

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

October 12, 2022

Executive Secretary  
North Dakota Public Service Commission  
State Capitol Building  
Bismarck, ND 58505-0480

Re: Case No. PU-22- \_\_\_\_\_  
2023 Avoided Cost Rate Update

Montana-Dakota Utilities Co. (Montana-Dakota) herewith electronically submits for Commission approval revisions to its Occasional Power Purchase Non-Time Differentiated Rate 95 and Parallel Generation Peaking Facility Purchase Rate 96 Time Differentiated tariff sheets. This filing is made in compliance with the Order in Case No. 10,000 and in accordance with the Cogeneration and Small Power Producer Rules, Section 69-09-07-09 of the North Dakota Administrative Code.

Montana-Dakota requests approval of the following revised tariff sheets:

- 24<sup>th</sup> Revised Sheet No. 44
- 19<sup>th</sup> Revised Sheet No. 44.1
- 24<sup>th</sup> Revised Sheet No. 45
- 21<sup>st</sup> Revised Sheet No. 45.1.

The methodology used to develop the proposed energy payments is consistent with the approved avoided cost rates. The proposed energy payments for Rates 95 and 96 were generated using Montana-Dakota's production costing model PLEXOS<sup>®</sup> for Power Systems (PLEXOS), reflecting a test year of calendar year 2023. The proposed energy payments under Rates 95 and 96 reflect an increase in the energy payment per Kwh attributable to an increase in the forecasted Midcontinent Independent System Operator, Inc.'s (MISO) market prices from those included in the currently approved energy payments. The proposed energy payments are shown on Attachment A.

Montana-Dakota has adequate capacity through 2025 with minimal purchases required through 2030 that can be met with purchases through the MISO capacity auction or bi-lateral purchase agreements from a neighboring utility. The 2021 Montana-Dakota

Integrated Resource Plan submitted on July 1, 2021 (Case PU-21-307) discusses a power purchase agreement of capacity and energy that Montana-Dakota has entered into with a neighboring utility through May of 2026 which fills an identified capacity shortfall between the retirement of Lewis & Clark 1, Heskett 1, and Heskett 2 coal fired generating units and the construction of the Heskett 4 simple cycle combustion turbine. In addition, Montana-Dakota has entered into an agreement with CPower to expand the current Commercial Demand Response Agreement for a five-year period (through May 31, 2027) and increasing the program to a maximum potential of 50 MW. As noted above the minimal capacity purchases required through 2030 can be met with purchases through the MISO capacity auction or purchases from a neighboring utility. As such, the capacity payment rate included in the Rate 96 tariff is the MISO capacity auction price for Zone 1, the pricing zone for Montana-Dakota, through 2030. The current MISO clearing price is \$7.20 per kWmonth. The workpapers supporting the proposed capacity payment are provided in Attachment B.

The proposed metering charges for Rates 95 and 96 reflect updated meter costs, including the carrying charge and maintenance expenses. The workpapers supporting the proposed metering charges are provided in Attachment C.

Montana-Dakota currently serves 27 customers under Rate 95 as of September 30, 2022. Assuming the same customer loads and generation as the past twelve months, customers would experience an increase in their energy payments, which would be offset by increased metering charges resulting in a proposed net increase in annual energy payments of \$726. The impact to individual customers is dependent on the excess generation purchased by Montana-Dakota. A monthly history of the energy purchased under Rate 95 is included as Attachment D.

Included herein is a second set of the affected tariffs on which Montana-Dakota has indicated the revisions requested by lining through the existing language which the Company proposes to delete and clearly highlighting the new language proposed.

Montana-Dakota respectfully requests that the rate schedules set forth herein be approved with an effective date of service rendered on and after January 1, 2023.

Following the filing of the Company's request, Montana-Dakota will submit via ACH a filing fee of \$50.00 in accordance with the requirements of Section 49-05-05 of the North Dakota Century Code.

Montana-Dakota respectfully requests that this filing be accepted as being in full compliance with the filing requirements of this Commission.

If you have any questions regarding this filing, please contact me at (701) 222-7855 or [travis.jacobson@mdu.com](mailto:travis.jacobson@mdu.com).

