

Montana-Dakota Utilities Co.
Electric Utility – South Dakota
Description of Allocation Factors & Embedded Class Cost of Service Study - Details

Factor	Title	Function	Description	Work Paper Reference
1	Energy at Generation Level (Pro Forma)	Energy	Pro Forma kWh sales by class as recorded at the meter and adjusted for energy losses	Statement N, Pages 12 and 44
2	Demand – 12 CP (Pro Forma)	Demand	12 CP refers to the twelve monthly coincident peak method. This factor is used to allocate production and transmission related investment and expenses based on each class's contribution to the 12 monthly system peaks and is based on the South Dakota load study conducted using data as of December 31, 2021.	Statement N, Pages 13-37
3	AED/Energy (Pro Forma)	Demand and Energy	This factor is derived from Factors 1 & 2, by calculating 34.8% of Factor 1 and 65.2% of Factor 2. This factor is used to allocate wind related production plant.	Statement N, Page 44
4	NCP – Supply Level (Pro Forma)	Demand	The Non-Coincident Kw demand represents the peak demand for each rate class and is used primarily as the allocation factor for demand related distribution plant and expenses. The load factors for each class are derived based on sample data or actual billing demand.	Statement N, Page 44
5	NCP – Secondary Level (Pro Forma)	Demand	This factor is derived from Factor 4 by excluding the non-coincident demand of the primary service classes and is used to allocate distribution transformer costs that are not applicable to primary service customers.	Statement N, Page 44
6	Weighted Customer Meters	Customer	Meter costs by rate class weighted to represent relative costs, with the residential cost weight set equal to 1.0. For example, the average installed cost of a residential meter is \$117.86 and the average installed cost of a meter used for Rate 20 Secondary Service customers is \$270.99	Statement N, Page 38-39

Factor	Title	Function	Description	Work Paper Reference
			resulting in a meter weight of 2.30 assigned to the Rate 20 class.	
8	Total Customers	Customer	Number of average active pro forma customers.	Statement N, Page 38
8.1	Total Customers less Rate 24	Customer	Number of average pro forma customers excluding Rate 24 customers.	Statement N, Page 38
10	Weighted Customer Services	Customer	Service costs determined based on the typical cost of the facilities and equipment required to serve a typical customer in each rate class weighted to represent relative costs with the residential weight set equal to 1.0. For example, the average installed cost of a residential service was determined to be \$621.20 and the average installed cost of a service line for a customer under Rate 20 was determined to be \$670.06 resulting in a service weight of 1.08 assigned to the Rate 20 class.	Statement N, Page 38 and 40
11	Weighted Customer Transformers	Customer	Transformer costs determined based on the typical cost of the transformer and associated equipment required to serve a typical customer in each rate class weighted to represent relative costs with the residential weight set equal to 1.0. The base costs of the transformers are determined using the zero-intercept of a regression equation comparing the costs of the various types of transformers. For example, the average installed transformer cost for a residential service was determined to be \$639.50 and the average installed transformer cost for a customer under Rate 20 was determined to be \$1,709.38 resulting in a transformer weight of 2.67 assigned to the Rate 20 class.	Statement N, Pages 38, 41
12	Weighted Customer Accounts	Customer	Customer related operation and maintenance expenses occurring once the customer has been attached to the system. This factor was based	Statement N, Pages 38, 42-43

Factor	Title	Function	Description	Work Paper Reference
			on the number of meter registers for class relative to the number of customers in the class. For example, the residential class has one meter register per customer so the weight is set equal to 1.0. There are 1985 Rate 20 secondary customers with 2594 registers so the weight is equal to 1.31.	
13	Production, Transmission and Distribution Plant	Demand & Customer	Production, transmission and distribution plant as shown in Statement D, as allocated to each class based on the CCOSS –detail as allocated. This factor is based on the results of the allocations that occurred prior and is used to allocate general and common plant related costs.	CCOSS – Detail as allocated
14	Distribution Plant	Demand & Customer	Distribution plant value as shown in Statement D, as allocated to each class based on the CCOSS –detail. This factor is based on the results of the allocations and is used to allocate distribution plant related costs.	CCOSS – Detail as allocated
	Assignment of Distribution Plant Items	Demand & Customer	Prior to allocation to the classes Distribution Plant accounts 364-367, (poles, towers, fixtures, overhead conductors, underground conduit, underground conductors and devices) were segregated into customer and demand related cost components based on an analysis of a minimum and normal system for a typical distribution system. The customer component represents the percentage of minimum system costs as compared to the normal system costs with the remainder of the total actual investment assigned to the demand component.	Statement N, Pages 7-8
15	Poles, Overhead and Underground Conductors & Conduit	Demand & Customer	Plant balance for accounts 364, 365 & 366, with 59% assigned to the customer component allocated on Factor 8 and 41% assigned to the demand component allocated on Factor 4.	Statement N, Pages 7-8
19	Line Transformers	Demand & Customer	Plant balance for account 368, shown on Statement N, Schedule N-2, with 45% assigned to the customer component allocated on Factor	Statement N, Pages 7-8

Factor	Title	Function	Description	Work Paper Reference
			11 and 55% assigned to the demand component allocated on Factor 5.	
21	All Other Distribution Operating Exp.	Demand & Customer	Distribution operation expenses (Station, Overhead Lines, Underground Lines, Street & Signal Lighting, Meters and Customer Installations) shown in Statement H, are allocated to each class based on the factors identified in Statement N, Schedule N-2. The remaining distribution expenses (Supervision & Engineering & Miscellaneous) are then allocated on this factor which is based on the percentage of the total of the above allocated expenses.	CCOSS – Detail as allocated
22	All Other Distribution Maintenance Exp.	Demand & Customer	Distribution maintenance expenses (Station, Overhead Lines, Underground Lines, Line Transformers, Street & Signal Lighting and Meters) shown in Statement H are allocated to each class based on the factors identified in Statement N, Schedule N-2. The remaining distribution maintenance expenses (Supervision & Engineering & Miscellaneous) are then allocated on this factor which is based on the percentage of the total of the above allocated expenses.	CCOSS – Detail as allocated
23	O & M Excluding Fuel and Purch. Power	Demand & Customer	This allocator is based on Total Operation and Maintenance expenses excluding the cost of fuel and purchased power (energy and capacity) as allocated to each class based on the factors identified in Statement N, Schedule N-2.	CCOSS – Detail as allocated
24	O & M Excluding Fuel, Purch. Power and A&G	Demand & Customer	This allocator is based on Total Operation and Maintenance expenses excluding the cost of fuel and purchased power expense and Administrative and General Expenses as allocated to each class based on the factors identified in the CCOS-Detail report (Statement N, Schedule N-2).	CCOSS – Detail as allocated
26	Total Electric Plant in Service	Demand & Customer	Total electric plant as shown on Statement D as allocated to each class based on the factors identified in the CCOS-Detail report.	CCOSS – Detail as allocated

Factor	Title	Function	Description	Work Paper Reference
27	Net Electric Plant in Service	Demand & Customer	Total electric plant in service Statement D less the Accumulated Reserve for Depreciation shown on Statement E as allocated to each class based on the factors identified in the CCOS-Detail report.	CCOSS – Detail as allocated
29	Production Plant	Demand	Production Plant as shown on Statement D, Page 1 as allocated to each class based on the factors identified in the CCOS-Detail report.	CCOSS – Detail as allocated
30	Transmission Plant	Demand	Transmission Plant as shown on Statement D as allocated to each class based on the factors identified in the CCOS-Detail report.	CCOSS – Detail as allocated
44	Taxable Income	Demand, Energy & Customer	Taxable Income before state income taxes as calculated for each class as identified in the CCOS-Detail report.	CCOSS – Detail as allocated
45	Retail Sales Revenue (Per Books)	Demand, Energy & Customer	The summation of retail sales revenue by class as shown on Statement I assigned and allocated to Demand, Energy and Customer costs as applicable.	CCOSS – Detail as allocated
47	Total Production O&M	Demand & Energy	The sum of Fuel & Purchased Power Energy, Demand & Non-Fuel Expenses, and Other Production as shown on Statement H allocated to each class based on the factors identified in the CCOS-Detail report.	CCOSS – Detail as allocated
49	Wind Plant Additions	Demand	New Wind Production Plant as shown on Statement D allocated to each class based on Factor 3.	CCOSS – Detail as allocated
50	Non-Wind Plant Additions	Demand	New Non-Wind Production Plant as shown on Statement D allocated to each class based on Factor 2.	CCOSS – Detail as allocated
51	Customer Advances	Demand and Customer	Customer advances based on the direct assignment of all customer advances as of December 31, 2022	Statement N, Pages 45-46

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
Embedded Class Cost of Service Study**

**Plant in Service
12-Months Ending December 31, 2022**

	<u>2022</u>
Electric Plant in Service	
Production Plant	23,060,366
Wind Production Plant	18,166,284
Total Production Plant	<u>\$41,226,650</u>
 Transmission Plant	 39,638,106
 Distribution Plant	
Land	52,551
Rights of Way	34,047
Station Equipment	4,330,883
Poles, Towers, & Fixtures	2,823,035
Overhead Conductors & Device	1,967,274
Underground Conduit	8,652
Underground Conduit & Device	2,434,169
Line Transformers	5,190,496
Services	2,135,860
Meters	1,192,321
Installation on Customer Premise	262,895
Street Light & Signal System	877,608
Distribution Plant	<u>21,309,791</u>
 General Plant	 2,003,657
Intangible Plant - General	820,624
 Common Plant	 2,358,562
Intangible Plant - Common	964,202
Intangible Plant - Common CC&B & PCAD	687,721
 Acquisition Adjustment	 <u>520,708</u>
 Total Electric Plant	 <u><u>\$109,530,021</u></u>

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
Class Cost of Service Study
12-Months Ending December 31, 2022
Distribution Plant Allocation**

