

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

Before the North Dakota Public Service Commission

Case No. PU-16-____

Direct Testimony
of
Darcy J. Neigum

1 **Q. Please state your name and business address.**

2 A. My name is Darcy J. Neigum and my business address is 400
3 North Fourth Street, Bismarck, North Dakota 58501.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am the Director of System Operations and Planning for Montana-
6 Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources
7 Group, Inc.

8 **Q. Please describe your duties and responsibilities with Montana-
9 Dakota.**

10 A. I have managerial responsibility for overseeing the day-to-day
11 operations of the Company's electric control center and System
12 Operations & Planning Department.

13 **Q. Please outline your educational and professional background.**

14 A. I hold a Bachelor's Degree in Electrical and Electronics
15 Engineering from North Dakota State University as well as a Masters of
16 Business Administration from the University of Mary. My work experience
17 includes four years as a nuclear plant engineer; three years of experience

1 as a coal-fired power plant engineer; eleven years of generation
2 development and operational responsibilities for coal-fired, gas-fired, and
3 renewable generation sources; and seven years of experience managing
4 the system operations & planning department for Montana-Dakota.

5 **Q. Have you testified in other proceedings before regulatory bodies?**

6 A. Yes. I have previously presented testimony before this
7 Commission, the Public Service Commissions of Montana and Wyoming,
8 the Public Utilities Commission of South Dakota and the Federal Energy
9 Regulatory Commission (FERC).

10 **Q. What is the purpose of your testimony in this proceeding?**

11 A. I will discuss the final costs and provide an update on the
12 operational status of the Thunder Spirit Wind project and I will also discuss
13 changes in transmission service that Montana-Dakota has incurred since
14 Western Area Power Administration (Western) and Basin Electric Power
15 Cooperative (Basin Electric) joined Southwest Power Pool (SPP) on
16 October 1, 2015.

17 **Q. Please describe the Thunder Spirit Wind Project.**

18 A. Thunder Spirit Wind (Thunder Spirit) is the 107.5 megawatt (MW)
19 wind project located in Adams County, North Dakota, northeast of the City
20 of Hettinger issued an Advance Determination of Prudence and Certificate
21 of Public Convenience and Necessity by this Commission in Case Nos.
22 PU-14-843 and PU-14-844. Thunder Spirit is comprised of 43 Nordex
23 N100/2500 (2.5 MW) wind turbines erected on 80 meter towers.

1 Thunder Spirit interconnects to the adjacent Hettinger 230 kilovolt
2 (kV) Junction Substation owned by Montana-Dakota.

3 Montana-Dakota has all of the necessary land agreements and
4 interconnection rights to expand the Thunder Spirit project to a total
5 project size of 150 MW in the future.

6 **Q. Who has the developer of the Thunder Spirit project?**

7 A. Montana-Dakota purchased the Thunder Spirit project from Allete
8 Clean Energy (ACE), a subsidiary of Allete, Inc., which has developed
9 other wind projects in North Dakota.

10 **Q. When did Montana-Dakota complete the purchase of Thunder Spirit?**

11 A. Montana-Dakota completed the purchase of the Thunder Spirit
12 project from ACE on December 30, 2015.

13 **Q. When was the last turbine at Thunder Spirit erected?**

14 A. The last turbine at Thunder Spirit was erected on November 19,
15 2015.

16 **Q. When did the first turbine at Thunder Spirit start producing power?**

17 A. The first turbine at Thunder Spirit started producing power on
18 October 21, 2015.

19 **Q. When did Montana-Dakota place Thunder Spirit in-service?**

20 A. Montana-Dakota placed Thunder Spirit in-service (commercial
21 operation) on December 31, 2015.

22 **Q. What is the total cost of the Thunder Spirit project?**

1 A. The total cost of the Thunder Spirit project was \$214 million,
2 including substation and transmission investments, which was less than
3 the original forecasted cost of \$225 million.

