | 325 | 316 | 311 | 325 | 305 | 283 | 256 |
| 1008101 | 232 | 221 | 217 | 215 | 211 | 221 | 249 | 276 | 295 | 297 | 317 | 315 |
| 1008102 | 320 | 324 | 328 | 329 | 321 | 320 | 306 | 309 | 315 | 294 | 287 | 259 |
| 1009101 | 245 | 232 | 225 | 221 | 220 | 218 | 233 | 245 | 254 | 271 | 281 | 285 |
| 1009102 | 292 | 290 | 295 | 298 | 294 | 299 | 294 | 298 | 310 | 288 | 274 | 258 |
| 1010101 | 238 | 228 | 216 | 216 | 214 | 219 | 219 | 239 | 233 | 248 | 262 | 272 |
| 1010102 | 276 | 289 | 285 | 287 | 298 | 297 | 297 | 309 | 311 | 301 | 280 | 251 |
| 1011101 | 228 | 228 | 220 | 219 | 221 | 226 | 248 | 282 | 293 | 306 | 305 | 319 |
| 1011102 | 331 | 330 | 332 | 332 | 335 | 325 | 321 | 326 | 322 | 306 | 284 | 255 |
| 1012101 | 237 | 227 | 221 | 219 | 221 | 226 | 247 | 288 | 305 | 301 | 307 | 313 |
| 1012102 | 305 | 304 | 312 | 306 | 303 | 304 | 276 | 311 | 307 | 298 | 280 | 251 |
| 1013101 | 238 | 226 | 221 | 225 | 223 | 236 | 252 | 296 | 311 | 307 | 310 | 310 |
| 1013102 | 307 | 309 | 305 | 308 | 300 | 294 | 293 | 307 | 310 | 295 | 274 | 252 |
| 1014101 | 236 | 225 | 226 | 227 | 216 | 233 | 254 | 297 | 304 | 313 | 306 | 314 |
| 1014102 | 308 | 312 | 313 | 304 | 305 | 304 | 287 | 304 | 312 | 294 | 270 | 249 |
| 1015101 | 232 | 222 | 220 | 214 | 221 | 230 | 250 | 285 | 307 | 304 | 309 | 309 |
| 1015102 | 310 | 314 | 307 | 316 | 301 | 300 | 282 | 300 | 298 | 288 | 271 | 259 |
| 1016101 | 236 | 226 | 218 | 221 | 216 | 221 | 229 | 251 | 258 | 275 | 283 | 282 |
| 1016102 | 280 | 270 | 271 | 269 | 264 | 273 | 262 | 294 | 291 | 281 | 271 | 252 |
| 1017101 | 237 | 226 | 234 | 219 | 222 | 229 | 232 | 247 | 256 | 271 | 279 | 285 |
| 1017102 | 283 | 288 | 281 | 275 | 284 | 278 | 290 | 308 | 310 | 296 | 278 | 253 |
| 1018101 | 237 | 234 | 222 | 231 | 228 | 241 | 265 | 306 | 325 | 325 | 333 | 325 |
| 1018102 | 326 | 316 | 312 | 303 | 302 | 297 | 295 | 316 | 320 | 302 | 285 | 254 |
| 1019101 | 244 | 232 | 231 | 233 | 229 | 238 | 267 | 306 | 319 | 321 | 313 | 319 |
| 1019102 | 309 | 314 | 309 | 306 | 306 | 293 | 292 | 311 | 315 | 302 | 282 | 246 |
| 1020101 | 234 | 230 | 226 | 222 | 225 | 230 | 261 | 302 | 316 | 310 | 310 | 313 |
| 1020102 | 304 | 313 | 303 | 301 | 297 | 293 | 282 | 305 | 311 | 292 | 277 | 251 |
| 1021101 | 240 | 234 | 226 | 226 | 227 | 238 | 260 | 296 | 309 | 319 | 312 | 310 |
| 1021102 | 307 | 302 | 300 | 297 | 298 | 291 | 282 | 297 | 307 | 293 | 276 | 250 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1022101 | 241 | 226 | 226 | 221 | 226 | 230 | 255 | 287 | 303 | 309 | 310 | 310 |
| 1022102 | 302 | 301 | 300 | 294 | 291 | 289 | 278 | 297 | 295 | 282 | 271 | 256 |
| 1023101 | 236 | 233 | 225 | 222 | 228 | 222 | 240 | 250 | 266 | 280 | 283 | 282 |
| 1023102 | 286 | 278 | 274 | 266 | 270 | 264 | 269 | 293 | 289 | 280 | 271 | 255 |
| 1024101 | 234 | 232 | 225 | 221 | 221 | 221 | 230 | 242 | 252 | 263 | 272 | 276 |
| 1024102 | 279 | 282 | 281 | 270 | 272 | 283 | 290 | 309 | 305 | 293 | 284 | 252 |
| 1025101 | 239 | 227 | 225 | 223 | 222 | 234 | 254 | 294 | 321 | 317 | 322 | 325 |
| 1025102 | 324 | 321 | 316 | 313 | 318 | 314 | 318 | 332 | 324 | 308 | 292 | 268 |
| 1026101 | 243 | 243 | 235 | 238 | 240 | 255 | 274 | 321 | 334 | 337 | 348 | 343 |
| 1026102 | 344 | 343 | 338 | 337 | 343 | 348 | 350 | 366 | 355 | 343 | 319 | 293 |
| 1027101 | 275 | 266 | 267 | 258 | 264 | 276 | 296 | 334 | 353 | 354 | 359 | 359 |
| 1027102 | 364 | 355 | 354 | 353 | 346 | 349 | 352 | 365 | 359 | 344 | 318 | 296 |
| 1028101 | 277 | 272 | 266 | 268 | 271 | 281 | 298 | 345 | 357 | 360 | 359 | 349 |
| 1028102 | 345 | 337 | 328 | 324 | 317 | 311 | 320 | 347 | 343 | 328 | 307 | 287 |
| 1029101 | 270 | 263 | 254 | 257 | 256 | 272 | 287 | 324 | 348 | 347 | 340 | 336 |
| 1029102 | 329 | 321 | 315 | 311 | 309 | 297 | 301 | 316 | 320 | 299 | 289 | 275 |
| 1030101 | 257 | 244 | 249 | 235 | 248 | 244 | 262 | 276 | 292 | 295 | 305 | 307 |
| 1030102 | 300 | 300 | 288 | 283 | 284 | 287 | 297 | 316 | 311 | 305 | 294 | 265 |
| 1031101 | 263 | 255 | 248 | 247 | 245 | 247 | 247 | 268 | 278 | 288 | 296 | 300 |
| 1031102 | 301 | 307 | 295 | 293 | 290 | 292 | 291 | 314 | 312 | 304 | 293 | 269 |
| 1101101 | 251 | 250 | 241 | 239 | 252 | 253 | 280 | 316 | 340 | 334 | 337 | 327 |
| 1101102 | 325 | 313 | 310 | 307 | 307 | 292 | 300 | 323 | 317 | 304 | 282 | 262 |
| 1102101 | 243 | 241 | 235 | 242 | 239 | 246 | 267 | 309 | 323 | 320 | 320 | 317 |
| 1102102 | 317 | 318 | 313 | 308 | 304 | 303 | 296 | 314 | 311 | 304 | 281 | 261 |
| 1103101 | 243 | 242 | 232 | 235 | 234 | 247 | 270 | 312 | 333 | 324 | 321 | 321 |
| 1103102 | 326 | 315 | 313 | 308 | 309 | 298 | 309 | 326 | 320 | 314 | 293 | 268 |
| 1104101 | 258 | 244 | 250 | 250 | 250 | 261 | 284 | 316 | 349 | 342 | 334 | 338 |
| 1104102 | 325 | 323 | 320 | 311 | 308 | 299 | 311 | 325 | 325 | 318 | 303 | 280 |
| 1105101 | 264 | 259 | 259 | 261 | 250 | 272 | 284 | 323 | 347 | 346 | 334 | 332 |
| 1105102 | 328 | 320 | 310 | 311 | 301 | 299 | 299 | 312 | 319 | 302 | 290 | 268 |
| 1106101 | 257 | 243 | 246 | 237 | 245 | 241 | 255 | 275 | 287 | 291 | 298 | 294 |
| 1106102 | 292 | 282 | 277 | 279 | 271 | 273 | 288 | 299 | 302 | 287 | 281 | 263 |
| 1107101 | 246 | 227 | 232 | 230 | 235 | 237 | 252 | 258 | 270 | 280 | 279 | 277 |
| 1107102 | 278 | 279 | 270 | 274 | 278 | 286 | 309 | 312 | 302 | 292 | 265 | 247 |
| 1108101 | 231 | 238 | 231 | 237 | 238 | 255 | 275 | 317 | 331 | 327 | 326 | 324 |
| 1108102 | 313 | 314 | 306 | 306 | 307 | 324 | 335 | 329 | 321 | 307 | 283 | 263 |
| 1109101 | 243 | 235 | 239 | 234 | 244 | 252 | 275 | 312 | 326 | 327 | 335 | 332 |
| 1109102 | 335 | 328 | 327 | 326 | 332 | 344 | 356 | 349 | 340 | 326 | 301 | 271 |
| 1110101 | 264 | 254 | 246 | 249 | 249 | 264 | 284 | 327 | 342 | 341 | 347 | 347 |
| 1110102 | 349 | 348 | 346 | 343 | 339 | 362 | 365 | 361 | 345 | 331 | 314 | 288 |
| 1111101 | 274 | 263 | 257 | 266 | 261 | 278 | 291 | 327 | 330 | 340 | 341 | 332 |
| 1111102 | 339 | 325 | 317 | 319 | 312 | 336 | 350 | 343 | 341 | 328 | 311 | 285 |
| 1112101 | 278 | 269 | 263 | 272 | 259 | 282 | 293 | 328 | 341 | 340 | 338 | 334 |
| 1112102 | 328 | 325 | 313 | 313 | 313 | 328 | 334 | 336 | 325 | 314 | 296 | 289 |
| 1113101 | 268 | 262 | 259 | 262 | 254 | 265 | 276 | 293 | 307 | 320 | 321 | 327 |
| 1113102 | 329 | 318 | 316 | 307 | 313 | 333 | 350 | 338 | 334 | 322 | 310 | 291 |
| 1114101 | 279 | 273 | 264 | 263 | 265 | 267 | 276 | 289 | 294 | 304 | 313 | 308 |
| 1114102 | 312 | 303 | 295 | 297 | 298 | 330 | 345 | 344 | 339 | 325 | 307 | 278 |
| 1115101 | 271 | 254 | 260 | 256 | 258 | 269 | 291 | 327 | 349 | 356 | 354 | 365 |