Sincerely,

*/s/ Travis R. Jacobson*

Travis R. Jacobson  
Director of Regulatory Affairs

Attachments



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4  
24<sup>th</sup> Revised Sheet No. 44  
Canceling 23<sup>rd</sup> Revised Sheet No. 44

### OCCASIONAL POWER PURCHASE Rate 95 NON-TIME DIFFERENTIATED

Page 1 of 2

#### Availability:

To any qualifying cogeneration and small power production facilities for the purpose of generating occasional electric energy in parallel with the Company's system. This schedule is applicable to cogeneration and small power production facilities with a design capacity of 100 Kw or less, that are Qualifying Facilities (QF) as defined under 18 CFR, Part 292.

#### Rate:

Metering charge for single phase service: \$0.06 per day  
With instrument transformers: \$0.21 per day

Metering charge for three phase service: \$0.13 per day  
With instrument transformers: \$0.37 per day

#### Interim Rate Increase:

8.909% of amount billed under Metering Charge.

Energy delivered to and accepted by Company by a QF shall be paid for by Company in accordance with one of the following two options, elected by the QF:

#### 1. Simultaneous Purchase and Sale:

Energy sales to QF - Service provided to such customers by the Company shall be billed at the appropriate rate, by class of customers (i.e., residential, small and general electric service, etc.) that is currently on file with the Commission.

Energy purchases by Company:

Energy Payment = 2.690¢ per Kwh

#### 2. Net Billing:

Energy generated will be compensated on a net billing basis. The Company will install a meter to measure the energy generated by the QF. The Company will also install a meter to measure the energy consumed by the QF. Metered generation will be subtracted from the metered consumption for the billing period.

**Date Filed:** October 12, 2022

**Effective Date:**

**Issued By:** Travis R. Jacobson  
Director of Regulatory Affairs

**Case No.:**



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

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NDPSC Volume 4  
19<sup>th</sup> Revised Sheet No. 44.1  
Canceling 18<sup>th</sup> Revised Sheet No. 44.1

### OCCASIONAL POWER PURCHASE Rate 95 NON-TIME DIFFERENTIATED

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Page 2 of 2

If metered generation is less than metered consumption, the QF will be billed the applicable retail rate. If metered generation is greater than the metered consumption, the QF will be paid for each Kwh at an amount equal to:  
2.690¢ per Kwh

#### General Terms and Conditions:

1. Change of Rates: This schedule shall be reviewed annually, updated if necessary, and revised upon the Commission's approval.
2. The Company shall install appropriate metering facilities to record all flows of energy necessary to bill and pay in accordance with the charges and payments contained in this rate schedule.
3. The customer shall, with prior written consent of the Company, furnish, install and wire the necessary service entrance equipment, meter sockets, meter enclosure cabinets, or meter connection cabinets that may be required by the Company to properly meter usage and sales to the Company.
4. A written contract with the Company shall be signed stipulating the terms and conditions of the interconnection and sale of the electricity to the Company. The term of the contract hereunder shall be at least one year but less than five years.
5. In order to qualify for the net billing option, the generating equipment and the load of the facility must be located at the same "physical site". "Physical site" shall mean on the same tract of land and the generator output must be physically connected to the load service entrance.
6. For general terms and conditions covering QF's, see Rate 140.
7. All services provided by the Company under this and all other schedules are governed by the rules and regulations approved by the North Dakota Public Service Commission. Rates charged hereunder may be modified by Company at any time by making a unilateral rate application with the North Dakota Public Service Commission or its successor. The new rates shall be effective upon approval by the Commission.

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**Date Filed:** October 12, 2022

**Effective Date:**

**Issued By:** Travis R. Jacobson  
Director of Regulatory Affairs

**Case No.:**



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4  
24<sup>th</sup> Revised Sheet No. 45  
Canceling 23<sup>rd</sup> Revised Sheet No. 45

### PARALLEL GENERATION PEAKING FACILITY PURCHASE Rate 96 TIME DIFFERENTIATED

Page 1 of 3

#### Availability:

To any qualifying cogeneration and small power production facilities for the purpose of generating electric energy in parallel with the Company's system. This schedule is applicable to cogeneration and small power production facilities with a design capacity of 1000 Kw or less, that operate as a peaking facility (defined below), and are Qualifying Facilities (QF) as defined under 18 CFR, Part 292.