	Total	Allocation
360.1 Land	\$52,551	Factor No. 4
360.2 Land Rights	34,047	Factor No. 4
362 Station Equipment	0	Factor No. 4
 364, 365, 366 & 367		
Poles, OH & UG Conductors & Conduit	7,233,130	
59% Customer Related	4,267,547	Factor No. 8.1
41% Demand Related	2,965,583	Factor No. 4
 368 Line Transformers	5,190,496	
45% Customer Related	2,335,723	Factor No. 11
55% Demand Related	2,854,773	Factor No. 5
 369 Services	2,135,860	Factor No. 10
 370 Meters	1,192,321	Factor No. 6
 371 Installation on Customer Premise	262,895	Direct to Outdoor Lighting
 373 Street Light & Signal System	877,608	Direct to St. Lighting
 Total Distribution Plant	\$16,978,908	

South Dakota Distribution Percentages			
2023 Plant Account	Minimum System	Normal System	Customer Component
Pole (Acct 364) ~	\$19,398	\$31,645	61.3%
Overhead Conductor (Acct 365) *	\$11,919	\$17,824	66.9%
Total	\$31,317	\$49,469	63.3%
URD Conductor (Acct. 367) **	\$50,139	\$87,939	57.0%
Weighted Average	\$81,456	\$137,408	59.3%

Customer Component from Zero Intercept				
3Ø PADMOUNT TRANSFORMER	1Ø PADMOUNT TRANSFORMER	LINE TRANSFORMER	TOTAL	
Intercept from replacement regressions	\$0	\$3,208	\$2,712	\$5,920
multiply intercept by single-phase <=50kVa	\$0.00	\$894,977	\$6,419,760	\$7,314,737
replacement cost times counts total	\$2,092,045.98	\$2,015,647	\$12,237,574	\$16,345,267
Customer Component of transformers	0.00%	44.40%	52.46%	44.75%

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY -SOUTH DAKOTA
Embedded Class Cost of Service Study**

**Accumulated Reserve for Depreciation
12-Months Ending December 31, 2022**

Accumulated Reserve for Depreciation	<u>2022</u>
Production Plant	
Wind Production Plant	\$9,611,682
Total Production Plant	<u>4,712,080</u>
	\$14,323,762
Transmission Plant	
	8,076,701
Distribution Plant	
Rights of Way	
Station Equipment	30,200
Poles, Towers, & Fixtures	1,530,294
Overhead Conductors & Device	1,886,829
Underground Conduit	1,538,011
Underground Conduit & Device	8,610
Line Transformers	800,411
Services	1,806,056
Meters	1,797,134
Installation on Customer Premise	326,231
Street Light & Signal System	(57,827)
Distribution Plant	<u>152,340</u>
	9,818,289
General Plant	
Intangible Plant - General	769,200
	376,499
Common Plant	
Intangible Plant - Common	905,480
Intangible Plant - Common CC&B & PCAD	653,694
	431,664
Acquisition Adjustment	
	<u>518,493</u>
Total Accumulated Reserve	

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
Embedded Class Cost of Service Study**

**Summary of Working Capital and Other Deductions 1/
12-Months Ending December 31, 2022**

Working Capital:	<u>2022</u>
Materials & Supplies	\$1,745,699
Prepayments	219,391
Fuel Stocks	18,841
Unamortized Loss on Debt	77,708
Unamort. Decomm. Retired Power Plant	(16,252)
Unamortized Redemption of Pref Stock	14,138
Regulatory Asset - L&C I and Heskett I & II	<u>2,500,775</u>
	<u>\$4,560,300</u>
 Customer Advances For Construction	 <u><u>(\$86,047)</u></u>

1/ Rule 20:10:16:68, Statement F, Page 1

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
Embedded Class Cost of Service Study**

**Summary of Average Accumulated Deferred Incomes Taxes 1/
12-Months Ending December 31, 2022**

	<u>2022</u>
<u>Accumulated Deferred Income Taxes</u>	
Liberalized Depreciation	\$9,689,065
Excess Deferred Income Taxes	3,633,911
Decommissioning of Power Plants	(87,239)
Contribution in Aid of Construction	(99,675)
Unamortized Loss on Debt	16,319
Retired Power Plant	(3,413)
Accelerated Amortization	0
Regulatory Asset - L&C 1 & Heskett I & II	525,163
Customer Advances	(18,071)
Investment Tax Credit	<u>(36,115)</u>
Subtotal Balance	<u>\$13,619,945</u>
Accumulated Investment Tax Credit	<u>\$147,981</u>

1/ Rule 20:10:13:88, Statement K, Page 17 of 18.

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
CLASS COST OF SERVICE STUDY
12 Months Ending December 31, 2022
Demand and Energy Responsibility**

Rate	Customer Class	Class Level At Meter			Loss Factors		Class Level At Supply	
		Pro Forma KWH Sales	Load Factor (%)	Peak NCP KW	Energy (%)	Demand (%)	Energy @ Generation KWH	Peak NCP KW
	<u>Residential</u>							
10	- Residential Electric Service	64,451,479	42.98%	17,118	7.72%	12.30%	69,843,389	19,519
53	- Residential Dual Fuel Service	4,485,727	20.80%	2,462	7.72%	12.30%	4,860,996	2,807
	Total Residential	<u>68,937,206</u>		<u>19,580</u>			<u>74,704,385</u>	<u>22,326</u>
20	- Small General Electric Service							
	Primary	7,200	46.94%	2	6.68%	10.21%	7,715	2
	Secondary - Demand	21,648,758	50.78%	4,867	7.72%	12.30%	23,459,859	5,550
	Secondary - Non-Demand	8,446,469	46.94%	2,054	7.72%	12.30%	9,153,087	2,342
	Total Rate 20	<u>30,102,427</u>		<u>6,923</u>			<u>32,620,661</u>	<u>7,894</u>
25	- Irrigation Power Service	199,200	11.47%	198	7.72%	12.30%	215,865	226
26	- Small General TOD	<u>149,941</u>	72.03%	<u>24</u>	7.72%	12.30%	<u>162,485</u>	<u>27</u>
	Total Small General	<u><u>30,451,568</u></u>		<u><u>7,145</u></u>			<u><u>32,999,011</u></u>	<u><u>8,147</u></u>
30	- Large General Service Secondary	34,282,054	52.68%	7,429	7.72%	12.30%	37,150,037	8,471
32	- General Electric Space Heating	6,695,907	21.22%	3,602	7.72%	12.30%	7,256,076	4,107
48	- Municipal Pumping	1,694,394	59.31%	326	7.72%	12.30%	1,836,144	372
24	- Outdoor Lighting Service	290,735	45.66%	73	7.72%	12.30%	315,057	83
41	- Street Lighting Service							
	Company Owned	746,740	45.66%	187	7.72%	12.30%	809,211	213
	Municipal Owned	461,031	45.66%	115	7.72%	12.30%	499,600	131
	Total Rate 41	<u>1,207,771</u>		<u>302</u>			<u>1,308,811</u>	<u>344</u>
	TOTAL SOUTH DAKOTA	<u><u>143,559,635</u></u>		<u><u>38,457</u></u>			<u><u>155,569,521</u></u>	<u><u>43,850</u></u>

Hours in the Year 8,760

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

		Class Level At Meter						Class Level At Supply					
Residential Rate 10	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor 1/	Peak KW	Monthly Coincident Factor 1/	Monthly Coincident KW	Loss Factors: 2/ Energy %	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW	
	Jan	744	6,325,912	69.7067%	12,198	81.5671%	9,950	7.719%	12.296%	6,855,054	9,214	11,345	
	Feb	672	5,901,314	66.6499%	13,176	84.4089%	11,122	7.719%	12.296%	6,394,939	9,516	12,681	
	Mar	744	5,814,885	63.0746%	12,391	75.5537%	9,362	7.719%	12.296%	6,301,281	8,469	10,675	
	Apr	720	4,533,376	61.1998%	10,288	76.1122%	7,830	7.719%	12.296%	4,912,578	6,823	8,928	
	May	744	3,844,743	57.1867%	9,036	72.5360%	6,554	7.719%	12.296%	4,166,343	5,600	7,473	
	Jun	720	4,998,048	49.2189%	14,104	89.6206%	12,640	7.719%	12.296%	5,416,118	7,522	14,412	
	Jul	744	5,798,261	52.6890%	14,791	86.8961%	12,853	7.719%	12.296%	6,283,266	8,445	14,655	
	Aug	744	6,565,939	47.6692%	18,513	85.3239%	15,796	7.719%	12.296%	7,115,158	9,563	18,011	
	Sep	720	4,853,037	43.3443%	15,551	90.1114%	14,013	7.719%	12.296%	5,258,977	7,304	15,978	
	Oct	744	3,786,045	61.0400%	8,337	80.6646%	6,725	7.719%	12.296%	4,102,735	5,514	7,668	
	Nov	720	4,013,931	57.4472%	9,704	76.4209%	7,416	7.719%	12.296%	4,349,683	6,041	8,456	
	Dec	744	5,652,344	63.8272%	11,903	95.3705%	11,352	7.719%	12.296%	6,125,144	8,233	12,944	
			62,087,835				125,613			67,281,276		143,226	
												11,936 Avg	

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

		Class Level At Meter						Class Level At Supply					
Small General Primary Service Non Demand Rate 20	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor 1/	Peak KW	Monthly Coincident Factor 1/	Monthly Coincident KW	Loss Factors: 2/ Energy %	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW	
	Jan	744	-	63.7598%	0	89.2390%	0	6.684%	10.213%	0	0	0	
	Feb	672	-	65.5746%	0	94.0073%	0	6.684%	10.213%	0	0	0	
	Mar	744	-	57.2153%	0	84.6104%	0	6.684%	10.213%	0	0	0	
	Apr	720	-	58.8666%	0	91.8188%	0	6.684%	10.213%	0	0	0	
	May	744	600	52.8971%	2	60.4121%	1	6.684%	10.213%	643	1	1	
	Jun	720	1,800	51.8245%	5	96.2743%	5	6.684%	10.213%	1,929	3	6	
	Jul	744	1,200	52.4473%	3	89.8514%	3	6.684%	10.213%	1,286	2	3	
	Aug	744	600	48.2837%	2	89.0171%	2	6.684%	10.213%	643	1	2	
	Sep	720	-	48.9863%	0	74.5358%	0	6.684%	10.213%	0	0	0	
	Oct	744	1,800	58.1450%	4	90.2703%	4	6.684%	10.213%	1,929	3	4	
	Nov	720	-	64.2656%	0	81.2545%	0	6.684%	10.213%	0	0	0	
	Dec	744	-	63.1231%	0	84.7721%	0	6.684%	10.213%	0	0	0	
			6,000				15			6,430		16	
												1 Avg	

1/ From 2021 Load Study for Rate 20 Secondary Non Demand.