4 **Q. What was the expected capacity factor for Thunder Spirit?**

5 A. Wind studies for Thunder Spirit estimated an annual capacity factor
6 for the project of 45.2 percent or 426,000 megawatt-hours per year.

7 **Q. What has been the capacity factor for Thunder Spirit so far in 2016?**

8 A. Through September 19, the year to date capacity factor for Thunder
9 Spirit has been 42.4 percent as compared to the forecasted year to date
10 capacity of 43.3 percent. The lower capacity factor can mainly be
11 attributed to turbine outages associated with startup and first year
12 operations.

13 **Q. Who provides the turbine and balance of plant operations and
14 maintenance for Thunder Spirit?**

15 A. Nordex, under a maintenance service arrangement (MSA), will
16 perform the operation and maintenance (O&M) of the project wind turbines
17 for the first five years of the project excluding the supply of major
18 components like turbine blades, generators, gearboxes, bedplates, and
19 tower sections.

20 The Nordex Turbine Supply Agreement (TSA) provides for two
21 years of equipment warranty coverage after which Montana-Dakota will
22 need to supply spare parts for the project. Nordex will continue to supply
23 consumables, excluding gearbox oil changes, under the MSA.

1 Following the initial five years of the MSA, Montana-Dakota has the
2 option to contract with Nordex for an additional five years of O&M under
3 similar terms and conditions as the initial five year term including any
4 future negotiated price adjustments.

5 Montana-Dakota will be responsible for the operation and
6 maintenance of Thunder Spirit's balance of plant equipment which
7 includes all equipment from the turbine padmount transformers through
8 the collector system and back to the point of interconnection at Montana-
9 Dakota's Hettinger 230kV Junction Substation.

10 Montana-Dakota is responsible for all requirements under the wind
11 lease and easement agreements with local landowners. Montana-Dakota
12 is responsible for all agreements and permits including the interconnection
13 agreement with MISO and the terms and conditions of the Site Certificate
14 transferred to Montana-Dakota by this Commission in Case No. PU-15-
15 592.

16 Montana-Dakota has hired two new employees, including one full-
17 time wind technician and one manager of combustion turbines and wind
18 generation who will be partially allocated to the Thunder Spirit project for
19 the balance of plant O&M, and TSA and MSA administration activities.

20 **Q. When did Western and Basin join SPP as a transmission owning**
21 **member?**

22 A. Western and Basin Electric joined SPP on October 1, 2015 as
23 transmission owning members.

24 **Q. What impact did this have on Montana-Dakota customers?**

1 A. Montana-Dakota had long-standing reciprocal transmission sharing
2 agreements with both Western and Basin Electric. The Western
3 agreement has historically been referred to as the Western Transmission
4 Service Agreement (TSA) or the WAPA wheeling agreement. The Basin
5 Electric agreement has historically been referred to as the Interconnection
6 and Common Use Agreement (ICCUA).

7 The Western TSA expired on December 31, 2015 and had to be
8 replaced with network integrated transmission service (NITS) from SPP for
9 usage of those transmission facilities that Montana-Dakota previously
10 used under the Western TSA.

11 Basin Electric and Montana-Dakota mutually agreed to suspend the
12 ICCUA on December 31, 2015 as its origin and implementation was based
13 upon the existence of the Western TSA. In replacement of the ICCUA
14 Montana-Dakota agreed to take NITS service from SPP for those Basin
15 Electric transmission facilities previously under the ICCUA which
16 Montana-Dakota needed to support its SPP NITS service from Western's
17 transmission system. In turn, Basin Electric is taking service for a portion
18 of its member's load from MISO under Montana-Dakota's transmission
19 service schedule to meet the needs of its loads previously provided
20 service under the ICCUA.

21 The SPP NITS service is in addition to the MISO NITS that
22 Montana-Dakota continues to take for all of its customer loads. Therefore,
23 Montana-Dakota is taking NITS service from both MISO and SPP for the
24 same load.