#### Rate:

Metering charge for single phase service: \$0.18 per day  
With instrument transformers: \$0.33 per day

Metering charge for three phase service: \$0.19 per day  
With instrument transformers: \$0.43 per day

Interim Rate Increase:  
8.909% of amount billed under Metering Charge.

#### 1. Capacity delivered to the Company:

Monthly capacity payments for a QF (not registered as a MISO generator) shall be assigned by Montana-Dakota based upon the amount of qualifying capacity assigned to an eligible resource under BPM-011 Resource Adequacy of the MISO tariff subject to adjustment annually in accordance with BPM-011.

Monthly capacity payments for a MISO-registered QF shall be based on the capacity credits assigned by MISO on an annual basis.

Monthly capacity payment shall be the MISO capacity auction clearing price for Zone 1. The capacity payment is subject to change annually through the year 2030. Effective in 2031 the monthly capacity payment shall be \$9.630 per Kw applicable for the remainder of the term of the contact.

Capacity payments will be paid in the subsequent billing period.

**Date Filed:** October 12, 2022

**Effective Date:**

**Issued By:** Travis R. Jacobson  
Director – Regulatory Affairs

**Case No.:**



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4  
21<sup>st</sup> Revised Sheet No. 45.1  
Canceling 20<sup>th</sup> Revised Sheet No. 45.1

### PARALLEL GENERATION PEAKING FACILITY PURCHASE Rate 96 TIME DIFFERENTIATED

Page 2 of 3

2. Energy Payment:

ON-PEAK

2.870¢ per Kwh

OFF-PEAK

2.688¢ per Kwh

Peak Periods: The On-Peak Period is defined as those hours between 12 p.m. and 8 p.m. local time, Monday through Friday in the months of June through September. The Off-Peak Period is defined as all other hours. Definitions of On-Peak and Off-Peak periods are subject to change with change in the Company's system operating characteristics.

#### Energy Sales to Qualifying Facilities:

Service provided to such customers by the Company shall be billed at the appropriate rate, by class of customers (i.e., residential, small and general electric service, etc.) that is currently on file with the Commission.

#### General Terms and Conditions:

1. Change of Rates: This schedule shall be reviewed annually, updated if necessary, and revised upon the Commission's approval.
2. Service under this schedule shall be on a simultaneous purchase and sale basis only.
3. The Company shall install appropriate metering facilities to record all flows of energy necessary to bill and pay in accordance with the charges and payments contained in this rate schedule.
4. The customer shall, with prior written consent of the Company, furnish, install and wire the necessary service entrance equipment, meter sockets, meter enclosure cabinets, or meter connection cabinets that may be required by the Company to properly meter usage and sales to the Company.
5. A written contract with the Company shall be signed stipulating the terms and conditions of the interconnection and sale of the electricity to the Company. The term of the contract hereunder shall be five years or more.

**Date Filed:** October 12, 2022

**Effective Date:**

**Issued By:** Travis R. Jacobson  
Director – Regulatory Affairs

**Case No.:**

## Tariffs Reflecting Proposed Changes



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4

~~23<sup>rd</sup>~~ 24<sup>th</sup> Revised Sheet No. 44

Canceling ~~22<sup>nd</sup>~~ 23<sup>rd</sup> Revised Sheet No. 44

### OCCASIONAL POWER PURCHASE Rate 95 NON-TIME DIFFERENTIATED

Page 1 of 2

#### Availability:

To any qualifying cogeneration and small power production facilities for the purpose of generating occasional electric energy in parallel with the Company's system. This schedule is applicable to cogeneration and small power production facilities with a design capacity of 100 Kw or less, that are Qualifying Facilities (QF) as defined under 18 CFR, Part 292.