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

Small General Secondary - Demand 20	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books	Monthly Load Factor 1/	Peak KW	Monthly Coincident Factor 1/	Monthly Coincident KW	Loss Factors: 2/		Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
			Monthly kWh					Energy %	Demand %			
Jan	744	1,828,940	63.0208%	3,901	92.4296%	3,606	7.719%	12.296%	1,981,925	2,664	4,112	
Feb	672	1,858,157	64.6312%	4,278	92.3287%	3,950	7.719%	12.296%	2,013,586	2,996	4,504	
Mar	744	1,693,414	61.6393%	3,693	89.4952%	3,305	7.719%	12.296%	1,835,062	2,466	3,768	
Apr	720	1,561,965	57.1435%	3,796	83.7162%	3,178	7.719%	12.296%	1,692,618	2,351	3,624	
May	744	1,569,355	58.0256%	3,635	78.4056%	2,850	7.719%	12.296%	1,700,626	2,286	3,250	
Jun	720	1,968,233	56.7749%	4,815	99.9107%	4,811	7.719%	12.296%	2,132,869	2,962	5,485	
Jul	744	2,133,516	59.6516%	4,807	94.4938%	4,542	7.719%	12.296%	2,311,978	3,107	5,179	
Aug	744	1,970,854	55.6500%	4,760	92.5044%	4,403	7.719%	12.296%	2,135,709	2,871	5,020	
Sep	720	1,617,686	56.5215%	3,975	85.1601%	3,385	7.719%	12.296%	1,753,000	2,435	3,860	
Oct	744	1,609,513	60.4483%	3,579	97.4768%	3,489	7.719%	12.296%	1,744,143	2,344	3,978	
Nov	720	1,679,345	62.5315%	3,730	77.7507%	2,900	7.719%	12.296%	1,819,817	2,528	3,307	
Dec	744	1,925,472	66.2791%	3,905	80.3877%	3,139	7.719%	12.296%	2,086,531	2,804	3,579	
		21,416,450				43,558			23,207,864		49,666	
											4,139 Avg	

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

Small General Secondary - Non-Demand 20	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books	Monthly Load Factor 1/	Peak KW	Monthly Coincident Factor 1/	Monthly Coincident KW	Loss Factors: 2/		Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
			Monthly kWh					Energy %	Demand %			
Jan	744	791,854	63.7598%	1,669	89.2390%	1,489	7.719%	12.296%	858,090	1,153	1,698	
Feb	672	755,860	65.5746%	1,715	94.0073%	1,612	7.719%	12.296%	819,085	1,219	1,838	
Mar	744	777,965	57.2153%	1,828	84.6104%	1,547	7.719%	12.296%	843,039	1,133	1,764	
Apr	720	623,504	58.8666%	1,471	91.8188%	1,351	7.719%	12.296%	675,658	938	1,540	
May	744	531,495	52.8971%	1,350	60.4121%	816	7.719%	12.296%	575,953	774	930	
Jun	720	640,223	51.8245%	1,716	96.2743%	1,652	7.719%	12.296%	693,776	964	1,884	
Jul	744	704,088	52.4473%	1,804	89.8514%	1,621	7.719%	12.296%	762,983	1,026	1,848	
Aug	744	761,157	48.2837%	2,119	89.0171%	1,886	7.719%	12.296%	824,825	1,109	2,150	
Sep	720	621,660	48.9863%	1,763	74.5358%	1,314	7.719%	12.296%	673,660	936	1,498	
Oct	744	512,679	58.1450%	1,185	90.2703%	1,070	7.719%	12.296%	555,563	747	1,220	
Nov	720	532,861	64.2656%	1,152	81.2545%	936	7.719%	12.296%	577,433	802	1,067	
Dec	744	760,209	63.1231%	1,619	84.7721%	1,372	7.719%	12.296%	823,798	1,107	1,564	
		8,013,555				16,666			8,683,863		19,001	
											1,583 Avg	

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

Irrigation Rate 25	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books	Monthly	Peak KW	Monthly	Monthly	Loss Factors: 2/		Energy @	Average	Coincident
			Monthly kWh	Load Factor 1/		Coincident Factor 1/	Coincident KW	Energy %	Demand %	Supply kWh	Demand KW	Demand KW
Jan	744	744	158	70.7885%	0	100.0000%	0	7.719%	12.296%	171	0	0
Feb	672	672	147	72.9167%	0	100.0000%	0	7.719%	12.296%	159	0	0
Mar	744	744	147	65.8602%	0	100.0000%	0	7.719%	12.296%	159	0	0
Apr	720	720	1,480	5.3115%	39	1.2920%	1	7.719%	12.296%	1,604	2	1
May	744	744	8,476	19.5077%	58	54.2808%	31	7.719%	12.296%	9,185	12	35
Jun	720	720	57,064	31.6516%	250	13.1789%	33	7.719%	12.296%	61,837	86	38
Jul	744	744	86,136	39.3388%	294	35.5420%	104	7.719%	12.296%	93,341	125	119
Aug	744	744	87,767	40.2753%	293	33.5951%	98	7.719%	12.296%	95,108	128	112
Sep	720	720	46,168	34.0532%	188	52.8412%	99	7.719%	12.296%	50,030	69	113
Oct	744	744	7,354	12.2788%	80	0.8696%	1	7.719%	12.296%	7,969	11	1
Nov	720	720	430	15.3134%	4	12.8205%	1	7.719%	12.296%	466	1	1
Dec	744	744	363	69.7005%	1	71.4286%	1	7.719%	12.296%	393	1	1
			295,690				369			320,422		421
												35 Avg

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

Small General TOD Secondary Non Demand Rate 26	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books	Monthly	Peak KW	Monthly	Monthly	Loss Factors: 2/		Energy @	Average	Coincident
			Monthly kWh	Load Factor 1/		Coincident Factor 1/	Coincident KW	Energy %	Demand %	Supply kWh	Demand KW	Demand KW
Jan	744	744	8,767	95.8016%	12	95.9350%	12	7.719%	12.296%	9,500	13	14
Feb	672	672	7,932	89.4210%	13	89.3939%	12	7.719%	12.296%	8,595	13	14
Mar	744	744	8,778	96.7081%	12	96.7213%	12	7.719%	12.296%	9,512	13	14
Apr	720	720	8,509	98.4838%	12	98.3333%	12	7.719%	12.296%	9,221	13	14
May	744	744	8,814	96.3152%	12	96.7480%	12	7.719%	12.296%	9,551	13	14
Jun	720	720	8,591	96.2254%	12	95.9677%	12	7.719%	12.296%	9,310	13	14
Jul	744	744	8,888	96.3406%	12	96.7742%	12	7.719%	12.296%	9,631	13	14
Aug	744	744	8,876	97.7878%	12	97.5410%	12	7.719%	12.296%	9,618	13	14
Sep	720	720	8,587	97.7573%	12	98.3607%	12	7.719%	12.296%	9,305	13	14
Oct	744	744	8,860	72.1733%	17	72.1212%	12	7.719%	12.296%	9,601	13	14
Nov	720	720	8,600	93.3160%	13	93.7500%	12	7.719%	12.296%	9,319	13	14
Dec	744	744	8,908	98.1403%	12	97.5410%	12	7.719%	12.296%	9,653	13	14
			104,110				144			112,816		168
												14 Avg

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

		Class Level At Meter						Class Level At Supply				
Large General Secondary Rate 30	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor 1/	Actual Peak KW	Monthly Coincident Factor 1/	Monthly Coincident KW	Loss Factors: 2/ Energy %	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
	Jan	744	2,967,585	54.4330%	7,328	89.7239%	6,575	7.719%	12.296%	3,215,814	4,322	7,497
	Feb	672	2,871,263	60.5663%	7,055	87.0723%	6,143	7.719%	12.296%	3,111,435	4,630	7,004
	Mar	744	2,722,377	53.6888%	6,815	80.8346%	5,509	7.719%	12.296%	2,950,095	3,965	6,281
	Apr	720	2,528,233	56.1515%	6,254	90.8179%	5,680	7.719%	12.296%	2,739,711	3,805	6,476
	May	744	2,536,407	57.0168%	5,979	64.5304%	3,858	7.719%	12.296%	2,748,569	3,694	4,399
	Jun	720	2,809,397	55.5816%	7,020	91.2282%	6,404	7.719%	12.296%	3,044,394	4,228	7,302
	Jul	744	2,965,890	62.4673%	6,382	95.6249%	6,103	7.719%	12.296%	3,213,977	4,320	6,959
	Aug	744	2,968,167	57.7490%	6,908	85.1686%	5,883	7.719%	12.296%	3,216,444	4,323	6,708
	Sep	720	2,708,685	54.0418%	6,961	78.1409%	5,439	7.719%	12.296%	2,935,258	4,077	6,202
	Oct	744	2,987,769	56.9620%	7,050	80.0965%	5,647	7.719%	12.296%	3,237,686	4,352	6,439
	Nov	720	3,132,707	58.6575%	7,418	60.7744%	4,508	7.719%	12.296%	3,394,748	4,715	5,140
	Dec	744	3,031,808	60.2349%	6,765	57.4514%	3,887	7.719%	12.296%	3,285,409	4,416	4,432
			34,230,288		81,935		65,636			37,093,540		74,839
												6,237 Avg