1 **Q. Did Montana-Dakota explore other alternatives to taking NITS service**
2 **from SPP and MISO?**

3 **A.** Montana-Dakota reviewed several alternatives to taking NITS
4 service from SPP and MISO including (1) withdrawal from MISO and
5 joining SPP, and (2) splitting its transmission system into a MISO and SPP
6 system.

7 Ultimately the SPP NITS, where needed, and MISO NITS service
8 for all load was the most economical solution based upon a Settlement
9 Agreement with SPP, Western, Basin Electric, Heartland Consumers and
10 MISO that was approved by the FERC in Docket Nos. ER14-2850-006
11 and ER14-2851-006 (Settlement Agreement).

12 **Q. What is the basis of the SPP Settlement Agreement?**

13 **A.** Under the Settlement Agreement, Montana-Dakota agreed to take
14 NITS service from SPP for loads which rely upon transmission facilities
15 owned by either Western or Basin Electric for power deliveries on a first
16 contingency basis.

17 In return for taking NITS service from SPP, the Settlement
18 Agreement creates a mechanism where Montana-Dakota is able to
19 receive transmission bill credits for those transmission facilities owned by
20 Montana-Dakota which are needed by other SPP customers, including
21 Western and Basin Electric, in areas where Montana-Dakota is taking
22 SPP NITS Service. These are transmission facilities owned by Montana-
23 Dakota that were under the Western TSA and the Basin Electric ICCUA.

1 The SPP Settlement Agreement also outlined various planning,
2 operation, and outage reporting requirements that Montana-Dakota will
3 have for the SPP bill credited facilities even though Montana-Dakota
4 remains a MISO transmission owning member for those same facilities.

5 **Q. What is the net customer impact of the expiration of Western TSA**
6 **and the Basin Electric ICCUA?**

7 A. Montana-Dakota estimates the net impact to all customers within
8 Montana-Dakota's integrated transmission system to be \$3.1 million
9 above the 2015 levels that Montana-Dakota paid collectively to Western
10 and Basin Electric.

11 **Q. Did Montana-Dakota foresee this cost increase coming to its**
12 **customers?**

13 A. Since 2005, Montana-Dakota has been in conversations with
14 Western about the impact associated with the expiration of the TSA. The
15 TSA did not have any extension options within the contract and Western
16 was unwilling to renegotiate the agreement.

17 Prior to joining SPP, Western and Basin Electric had an Integrated
18 System (IS) Tariff which Montana-Dakota would have had to take service
19 from at the end of the Western TSA if Western had not joined SPP.

20 Montana-Dakota had previously estimated the customer impact of
21 taking IS Tariff service at the end of the Western TSA to be around a \$4
22 million net increase to all customers.

23 If Montana-Dakota had withdrawn from MISO and joined SPP,
24 Montana-Dakota's customers would have been impacted by differences in

1 resource adequacy between MISO and SPP whereby Montana-Dakota
2 would have needed an additional 100 MW of capacity resources to meet
3 its SPP obligations or similar to the addition of another Heskett III
4 combustion turbine, which would have an annual revenue requirement of
5 approximately \$10 million per year just to meet the additional capacity
6 requirements under SPP's tariff.

7 If Montana-Dakota would have split its system into a SPP and
8 MISO system, it would still be impacted by the additional resource
9 adequacy requirements in SPP. Montana-Dakota's generation fleet would
10 also have been fragmented with the majority of gas and renewables in
11 SPP and the baseload coal resources in MISO.

12 **Q. Could Montana-Dakota have built sufficient new transmission**
13 **facilities and not relied on Western and Basin Electric's transmission**
14 **facilities?**

15 A. Montana-Dakota's transmission system is heavily integrated with
16 Western and Basin Electric in Western North Dakota and Eastern
17 Montana. It would have cost several hundred million dollars to build
18 facilities not connected to Western and Basin Electric and over a decade
19 to construct.