**MONTANA-DAKOTA UTILITIES CO.**
**INTEGRATED HOURLY LOAD DATA**
**CALENDAR YEAR 2010**

| Hour | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1115102 | 359 | 357 | 353 | 348 | 353 | 374 | 371 | 370 | 359 | 339 | 322 | 296 |
| 1116101 | 278 | 273 | 264 | 265 | 270 | 277 | 299 | 338 | 353 | 360 | 359 | 357 |
| 1116102 | 356 | 354 | 346 | 345 | 350 | 375 | 373 | 368 | 361 | 344 | 325 | 297 |
| 1117101 | 279 | 275 | 270 | 272 | 276 | 283 | 308 | 351 | 364 | 368 | 370 | 373 |
| 1117102 | 358 | 358 | 355 | 352 | 353 | 379 | 384 | 374 | 371 | 356 | 329 | 316 |
| 1118101 | 299 | 284 | 276 | 285 | 285 | 295 | 318 | 358 | 367 | 373 | 380 | 367 |
| 1118102 | 373 | 362 | 354 | 353 | 347 | 371 | 375 | 368 | 364 | 344 | 326 | 309 |
| 1119101 | 288 | 285 | 281 | 291 | 284 | 301 | 321 | 367 | 376 | 379 | 375 | 380 |
| 1119102 | 372 | 363 | 361 | 362 | 363 | 389 | 389 | 383 | 372 | 359 | 350 | 333 |
| 1120101 | 321 | 306 | 310 | 296 | 307 | 308 | 314 | 330 | 345 | 362 | 367 | 377 |
| 1120102 | 374 | 359 | 365 | 363 | 367 | 390 | 393 | 394 | 379 | 370 | 355 | 332 |
| 1121101 | 314 | 315 | 304 | 303 | 305 | 309 | 311 | 325 | 327 | 339 | 343 | 342 |
| 1121102 | 346 | 346 | 331 | 343 | 343 | 383 | 394 | 398 | 397 | 376 | 358 | 338 |
| 1122101 | 318 | 314 | 313 | 312 | 318 | 326 | 351 | 391 | 395 | 414 | 409 | 407 |
| 1122102 | 403 | 402 | 393 | 390 | 389 | 409 | 428 | 412 | 410 | 402 | 369 | 347 |
| 1123101 | 330 | 322 | 316 | 325 | 320 | 334 | 355 | 399 | 411 | 415 | 412 | 404 |
| 1123102 | 399 | 392 | 395 | 392 | 397 | 419 | 424 | 425 | 410 | 399 | 370 | 350 |
| 1124101 | 330 | 323 | 319 | 310 | 320 | 322 | 349 | 384 | 402 | 411 | 417 | 421 |
| 1124102 | 413 | 405 | 401 | 396 | 397 | 425 | 428 | 427 | 420 | 406 | 388 | 367 |
| 1125101 | 348 | 345 | 336 | 337 | 337 | 338 | 355 | 360 | 381 | 391 | 391 | 394 |
| 1125102 | 383 | 362 | 343 | 337 | 328 | 356 | 365 | 371 | 366 | 353 | 351 | 324 |
| 1126101 | 320 | 313 | 309 | 305 | 304 | 314 | 325 | 344 | 349 | 355 | 361 | 358 |
| 1126102 | 352 | 345 | 339 | 337 | 336 | 360 | 371 | 366 | 363 | 351 | 339 | 319 |
| 1127101 | 309 | 308 | 301 | 297 | 297 | 298 | 306 | 319 | 331 | 342 | 352 | 348 |
| 1127102 | 348 | 332 | 330 | 329 | 328 | 356 | 372 | 360 | 359 | 353 | 337 | 314 |
| 1128101 | 298 | 293 | 287 | 282 | 288 | 292 | 292 | 317 | 315 | 328 | 334 | 336 |
| 1128102 | 339 | 340 | 332 | 343 | 348 | 385 | 392 | 394 | 385 | 378 | 353 | 329 |
| 1129101 | 315 | 313 | 305 | 308 | 309 | 318 | 341 | 380 | 403 | 395 | 403 | 403 |
| 1129102 | 403 | 404 | 394 | 394 | 395 | 427 | 430 | 427 | 418 | 399 | 372 | 346 |
| 1130101 | 324 | 316 | 309 | 314 | 306 | 322 | 341 | 381 | 398 | 388 | 394 | 392 |
| 1130102 | 386 | 380 | 376 | 369 | 373 | 408 | 418 | 413 | 412 | 389 | 369 | 342 |

**4.77** Planned outage MW for entire season (MW-days/number of days in period)

**December 1, 2009** Start of period
**February 28, 2010** End of period
**90** Number of days in period: Event Detail (Full) Report

**22.70%** % ownership in Big Stone Plant Unit #1
**25.00%** % ownership in Coyote Station Unit #1

# Event Detail (Full) Report

## KC2 Dec09-Feb10; For Karen Collins - 2011.08.26

**Report Period:** December 2009 to February 2010

**Rollup Weighting:** N/A

**Coyote Station - Unit #01**
**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 65 | MO | 12/3/2009 22:00 | 12/7/2009 7:02 | | 0 | 81.033 | 81.033 | 34601.233 | 1 | 106.75 | 4.00 | |
| | | CAUSE CODE: | 1305 - BOILER TUBE FIRESIDE CLEANING | | | | | | | | | | |
| | | DESCRIPTION: | Scheduled wash outage | | | | | | | | | | |
| | | | | | | | 81.033 | | 34601.233 | | | 4.00 | 4.00 |

**Glendive - Unit #02**
**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #02 | 1 | MO | 1/22/2010 11:00 | 1/22/2010 12:00 | | | 1 | 1 | 41.7 | 1 | 41.70 | 0.02 |
| | | CAUSE CODE: | 5110 - GT LUBE OIL SYSTEM - GENERAL | | | | | | | | | |
| | | DESCRIPTION: | Turbine lube oil drain line replacement | | | | | | | | | |
| Unit #02 | 2 | PO | 2/22/2010 9:00 | 2/22/2010 11:30 | | | 2.5 | 2.5 | 105 | 1 | 42.00 | 0.05 |
| | | CAUSE CODE: | 5048 - Gas fuel system including controls and instrumentation | | | | | | | | | |
| | | DESCRIPTION: | Gas compressor work | | | | | | | | | |
| Unit #02 | 3 | PO | 2/23/2010 11:00 | 2/23/2010 19:00 | | | 8 | 8 | 336 | 1 | 42.00 | 0.16 |
| | | CAUSE CODE: | 5048 - Gas fuel system including controls and instrumentation | | | | | | | | | |
| | | DESCRIPTION: | Gas compressor work | | | | | | | | | |
| Unit #02 | 4 | PO | 2/24/2010 8:00 | 2/24/2010 20:00 | | | 12 | 12 | 504 | 1 | 42.00 | 0.23 |
| | | CAUSE CODE: | 5048 - Gas fuel system including controls and instrumentation | | | | | | | | | |
| | | DESCRIPTION: | Gas compressor work | | | | | | | | | |
| Unit #02 | 5 | PO | 2/25/2010 8:00 | 2/25/2010 19:00 | | | 11 | 11 | 462 | 1 | 42.00 | 0.21 |
| | | CAUSE CODE: | 5048 - Gas fuel system including controls and instrumentation | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DESCRIPTION: | Gas compressor work | | | | | | | | | | | | |
| | | | | | | | 34.500 | | 1448.700 | | | 0.67 | 0.67 | |