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

		Class Level At Meter						Class Level At Supply				
Municipal Pumping Rate 48	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor 1/	Calculated Peak KW	Monthly Coincident Factor 1/	Monthly Coincident KW	Loss Factors 2/: Energy %	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
	Jan	744	145,702	77.9602%	251	96.8551%	243	7.719%	12.296%	157,889	212	277
	Feb	672	140,401	75.2630%	278	88.9049%	247	7.719%	12.296%	152,145	226	282
	Mar	744	135,903	76.0789%	240	97.8759%	235	7.719%	12.296%	147,271	198	268
	Apr	720	126,861	66.9691%	263	75.1045%	198	7.719%	12.296%	137,473	191	226
	May	744	127,609	74.9312%	229	74.6614%	171	7.719%	12.296%	138,283	186	195
	Jun	720	122,522	67.2341%	253	75.7408%	192	7.719%	12.296%	132,771	184	219
	Jul	744	121,993	69.2437%	237	76.1402%	180	7.719%	12.296%	132,197	178	205
	Aug	744	112,951	67.9874%	223	64.8903%	145	7.719%	12.296%	122,399	165	165
	Sep	720	102,692	69.1026%	206	75.0484%	155	7.719%	12.296%	111,282	155	177
	Oct	744	111,898	68.2089%	220	69.0703%	152	7.719%	12.296%	121,258	163	173
	Nov	720	132,162	73.5410%	250	78.9663%	197	7.719%	12.296%	143,217	199	225
	Dec	744	160,177	72.5865%	297	81.4228%	242	7.719%	12.296%	173,575	233	276
			1,540,871				2,357			1,669,760		2,688
												224 Avg

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

Special Residential Dual Fuel Space Heating Rate 53	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books	Monthly	Hours KW 1/	Monthly	Monthly	Loss Factors 2/:		Energy @	Average	Coincident
			Monthly kWh	Load Factor		Coincident Factor	Coincident KW	Energy %	Demand %	Supply kWh	Demand KW	Demand KW
Jan	744	744	676,070	60.5112%	1,502	81.9271%	1,231	7.719%	12.296%	732,621	985	1,404
Feb	672	672	818,588	55.6252%	2,190	77.5652%	1,699	7.719%	12.296%	887,060	1,320	1,937
Mar	744	744	443,200	47.0313%	1,267	74.2144%	940	7.719%	12.296%	480,272	646	1,072
Apr	720	720	338,090	41.5806%	1,129	71.6462%	809	7.719%	12.296%	366,370	509	922
May	744	744	164,388	33.0964%	668	17.6303%	118	7.719%	12.296%	178,139	239	135
Jun	720	720	78,372	27.8960%	390	45.3614%	177	7.719%	12.296%	84,928	118	202
Jul	744	744	69,690	31.3695%	299	27.9303%	84	7.719%	12.296%	75,519	102	96
Aug	744	744	61,073	37.6720%	218	38.8710%	85	7.719%	12.296%	66,182	89	97
Sep	720	720	64,932	33.0705%	273	53.2087%	145	7.719%	12.296%	70,363	98	165
Oct	744	744	189,843	36.8949%	692	10.1070%	70	7.719%	12.296%	205,723	277	80
Nov	720	720	412,984	42.4252%	1,352	59.1346%	799	7.719%	12.296%	447,529	622	911
Dec	744	744	672,642	55.2621%	1,636	97.5061%	1,595	7.719%	12.296%	728,906	980	1,819
			3,989,872				7,752			4,323,612		8,840
												737 Avg

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

Public Lighting Company Owned Rate 41	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books	Monthly	Hours KW 1/	Monthly	Monthly	Loss Factors 2/:		Energy @	Average	Coincident
			Monthly kWh	Load Factor		Coincident Factor	Coincident KW	Energy %	Demand %	Supply kWh	Demand KW	Demand KW
Jan	744	744	67,922		372		183	7.719%	12.296%	73,603	99	209
Feb	672	672	59,308		336		177	7.719%	12.296%	64,269	96	202
Mar	744	744	64,733		372		174	7.719%	12.296%	70,148	94	198
Apr	720	720	63,427		360		176	7.719%	12.296%	68,732	95	201
May	744	744	57,717		372		155	7.719%	12.296%	62,545	84	177
Jun	720	720	66,757		240		278	7.719%	12.296%	72,341	100	0
Jul	744	744	61,347		248		247	7.719%	12.296%	66,478	89	0
Aug	744	744	63,772		248		257	7.719%	12.296%	69,106	93	0
Sep	720	720	62,653		240		261	7.719%	12.296%	67,894	94	0
Oct	744	744	61,556		372		165	7.719%	12.296%	66,705	90	188
Nov	720	720	50,099		360		139	7.719%	12.296%	54,290	75	158
Dec	744	744	65,433		372		176	7.719%	12.296%	70,906	95	201
			744,724		3,892		2,388			807,017		1,534
												128 Avg
		NCP	186.2									
		Hour is in Year	8,760									
		Load Factor	45.6574%									

1/ Assumptions:

Winter - assuming lights on from 6 pm to 8 am (12 hours)

Summer - assuming lights on from 10 pm to 6 am (8 hours)

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

Public Lighting Municipal Owned Rate 41	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor	Hours KW 1/	Monthly Coincident Factor	Monthly Coincident KW	Loss Factors 2/:	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
Jan	744	50,457		372		136	7.719%	12.296%	54,678	73	155	
Feb	672	37,717		336		112	7.719%	12.296%	40,872	61	128	
Mar	744	37,806		372		102	7.719%	12.296%	40,968	55	116	
Apr	720	33,789		360		94	7.719%	12.296%	36,615	51	107	
May	744	27,972		372		75	7.719%	12.296%	30,312	41	86	
Jun	720	29,959		240		125	7.719%	12.296%	32,465	45	0	
Jul	744	25,675		248		104	7.719%	12.296%	27,823	37	0	
Aug	744	30,325		248		122	7.719%	12.296%	32,862	44	0	
Sep	720	32,220		240		134	7.719%	12.296%	34,915	48	0	
Oct	744	35,410		372		95	7.719%	12.296%	38,372	52	108	
Nov	720	46,143		360		128	7.719%	12.296%	50,003	69	146	
Dec	744	50,387		372		135	7.719%	12.296%	54,602	73	154	
		437,860		3,892		1,362			474,487		1,000	
		NCP	109.5									83 Avg
		Hour is in Year	8,760									
		Load Factor	45.6475%									

1/ Assumptions:

Winter - assuming lights on from 6 pm to 8 am (12 hours)

Summer - assuming lights on from 10 pm to 6 am (8 hours)

2/ 2022 Loss Factor Calculation worksheet.

Space Heating Secondary Rate 32	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor	Actual KW	Monthly Coincident 2/ KW	Monthly Coincident KW	Loss Factors 2/:	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
Jan	744	880,221	54.2479%	2,181	89.8115%	1,959	7.719%	12.296%	953,849	1,282	2,234	
Feb	672	1,125,016	55.6485%	3,008	79.2016%	2,382	7.719%	12.296%	1,219,120	1,814	2,716	
Mar	744	564,714	39.5861%	1,917	82.5701%	1,583	7.719%	12.296%	611,950	823	1,805	
Apr	720	453,252	42.5205%	1,481	91.4218%	1,354	7.719%	12.296%	491,165	682	1,544	
May	744	210,202	34.2959%	824	21.6436%	178	7.719%	12.296%	227,785	306	203	
Jun	720	113,257	64.6533%	243	81.0522%	197	7.719%	12.296%	122,731	170	225	
Jul	744	113,843	55.5408%	275	75.6443%	208	7.719%	12.296%	123,366	166	237	
Aug	744	106,400	62.9172%	227	85.3058%	194	7.719%	12.296%	115,300	155	221	
Sep	720	94,373	53.9620%	243	73.2812%	178	7.719%	12.296%	102,267	142	203	
Oct	744	278,341	28.9966%	1,290	12.5019%	161	7.719%	12.296%	301,623	405	184	
Nov	720	613,881	44.2594%	1,926	56.3071%	1,084	7.719%	12.296%	665,230	924	1,236	
Dec	744	1,038,834	53.1350%	2,628	90.5891%	2,381	7.719%	12.296%	1,125,729	1,513	2,715	
		5,592,334				11,859			6,060,115		13,523	
												1,127 Avg

1/ From 2021 Load Study.

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC
12 COINCIDENT PEAKS
PER BOOKS 2021 KWH**

Outdoor Lighting Rate 24	Class Level At Meter						Class Level At Supply					
	Months	Hours in Month	Per Books Monthly kWh	Monthly Load Factor	Hours KW 1/	Monthly Coincident Factor	Monthly Coincident KW	Loss Factors 2/ Energy %	Demand %	Energy @ Supply kWh	Average Demand KW	Coincident Demand KW
Jan		744	30,928		372		83	7.719%	12.296%	33,515	45	95
Feb		672	48,097		336		143	7.719%	12.296%	52,120	78	163
Mar		744	36,992		372		99	7.719%	12.296%	40,086	54	113
Apr		720	38,227		360		106	7.719%	12.296%	41,425	58	121
May		744	34,329		372		92	7.719%	12.296%	37,201	50	105
Jun		720	38,743		240		161	7.719%	12.296%	41,984	58	0
Jul		744	35,715		248		144	7.719%	12.296%	38,702	52	0
Aug		744	35,979		248		145	7.719%	12.296%	38,989	52	0
Sep		720	33,875		240		141	7.719%	12.296%	36,709	51	0
Oct		744	35,895		372		96	7.719%	12.296%	38,897	52	109
Nov		720	33,294		360		92	7.719%	12.296%	36,079	50	105
Dec		744	36,281		372		98	7.719%	12.296%	39,316	53	112
			438,355		3,892		113			475,023		923
												77 Avg
		NCP	109.6									
		Hour is in Year	8,760									
		Load Factor	45.6574%									

1/ Assumptions:

Winter - assuming lights on from 6 pm to 8 am (12 hours)

Summer - assuming lights on from 10 pm to 6 am (8 hours)

2/ 2022 Loss Factor Calculation worksheet.