20 **Q. How does Basin Electric replace transmission service from Montana-**
21 **Dakota previously provided under the ICCUA?**

22 Basin Electric either uses facilities which Montana-Dakota receives
23 credits for under the SPP Tariff or is taking NITS transmission service
24 from MISO.

1 There are a few 60kV transmission facilities which Montana-Dakota
2 was unable to receive SPP facility credits in the SPP Settlement
3 Agreement; however, Basin Electric will pay \$244,000 per year to use
4 those facilities under a Facility Sharing Agreement accepted by the FERC
5 in Docket No. ER16-1262-000.

6 **Q. What makes up the net \$3.1 million increase in 2016 costs over 2015**
7 **for the replacement of the WAPA TSA and Basin Electric ICCUA?**

8 A. The increase is made up of:

\$21,282,684	SPP NITS (Schedule 9 and 11) plus Schedules 1 (Sched & Dispatch), 1a (Admin), 2 (Voltage & Reactive), and 12 (FERC allocation).
(\$11,844,401)	Facility Credits to Montana-Dakota from SPP
(\$4,101,524)	Basin Transmission Service from MISO
(\$651,230)	Reduced MISO Schedule 26 Costs assigned to Basin
(\$1,300,000)	Elimination of WAPA IS NITS payments
(\$400,000)	Elimination of WAPA TSA payments
(\$400,000)	Elimination of Basin ICCUA payments
(\$244,000)	New Basin facility sharing agreement
<hr/>	
\$3,111,529	Net increase to all Montana-Dakota customers

9 **Q. How are these transmission cost changes reflected in this case?**

10 A. Mr. Travis Jacobson will address the proposed cost recovery
11 associated with the changes in transmission expenses in his direct
12 testimony.

1 **Q. Would you please provide a schedule of the various charge types**
2 **associated with MISO and SPP service that Montana-Dakota is**
3 **subject to and the applicable recovery mechanism for each charge**
4 **type?**

5 A. Yes. Please refer to Exhibit No.____(DJN-1) which lists all of the
6 transmission and market settlement charge types, including the current
7 and proposed cost recovery mechanism, that are applicable to Montana-
8 Dakota's service level from each regional transmission organization.