#### Rate:

Metering charge for single phase service: ~~\$0.050.06~~ per day  
With instrument transformers: ~~\$0.190.21~~ per day

Metering charge for three phase service: ~~\$0.120.13~~ per day  
With instrument transformers: ~~\$0.330.37~~ per day

#### Interim Rate Increase:

8.909% of amount billed under Metering Charge.

Energy delivered to and accepted by Company by a QF shall be paid for by Company in accordance with one of the following two options, elected by the QF:

#### 1. Simultaneous Purchase and Sale:

Energy sales to QF - Service provided to such customers by the Company shall be billed at the appropriate rate, by class of customers (i.e., residential, small and general electric service, etc.) that is currently on file with the Commission.

#### Energy purchases by Company:

Energy Payment = ~~2.1452.690~~¢ per Kwh

#### 2. Net Billing:

Energy generated will be compensated on a net billing basis. The Company will install a meter to measure the energy generated by the QF. The Company will also install a meter to measure the energy consumed by the QF. Metered generation will be subtracted from the metered consumption for the billing period.

**Date Filed:** ~~June 30~~ October 12, 2022

**Effective Date:** ~~Service rendered on and~~  
~~after July 15, 2022~~

**Issued By:** Travis R. Jacobson  
Director of Regulatory Affairs

**Case No.:** PU-22-194



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4

~~18~~19<sup>th</sup> Revised Sheet No. 44.1

Canceling ~~17~~18<sup>th</sup> Revised Sheet No. 44.1

### OCCASIONAL POWER PURCHASE Rate 95 NON-TIME DIFFERENTIATED

Page 2 of 2

If metered generation is less than metered consumption, the QF will be billed the applicable retail rate. If metered generation is greater than the metered consumption, the QF will be paid for each Kwh at an amount equal to:

~~2.1452.690~~¢ per Kwh

#### General Terms and Conditions:

1. Change of Rates: This schedule shall be reviewed annually, updated if necessary, and revised upon the Commission's approval.
2. The Company shall install appropriate metering facilities to record all flows of energy necessary to bill and pay in accordance with the charges and payments contained in this rate schedule.
3. The customer shall, with prior written consent of the Company, furnish, install and wire the necessary service entrance equipment, meter sockets, meter enclosure cabinets, or meter connection cabinets that may be required by the Company to properly meter usage and sales to the Company.
4. A written contract with the Company shall be signed stipulating the terms and conditions of the interconnection and sale of the electricity to the Company. The term of the contract hereunder shall be at least one year but less than five years.
5. In order to qualify for the net billing option, the generating equipment and the load of the facility must be located at the same "physical site". "Physical site" shall mean on the same tract of land and the generator output must be physically connected to the load service entrance.
6. For general terms and conditions covering QF's, see Rate 140.
7. All services provided by the Company under this and all other schedules are governed by the rules and regulations approved by the North Dakota Public Service Commission. Rates charged hereunder may be modified by Company at any time by making a unilateral rate application with the North Dakota Public Service Commission or its successor. The new rates shall be effective upon approval by the Commission.

**Date Filed:** October 1~~3~~2, 2021~~2~~

**Effective Date:** ~~Service rendered on and after January 1, 2022~~

**Issued By:** Travis R. Jacobson  
Director of Regulatory Affairs

**Case No.:** PU-21-404



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4

~~23<sup>rd</sup>~~ 24<sup>th</sup> Revised Sheet No. 45

Canceling ~~22<sup>nd</sup>~~ 23<sup>rd</sup> Revised Sheet No. 45

### PARALLEL GENERATION PEAKING FACILITY PURCHASE Rate 96 TIME DIFFERENTIATED

Page 1 of 3

#### Availability:

To any qualifying cogeneration and small power production facilities for the purpose of generating electric energy in parallel with the Company's system. This schedule is applicable to cogeneration and small power production facilities with a design capacity of 1000 Kw or less, that operate as a peaking facility (defined below), and are Qualifying Facilities (QF) as defined under 18 CFR, Part 292.

#### Rate:

Metering charge for single phase service: ~~\$-0.160.18~~ per day  
With instrument transformers: ~~\$-0.390.33~~ per day

Metering charge for three phase service: ~~\$-0.180.19~~ per day  
With instrument transformers: ~~\$-0.380.43~~ per day

#### Interim Rate Increase:

8.909% of amount billed under Metering Charge.