**Miles City - Unit #01**

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 13 | PO | 12/15/2009 14:00 | 12/15/2009 21:00 | | | 7 | 7 | 193.9 | 1 | 27.70 | 0.09 | |
| | | CAUSE CODE: | 5140 - GT BATTERY AND CHARGER SYSTEM | | | | | | | | | | |
| | | DESCRIPTION: | Turbine Battery Load Test | | | | | | | | | | |
| | | | | | | | 7.000 | | 193.900 | | | 0.09 | 0.09 |

**36.34** Planned outage MW for entire season (MW-days/number of days in period)

**March 1, 2010** Start of period
**May 31, 2010** End of period
**92** Number of days in period: Event Detail (Full) Report

**22.70%** % ownership in Big Stone Plant Unit #1
**25.00%** % ownership in Coyote Station Unit #1

# Event Detail (Full) Report

## KC3 Mar10-May10; For Karen Collins - 2011.08.26

**Report Period:** March 2010 to May 2010

**Rollup Weighting:** N/A

**Big Stone Plant - Unit #01**
Duration hours, Equiv. Hours and MWHr cover the full event lifetime

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 39 | PO | 5/12/2010 21:27 | 5/26/2010 11:34 | | | 326.117 | 326.117 | 154905.417 | 1 | 107.82 | 15.93 | |
| | | CAUSE CODE: | 1305 - BOILER TUBE FIRESIDE CLEANING | | | | | | | | | | |
| | | DESCRIPTION: | Off line for annual boiler wash | | | | | | | | | | |
| | | | | | | | 326.117 | | 154905.417 | | | 15.93 | 15.93 |

**Coyote Station - Unit #01**
Duration hours, Equiv. Hours and MWHr cover the full event lifetime

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 15 | PO | 3/11/2010 22:04 | 3/15/2010 5:37 | | | 78.55 | 78.55 | 33540.85 | 1 | 106.75 | 3.80 | |
| | | CAUSE CODE: | 1305 - BOILER TUBE FIRESIDE CLEANING | | | | | | | | | | |
| | | DESCRIPTION: | Scheduled wash outage | | | | | | | | | | |
| | | | | | | | 78.550 | | 33540.850 | | | 3.80 | 3.80 |

## Glendive - Unit #01

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 12 | MO | 5/13/2010 10:00 | 5/13/2010 13:30 | | | 3.5 | 3.5 | 127.4 | 1 | 36.40 | 0.06 | |
| | | CAUSE CODE: | 5299 - OTHER GAS TURBINE PROBLEMS | | | | | | | | | | |
| | | DESCRIPTION: | Annual Maintenance | | | | | | | | | | |
| | | | | | | | 3.500 | | 127.400 | | | 0.06 | 0.06 |

## Glendive - Unit #02

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #02 | 6 | PO | 3/1/2010 11:30 | 3/1/2010 15:30 | | | 4 | 4 | 161.2 | 1 | 40.30 | 0.07 | |
| | | CAUSE CODE: | 5048 - Gas fuel system including controls and instrumentation | | | | | | | | | | |
| | | DESCRIPTION: | Gas compressor work | | | | | | | | | | |
| | | | | | | | 4.000 | | 161.200 | | | 0.07 | 0.07 |

## Lewis & Clark Station - Unit #01

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 1 | PO | 3/6/2010 5:35 | 3/6/2010 15:40 | | | 10.083 | 10.083 | 484.605 | 1 | 48.06 | 0.22 | |
| | | CAUSE CODE: | 8115 - WET SCRUBBER DISC SCRUBBER THROATS | | | | | | | | | | |
| | | DESCRIPTION: | Scrubber Disk Cleaning | | | | | | | | | | |
| Unit #01 | 2 | PO | 4/24/2010 0:17 | 5/8/2010 10:20 | | | 346.05 | 346.05 | 17387.296 | 1 | 50.25 | 7.87 | |
| | | CAUSE CODE: | 1812 - BOILER INSPECTIONS - SCHEDULED OR ROUTINE | | | | | | | | | | |
| | | DESCRIPTION: | Planned Spring Outage | | | | | | | | | | |
| | | | | | | | 356.133 | | 17871.901 | | | 8.09 | 8.09 |

## R.M. Heskett Station - Unit #02

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #02 | 3 | MO | 5/7/2010 23:37 | 5/18/2010 8:00 | | | 248.383 | 248.383 | 18529.397 | 1 | 74.60 | 8.39 | |
| | | CAUSE CODE: | 1812 - BOILER INSPECTIONS - SCHEDULED OR ROUTINE | | | | | | | | | | |
| | | DESCRIPTION: | Scheduled Maintenance Outage | | | | | | | | | | |
| | | | | | | | 248.383 | | 18529.397 | | | 8.39 | 8.39 |

**17.49** Planned outage MW for entire season (MW-days/number of days in period)

**June 1, 2010** Start of period
**August 31, 2010** End of period
**92** Number of days in period: Event Detail (Full) Report

**22.70%** % ownership in Big Stone Plant Unit #1
**25.00%** % ownership in Coyote Station Unit #1

# Event Detail (Full) Report

## KC4 Jun10-Aug10; For Karen Collins - 2011.08.26

**Report Period:** June 2010 to August 2010

**Rollup Weighting:** N/A

**Coyote Station - Unit #01**
**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 36 | PO | 6/3/2010 23:00 | 6/11/2010 11:15 | | | 180.25 | 180.25 | 76966.75 | 1 | 106.75 | 8.71 | |
| | | CAUSE CODE: | 1305 - BOILER TUBE FIRESIDE CLEANING | | | | | | | | | | |
| | | DESCRIPTION: | Scheduled spring outage | | | | | | | | | | |
| | | | | | | | 180.250 | | 76966.750 | | | 8.71 | 8.71 |

**Glendive - Unit #02**
**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #02 | 41 | PO | 8/10/2010 8:00 | 8/10/2010 20:30 | | | 12.5 | 12.5 | 516.25 | 1 | 41.30 | 0.23 | |
| | | CAUSE CODE: | 5272 - GT BOROSCOPE INSPECTION | | | | | | | | | | |
| | | DESCRIPTION: | Boroscope inspection | | | | | | | | | | |
| | | | | | | | 12.500 | | 516.250 | | | 0.23 | 0.23 |

## Lewis & Clark Station - Unit #01

Duration hours, Equiv. Hours and MWHr cover the full event lifetime

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 3 | PO | 8/25/2010 5:14 | 8/25/2010 15:42 | | | 10.467 | 10.467 | 547.407 | 1 | 52.30 | 0.25 | |
| | | CAUSE CODE: | 8115 - WET SCRUBBER DISC SCRUBBER THROATS | | | | | | | | | | |
| | | DESCRIPTION: | Scrubber Disk Cleaning | | | | | | | | | | |
| Unit #01 | 4 | PO | 8/27/2010 23:50 | 8/31/2010 8:51 | | | 81.017 | 81.017 | 4237.172 | 1 | 52.30 | 1.92 | |
| | | CAUSE CODE: | 3131 - CONDENSER AIR EJECTOR PIPING AND VALVES | | | | | | | | | | |
| | | DESCRIPTION: | Air ejector steam valve failure. | | | | | | | | | | |
| | | | | | | | 91.484 | | 4784.579 | | | 2.17 | 2.17 |

## R.M. Heskett Station - Unit #01

Duration hours, Equiv. Hours and MWHr cover the full event lifetime

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 8 | PO | 8/13/2010 23:30 | 9/1/2010 0:00 | | | 432.5 | 432.5 | 12166.22514 | 1 | 28.13 | 5.51 | |
| | | CAUSE CODE: | 4400 - MAJOR TURBINE OVERHAUL (720 HOURS OR LONGER) | | | | | | | | | | |
| | | DESCRIPTION: | Major Turbine Overhaul | | | | | | | | | | |
| | | | | | | | 432.500 | | 12166.225 | | | 5.51 | 5.51 |