9 **Q. Does this conclude your direct testimony?**

10 A. Yes, it does.

MISO Charge Types

August 9, 2016

Day-Ahead Charge Types		Applicable to Montana-Dakota		Balancing Authority	Generation Asset Owner	Load Serving Entity	Non-Asset Owner	Granted Dispute Amounts (Outside Resettlement Window)	FERC Mandated Interest Refunds	Resource Adequacy Auction	Recovery Mechanism	Market Charge Description
Day-Ahead Asset Energy Amount	DA_ASSET_EN	X		X	X						FCA	Net charges and credits expressed in Dollars related to all energy schedules and Day-Ahead Financial Schedules settled at an AO's asset related CPN nodes.
Day-Ahead Financial Bilateral Transaction Congestion Amount	DA_FIN_CG			X	X						FCA	Net Day-Ahead Financial Schedule congestion charges and credits expressed in Dollars.
Day-Ahead Financial Bilateral Transaction Loss Amount	DA_FIN_LS			X	X						FCA	Net Day-Ahead Financial Schedule loss charges and credits expressed in Dollars.
Day-Ahead Market Administration Amount	DA_ADMIN	X		X	X						FCA	The total Day-Ahead Administration charges for an AO expressed in Dollars.
Day-Ahead Schedule 24 Allocation Amount	DA_SCHD_24_ALC	X		X	X						FCA	The total Day-Ahead Schedule 24 charges for an AO, expressed in Dollars.
Day-Ahead Non-Asset Energy Amount	DA_NASSET_EN			X	X						FCA	Net charges and credits expressed in Dollars related to all Day-Ahead Interchange Schedules and Day-Ahead Financial Schedules settled at CPN nodes where the AO does not own an asset. The amount is expressed in Dollars.
Day-Ahead Congestion Rebate on Carve-Out Grandfathered Agreements	DA_GFACO_RBT_CG			X	X						FCA	Net Carve-Out Grandfathered Agreement Transaction congestion rebate expressed in Dollars.
Day-Ahead Losses Rebate on Carve-Out Grandfathered Agreements	DA_GFACO_RBT_LS			X	X						FCA	Net Carve-Out Grandfathered Agreement Transaction losses rebate expressed in Dollars.
Day-Ahead Congestion Rebate on Option B Grandfathered Agreements	DA_GFAOB_RBT_CG			X	X						FCA	Net Option B Grandfathered Agreement Financial Schedule congestion rebate expressed in Dollars.
Day-Ahead Losses Rebate on Option B Grandfathered Agreements	DA_GFAOB_RBT_LS			X	X						FCA	Net Option B Grandfathered Agreement Financial Schedule loss rebate expressed in Dollars.
Day-Ahead Revenue Sufficiency Guarantee Distribution Amount	DA_RSG_DIST	X		X	X						FCA	The total Day-Ahead RSG Distribution amount obligation for an AO expressed in Dollars.
Day-Ahead Revenue Sufficiency Guarantee Make Whole Payment Amount	DA_RSG_MWP	X		X	X						FCA	The total Day-Ahead Revenue Sufficiency MWP credit for all assets of an AO expressed in Dollars.
Day-Ahead Virtual Energy Amount	DA_VIRT_EN			X	X						FCA	Net charges and credits related to setting Day-Ahead Virtual Schedules expressed in Dollars.
Real-Time Charge Types												
Real-Time Asset Energy Amount	RT_ASSET_EN	X		X	X						FCA	Net charges and credits expressed in Dollars related to all Actual Energy Withdrawals and Financial Schedules settled at an AO's asset related CPN nodes.
Real-Time Distribution of Losses Amount	RT_LOSS_DIST	X		X	X						FCA	Total AO distribution of surplus losses collected in the Hour expressed in Dollars.
Real-Time Financial Bilateral Transaction Congestion Amount	RT_FIN_CG			X	X						FCA	Net Real-time Financial Schedule congestion charges and credits expressed in Dollars.
Real-Time Financial Bilateral Transaction Loss Amount	RT_FIN_LS			X	X						FCA	Net Real-time Financial Schedule loss charges and credits expressed in Dollars.
Real-Time Congestion Rebate on Carve-Out Grandfathered Agreements	RT_GFACO_RBT_CG			X	X						FCA	Net Carve-Out Grandfathered Agreement Transaction congestion rebate expressed in Dollars.
Real-Time Losses Rebate on Carve-Out Grandfathered Agreements	RT_GFACO_RBT_LS			X	X						FCA	Net Carve-Out Grandfathered Agreement Transaction losses rebate expressed in Dollars.
Real-Time Market Administration Amount	RT_ADMIN	X		X	X						FCA	The total Real-Time Administration charges for an AO expressed in Dollars.
Real-Time Schedule 24 Allocation Amount	RT_SCHD_24_ALC	X		X	X						FCA	The total Real-Time Schedule 24 charges for an AO, expressed in Dollars.