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA SYSTEM PEAK
PEAK PER MONTH
2022**

	<u>Day</u>	<u>Hour</u>	<u>KW</u>	
January	5	20	24,349	
February	22	10	24,020	
March	11	10	21,826	
April	12	11	19,079	
May	20	13	15,512	
June	23	19	28,457	
July	18	17	28,814	
August	4	17	27,744	
September	1	16	25,929	
October	24	12	17,341	
November	29	19	22,894	
December	22	19	30,366	
			<hr/> 286,331	12 CP
			23,861	Avg

**MONTANA-DAKOTA UTILITIES CO.
12 CP Allocation Factor
Based on 2021 Load Study**

	Factor 2 12 CP Method	Factor 2 12 CP Scaled	Percentage Allocated to Class
Rate 10	11,936	10,820	45.345962%
Rate 53	737	668	2.799547%
Rate 20 - Primary Non-Demand	1	1	0.004191%
Rate 20 - Secondary Demand	4,139	3,752	15.724404%
Rate 20 - Secondary Non-Demand	1,583	1,435	6.013998%
Rate 26 - TOD Secondary Non-Demand	14	13	0.054482%
Rate 24	77	70	0.293366%
Rate 25	35	32	0.134110%
Rate 30 Secondary	6,237	5,654	23.695570%
Rate 32 Secondary	1,127	1,022	4.283140%
Rate 41 - Company Owned	128	116	0.486149%
Rate 41 - Municipal Owned	83	75	0.314320%
Rate 48	224	203	0.850761%
	<hr/> 26,321	<hr/> 23,861	<hr/> 100.000000%

0.906539 Scale
23,861 SD 12-CP

26,321

26,321
0

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Residential Rate 10 Load Study Results
Twelve Months Ending December 31, 2021**

	January	February	March	April	May	June	July	August	September	October	November	December		
Total Rate 10 Customers	6,487	6,489	6,488	6,485	6,484	6,508	6,502	6,487	6,462	6,456	6,455	6,441	6,479	Average
Strata 1														
Average KWH	234.022	254.193	192.242	173.406	173.222	247.598	302.346	267.174	175.639	188.031	208.867	258.059		
Average Non-Coincident Peak	0.442	0.609	0.428	0.342	0.367	0.755	0.834	0.865	0.498	0.394	0.488	0.543		
Average Coincident Peak	0.340	0.525	0.306	0.276	0.300	0.734	0.691	0.688	0.454	0.290	0.380	0.543		
Total KWH 1/	379,723	412,579	311,979	281,281	280,939	403,051	491,719	433,515	283,892	303,640	337,234	415,756	4,335,308	Total
Total Non-Coincident Peak 1/	717	988	695	555	595	1,229	1,356	1,404	805	636	788	875		
Total Coincident Peak 1/	552	852	497	448	487	1,195	1,124	1,116	734	468	614	875		
Strata 2														
Average KWH	560.714	583.517	464.445	433.531	417.214	683.449	830.439	697.540	469.315	481.197	526.733	635.342		
Average Non-Coincident Peak	1.138	1.321	1.013	0.977	1.016	2.026	2.223	2.191	1.577	1.065	1.311	1.373		
Average Coincident Peak	0.824	1.165	0.792	0.734	0.680	1.862	2.052	1.833	1.443	0.930	1.003	1.266		
Total KWH 1/	909,182	946,448	753,200	702,741	676,188	1,111,780	1,349,646	1,131,041	758,048	776,518	849,869	1,022,883	10,987,544	Total
Total Non-Coincident Peak 1/	1,845	2,143	1,643	1,584	1,647	3,296	3,613	3,553	2,547	1,719	2,115	2,210		
Total Coincident Peak 1/	1,336	1,890	1,284	1,190	1,102	3,029	3,335	2,972	2,331	1,501	1,618	2,038		
Strata 3														
Average KWH	955.720	989.771	805.058	732.511	709.322	1,100.810	1,260.324	1,113.672	743.858	716.800	811.320	1,038.904		
Average Non-Coincident Peak	1.892	2.343	1.588	1.584	1.836	3.343	3.329	3.175	2.379	1.548	1.957	2.201		
Average Coincident Peak	1.354	1.857	1.243	1.165	1.346	2.886	2.782	2.831	2.266	1.377	1.416	1.973		
Total KWH 1/	1,549,672	1,605,380	1,305,579	1,187,379	1,149,613	1,790,710	2,048,304	1,805,787	1,201,496	1,156,716	1,309,042	1,672,607	17,782,285	Total
Total Non-Coincident Peak 1/	3,068	3,800	2,575	2,568	2,976	5,438	5,410	5,148	3,843	2,498	3,158	3,544		
Total Coincident Peak 1/	2,195	3,012	2,016	1,888	2,181	4,695	4,521	4,590	3,660	2,222	2,285	3,176		
Strata 4														
Average KWH	2,070.239	2,276.025	1,582.569	1,373.358	1,182.496	1,557.000	1,770.307	1,619.000	1,160.876	1,273.001	1,610.189	2,215.214		
Average Non-Coincident Peak	3.895	4.889	3.458	3.253	2.615	4.003	4.235	4.194	3.716	2.848	3.877	4.617		
Average Coincident Peak	3.491	4.186	2.560	2.511	1.906	3.594	3.704	3.544	3.199	2.126	3.034	4.548		
Total KWH 1/	3,356,833	3,691,646	2,566,485	2,226,174	1,916,496	2,532,803	2,877,139	2,625,162	1,875,073	2,054,270	2,597,996	3,566,435	31,886,512	Total
Total Non-Coincident Peak 1/	6,316	7,930	5,608	5,273	4,238	6,512	6,883	6,800	6,002	4,596	6,255	7,433		
Total Coincident Peak 1/	5,661	6,790	4,152	4,070	3,089	5,846	6,020	5,746	5,167	3,431	4,895	7,322		
Total														
Total Kwh - 4 Stratas	6,195,410	6,656,053	4,937,243	4,397,575	4,023,236	5,838,344	6,766,808	5,995,505	4,118,509	4,291,144	5,094,141	6,677,681	64,991,649	Total
Kwh Scaled to Per Books	5,918,600	6,358,662	4,716,648	4,201,092	3,843,479	5,577,488	6,464,468	5,727,627	3,934,495	4,099,417	4,866,536	6,379,324	62,087,836	
Total Non-Coincident Peak	11,946	14,861	10,521	9,980	9,456	16,475	17,262	16,905	13,197	9,449	12,316	14,062	17,262	Max
Total Coincident Peak	9,744	12,544	7,949	7,596	6,859	14,765	15,000	14,424	11,892	7,622	9,412	13,411	15,000	Max - System
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8,760	
Load Factor	69.7067%	66.6499%	63.0746%	61.1998%	57.1867%	49.2189%	52.6890%	47.6692%	43.3443%	61.0400%	57.4472%	63.8272%	42.9796%	Non-CP
Coincident Factor	81.5671%	84.4089%	75.5537%	76.1122%	72.5360%	89.6206%	86.8961%	85.3239%	90.1114%	80.6646%	76.4209%	95.3705%	86.8961%	CP
Total Kwh - Rate 10 Actual	6,325,912	5,901,314	5,814,885	4,533,376	3,844,743	4,998,048	5,798,261	6,565,939	4,853,037	3,786,045	4,013,931	5,652,344	62,087,835	

1/ Weighted to reflect the total customers in each tier (not the customers sampled)

	Total Customers	
	in Tiers	% of Total
Tier 1/Strata 1	1,441	25.0130%
Tier 2/Strata 2	1,440	24.9957%
Tier 3/Strata 3	1,440	24.9957%
Tier 4/Strata 4	1,440	24.9957%
	<u>5,761</u>	<u>100.000%</u>

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Residential Service Rate 10 by Strata
Twelve Months Ended December 31, 2021

	(a)	(b)	(c)	(d)		(e)	(f)	(g)	(i)	(j)	(k)	(l)	(m)
				Study Group									
				Sample Count	Energy Kwh								
		Non-CP	Coincident Peak										
1	Strata 1												
2	January	225	52,654.920	99.430	76.450	744	71.1785%	31	234.022	0.442	0.340	71.1642%	
3	February	225	57,193.490	136.990	118.140	672	62.1282%	28	254.193	0.609	0.525	62.1122%	
4	March	225	43,254.400	96.290	68.850	744	60.3776%	31	192.242	0.428	0.306	60.3714%	
5	April	225	39,016.320	76.880	62.090	720	70.4856%	30	173.406	0.342	0.276	70.4215%	
6	May	225	38,974.870	82.590	67.480	744	63.4285%	31	173.222	0.367	0.300	63.4401%	
7	June	225	55,709.530	169.830	165.180	720	45.5599%	30	247.598	0.755	0.734	45.5478%	
8	July	225	68,027.750	187.660	155.460	744	48.7238%	31	302.346	0.834	0.691	48.7265%	
9	August	225	60,114.230	194.680	154.790	744	41.5033%	31	267.174	0.865	0.688	41.5150%	
10	September	225	39,518.750	112.050	102.210	720	48.9845%	30	175.639	0.498	0.454	48.9845%	
11	October	225	42,307.050	88.690	65.140	744	64.1158%	31	188.031	0.394	0.290	64.1446%	
12	November	225	46,995.180	109.720	85.560	720	59.4888%	30	208.867	0.488	0.380	59.4453%	
13	December	225	58,063.180	122.160	122.160	744	63.8850%	31	258.059	0.543	0.543	63.8773%	
14													
15													
16	Strata 2												
17	January	225	126,160.550	256.050	185.510	744	66.2256%	31	560.714	1.138	0.824	66.2256%	
18	February	225	131,291.380	297.220	262.200	672	65.7338%	28	583.517	1.321	1.165	65.7327%	
19	March	225	104,500.120	227.880	178.220	744	61.6365%	31	464.445	1.013	0.792	61.6243%	
20	April	225	97,544.510	219.870	165.240	720	61.6175%	30	433.531	0.977	0.734	61.6301%	
21	May	225	93,873.140	228.700	152.970	744	55.1699%	31	417.214	1.016	0.680	55.1940%	
22	June	225	153,776.070	455.780	419.020	720	46.8599%	30	683.449	2.026	1.862	46.8527%	
23	July	225	186,848.760	500.080	461.780	744	50.2201%	31	830.439	2.223	2.052	50.2106%	
24	August	225	156,946.440	492.920	412.390	744	42.7959%	31	697.540	2.191	1.833	42.7911%	
25	September	225	105,595.890	354.750	324.600	720	41.3421%	30	469.315	1.577	1.443	41.3333%	
26	October	225	108,269.350	239.690	209.270	744	60.7131%	31	481.197	1.065	0.930	60.7296%	
27	November	225	118,514.860	294.970	225.730	720	55.8036%	30	526.733	1.311	1.003	55.8027%	
28	December	225	142,951.920	308.900	284.780	744	62.2013%	31	635.342	1.373	1.266	62.1962%	
29													
30													