## R.M. Heskett Station - Unit #02

Duration hours, Equiv. Hours and MWHr cover the full event lifetime

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #02 | 5 | MO | 8/7/2010 23:53 | 8/9/2010 1:29 | | | 25.6 | 25.6 | 1909.76 | 1 | 74.60 | 0.86 | |
| | | CAUSE CODE: | 4260 - TURBINE MAIN STOP VALVES | | | | | | | | | | |
| | | DESCRIPTION: | Remove Turbine Stop Valve FineScreen | | | | | | | | | | |
| | | | | | | | 25.600 | | 1909.760 | | | 0.86 | 0.86 |

**27.47** Planned outage MW for entire season (MW-days/number of days in period)

**September 1, 2010** Start of period
**November 30, 2010** End of period
**91** Number of days in period: Event Detail (Full) Report

**22.70%** % ownership in Big Stone Plant Unit #1
**25.00%** % ownership in Coyote Station Unit #1

# Event Detail (Full) Report

## KC5 Sep10-Nov10; For Karen Collins - 2011.08.26

**Report Period:** September 2010 to November 2010

**Rollup Weighting:** N/A

**Coyote Station - Unit #01**
**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 45 | PO | 9/23/2010 22:09 | 9/27/2010 6:37 | | | 80.467 | 80.467 | 34359.267 | 1 | 106.75 | 3.93 | |
| | | CAUSE CODE: 1305 - BOILER TUBE FIRESIDE CLEANING | | | | | | | | | | | |
| | | DESCRIPTION: Scheduled boiler wash outage. | | | | | | | | | | | |
| Unit #01 | 75 | MO | 10/30/2010 15:49 | 11/1/2010 0:00 | | | 32.183 | 32.183 | 13742.283 | 1 | 106.75 | 1.57 | |
| | | CAUSE CODE: 3410 - FEEDWATER PUMP | | | | | | | | | | | |
| | | DESCRIPTION: "A" BFP work | | | | | | | | | | | |
| Unit #01 | 76 | MO | 11/1/2010 0:00 | 11/3/2010 8:24 | | | 56.4 | 56.4 | 24082.8 | 1 | 106.75 | 2.76 | |
| | | CAUSE CODE: 3410 - FEEDWATER PUMP | | | | | | | | | | | |
| | | DESCRIPTION: "A" BFP work | | | | | | | | | | | |
| | | | | | | | 169.050 | | 72184.350 | | | 8.26 | 8.26 |

## Glendive - Unit #01

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 39 | PO | 10/11/2010 8:00 | 10/11/2010 21:30 | | | 13.5 | 13.5 | 526.5 | 1 | 39.00 | 0.24 | |
| | | CAUSE CODE: 5250 - GT OTHER CONTROLS AND INSTRUMENTATION PROBLEMS | | | | | | | | | | | |
| | | DESCRIPTION: HMI control work for installation of millii-amp MW control | | | | | | | | | | | |
| Unit #01 | 40 | PO | 10/18/2010 8:00 | 10/18/2010 20:00 | | | 12 | 12 | 468 | 1 | 39.00 | 0.21 | |
| | | CAUSE CODE: 5250 - GT OTHER CONTROLS AND INSTRUMENTATION PROBLEMS | | | | | | | | | | | |
| | | DESCRIPTION: Controls upgrade MW controller | | | | | | | | | | | |
| | | | | | | | 25.500 | | 994.500 | | | 0.46 | 0.46 |

## Glendive - Unit #02

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #02 | 42 | MO | 9/24/2010 10:00 | 9/24/2010 17:30 | | | 7.5 | 7.5 | 310.5 | 1 | 41.40 | 0.14 | |
| | | CAUSE CODE: 3850 - INSTRUMENT AIR COMPRESSORS | | | | | | | | | | | |
| | | DESCRIPTION: Instrument air compressor maintenance | | | | | | | | | | | |
| Unit #02 | 85 | PO | 10/19/2010 8:00 | 10/19/2010 20:00 | | | 12 | 12 | 486 | 1 | 40.50 | 0.22 | |
| | | CAUSE CODE: 3620 - MAIN TRANSFORMER | | | | | | | | | | | |
| | | DESCRIPTION: Step-up transformer doble test | | | | | | | | | | | |
| Unit #02 | 86 | PO | 10/21/2010 13:00 | 10/21/2010 15:00 | | | 2 | 2 | 81 | 1 | 40.50 | 0.04 | |
| | | CAUSE CODE: 3850 - INSTRUMENT AIR COMPRESSORS | | | | | | | | | | | |
| | | DESCRIPTION: Instrument air compressor maintenace | | | | | | | | | | | |
| | | | | | | | 21.500 | | 877.500 | | | 0.40 | 0.40 |

## Lewis & Clark Station - Unit #01

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 5 | PO | 10/2/2010 1:52 | 10/9/2010 8:39 | | | 174.783 | 174.783 | 9141.168 | 1 | 52.30 | 4.19 | |
| | | CAUSE CODE: 1812 - BOILER INSPECTIONS - SCHEDULED OR ROUTINE | | | | | | | | | | | |
| | | DESCRIPTION: Planned Fall Outage | | | | | | | | | | | |
| | | | | | | | 174.783 | | 9141.168 | | | 4.19 | 4.19 |

## Miles City - Unit #01

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 26 | PO | 10/15/2010 8:00 | 10/15/2010 20:00 | | | 12 | 12 | 346.8 | 1 | 28.90 | 0.16 | |
| | CAUSE CODE: 5250 - GT OTHER CONTROLS AND INSTRUMENTATION PROBLEMS | | | | | | | | | | | | |
| | DESCRIPTION: Controls upgrade MW controller | | | | | | | | | | | | |
| | | | | | | | 12.000 | | 346.800 | | | 0.16 | 0.16 |

## R.M. Heskett Station - Unit #01

**Duration hours, Equiv. Hours and MWHr cover the full event lifetime**

| Unit | Event | Type | Start | End | GAC | NAC | Duration | Equiv Hrs | Equiv MWH | Cont | MDU Capacity | Calc MW-Per | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit #01 | 8 | PO | 9/1/2010 0:00 | 10/15/2010 17:21 | | | 1073.35 | 1073.35 | 30193.33586 | 1 | 28.13 | 13.82 | |
| | CAUSE CODE: 4400 - MAJOR TURBINE OVERHAUL (720 HOURS OR LONGER) | | | | | | | | | | | | |
| | DESCRIPTION: Major Turbine Overhaul | | | | | | | | | | | | |
| Unit #01 | 9 | MO | 10/26/2010 0:32 | 10/26/2010 14:50 | | | 14.3 | 14.3 | 402.259 | 1 | 28.13 | 0.18 | |
| | CAUSE CODE: 4260 - TURBINE MAIN STOP VALVES | | | | | | | | | | | | |
| | DESCRIPTION: Remove Turbine Stop Valve FineScreen | | | | | | | | | | | | |
| | | | | | | | 1087.650 | | 30595.595 | | | 14.01 | 14.01 |

# Process Document and Data:

## Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities

**Midwest Independent Transmission System Operator, Inc.**

**12/1/2011**
**Updated: 12/12/2011**

## Revision History

| Revision | Revision Location | Revision Date |
|---|---|---|
| Addition of paragraph explaining why the NAI value in Section 2.7.2 correctly indicates that MISO is a net importer of energy while Long-term Firm Purchases are less than Sales (Sections 2.2 and 2.3) | Section 2.3 Pg. 7 paragraph 1. | 12/12/2011 |
| Wholesale Load changed from 14,729 MW to 15,111 MW due to the inclusion of Transmission Losses. Added tables showing both Integrated Hourly Demand and Instantaneous Demand metrics. | Section 3.5 Pg. 20 | 12/12/2011 |
| Due to change in Wholesale Load value, the Pivotal Supplier Screen Uncommitted Capacity changed from 118,859 MW to 118,477 MW | Section 3.6 Pg. 21 | 12/12/2011 |

# Table of Contents

# 1. Background

At the request of member Transmission Owners, MISO conducted analysis consistent with Order No. 697A on a MISO Market aggregate basis. The two indicative horizontal market power screens requested include the Market Share Screen applied on a seasonal basis and the Pivotal Supplier Screen based on the annual peak demand for a December 2009 through November 2010 study period.