#### 1. Capacity delivered to the Company:

Monthly capacity payments for a QF (not registered as a MISO generator) shall be assigned by Montana-Dakota based upon the amount of qualifying capacity assigned to an eligible resource under BPM-011 Resource Adequacy of the MISO tariff subject to adjustment annually in accordance with BPM-011.

Monthly capacity payments for a MISO-registered QF shall be based on the capacity credits assigned by MISO on an annual basis.

Monthly capacity payment shall be the MISO capacity auction clearing price for Zone 1. The capacity payment is subject to change annually through the year 2030. Effective in 2031 the monthly capacity payment shall be ~~\$9.6559.630~~ per Kw applicable for the remainder of the term of the contact.

Capacity payments will be paid in the subsequent billing period.

Date Filed: ~~June 30~~ October 12, 2022

Effective Date: ~~Service rendered on and after July 15, 2022~~

Issued By: Travis R. Jacobson  
Director – Regulatory Affairs

Case No.: PU-22-194



# Montana-Dakota Utilities Co.

A Subsidiary of MDU Resources Group, Inc.

400 N 4<sup>th</sup> Street  
Bismarck, ND 58501

## State of North Dakota Electric Rate Schedule

NDPSC Volume 4

~~20<sup>th</sup>~~ 21<sup>st</sup> Revised Sheet No. 45.1

Canceling ~~19<sup>th</sup>~~ 20<sup>th</sup> Revised Sheet No. 45.1

### PARALLEL GENERATION PEAKING FACILITY PURCHASE Rate 96 TIME DIFFERENTIATED

Page 2 of 3

#### 2. Energy Payment:

ON-PEAK

~~2.072~~ 2.870¢ per Kwh

OFF-PEAK

~~2.139~~ 2.688¢ per Kwh

Peak Periods: The On-Peak Period is defined as those hours between 12 p.m. and 8 p.m. local time, Monday through Friday in the months of June through September. The Off-Peak Period is defined as all other hours. Definitions of On-Peak and Off-Peak periods are subject to change with change in the Company's system operating characteristics.

#### Energy Sales to Qualifying Facilities:

Service provided to such customers by the Company shall be billed at the appropriate rate, by class of customers (i.e., residential, small and general electric service, etc.) that is currently on file with the Commission.

#### General Terms and Conditions:

1. Change of Rates: This schedule shall be reviewed annually, updated if necessary, and revised upon the Commission's approval.
2. Service under this schedule shall be on a simultaneous purchase and sale basis only.
3. The Company shall install appropriate metering facilities to record all flows of energy necessary to bill and pay in accordance with the charges and payments contained in this rate schedule.
4. The customer shall, with prior written consent of the Company, furnish, install and wire the necessary service entrance equipment, meter sockets, meter enclosure cabinets, or meter connection cabinets that may be required by the Company to properly meter usage and sales to the Company.
5. A written contract with the Company shall be signed stipulating the terms and conditions of the interconnection and sale of the electricity to the Company. The term of the contract hereunder shall be five years or more.

**Date Filed:** October 1~~3~~ 2, 202~~1~~ 2

**Effective Date:** ~~Service rendered on and after January 1, 2022~~

**Issued By:** Travis R. Jacobson  
Director – Regulatory Affairs

**Case No.:** ~~PU-21-404~~

**Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
Lambda  
2023**

Month	Year	Lambda		
		On-Peak \$/MWh	Off-Peak \$/MWh	Total \$/MWh
January	2023		\$32.57	\$32.57
February	2023		32.13	32.13
March	2023		26.19	26.19
April	2023		22.34	22.34
May	2023		22.66	22.66
June	2023	\$26.18	26.18	26.18
July	2023	32.53	32.39	32.42
August	2023	31.07	31.04	31.05
September	2023	25.03	24.24	24.42
October	2023		22.97	22.97
November	2023		25.11	25.11
December	2023		24.74	24.74
Average		\$28.70	\$26.88	\$26.90

**Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
Calculation of Capacity Payment  
2031**

**Rate 96**

Capital cost of combustion turbine	\$1,252	1/
Levelized Fixed Charge	9.231%	2/
Monthly Capacity Payments:	<u>\$9.630</u>	\$/kW-Month 3/

1/ Cost of combustion turbine based on projected cost of a GE 7EA simple cycle unit in 2019 dollars of \$878 escalated at a rate of 3.0% per year to 2031.