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Residential Service Rate 10 by Strata
Twelve Months Ended December 31, 2021

	(a)	(b)	(c)	(d)		(e)	(f)	(g)	(i)	(j)	(k)	(l)	(m)
				Study Group									
				Sample Count	Energy Kwh								
		Non-CP	Coincident Peak										
31	Strata 3												
32	January	233	222,682.650	440.880	315.440	744	67.8880%	31	955.720	1.892	1.354	67.8948%	
33	February	233	230,616.670	546.010	432.730	672	62.8522%	28	989.771	2.343	1.857	62.8627%	
34	March	233	187,578.510	370.080	289.510	744	68.1263%	31	805.058	1.588	1.243	68.1403%	
35	April	233	170,675.170	369.170	271.340	720	64.2113%	30	732.511	1.584	1.165	64.2283%	
36	May	233	165,272.130	427.840	313.640	744	51.9213%	31	709.322	1.836	1.346	51.9275%	
37	June	233	256,488.760	779.000	672.410	720	45.7297%	30	1,100.810	3.343	2.886	45.7345%	
38	July	233	293,655.560	775.590	648.310	744	50.8901%	31	1,260.324	3.329	2.782	50.8857%	
39	August	233	259,485.660	739.860	659.630	744	47.1401%	31	1,113.672	3.175	2.831	47.1455%	
40	September	233	173,318.970	554.250	528.070	720	43.4318%	30	743.858	2.379	2.266	43.4273%	
41	October	233	167,014.450	360.720	320.950	744	62.2316%	31	716.800	1.548	1.377	62.2378%	
42	November	233	189,037.460	456.090	329.880	720	57.5658%	30	811.320	1.957	1.416	57.5796%	
43	December	233	242,064.610	512.780	459.660	744	63.4494%	31	1,038.904	2.201	1.973	63.4428%	
44													
45													
46	Strata 4												
47	January	231	478,225.280	899.660	806.370	744	71.4465%	31	2,070.239	3.895	3.491	71.4398%	
48	February	231	525,761.820	1,129.440	966.940	672	69.2718%	28	2,276.025	4.889	4.186	69.2768%	
49	March	231	365,573.460	798.910	591.290	744	61.5041%	31	1,582.569	3.458	2.560	61.5127%	
50	April	231	317,245.730	751.510	580.040	720	58.6312%	30	1,373.358	3.253	2.511	58.6364%	
51	May	231	273,156.650	603.950	440.320	744	60.7908%	31	1,182.496	2.615	1.906	60.7792%	
52	June	231	359,667.110	924.580	830.220	720	54.0286%	30	1,557.000	4.003	3.594	54.0220%	
53	July	231	408,940.970	978.230	855.590	744	56.1884%	31	1,770.307	4.235	3.704	56.1852%	
54	August	231	373,989.010	968.880	818.720	744	51.8819%	31	1,619.000	4.194	3.544	51.8854%	
55	September	231	268,162.430	858.510	738.900	720	43.3830%	30	1,160.876	3.716	3.199	43.3888%	
56	October	231	294,063.300	657.820	491.080	744	60.0843%	31	1,273.001	2.848	2.126	60.0780%	
57	November	231	371,953.720	895.510	700.800	720	57.6881%	30	1,610.189	3.877	3.034	57.6831%	
58	December	231	511,714.490	1,066.430	1,050.570	744	64.4945%	31	2,215.214	4.617	4.548	64.4886%	
59													
60													

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Residential Service Rate 10 by Strata
Twelve Months Ended December 31, 2021**

	(a)	(b)	(c)	(d) Study Group		(e)	(f)	(g)	(i)	(j)	(k)	(l)	(m)
		Sample Count	Energy Kwh	Peak Demand Kw		Hours	Load Factor		Days in Month	Average Kwh	Non CP Avg KW	CP Avg KW	Average Load Factor
				Non-CP	Coincident Peak								
61	Total												
62	January	914	879,723.400	1,696.020	1,383.770	744	69.7176%		31	962.498	1.856	1.514	69.7026%
63	February	914	944,863.360	2,109.660	1,780.010	672	66.6480%		28	1,033.767	2.308	1.947	66.6527%
64	March	914	700,906.490	1,493.160	1,127.870	744	63.0929%		31	766.856	1.634	1.234	63.0796%
65	April	914	624,481.730	1,417.430	1,078.710	720	61.1907%		30	683.240	1.551	1.180	61.1827%
66	May	914	571,276.790	1,343.080	974.410	744	57.1705%		31	625.029	1.469	1.066	57.1881%
67	June	914	825,641.470	2,329.190	2,086.830	720	49.2327%		30	903.328	2.548	2.283	49.2395%
68	July	914	957,473.040	2,441.560	2,121.140	744	52.7092%		31	1,047.564	2.671	2.321	52.7149%
69	August	914	850,535.340	2,396.340	2,045.530	744	47.7058%		31	930.564	2.622	2.238	47.7024%
70	September	914	586,596.040	1,879.560	1,693.780	720	43.3461%		30	641.790	2.056	1.853	43.3548%
71	October	914	611,654.150	1,346.920	1,086.440	744	61.0367%		31	669.206	1.474	1.189	61.0224%
72	November	914	726,501.220	1,756.290	1,341.970	720	57.4523%		30	794.859	1.922	1.468	57.4386%
73	December	914	954,794.200	2,010.270	1,917.170	744	63.8385%		31	1,044.633	2.199	2.098	63.8507%
			<u>9,234,447.230</u>										

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Small General Secondary Service - Rate 20 Demand
Twelve Months Ended December 31, 2021**

Line		(a)	(b)	(c)		(d)	(e)	(f)	(g)	(h)	(i)	(j) (k) (l) (m)			
		Sample Count	Energy	Total Study Group Peak Demand (Kw)		Hours	Load Factor	Coincidence Factor	2021 System Peak		Results Per Customer in Study Group (Average)				
				Non-Coincident	Coincident				Date	HE	Energy	Non-Coincident	Coincident	Load Factor	
1	January	334	1,273,957.573	2,717.081	2,511.511	744	63.0202%	92.4342%	26-Jan	1000	3,814.24	8.135	7.519	63.0199%	
2	February	334	1,299,056.531	2,990.935	2,761.352	672	64.6326%	92.3240%	12-Feb	1100	3,889.39	8.955	8.268	64.6319%	
3	March	334	1,179,555.601	2,572.131	2,302.093	744	61.6385%	89.5014%	30-Mar	1000	3,531.60	7.701	6.892	61.6384%	
4	April	334	1,086,009.231	2,639.576	2,209.738	720	57.1435%	83.7156%	13-Apr	1000	3,251.52	7.903	6.616	57.1429%	
5	May	334	1,095,141.257	2,536.834	1,989.130	744	58.0237%	78.4099%	18-May	1800	3,278.87	7.595	5.955	58.0261%	
6	June	334	1,365,987.955	3,341.512	3,338.683	720	56.7769%	99.9153%	10-Jun	1600	4,089.78	10.005	9.996	56.7741%	
7	July	334	1,480,694.621	3,336.464	3,152.670	744	59.6494%	94.4914%	19-Jul	1700	4,433.22	9.989	9.439	59.6519%	
8	August	334	1,372,807.144	3,315.576	3,067.189	744	55.6516%	92.5085%	16-Aug	1700	4,110.20	9.927	9.183	55.6509%	
9	September	334	1,122,700.035	2,758.735	2,349.326	720	56.5225%	85.1595%	28-Sep	1800	3,361.38	8.260	7.034	56.5204%	
10	October	334	1,119,068.100	2,488.146	2,425.473	744	60.4516%	97.4811%	5-Oct	1700	3,350.50	7.488	7.262	60.4478%	
11	November	334	1,169,753.441	2,598.179	2,020.027	720	62.5306%	77.7478%	17-Nov	1800	3,502.26	7.779	6.048	62.5305%	
12	December	334	1,343,651.509	2,724.646	2,190.463	744	66.2832%	80.3944%	31-Dec	1900	4,022.91	8.158	6.558	66.2802%	
14	Rate 20 Secondary per Study		<u>14,908,382.998</u>	3,341.512	3,338.683	<u>8,760</u>	50.9311%	99.9153%							

- 16 (a) = Count of data points by hour, for large data sets - sum by hour and average the data points for each month
- 17 (b)= Sum of hourly data by month
- 18 (c)= Maximum use for the sample group by month
- 19 (d)= Use for the group at the time of the system peak
- 20 (e)= Hours in the month
- 21 (f)= Total use (energy) / (Group peak use (non-coincident) * number of hours).
- 22 (g)= Coincident peak / Non-coincident peak

Month	Actual Customers	Calculated Based on Load Study				
		Energy	Peak Demand (Kw) Non-Coincident	Coincident	Hours	
28	January	547	2,086,389	4,449.8	4,112.9	744
29	February	545	2,119,718	4,880.5	4,506.1	672
30	March	547	1,931,785	4,212.4	3,769.9	744
31	April	548	1,781,833	4,330.8	3,625.6	720
32	May	546	1,790,263	4,146.9	3,251.4	744
33	June	549	2,245,289	5,492.7	5,487.8	720
34	July	549	2,433,838	5,484.0	5,182.0	744
35	August	547	2,248,279	5,430.1	5,023.1	744
36	September	549	1,845,398	4,534.7	3,861.7	720
37	October	548	1,836,074	4,082.6	3,979.6	744
38	November	547	1,915,736	4,255.1	3,308.3	720
39	December	546	2,196,509	4,454.3	3,580.7	744
41	Rate 20 Secondary Demand		<u>24,431,111</u>	5,492.7	5,487.8	<u>8,760</u>