MISO Charge Types

August 9, 2016

Applicable to Montana-Dakota		Balancing Authority	Generation Asset Owner	Load Serving Entity	Non-Asset Owner	Granted Dispute Amounts (Outside Resettlement Window)	FERC Mandated Interest Refunds	Resource Adequacy Auction	Recovery Mechanism	Market Charge Description
Real-Time Schedule 24 Distribution Amount	RT_SCHD_24_DIST	X	X	X	X				FCA	The portion of the combined, total Day-Ahead and Real-Time Schedule 24 Allocation (collections) funds disbursed to each LBA, expressed in Dollars.
Real-Time Miscellaneous Amount	RT_MISC		X	X	X	X			FCA	The total Dollars charged from miscellaneous related activities.
Real-Time Net Inadvertent Distribution	RT_NI_DIST		X	X	X				FCA	The prorated charge or credit that results from Net Inadvertent across MISO. The amount is expressed in Dollars.
Real-Time Non-Asset Energy Amount	RT_NASSET_EN		X	X	X				FCA	Net charges and credits expressed in Dollars related to all Real-Time Interchange Schedules and Real-Time Financial Schedules settled at CPNodes where the AO does not own an asset. The amount is expressed in Dollars.
Real-Time Revenue Neutrality Uplift Amount	RT_RNU		X	X					FCA	On an hourly basis, all charges and credits that have no other distribution method are summed, and the subsequent total charge or credit for the hour is distributed to AOs based on their load ratio share exclusive of Load served by Carved-Out GFAs. The amount is expressed in Dollars.
Real-Time Revenue Sufficiency Guarantee 1st Pass Distribution Amount	RT_RSG_DIST1		X	X					FCA	The charge related to funding Real-Time RSGs expressed in Dollars.
Real-Time Revenue Sufficiency Guarantee Make Whole Payment Amount	RT_RSG_MWP		X						FCA	The total credits received for Real-Time RSG MWPs expressed in Dollars.
Real-Time Virtual Energy Amount	RT_VIRT_EN		X	X					FCA	Net charges and credits related to backing out Day-Ahead Virtual Schedules in the Real-Time Energy and Operating Reserve Market. The amount is expressed in Dollars.
Real-Time Price Volatility Make Whole Payment	RT_PV_MWP		X						FCA	The total credits received from the combination of Day-Ahead Margin Assurance Preservation (DA_MAP) and Real-Time Offer Revenue Sufficiency Guarantee Payment (RT_ORSGP) expressed in Dollars.
Real-Time Demand Response Uplift	RT_DRR_UPL		X	X					FCA	
Real-Time Resource Adequacy Auction Amount	RT_RAA		X				X		FCA	
Financial Transmission Rights Charge Types										
Financial Transmission Rights Hourly Allocation Amount	FTR_HR_ALC		X	X					FCA	The total net charge or credit from the hourly settlement allocation of FTRs expressed in Dollars.
Financial Transmission Rights Market Administration Amount	FTR_ADMIN		X	X					FCA	The total FTR Administration charges for an AO expressed in Dollars.
Financial Transmission Rights Monthly Allocation Amount	FTR_MN_ALC		X	X					FCA	The total net charge or credit from the monthly revenue settlement allocation of FTRs expressed in Dollars.
Financial Transmission Rights Transaction Amount	FTR_MO_TXN		X	X					FCA	The daily net charge or credit resulting from ownership transfers due to a monthly and/or yearly FTR auction expressed in Dollars.
Financial Transmission Rights Yearly Allocation Amount	FTR_YR_ALC		X	X					FCA	The total net charge or credit from the yearly revenue settlement allocation of FTRs expressed in Dollars.
Financial Transmission Rights Full Funding Guarantee Amount	FTR_FFG		X	X					FCA	The credit amount added to the actual value of an FTR to bring its total to the target value expressed in Dollars.
Financial Transmission Rights Guarantee Uplift Amount	FTR_GUL		X	X					FCA	The charge to distribute the cost of the Full Funding Guarantee amount expressed in Dollars.
Auction Revenue Rights Transaction Amount	FTR_ARR_TXN		X	X					FCA	The net charge or credit from the monthly revenue settlement of ARR expressed in Dollars.