2/ See Attachment B pages 2-5.

3/ Rate 96 Capacity Payment formula: =  $\$878 \times 1.030^{(2031-2019)} \times .09231 / 12$

**Montana-Dakota Utilities Co.  
Electric Utility- North Dakota  
2023 Avoided Cost Rate Update  
Levelized Fixed Charge Rate - CT**

**Summary of Results**

Sum of Present Values 1/	1.254227
Capital Recovery Factor 2/	0.073602
Levelized Fixed Charge 3/	<u>9.231%</u>

1/ Sum of annual net present values.

2/  $((+ROR*(1+ROR)^{book\ life})/((1+ROR)^{book\ life}-1))$ .

3/ Product of annual present value x capital recovery factor.

Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
2023 Avoided Cost Rate Update  
Levelized Fixed Charge Rate - CT

Year	(1) Net Investment	(2) Return	(3) Book Depr.	(4) O&M	(5) Ad Valorem Tax	(6) Total Charge	(7) Present Value Factor	(8) Present Value	(9) Accum. Present Value	(10) LFCR	(11) Tax Depr. Accel.	(12) Deferred Income Tax
1	1.000	0.08375	0.02500	0.01000	0.00399	0.12274	0.93600	0.11488	0.11488	0.12274	0.05000	0.00610
2	0.969	0.08115	0.02500	0.01000	0.00399	0.12014	0.87609	0.10525	0.22013	0.12148	0.09500	0.01708
3	0.927	0.07762	0.02500	0.01000	0.00399	0.11661	0.82002	0.09562	0.31576	0.11996	0.08550	0.01476
4	0.887	0.07429	0.02500	0.01000	0.00399	0.11328	0.76753	0.08695	0.40270	0.11845	0.07700	0.01269
5	0.849	0.07113	0.02500	0.01000	0.00399	0.11012	0.71841	0.07911	0.48182	0.11700	0.06930	0.01081
6	0.814	0.06813	0.02500	0.01000	0.00399	0.10712	0.67243	0.07203	0.55385	0.11561	0.06230	0.00910
7	0.779	0.06528	0.02500	0.01000	0.00399	0.10427	0.62939	0.06563	0.61948	0.11430	0.05900	0.00830
8	0.746	0.06249	0.02500	0.01000	0.00399	0.10148	0.58911	0.05978	0.67926	0.11304	0.05900	0.00830
9	0.713	0.05970	0.02500	0.01000	0.00399	0.09869	0.55140	0.05442	0.73368	0.11183	0.05910	0.00832
10	0.680	0.05691	0.02500	0.01000	0.00399	0.09590	0.51611	0.04950	0.78317	0.11067	0.05900	0.00830
11	0.646	0.05412	0.02500	0.01000	0.00399	0.09311	0.48308	0.04498	0.82815	0.10955	0.05910	0.00832
12	0.613	0.05133	0.02500	0.01000	0.00399	0.09032	0.45216	0.04084	0.86899	0.10847	0.05900	0.00830
13	0.580	0.04854	0.02500	0.01000	0.00399	0.08753	0.42322	0.03705	0.90604	0.10741	0.05910	0.00832
14	0.546	0.04575	0.02500	0.01000	0.00399	0.08474	0.39613	0.03357	0.93961	0.10640	0.05900	0.00830
15	0.513	0.04296	0.02500	0.01000	0.00399	0.08195	0.37078	0.03039	0.96999	0.10541	0.05910	0.00832
16	0.480	0.04017	0.02500	0.01000	0.00399	0.07916	0.34705	0.02747	0.99747	0.10446	0.02950	0.00110
17	0.454	0.03799	0.02500	0.01000	0.00399	0.07698	0.32483	0.02500	1.02247	0.10355	0.00000	(0.00610)
18	0.435	0.03640	0.02500	0.01000	0.00399	0.07539	0.30404	0.02292	1.04539	0.10271	0.00000	(0.00610)
19	0.416	0.03482	0.02500	0.01000	0.00399	0.07381	0.28458	0.02101	1.06640	0.10193	0.00000	(0.00610)
20	0.397	0.03324	0.02500	0.01000	0.00399	0.07223	0.26637	0.01924	1.08564	0.10119	0.00000	(0.00610)
21	0.378	0.03166	0.02500	0.01000	0.00399	0.07065	0.24932	0.01761	1.10325	0.10050	0.00000	(0.00610)
22	0.359	0.03007	0.02500	0.01000	0.00399	0.06906	0.23336	0.01612	1.11937	0.09984	0.00000	(0.00610)
23	0.340	0.02849	0.02500	0.01000	0.00399	0.06748	0.21843	0.01474	1.13411	0.09922	0.00000	(0.00610)
24	0.321	0.02691	0.02500	0.01000	0.00399	0.06590	0.20445	0.01347	1.14758	0.09864	0.00000	(0.00610)
25	0.302	0.02532	0.02500	0.01000	0.00399	0.06431	0.19136	0.01231	1.15989	0.09808	0.00000	(0.00610)
26	0.283	0.02374	0.02500	0.01000	0.00399	0.06273	0.17911	0.01124	1.17112	0.09755	0.00000	(0.00610)
27	0.265	0.02216	0.02500	0.01000	0.00399	0.06115	0.16765	0.01025	1.18138	0.09705	0.00000	(0.00610)
28	0.246	0.02058	0.02500	0.01000	0.00399	0.05957	0.15692	0.00935	1.19072	0.09658	0.00000	(0.00610)
29	0.227	0.01899	0.02500	0.01000	0.00399	0.05798	0.14688	0.00852	1.19924	0.09612	0.00000	(0.00610)
30	0.208	0.01741	0.02500	0.01000	0.00399	0.05640	0.13748	0.00775	1.20699	0.09569	0.00000	(0.00610)

Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
2023 Avoided Cost Rate Update  
Levelized Fixed Charge Rate - CT

Year	(1) Net Investment	(2) Return	(3) Book Depr.	(4) O&M	(5) Ad Valorem Tax	(6) Total Charge	(7) Present Value Factor	(8) Present Value	(9) Accum. Present Value	(10) LFCR	(11) Tax Depr. Accel.	(12) Deferred Income Tax
31	0.189	0.01583	0.02500	0.01000	0.00399	0.05482	0.12868	0.00705	1.21405	0.09528	0.00000	(0.00610)
32	0.170	0.01424	0.02500	0.01000	0.00399	0.05323	0.12044	0.00641	1.22046	0.09488	0.00000	(0.00610)
33	0.151	0.01266	0.02500	0.01000	0.00399	0.05165	0.11273	0.00582	1.22628	0.09451	0.00000	(0.00610)
34	0.132	0.01108	0.02500	0.01000	0.00399	0.05007	0.10552	0.00528	1.23156	0.09415	0.00000	(0.00610)
35	0.113	0.00950	0.02500	0.01000	0.00399	0.04849	0.09876	0.00479	1.23635	0.09381	0.00000	(0.00610)
36	0.094	0.00791	0.02500	0.01000	0.00399	0.04690	0.09244	0.00434	1.24069	0.09348	0.00000	(0.00610)
37	0.076	0.00633	0.02500	0.01000	0.00399	0.04532	0.08653	0.00392	1.24461	0.09317	0.00000	(0.00610)
38	0.057	0.00475	0.02500	0.01000	0.00399	0.04374	0.08099	0.00354	1.24815	0.09287	0.00000	(0.00610)
39	0.038	0.00317	0.02500	0.01000	0.00399	0.04216	0.07580	0.00320	1.25135	0.09259	0.00000	(0.00610)
40	0.019	0.00158	0.02500	0.01000	0.00399	0.04057	0.07095	0.00288	1.25423	0.09231	0.00000	(0.00610)

Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
2023 Avoided Cost Rate Update  
Levelized Fixed Charge Rate - CT

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Net Investment	Return	Book Depr.	O&M	Ad Valorem Tax	Total Charge	Present Value Factor	Present Value	Accum. Present Value	Depr. Accel.	Deferred Income Tax

- (1) Prior year's Net investment - Book Depreciation - Deferred Income Tax.
- (2) Return (adjusted for taxes) x Net Investment.
- (3) Depreciation rate based on the life of the investment.
- (4) Distribution O&M expense as percent of distribution plant.
- (5) Ad valorem tax rate on distribution plant.
- (6) Sum of return, depreciation, O&M and ad valorem taxes.
- (7) Present value factor reflecting overall rate of return.
- (8) Present value factor x total charge.
- (9) Accumulated present value.
- (10) Levelized fixed charge rate = accumulated present value x  $((1+ROR)^{\text{book life}})/((1+ROR)^{\text{book life}}-1)$
- (11) Tax depreciation rates for a CT uses a 15 year tax life.
- (12) (Tax life - book life) x tax rate.

Assumptions	
ROR	6.838%
ROR with taxes	8.375%
Federal Tax Rate	21.000%
State Tax Rate	4.310%
Combined Federal/State Tax Rate	24.4049%
1 - Tax Rate	75.5951%
Service Life of Asset (in years)	40
Tax Life (in years - 5, 7, 10, 15, 20, or 39)	15
Property Tax Rate	0.399%

**Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
Calculation of Metering Charges - Rate 95  
2023 Avoided Cost Updates**

<b>Rate 95</b>	Single-Phase		Three-Phase	
	Without Instrument Transformer	With Instrument Transformer	Without Instrument Transformer	With Instrument Transformer
Estimated Meter Cost 1/	\$117	\$677	\$343	\$1,183
Levelized Fixed Charge Rate 2/	10.186%	10.186%	10.186%	10.186%
Annual Carrying Cost/Meter	\$11.92	\$68.96	\$34.94	\$120.50
Annual O&M Expense	8.96	8.96	13.44	13.44
Total Annual Cost of Meter	\$20.88	\$77.92	\$48.38	\$133.94
Calculated Monthly Charge	\$1.74	\$6.49	\$4.03	\$11.16
Daily Metering Charge	0.06	0.21	0.13	0.37

1/ Including installation and testing.

2/ Reflective of capital costs, depreciation and taxes.

**Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
Calculation of Metering Charges - Rate 96  
2023 Avoided Cost Updates**

<b>Rate 96</b>	Single-Phase TOD, Demand		Three-Phase TOD, Demand	
	Without Instrument Transformer	With Instrument Transformer	Without Instrument Transformer	With Instrument Transformer
Estimated Meter Cost 1/	\$369	\$930	\$383	\$1,223
Levelized Fixed Charge Rate 2/	10.186%	10.186%	10.186%	10.186%
Annual Carrying Cost/Meter	\$37.59	\$94.73	\$39.01	\$124.57
Annual O&M Expense	26.88	26.88	31.36	31.36
Total Annual Cost of Meter	\$64.47	\$121.61	\$70.37	\$155.93
Calculated Monthly Charge	\$5.37	\$10.13	\$5.86	\$12.99
Daily Metering Charge	0.18	0.33	0.19	0.43

1/ Including installation and testing.

2/ Reflective of capital costs, depreciation and taxes.

**Montana-Dakota Utilities Co.  
Electric Utility - North Dakota  
Summary of Billed Use & Purchased Energy - Rate 95 Customers  
Twelve Months Ended September 30, 2022**

	Kwh Billed Customer 1/	Kwh Purchased under Rate 95
October 2021	99,265	11,281
November	116,309	6,546
December	137,862	4,337
January 2022	156,291	560
February	122,367	5,545
March	130,310	12,466
April	100,168	12,249
May	92,091	17,836
June	95,419	22,572
July	92,143	23,455
August	109,809	22,737
September	100,592	20,471
	<u>1,352,626</u>	<u>160,055</u>

1/ Kwh billed to customer under customer's otherwise applicable tariff.