Billed Energy	Adjusted Data Peak Demand (Kw)		Load Factor	Coincidence Factor	
	Non-Coincident	Coincident			
28	1,828,940	3,900.7	3,605.4	63.0208%	92.4296%
29	1,858,157	4,278.3	3,950.1	64.6312%	92.3287%
30	1,693,414	3,692.6	3,304.7	61.6393%	89.4952%
31	1,561,965	3,796.4	3,178.2	57.1435%	83.7162%
32	1,569,355	3,635.2	2,850.2	58.0256%	78.4056%
33	1,968,233	4,814.9	4,810.6	56.7749%	99.9107%
34	2,133,516	4,807.3	4,542.6	59.6516%	94.4938%
35	1,970,854	4,760.1	4,403.3	55.6500%	92.5044%
36	1,617,686	3,975.1	3,385.2	56.5215%	85.1601%
37	1,609,513	3,578.8	3,488.5	60.4483%	97.4768%
38	1,679,345	3,730.0	2,900.1	62.5315%	77.7507%
39	1,925,472	3,904.7	3,138.9	66.2791%	80.3877%
41	<u>21,416,450</u>	4,814.9	4,810.6	50.7757%	99.9107%

44	Total Billed Energy	21,416,450							Adjusted Data:					
45	Adjustment Factor	87.660565%							12 CP	3,629.8				
46									Non-Coincident Peak	4,814.9				
									Coincident Peak	4,810.6	SD 2021 Peak occurred on Aug 16 - HE1700			

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Small General Secondary Service Rate 20 Non Demand by Strata
Twelve Months Ending December 31, 2021

	January	February	March	April	May	June	July	August	September	October	November	December		
Total Rate 20 Sec Customers	1,433	1,431	1,427	1,432	1,442	1,457	1,462	1,460	1,450	1,448	1,446	1,433	1,443	Average
Strata 1														
Average KWH	27.724	28.933	19.645	19.369	18.475	22.167	19.890	20.065	18.709	19.086	23.461	30.265		
Average Non-Coincident Peak	0.097	0.084	0.061	0.160	0.148	0.103	0.065	0.129	0.127	0.119	0.069	0.093		
Average Coincident Peak	0.033	0.046	0.024	0.032	0.026	0.043	0.030	0.025	0.023	0.050	0.037	0.053		
Total KWH 1/	9,984	10,404	7,045	6,970	6,695	8,116	7,308	7,362	6,817	6,945	8,525	10,899	97,070	Total
Total Non-Coincident Peak 1/	35	30	22	58	54	38	24	47	46	43	25	33		
Total Coincident Peak 1/	12	17	9	12	9	16	11	9	8	18	13	19		
Strata 2														
Average KWH	170.100	187.235	124.629	113.899	103.873	116.130	110.152	121.723	103.179	112.161	110.994	179.435		
Average Non-Coincident Peak	0.384	0.449	0.276	0.269	0.242	0.286	0.269	0.287	0.313	0.277	0.298	0.443		
Average Coincident Peak	0.273	0.385	0.247	0.216	0.113	0.226	0.222	0.199	0.199	0.153	0.178	0.421		
Total KWH 1/	60,712	66,735	44,297	40,625	37,307	42,144	40,111	44,264	37,264	40,452	39,976	64,044	557,931	Total
Total Non-Coincident Peak 1/	137	160	98	96	87	104	98	104	113	100	107	158		
Total Coincident Peak 1/	97	137	88	77	41	82	81	72	72	55	64	150		
Strata 3														
Average KWH	483.092	526.153	391.463	329.343	315.035	418.634	467.784	444.275	325.782	346.949	384.096	537.947		
Average Non-Coincident Peak	1.031	1.247	0.930	0.790	0.766	1.157	1.359	1.265	0.865	0.747	0.820	1.149		
Average Coincident Peak	0.929	1.135	0.776	0.736	0.489	1.088	1.111	1.134	0.612	0.650	0.746	1.010		
Total KWH 1/	172,940	188,092	139,551	117,818	113,486	152,375	170,849	162,040	118,009	125,503	138,748	192,577	1,791,988	Total
Total Non-Coincident Peak 1/	369	446	332	283	276	421	496	461	313	270	296	411		
Total Coincident Peak 1/	333	406	277	263	176	396	406	414	222	235	269	362		
Strata 4														
Average KWH	1,548.276	1,623.557	1,303.438	1,159.582	1,047.520	1,341.867	1,486.809	1,378.115	1,020.850	1,070.722	1,278.778	1,699.376		
Average Non-Coincident Peak	3.187	3.588	3.051	2.604	2.614	3.542	3.651	3.789	2.859	2.438	2.699	3.528		
Average Coincident Peak	2.958	3.481	2.605	2.529	1.651	3.542	3.435	3.510	2.268	2.380	2.199	2.934		
Total KWH 1/	554,259	580,398	464,657	414,823	377,352	488,413	543,027	502,640	369,784	387,315	461,936	608,351	5,752,955	Total
Total Non-Coincident Peak 1/	1,141	1,283	1,088	932	942	1,289	1,333	1,382	1,036	882	975	1,263		
Total Coincident Peak 1/	1,059	1,244	929	905	595	1,289	1,255	1,280	822	861	794	1,050		
Total														
Total Kwh - 4 Stratas	797,895	845,629	655,550	580,236	534,840	691,048	761,295	716,306	531,874	560,215	649,185	875,871	8,199,944	Total
Kwh Scaled to Per Books	779,758	826,407	640,649	567,047	522,683	675,340	743,990	700,024	519,784	547,481	634,429	855,962	8,013,554	
Total Non-Coincident Peak	1,682	1,919	1,540	1,369	1,359	1,852	1,951	1,994	1,508	1,295	1,403	1,865	1,994	Max
Total Coincident Peak	1,501	1,804	1,303	1,257	821	1,783	1,753	1,775	1,124	1,169	1,140	1,581	1,804	Max - System
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8,760	
Load Factor	63.7598%	65.5746%	57.2153%	58.8666%	52.8971%	51.8245%	52.4473%	48.2837%	48.9863%	58.1450%	64.2656%	63.1231%	46.9442%	Non-CP
Coincident Factor	89.2390%	94.0073%	84.6104%	91.8188%	60.4121%	96.2743%	89.8514%	89.0171%	74.5358%	90.2703%	81.2545%	84.7721%	90.4714%	CP
Total Kwh - Rate 20 Sec Actual	791,854	755,860	777,965	623,504	531,495	640,223	704,088	761,157	621,660	512,679	532,861	760,209	8,013,555	

1/ Weighted to reflect the total customers in each tier (not the customers sampled)

	Total Customers	
	in Tiers	% of Total
Tier 1/Strata 1	339	25.1297%
Tier 2/Strata 2	336	24.9073%
Tier 3/Strata 3	337	24.9815%
Tier 4/Strata 4	337	24.9815%
	<u>1,349</u>	<u>100.000%</u>

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Small General Secondary Service Rate 20 Non Demand by Strata
Twelve Months Ended December 31, 2021

	(a)	(b)	(c)	(d)		(e)	(f)	(g)	(i)	(j)	(k)	(l)	(m)
				Study Group									
				Sample Count	Energy Kwh								
		Non-CP	Coincident Peak										
1	Strata 1												
2	January	120	3,326.925	11.604	3.928	744	38.5356%	31	27.724	0.097	0.033	38.4159%	
3	February	120	3,471.913	10.107	5.537	672	51.1184%	28	28.933	0.084	0.046	51.2560%	
4	March	120	2,357.361	7.272	2.858	744	43.5712%	31	19.645	0.061	0.024	43.2862%	
5	April	120	2,324.331	19.214	3.891	720	16.8015%	30	19.369	0.160	0.032	16.8134%	
6	May	120	2,217.009	17.747	3.174	744	16.7907%	31	18.475	0.148	0.026	16.7784%	
7	June	120	2,660.057	12.313	5.201	720	30.0051%	30	22.167	0.103	0.043	29.8908%	
8	July	120	2,386.779	7.830	3.651	744	40.9711%	31	19.890	0.065	0.030	41.1290%	
9	August	120	2,407.846	15.427	2.986	744	20.9785%	31	20.065	0.129	0.025	20.9063%	
10	September	120	2,245.031	15.185	2.816	720	20.5341%	30	18.709	0.127	0.023	20.4604%	
11	October	120	2,290.368	14.301	5.943	744	21.5261%	31	19.086	0.119	0.050	21.5573%	
12	November	120	2,815.267	8.244	4.413	720	47.4296%	30	23.461	0.069	0.037	47.2242%	
13	December	120	3,631.839	11.144	6.392	744	43.8039%	31	30.265	0.093	0.053	43.7406%	
14													
15													
16	Strata 2												
17	January	122	20,752.166	46.901	33.280	744	59.4714%	31	170.100	0.384	0.273	59.5388%	
18	February	122	22,842.691	54.736	46.995	672	62.1019%	28	187.235	0.449	0.385	62.0542%	
19	March	122	15,204.697	33.640	30.079	744	60.7504%	31	124.629	0.276	0.247	60.6928%	
20	April	122	13,895.639	32.867	26.364	720	58.7200%	30	113.899	0.269	0.216	58.8078%	
21	May	122	12,672.534	29.489	13.838	744	57.7604%	31	103.873	0.242	0.113	57.6918%	
22	June	122	14,167.913	34.895	27.517	720	56.3911%	30	116.130	0.286	0.226	56.3957%	
23	July	122	13,438.599	32.866	27.080	744	54.9584%	31	110.152	0.269	0.222	55.0386%	
24	August	122	14,850.262	35.011	24.291	744	57.0107%	31	121.723	0.287	0.199	57.0056%	
25	September	122	12,587.778	38.154	24.300	720	45.8223%	30	103.179	0.313	0.199	45.7841%	
26	October	122	13,683.602	33.753	18.607	744	54.4898%	31	112.161	0.277	0.153	54.4238%	
27	November	122	13,541.245	36.328	21.679	720	51.7708%	30	110.994	0.298	0.178	51.7310%	
28	December	122	21,891.037	54.006	51.367	744	54.4818%	31	179.435	0.443	0.421	54.4416%	
29													
30													