MISO Charge Types

August 9, 2016

Market Charge Description	Recovery Mechanism	Applicable to Montana-Dakota	Balancing Authority	Generation Asset Owner	Load Serving Entity	Non-Asset Owner	Granted Dispute Amounts (Outside Resettlement Window)	FERC Mandated Interest Refunds	Resource Adequacy Auction	FCA	FCA
Net Regulation Adjustment Amount		X									The total daily net charge or credit for an AO that owns Resources providing Regulation Service where Energy provided associated with the Regulation Service is above or below the Resource's average Dispatch Target for Energy, expressed in Dollars.
Contingency Reserve Deployment Failure Charge Amount		X									The total daily net charge for an AO that owns Resources that failed to deploy the specified amount of Contingency Reserve within the Contingency Reserve Deployment Period following a Contingency Reserve Deployment Instruction, expressed in Dollars.
Transmission Charges											
Scheduling, System Control and Dispatch Service	Schedule 1									TT	
Reactive Supply and Voltage Control Service	Schedule 2									TT	
Long-Term Firm and Short-Term Firm PTP Transmission	Schedule 7									TT	
Non-Firm PTP Transmission	Schedule 8									TT	
Network Integrated Transmission	Schedule 9									TT	
FERC annual Charges Recovery	Schedule 10									TT	
ISO Cost Recovery - Demand	Schedule 10-Demand	X								TT	
ISO Cost Recovery - Energy	Schedule 10-Energy	X								TT	
MISO Alternative Administrative Cost Addr	Schedule 10-A	X								N/A	
American Transmission Systems Inc. Cost Addr	Schedule 10-D									N/A	
DEODEK & Eligible Customer Administrative Cost Addr	Schedule 10-G									N/A	
Wholesale Distribution Service (Pass Through - Adjustments)	Schedule 11	X								TT	
Treatment of Station Power	Schedule 20									TT	
Recovery of Schedule 10 Costs for Certain GFAs	Schedule 23									TT	
Network upgrade Charge from Transmission Expansion Plan	Schedule 26	X								TT	
Multi-value Project Usage Rate	Schedule 26-A	X								TT	
Shared Network Upgrade Charge	Schedule 26-B									TT	
Blackstart Service	Schedule 33									TT	
Allocation of Cost Associated with Reliability Penalty Assessments	Schedule 34	X								TT	
HVDC Agreement Cost Recovery Fee	Schedule 35									TT	
Regional Charge to Recover Costs of ITC Transmission Phase Angle Regulators from PJM and NYISO RTO Regions	Schedule 36									N/A	
MTEP Project Cost Recovery for ATSI Zone	Schedule 37	X								TT	
MTEP Project Cost Recovery for DEODEK Zone	Schedule 38	X								TT	
Charge to Recover Costs of Energy Storm Security Charges from Energy Operating Pricing Zones	Schedule 41									N/A	
Regional Charge to Recover Costs of ITC Transmission Phase Angle Regulators from PJM and NYISO RTO Regions	Schedule 42A									N/A	
Credit Associated with AFUDC from Energy Operating Companies Pricing Zones	Schedule 42B									N/A	
Cost Recovery of NERC Recommendations of Essential Action	Schedule 45									TT	
Energy Operating Companies MISO Transition Cost Recovery	Schedule 47									N/A	
Compensation for Rescheduling Generator Outages	Schedule BB									TT	
Compensation for Rescheduling Transmission Outages	Schedule JJ									TT	

These are all based on North Dakota.
 FCA The cost is recovered in the Fuel Clause Adjustment
 TT The cost is recovered in the Transmission Tracker
 N/A Not Applicable