Member Transmission Owners with Market Based Rates will each perform analysis consistent with Order No. 697A for their own areas. Entities (Local Balancing Authorities) included in the MISO Market includes:

| **Company Name** |
|---|
| First Energy |
| Hoosier Energy Rural Electric Cooperative, Inc. |
| Duke Energy Business Services |
| Southern Indiana Gas & Electric Company |
| Indianapolis Power & Light Company |
| Northern Indiana Public Service Company |
| Michigan Electric Transmission Company |
| International Transmission Company (d/b/a ITC Transmission) |
| Wisconsin Electric Co. (ATC) |
| City of Columbia, MO |
| Ameren Missouri |
| Ameren Illinois |
| City Water, Light & Power |
| Southern Illinois Power Cooperative |
| Northern States Power Company |
| Minnesota Power |
| Southern Minnesota Municipal Power Agency |
| Great River Energy |
| Otter Tail Power Company |
| Alliant West |
| Muscatine Power & Water |
| MidAmerican Energy Company |
| Montana Dakota Utilities Co. |
| Alliant East (ATC) |
| Wisconsin Public Service (ATC) |
| Madison Gas and Electric (ATC) |
| Upper Peninsula Power Co. (ATC) |
| Dairyland Power Cooperative |

# 2. Market Share Screen

The wholesale market share screen measures, for each of the four seasons, whether a seller has a dominant position in the market based on the number of megawatts of uncommitted capacity owned or controlled by the seller as compared to the uncommitted capacity of the entire relevant market.[1] The following formula is utilized for calculating uncommitted capacity:

1. Installed capacity
2. Plus long-term firm purchases
3. Less long-term firm sales
4. Less planned outages
5. Less estimated operating reserves
6. Less native load requirements[2]
7. Plus the simultaneous import capability

Utilities' uncommitted capacity must be less than 20% of MISO's total to pass this screen. Each of the numbered items' definitions, assumptions, and values are detailed in the following sections.

## 2.1. Installed Capacity

The first item of the Market Share Screen pertains to MISO's internal resources. Generation assets within MISO are stored in the Commercial Model database assigned to Commercial Pricing Nodes (CPNODES). The Commercial Model is kept up to date with the Network Model following a quarterly schedule beginning March, June, September, and December of each year per the Network and Commercial Models Business Practice Manual (BPM) posted on MISO's webpage. MISO utilizes the Registered Maximum Output of each generation asset in the Commercial Model to calculate MISO's Installed capacity. A historical study of MISO wind performance over the last six years was conducted and a system wide Effective Load Carrying Capacity (ELCC) percentage for Wind of 12.9 percent emerged. The results are documented in the 2011 LOLE Report posted on MISO's webpage. The 12.9 percent wind capacity credit is applied to each Wind CPNODES Registered Maximum Output to calculate the Installed capacity.

A majority of these MISO Installed capacity resources are designated as a Network Resource under Module E of the Energy Markets Tariff; however, some of this capacity may be sold to entities outside of MISO through long-term contractual agreements. These Long-term Firm Sales are discussed in detail in section 2.3 of this report.

[1] FERC Order No. 697A P 17
[2] Native load requirement is the average of the daily native load peak demands for each season.

The MISO Installed capacity totals for each of the seasons are as follows:

**Table 2.1 MISO Market Installed Capacity**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| **Commercial Model** | December 2009 | March 2010 | June 2010 | September 2010 |
| **Installed Capacity** | **133,601 MW** | **135,335 MW** | **134,924 MW** | **137,323 MW** |

## 2.2. Long-term Firm Purchases

The second item of the Market Share Screen pertains to MISO's purchased resources. For the purposes of this study, MISO defines purchases as the summation of the capacity granted for Drive-In[3] Transmission Service Reservations (TSRs) in MISO's Open Access Real-Time Information System (OASIS). These purchases are non-recallable by the source Transmission Provider and have firm transmission service.

The criteria utilized to calculate MW amount of purchases is given below:

The summation of-

- Yearly Firm Point-to-Point and Network Drive-In TSRs which are confirmed for an entire season.
- The month from each season which has the maximum MW amount of confirmed Monthly Firm Point-to-Point and Network TSRs.

The MISO Long-term Firm Purchase totals for each of the seasons are as follows:

[3] Drive-In TSRs flow from external control areas to internal MISO control areas provided in the table of section 1.

**Table 2.2 MISO Market Long-term Firm Purchases**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| **Purchases** | **6,475 MW** | **5,791 MW** | **5,474 MW** | **5,383 MW** |
| **Table 2.9 Row 5** | 7,335 MW | 6,788 MW | 7,146 MW | 6,379 MW |
| **Difference** | (860 MW) | (997 MW) | (1,672 MW) | (996 MW) |

From Table 2.2 it can be seen that a difference exists between Long-term Firm Transmission Service Reservations (TSRs) from the System Import Limit (SIL) calculation in Section 2.7 and the Long-term Firm Purchases calculated from OASIS. A total of 1,422 MW of capacity which was in the Table 2.9 Row 5 value are instead embedded in the MISO Installed Capacity, Section 2.1, from Jointly Owned Units in the Commercial Model. The remaining differences are minimal and are due to the fact that Table 2.9 Row 5 values are from ERAG MMWG reliability planning models while the OASIS values reflect the actual confirmed TSRs for each season.

## 2.3. Long-term Firm Sales

The third item of the Market Share Screen pertains to MISO's sold resources. For the purposes of this study, MISO defines sales as the summation of the capacity granted for Drive-Out[4] Transmission Service Reservations (TSRs) in MISO's Open Access Real-Time Information System (OASIS). These sales are non-recallable by the source Transmission Provider and have firm transmission service.

The criteria utilized to calculate MW amount of sales is given below:

The summation of-

- Yearly Firm Point-to-Point and Network Drive-Out TSRs which are confirmed for an entire season.
- The month from each season which has the maximum MW amount of confirmed Monthly Firm Point-to-Point and Network TSRs.

The MISO Long-term Firm Sales totals for each of the seasons are as follows:

[4] Drive-Out TSRs flow from internal MISO control areas provided in the table of section 1 to external control areas.

**Table 2.3 MISO Market Long-term Firm Sales**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| Sales | 12,195 MW | 11,491 MW | 11,858 MW | 11,218 MW |

Although it appears from the analysis of Section 2.2 and this section that MISO is a net exporter based on firm transactions, when non-firm transactions are included in the calculation, MISO is a net importer of energy (See Table 2.9 row 2).

## 2.4. Planned Generation Outages

Planned generation outage totals for each season were obtained by querying the MISO CROW Outage Scheduler. The amount of planned outages in a given season was defined as the total number of MW-hours of planned outages divided by the total number of hours in the season. Hourly granularity was used rather than daily to account for the numerous planned outages less than a day in duration that would otherwise be omitted. Capacity ratings were defined by the Default Economic Maximum unit ratings at the time of the outage.

The MISO Planned Outage totals for each of the seasons are as follows:

**Table 2.4 MISO Market Planned Outages**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| Planned Outages | 8,966 MW | 6,240 MW | 1,432 MW | 1,332 MW |

## 2.5. Operating Reserves

The Operating Reserves value of 3,354 MW is calculated using the 12 month average, Dec 2009 through Nov 2010, of the summation of each month's regulation, spinning reserve, and contingency reserve requirements. Requirements are the simple arithmetic averages of the requirements used in each approved UDS case in the month, queried from the Netezza-archived SMDD database (SMDD_ASM_PRD.UDS9.MKTPLANSUMMARY).

**Table 2.5 MISO Market Operating Reserves**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Operating Reserves** | **3,354 MW** | **3,354 MW** | **3,354 MW** | **3,354 MW** |

## 2.6. Native Load Requirements

Native load requirement is defined as the average of daily market peaks for the season. MISO Real-Time Settlements data was utilized to obtain daily peak demands. Order No. 697A states that a "needle peak" or instantaneous peak demand should be utilized for load requirements. An instantaneous peak is the highest value metered at any time.

An alternative to instantaneous maximum demand is integrated hourly totals. Hourly integrated load is the average demand experienced over an hour; inherently hourly integrated totals are lower than the instantaneous total for the same period.

Both metrics of demand are metered directly at the demand node. To ultimately calculate uncommitted capacity it is necessary to account for transmission losses - generation must be available to meet metered demand plus any losses. Transmission loss factors were obtained from MISO Series Power Flow Models (details in Section 2.7) for each of the four seasons.

**Table 2.5 MISO Market Transmission Loss Factors**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| Transmission Losses | 2.53% | 2.43% | 2.59% | 2.57% |

Each of the seasonal transmission loss factors was applied to the hourly demands. Both metrics of demand with and without transmission losses are detailed in the following table. Losses will be included in all uncommitted capacity calculations.