Southwest Power Pool Charges Applicable to Montana-Dakota 9-Aug-16

Energy Charge Types		Applicable to MDU	Proposed Recovery Mechanism
DaEnergyHrlyAmt	Day Ahead Asset Energy		
DaNEnergyHrlyAmt	Day Ahead Non-Asset Energy		
DaVEnergyHrlyAmt	Day Ahead Virtual Energy		
RtEnergy5minAmt	Real-Time Asset Energy		
RtNEnergy5minAmt	Real-Time Non-Asset Energy		
RtVEnergy5minAmt	Real-Time Virtual Energy		
OCL Distribution Charge Types			
RtOclDistHrlyAmt	Real Time Over Collected Losses	X	FCA
Operating Reserve Charge Types			
DaRegUpHrlyAmt	Day Ahead Regulation-Up		
DaRegDnHrlyAmt	Day Ahead Regulation-Down		
DaSpinHrlyAmt	Day Ahead Spinning Reserves		
DaSuppHrlyAmt	Day Ahead Supplemental Reserves		
DaRegUpDistHrlyAmt	Day Ahead Regulation-Up Distribution		
DaRegDnDistHrlyAmt	Day Ahead Regulation-Down Distribution		
DaSpinDistHrlyAmt	Day Ahead Spinning Reserves Distribution		
DaSuppDistHrlyAmt	Day Ahead Supplemental Reserves Distribution		
RtRegUp5minAmt	Real Time Regulation-Up		
RtRegDn5minAmt	Real Time Regulation-Down		
RtSpin5minAmt	Real Time Spinning Reserves		
RtSupp5minAmt	Real Time Supplemental Reserves		
RtRegUpDist5minAmt	Real Time Regulation-Up Distribution		
RtRegDnDist5minAmt	Real Time Regulation-Down Distribution		
RtSpinDist5minAmt	Real Time Spinning Reserves Distribution		
RtSuppDist5minAmt	Real Time Supplemental Reserves Distribution		
DaMwpCpAmt	Make Whole Payment Charge Types		
DaMwpDistHrlyAmt	Day Ahead Make Whole Payment		
RtMwpCpAmt	Real Time Make Whole Payment		
RtMwpDistHrlyAmt	Real Time Make Whole Payment Distribution		
RegUpUnusedMileMwp5minAmt	Unused Reg-Up mileage MWP		
RegDnUnusedMileMwp5minAmt	Unused Reg-Down mileage MWP		
Other Charge Types with Distribution			
RtRegNonPerf5minAmt	Real Time Regulation Non-Performance		
RtRegNonPerfDistHrlyAmt	Real Time Regulation Non-Performance Distribution		
RtCRDepFailAmt	Real Time Contingency Reserve Deployment Failure		
RtCRDepFailDistHrlyAmt	Real Time Contingency Reserve Deployment Failure Distribution		
RtRsg5minAmt	Real Time Reserve Sharing Group		
RtRsgDistHrlyAmt	Real Time Reserve Sharing Group Distribution		

Energy calculations are performed on an hourly basis for each operating day and are based upon the results of the DA Market clearing for that Operating Day

Energy calculations are performed on a dispatch interval basis for each operating day and are based upon the difference between the results of the RTBM process and the DA Market clearing for that Operating day.

The Marginal Losses Component of the DA and RT LMP paid for Energy results from the economic market solution which considers the cost of marginal losses, congestion costs and incremental Energy costs. This creates an over collection related to payment for losses that must be refunded via the OCL Distribution Charge Type.

Regulation UP/Down maintain the balance between load and generation. Spinning/Supplemental must be available in the event of an outage. The Operating Reserve Charge Type include the payment for procurement of reserves.

Represents an Asset Owners share of the total cost to procure operating reserve products in a reserve zone in the DA Market or RTBM.

Regulation UP/Down maintain the balance between load and generation. Spinning/Supplemental must be available in the event of an outage. The Operating Reserve Charge Type include the payment for procurement of reserves.

Represents an Asset Owners share of the total cost to procure operating reserve products in a reserve zone in the DA Market or RTBM.

Make Whole Payments (MWP) are needed to ensure revenue sufficiency for Resources to cover their eligible costs associated with a Commitment Period. Any resource that is economically committed by SPP during the DA Market or RTBM is eligible for a MWP.

These charge types are all related to the deployment, reserves, fees and other miscellaneous Charges.