**Table 2.6 MISO Market Native Load Requirements**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| Integrated Hourly | 76,891 MW | 67,567 MW | 90,413 MW | 70,025 MW |
| Instantaneous Max | 77,333 MW | 67,991 MW | 90,783 MW | 70,432 MW |
| Hourly + Losses | 78,837 MW | 69,209 MW | 92,755 MW | 71,825 MW |
| **Instantaneous + Losses** | **79,289 MW** | **69,643 MW** | **93,134 MW** | **72,243 MW** |

## 2.7. Simultaneous Import Capability

In order to provide accurate Simultaneous Transmission Import Limit (SIL) data to Transmission Owners for supporting documentation in their compliance filings under FERC Order 697A, MISO has consulted with stakeholders, and the Federal Energy Regulatory Commission (FERC). MISO believes it is following applicable guidelines when considering language from FERC Order 697A:

*To determine the amount of transfer capability under the SIL study, the Commission stated that historical operating conditions and practices of the applicable transmission provider should be used and the analysis should reasonably reflect the transmission provider's OASIS operating practices.*

The SIL study followed directions and required reporting format as specified in 135F.E.R.C¶61,254 (2011).

### 2.7.1. Study Data and Methodology

**Power Flow Models**

The following four MISO Model on Demand[5] (MOD) monthly peak power flow benchmark cases were used for the SIL analysis:

- Feb 2010 MOD Base Case to represent Winter 2009 Season (Dec 2009 – Feb 2010)
- May 2010 MOD Base Case to represent Spring 2010 Season (Mar 2010 – May 2010)
- Aug 2010 MOD Base Case to represent Summer 2010 Season (Jun 2010 – Aug 2010)
- Nov 2010 MOD Base Case to represent Fall 2010 Season (Sept 2010 – Nov 2010)

These power flow models give accurate representation of the MISO system and operating conditions on seasonal basis.

These four MISO MOD monthly cases were original developed from four seasonal Eastern Interconnection Reliability Assessment Group (ERAG) models:

- MMWG_2008series_2009W_final.sav
- 2010SPR_2009series_MMWG_Final.sav
- 2010SUM_2009series_MMWG_Final.sav
- 2010WIN_2009series_MMWG_Final.sav (used as base case for Fall 2010 MOD cases)

The MOD base cases were developed through the following process (Figure 2.1).

[5] MISO Model on Demand is the default powerflow database that contains generator data, transmission ratings and topology information. It is updated on a monthly basis.

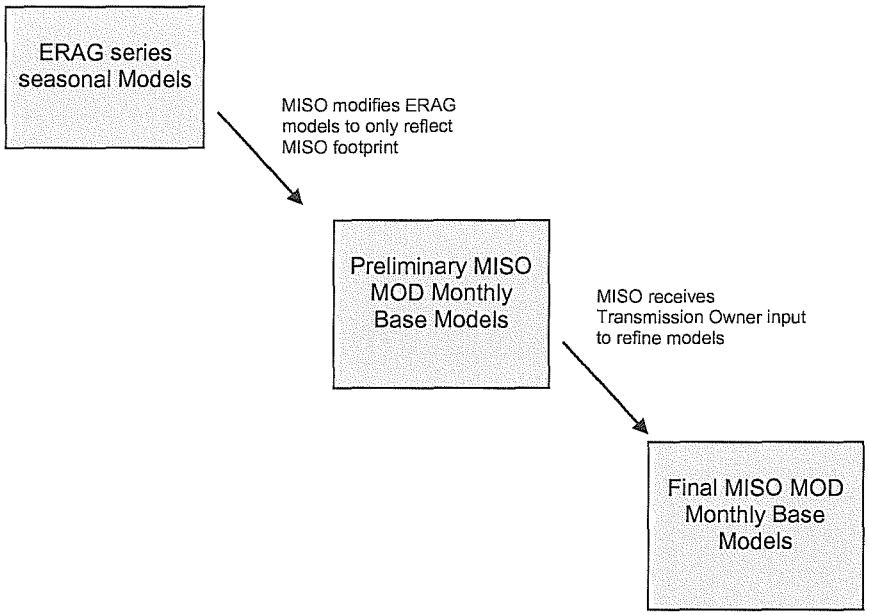


**Figure 2.1 MISO MOD Monthly Base Model Development Process**

**Sink**
All fully integrated MISO members during the study period were included in the study sink (import region). (Refer to Table 2.7, Figure 2.2.) Generation in the sink area was simultaneously scaled down.

**Source**
First Tier Balancing Authorities directly inter-connected with MISO were study source (export region). (Refer to Table 2.8, Figure 2.2.) Uncommitted generation in the First-Tier areas was scaled up simultaneously.

**Subsystem File**
MISO created subsystem files to specify export and import areas.

**Monitoring File**
The monitored elements file contains seasonal data pertaining to monitored flowgates, branches, ties, generation facilities in MISO and First-Tier areas, and is used in operational and planning studies within the MISO.

**Contingency File**
System intact condition and N-1 single contingencies in MISO and First-Tier areas (embedded operating guides) were simulated.

## Study Methodology

Generation shift scaling methodology was used. Facilities were flagged as potential constraints when their loadings were at or above 100% of Rate A under system intact and 100% of Rate B under contingencies. Distribution factor cutoff was set at 3%.

## Software

PTI PSS™MUST (version 10.2) was used to calculate the SIL values for each season.

**Table 2.7 MISO Study Areas**

| Area # | Area Name | Company Name |
|---|---|---|
| area 202 | FE | First Energy |
| area 207 | HE | Hoosier Energy Rural Electric Cooperative, Inc. |
| area 208 | DEM | Duke Energy Business Services |
| area 210 | SIGE | Southern Indiana Gas & Electric Company |
| area 216 | IPL | Indianapolis Power & Light Company |
| area 217 | NIPS | Northern Indiana Public Service Company |
| area 218 | METC | Michigan Electric Transmission Company |
| area 219 | ITCT | International Transmission Company (d/b/a ITC Transmission) |
| area 295 | WEC | Wisconsin Electric Co. (ATC) |
| area 333 | CWLD | City of Columbia, MO |
| area 356 | AMMO | Ameren Missouri |
| area 357 | AMIL | Ameren Illinois |
| area 360 | CWLP | City Water, Light & Power |
| area 361 | SIPC | Southern Illinois Power Cooperative |
| area 600 | XEL | Northern States Power Company |
| area 608 | MP | Minnesota Power |
| area 613 | SMMPA | Southern Minnesota Municipal Power Agency |
| area 615 | GRE | Great River Energy |
| area 620 | OTP | Otter Tail Power Company |
| area 627 | ALTW | Alliant West |
| area 633 | MPW | Muscatine Power & Water |
| area 635 | MEC | MidAmerican Energy Company |
| area 661 | MDU | Montana Dakota Utilities Co. |
| area 694 | ALTE | Alliant East (ATC) |
| area 696 | WPS | Wisconsin Public Service (ATC) |
| area 697 | MGE | Madison Gas and Electric (ATC) |
| area 698 | UPPC | Upper Peninsula Power Co. (ATC) |
| area 680 | DPC | Dairyland Power Cooperative (only in Summer & Fall 2010 Scenarios) |

**Table 2.8 First-Tier Areas**

| Area # | Area Name | Company Name |
|---|---|---|
| area 103 | IESO | Independent Electricity System Operator |
| area 201 | AP | Allegheny Power |
| area 205 | AEP | American Electric Power |
| area 206 | OVEC | Ohio Valley Electric Corporation |
| area 209 | DAY | Dayton Light & Power |
| area 215 | DLCO | Duquesne Light Co. |
| area 222 | CE | Commonwealth Edison |
| area 225 | PJM | PJM 500 kV System |
| area 226 | PENELEC | Pennsylvania Electric System |
| area 227 | METED | Metropolitan Edison Company |
| area 228 | JCP&L | Jersey Central Power & Light Company |
| area 229 | PPL | PPL Electric Utilities |
| area 230 | PECO | PECO Energy Company |
| Area 231 | PSE&G | Public Service Power Company |
| Area 232 | BGE | Baltimore Gas & Electric Company |
| Area 233 | PEPCO | Potomac Electric Power Company |
| Area 234 | AE | Atlantic Electric |
| Area 235 | DP&L | Delmarva Power & Light Company |
| Area 236 | UGI | UGI Utilities, Inc. |
| Area 237 | RECO | Rockland Electric Company |
| area 314 | BREC | Big Rivers Electric Corporation |
| area 320 | EKPC | Eastern Kentucky Power Coop |
| area 330 | AECI | Associated Electric Co. |
| area 345 | DVP | Dominion Virginia Power |
| area 347 | TVA | Tennessee Valley Authority |
| area 351 | EES | Entergy |
| area 362 | EEI | Electric Energy Inc |
| area 363 | LGEE | Louisiana Gas and Electric |
| area 515 | SWPA | Southwestern Power Administration |
| area 540 | MIPU | Missouri Public Service |
| area 541 | KACP | Board of Public Utilities |
| area 640 | NPPD | Nebraska Public Power District |
| area 645 | OPPD | Omaha Public Power District |
| area 652 | WAPA | Western Area Power Administration |
| area 667 | MH | Manitoba Hydro |
| area 680 | DPC | Dairyland Power Cooperative (only in Winter 2009 & Spring 2010 Scenarios) |

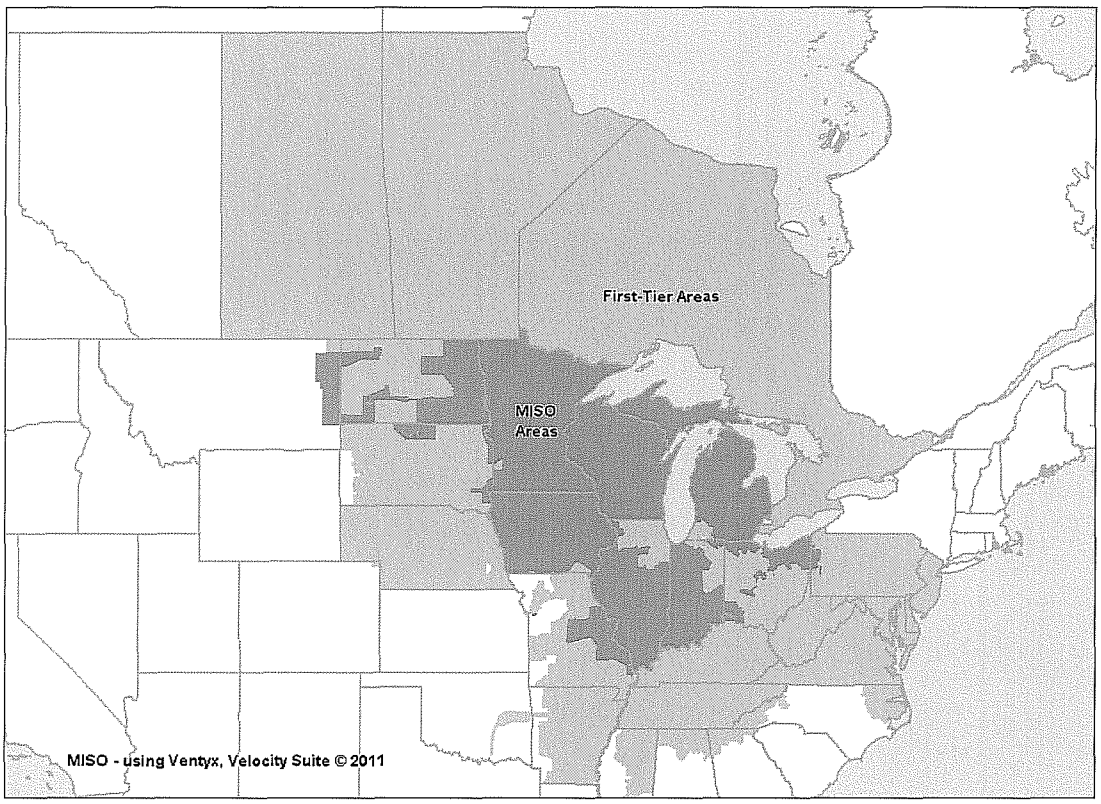


**Figure 2.2 MISO and First-Tier Balancing Authorities**

### 2.7.2. Simultaneous Import Limit (SIL) Calculations

The specific steps from 135F.E.R.C.¶61,254 (2011) were followed in calculating the SIL for each season as outlined below:

1. Use MUST to calculate First Contingency Incremental Transfer Capability (FCITC) for each season.

2. Obtain Net Area Interchange (NAI) from the power flow model. (This number includes the sum of long-term firm reservations.)

3. If the Study Area (MISO) NAI is positive, MISO is exporting power, and the calculated SIL value is:

   $SIL_1$ = FCITC – Study Area NAI

   If the Study Area (MISO) NAI is negative, MISO is importing power, and the calculated SIL value is:

   $SIL_1$ = FCITC + Study Area NAI

4. Subtract the long-term firm transmission reservations from the calculated $SIL_1$.

   $SIL_2$ = $SIL_1$ – long-term firm transmission reservations

5. The final reported $SIL_f$ should be the less of the three:
   - Study Area adjusted native load
     - Adjusted native load = seasonal historical peak load – long-term firm transmission reservations
   - First-Tier Area available uncommitted generation
   - The final calculated SIL value ($SIL_2$)

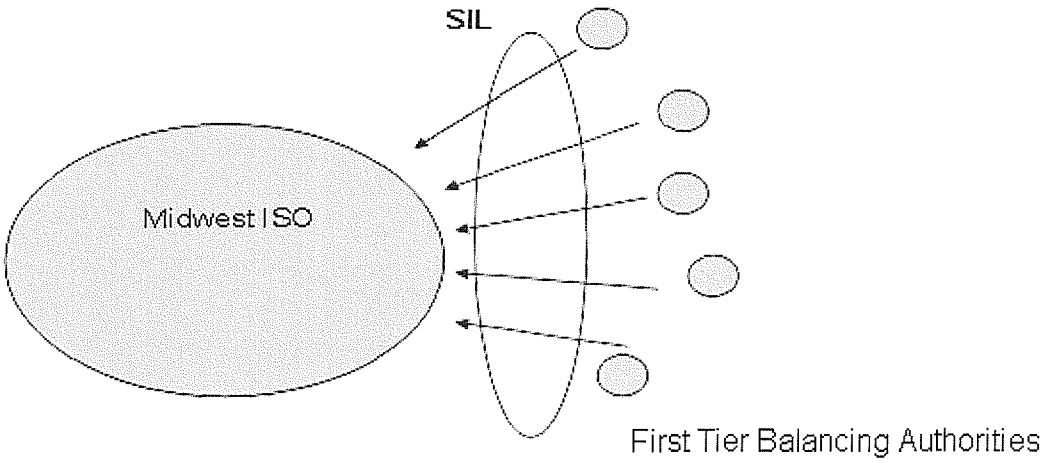


**Figure 2.3 MISO SIL Presentations**

The obtained data are listed in Submittal 1: Summary Table of SIL Components.

Submittal 1 table was obtained from the market-based rate section of the FERC web site (http://www.ferc.gov/industries/electric/gen-info/mbr.asp)

**Submittal 1: Summary Table of Components Used to Calculate SIL Values**

**Table 2.9 SIL Computation**

**Study Period December 1, 2009 to November 30, 2010**

| | | MISO Market | | | |
|---|---|---|---|---|---|
| Row | Description of Component | Winter 2009 (MW) | Spring 2010 (MW) | Summer 2010 (MW) | Fall 2010 (MW) |
| 1 | Incremental transfer capability values (either the First Contingency Incremental Transfer Capability (FCITC), Normal Incremental Transfer Capability (NITC) or equivalent values). | 14,702 | 15,644 | 10,570 | 10,777 |
| 2 | Modeled Net Area Interchange (NAI) including the sum of long-term firm reservations. | 6,512 | 4,224 | 4,978 | 4,719 |
| 3 | Indicate whether the Study Area NAI is export or import. | Import | Import | Import | Import |
| 4 | (row 4 = row 1 +/- row 2). | 21,214 | 19,868 | 15,548 | 15,496 |
| 5 | Sum of the long-term firm transmission reservations. [1] | 7,335 | 6,788 | 7,146 | 6,379 |
| 6 | (row 6 = row 4 - row 5). | 13,879 | 13,080 | 8,402 | 9,117 |
| 7 | Seasonal historical peak load (Area load in the model was used as approximation). | 97,787 | 84,827 | 116,297 | 92,041 |
| 8 | Study area adjusted native load. (row 8 = row 7 - row 5). | 90,452 | 78,039 | 109,151 | 85,662 |
| 9 | Amount of uncommitted generation modeled in the first-tier area. | 122,759 | 158,706 | 74,729 | 115,289 |
| 10 | SIL f values (row 10 = the minimum of the values entered in rows 6, 8 and 9 for each season). Use these SIL values in the Market Share Screens. | 13,879 | 13,080 | 8,402 | 9,117 |

Note:
[1] Long-term firm reservation was calculated using firm transaction data from ERAG 2008 & 2009 series area interchange workbooks and also Midwest Reliability Organization (MRO) 2008 series transaction workbook. Details please see Submittal 2 Long-Term Firm Transmission Reservations. The 2009 WIN transaction data from ERAG 2008 and MRO 2008 workbooks was used for Winter 2009 study period. The 2010 SPR, 2010 SUM, and 2010 WIN data from ERAG 2009 workbook were used for Spring 2010, Summer 2010 and Fall 2010 study periods respectively.

### 2.7.3. Sensitivity Study

A sensitivity study recommended by FERC using MISO current footprint (2011 Summer) as the import region (study sink) was performed.

In this analysis Big Rivers Electric Corporation (BREC) was included, and First Energy (FE) was excluded from MISO study area. Dairyland Power Cooperative (DPC) is included in MISO study area for all four seasonal scenarios.

Same study cases and input files (except subsystem file to reflect MISO footprint change) were used due to time constraint. The study results are shown below in Table 2.10.

**Table 2.10 SIL Computation for MISO Current (2011 Summer) Footprint**

**Study Period December 1, 2009 to November 30, 2010**

| | | MISO Market | | | |
|---|---|---|---|---|---|
| **Row** | **Description of Component** | **Winter 2009 (MW)** | **Spring 2010 (MW)** | **Summer 2010 (MW)** | **Fall 2010 (MW)** |
| 1 | Incremental transfer capability values (either the First Contingency Incremental Transfer Capability (FCITC), Normal Incremental Transfer Capability (NITC) or equivalent values). | 13,693 | 14,148 | 10,412 | 10,064 |
| 2 | Modeled Net Area Interchange (NAI) including the sum of long-term firm reservations. | 4,968 | 3,410 | 3,861 | 3,514 |
| 3 | Indicate whether the Study Area NAI is export or import. | Import | Import | Import | Import |
| 4 | (row 4 = row 1 +/- row 2). | 18,661 | 17,558 | 14,273 | 13,577 |
| 5 | Sum of the long-term firm transmission reservations. [1] | 6,173 | 6,084 | 6,520 | 5,760 |
| 6 | (row 6 = row 4 - row 5). | 12,488 | 11,474 | 7,753 | 7,817 |
| 7 | Seasonal historical peak load (Area load in the model was used as approximation). | 88,432 | 77,116 | 104,172 | 82,016 |
| 8 | Study area adjusted native load. (row 8 = row 7 - row 5). | 82,259 | 71,032 | 97,652 | 76,256 |
| 9 | Amount of uncommitted generation modeled in the first-tier area. | 125,374 | 162,588 | 75,641 | 118,440 |
| 10 | SIL f values (row 10 = the minimum of the values entered in rows 6, 8 and 9 for each season). Use these SIL values in the Market Share Screens. | 12,488 | 11,474 | 7,753 | 7,817 |

## 2.8. Market Share Screen Uncommitted Capacity

Table 2.11 summarizes the totals from Sections 2.1 through 2.7. Instantaneous peak demand plus transmission losses data was used for each season.

**Table 2.11 Market Share Screen Uncommitted Capacity**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Winter 2009 | Spring 2010 | Summer 2010 | Fall 2010 |
|---|---|---|---|---|
| **Installed Capacity** | 133,601 MW | 135,335 MW | 134,924 MW | 137,323 MW |
| **Long-term Firm Purchases** | 6,475 MW | 5,791 MW | 5,474 MW | 5,383 MW |
| **Long-term Firm Sales** | 12,195 MW | 11,491 MW | 11,858 MW | 11,218 MW |
| **Planned Outages** | 8,966 MW | 6,240 MW | 1,432 MW | 1,332 MW |
| **Operating Reserves** | 3,354 MW | 3,354 MW | 3,354 MW | 3,354 MW |
| **Native Load Requirement** | 79,289 MW | 69,643 MW | 93,134 MW | 72,243 MW |
| **Simultaneous Import Capability** | 13,879 MW | 13,080 MW | 8,402 MW | 9,117 MW |
| ***Totals*** | **50,151 MW** | **63,478 MW** | **39,022 MW** | **63,676 MW** |

# 3. Pivotal Supplier Screen

The pivotal supplier analysis evaluates the potential of a seller to exercise market power based on uncommitted capacity at the time of the relevant market's annual peak demand, focusing on the seller's ability to exercise market power unilaterally.[6] It examines whether the market demand can be met absent the seller during peak times; a seller is determined to be pivotal if demand cannot be met without some contribution of supply by the seller or its affiliates. Uncommitted capacity for the Pivotal Supplier Screen is defined as follows:

1. Installed capacity
2. Plus long-term firm purchases
3. Less long-term firm sales
4. Less estimated operating reserves
5. Less wholesale load (single hour's peak demand less the average of the daily peak native load demands during the peak month)
6. Plus the simultaneous import capability

Utilities' Pivotal Supplier Screen totals must be less than MISO's total to pass this screen. Each of the numbered items' definitions, assumptions, and values are detailed in the following sections.

[6] FERC Order No. 697A P 18

## 3.1. Installed Capacity

See Section 2.1

**Table 3.1 MISO Market Peak Installed Capacity**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 |
|---|---|
| Peak Month | August |
| Commercial Model | June 2010 |
| Installed Capacity | 134,924 MW |

## 3.2. Long-term Firm Purchases

See Section 2.2

**Table 3.2 MISO Market Peak Long-term Firm Purchases**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 |
|---|---|
| Long-term Firm Purchases | 5,474 MW |

## 3.3. Long-term Firm Sales

See Section 2.3

**Table 3.3 MISO Market Peak Long-term Firm Sales**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 |
|---|---|
| Long-term Firm Sales | 11,858 MW |

## 3.4. Operating Reserves

See Section 2.4

**Table 3.4 MISO Market Peak Operating Reserves**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 |
|---|---|
| Operating Reserves | 3,354 MW |

## 3.5. Wholesale Load

Wholesale Load is defined as the single hour's peak demand (instantaneous peak as clarified in Order No. 697A) less the average of the daily peak native load demands during the peak month. MISO Real-Time Settlements data was utilized to obtain daily peak demands. As stated in Section 2.6 there are two metrics for capturing Real-Time peak demand totals, hourly integrated or instantaneous. The peak during the study period occurred on August 10, 2010 at hour-ending 16 Eastern Standard Time. Both the hourly integrated and instantaneous wholesale load totals are listed in tables below. The instantaneous total will be used in the uncommitted capacity calculation.

Both metrics of demand are metered directly at the demand node. To ultimately calculate uncommitted capacity it is necessary to account for transmission losses - generation must be available to meet metered demand plus any losses. Transmission loss factors were obtained from MISO Series Power Flow Models (details in Section 2.7). The transmission loss factor is 2.59 percent.

The transmission loss factor was applied to the hourly demands for integrated hourly demands and the daily peaks for instantaneous demands and the same wholesale load calculation was performed. Both metrics of demand with and without transmission losses are detailed in the following tables. Losses will be included in all uncommitted capacity calculations.

**Table 3.5 MISO Market Wholesale Load- No Losses**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 (August) | |
|---|---|---|
| Peak Month | Integrated Hourly | Instantaneous Max |
| Single Hour Peak | 108,121 MW | 108,907 MW |
| Monthly Average | 93,836 MW | 94,178 MW |
| Wholesale Load | 14,285 MW | 14,729 MW |

**Table 3.6 MISO Market Wholesale Load- Includes Losses**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 (August) | |
|---|---|---|
| **Peak Month** | **Integrated Hourly** | **Instantaneous Max** |
| **Single Hour Peak** | 110,921 MW | 111,728 MW |
| **Monthly Average** | 96,267 MW | 96,617 MW |
| **Wholesale Load** | 14,654 MW | **15,111 MW** |

## 3.6. Simultaneous Import Capability

The Simultaneous Import Capability calculations performed for the Pivotal Supplier Screen were identical to the calculations performed for the Market Share Screen. Please refer to Section 2.7 for analysis and results.

## 3.7. Pivotal Supplier Screen Uncommitted Capacity

Table 3.6 summarizes the totals from Sections 3.1 through 3.6. Instantaneous peak demand data was used for the Wholesale Load totals.

**Table 3.6 Pivotal Supplier Uncommitted Capacity**

**Study Period December 1, 2009 to November 30, 2010**

| Timeframe | Dec09-Nov10 |
|---|---|
| **Installed Capacity** | 134,924 MW |
| **Long-term Firm Purchases** | 5,474 MW |
| **Long-term Firm Sales** | 11,858 MW |
| **Operating Reserves** | 3,354 MW |
| **Wholesale Load** | 15,111 MW |
| **Simultaneous Import Capability** | 8,402 MW |
| ***Totals*** | ***118,477 MW*** |