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Small General Secondary Service Rate 20 Non Demand by Strata
Twelve Months Ended December 31, 2021

	(a)	(b)	(c)	(d)		(e)	(f)	(g)	(i)	(j)	(k)	(l)	(m)
				Study Group									
				Sample Count	Energy Kwh								
		Non-CP	Coincident Peak										
31	Strata 3												
32	January	132	63,768.095	136.133	122.661	744	62.9603%	31	483.092	1.031	0.929	62.9794%	
33	February	132	69,452.133	164.599	149.830	672	62.7898%	28	526.153	1.247	1.135	62.7880%	
34	March	132	51,673.123	122.792	102.399	744	56.5616%	31	391.463	0.930	0.776	56.5763%	
35	April	132	43,473.310	104.234	97.121	720	57.9270%	30	329.343	0.790	0.736	57.9014%	
36	May	132	41,584.649	101.108	64.573	744	55.2808%	31	315.035	0.766	0.489	55.2786%	
37	June	132	55,259.627	152.681	143.565	720	50.2679%	30	418.634	1.157	1.088	50.2538%	
38	July	132	61,747.529	179.328	146.601	744	46.2806%	31	467.784	1.359	1.111	46.2650%	
39	August	132	58,644.363	166.993	149.639	744	47.2014%	31	444.275	1.265	1.134	47.2050%	
40	September	132	43,003.181	114.121	80.832	720	52.3362%	30	325.782	0.865	0.612	52.3092%	
41	October	132	45,797.309	98.665	85.768	744	62.3884%	31	346.949	0.747	0.650	62.4269%	
42	November	132	50,700.685	108.224	98.510	720	65.0665%	30	384.096	0.820	0.746	65.0569%	
43	December	132	71,008.950	151.727	133.318	744	62.9039%	31	537.947	1.149	1.010	62.9284%	
44													
45													
46	Strata 4												
47	January	136	210,565.528	433.445	402.283	744	65.2951%	31	1,548.276	3.187	2.958	65.2970%	
48	February	136	220,803.702	488.011	473.453	672	67.3298%	28	1,623.557	3.588	3.481	67.3358%	
49	March	136	177,267.507	414.883	354.294	744	57.4289%	31	1,303.438	3.051	2.605	57.4216%	
50	April	136	157,703.137	354.188	343.885	720	61.8406%	30	1,159.582	2.604	2.529	61.8483%	
51	May	136	142,462.689	355.443	224.596	744	53.8714%	31	1,047.520	2.614	1.651	53.8622%	
52	June	136	182,493.849	481.743	481.743	720	52.6139%	30	1,341.867	3.542	3.542	52.6173%	
53	July	136	202,206.056	496.526	467.103	744	54.7368%	31	1,486.809	3.651	3.435	54.7357%	
54	August	136	187,423.650	515.293	477.339	744	48.8874%	31	1,378.115	3.789	3.510	48.8864%	
55	September	136	138,835.559	388.886	308.513	720	49.5845%	30	1,020.850	2.859	2.268	49.5924%	
56	October	136	145,618.150	331.589	323.712	744	59.0259%	31	1,070.722	2.438	2.380	59.0296%	
57	November	136	173,913.861	367.025	299.057	720	65.8121%	30	1,278.778	2.699	2.199	65.8051%	
58	December	136	231,115.113	479.757	399.070	744	64.7492%	31	1,699.376	3.528	2.934	64.7423%	
59													
60													

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Small General Secondary Service Rate 20 Non Demand by Strata
Twelve Months Ended December 31, 2021

	(a)	(b)	(c)	(d)		(e)	(f)	(g)	(i)	(j)	(k)	(l)	(m)
				Study Group									
				Sample Count	Energy Kwh								
61	Total												
62	January	510	298,412.714	628.083	562.152	744	63.8598%	31	585.123	1.232	1.102	63.8357%	
63	February	510	316,570.439	717.453	675.815	672	65.6610%	28	620.726	1.407	1.325	65.6503%	
64	March	510	246,502.688	578.587	489.630	744	57.2638%	31	483.339	1.134	0.960	57.2883%	
65	April	510	217,396.417	510.503	471.261	720	59.1455%	30	426.267	1.001	0.924	59.1446%	
66	May	510	198,936.881	503.787	306.181	744	53.0757%	31	390.072	0.988	0.600	53.0658%	
67	June	510	254,581.446	681.632	658.026	720	51.8733%	30	499.179	1.337	1.290	51.8552%	
68	July	510	279,778.963	716.550	644.435	744	52.4802%	31	548.586	1.405	1.264	52.4802%	
69	August	510	263,326.121	732.724	654.255	744	48.3037%	31	516.326	1.437	1.283	48.2941%	
70	September	510	196,671.549	556.346	416.461	720	49.0980%	30	385.630	1.091	0.817	49.0923%	
71	October	510	207,389.429	478.308	434.030	744	58.2782%	31	406.646	0.938	0.851	58.2694%	
72	November	510	240,971.058	519.821	423.659	720	64.3841%	30	472.492	1.019	0.831	64.4003%	
73	December	510	327,646.939	696.634	590.147	744	63.2162%	31	642.445	1.366	1.157	63.2139%	
			<u>3,048,184.644</u>										

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Irrigation Power Service Rate 25 Load Study
Twelve Months Ended December 31, 2021**

Line		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	
		Total Study Group							Results Per Customer in Study Group (Average)						
		Sample Count	Energy	Peak Demand (Kw)		Hours	Load Factor	Coincident Factor	2021 System Peak		Peak Demand (Kw)			Load Factor	
			Non-Coincident	Coincident				Date	HE	Energy	Non-Coincident	Coincident			
1	January	4	80.838	0.121	0.115	744	89.7961%	95.0413%	26-Jan	1000	20.21	0.030	0.029	90.5466%	
2	February	4	75.537	0.130	0.116	672	86.4663%	89.2308%	12-Feb	1100	18.88	0.033	0.029	85.1371%	
3	March	4	75.159	0.124	0.110	744	81.4679%	88.7097%	30-Mar	1000	18.79	0.031	0.028	81.4690%	
4	April	4	757.196	19.775	0.282	720	5.3181%	1.4260%	13-Apr	1000	189.30	4.944	0.071	5.3179%	
5	May	4	3,252.868	22.403	12.137	744	19.5158%	54.1758%	18-May	1800	813.22	5.601	3.034	19.5150%	
6	June	4	21,900.407	96.114	12.628	720	31.6470%	13.1386%	10-Jun	1600	5,475.10	24.029	3.157	31.6464%	
7	July	4	29,384.966	100.381	35.686	744	39.3460%	35.5506%	19-Jul	1700	7,346.24	25.095	8.922	39.3464%	
8	August	4	29,941.291	99.906	33.541	744	40.2815%	33.5726%	16-Aug	1700	7,485.32	24.977	8.385	40.2807%	
9	September	4	15,750.304	64.237	33.955	720	34.0542%	52.8589%	28-Sep	1800	3,937.58	16.059	8.489	34.0548%	
10	October	4	2,822.454	30.903	0.238	744	12.2759%	0.7702%	5-Oct	1700	705.61	7.726	0.060	12.2754%	
11	November	4	188.762	1.703	0.235	720	15.3946%	13.7992%	17-Nov	1800	47.19	0.426	0.059	15.3854%	
12	December	4	185.884	0.349	0.257	744	71.5886%	73.6390%	31-Dec	1900	46.47	0.087	0.064	71.7927%	
13															
14	Rate 25 per Study		<u>104,415,666</u>	100.381	35.686	<u>8,760</u>	11.8744%	35.5506%							

- 16 (a) = Count of data points by hour, for large data sets - sum by hour and average the data points for each month
- 17 (b)= Sum of hourly data by month
- 18 (c)= Maximum use for the sample group by month
- 19 (d)= Use for the group at the time of the system peak
- 20 (e)= Hours in the month
- 21 (f)= Total use (energy) / (Group peak use (non-coincident) * number of hours).
- 22 (g)= Coincident peak / Non-coincident peak

Month	Actual Customers	Calculated Based on Load Study				Adjusted Data					
		Energy	Non-Coincident	Coincident	Hours	Billed Energy	Peak Demand (Kw)		Load Factor	Coincident Factor	
						Non-Coincident	Coincident				
28	January	6	121	0.2	0.2	744	158	0.3	0.3	70.7885%	100.0000%
29	February	6	113	0.2	0.2	672	147	0.3	0.3	72.9167%	100.0000%
30	March	6	113	0.2	0.2	744	147	0.3	0.3	65.8602%	100.0000%
31	April	6	1,136	29.7	0.4	720	1,480	38.7	0.5	5.3115%	1.2920%
32	May	8	6,506	44.8	24.3	744	8,476	58.4	31.7	19.5077%	54.2808%
33	June	8	43,801	192.2	25.3	720	57,064	250.4	33.0	31.6516%	13.1789%
34	July	9	66,116	225.9	80.3	744	86,136	294.3	104.6	39.3388%	35.5420%
35	August	9	67,368	224.8	75.5	744	87,767	292.9	98.4	40.2753%	33.5951%
36	September	9	35,438	144.5	76.4	720	46,168	188.3	99.5	34.0532%	52.8412%
37	October	8	5,645	61.8	0.5	744	7,354	80.5	0.7	12.2788%	0.8696%
38	November	7	330	3.0	0.4	720	430	3.9	0.5	15.3134%	12.8205%
39	December	6	279	0.5	0.4	744	363	0.7	0.5	69.7005%	71.4286%
40											
41	Rate 25		<u>226,966</u>	225.9	80.3	<u>8,760</u>	<u>295,690</u>	294.3	104.6	11.4694%	35.5420%

44 Total Billed Energy 295,690
 45 Adjustment Factor 130.279425%
 46 Adjusted Data:
 12 CP 30.9
 Non-Coincident Peak 294.3
 Coincident Peak 104.6 SD 2021 Peak occurred on Aug 16 - HE1700

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Small General TOD Secondary Non Demand Service Rate 26 Load Study
Twelve Months Ended December 31, 2021**

Line	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	
	Total Study Group							Results Per Customer in Study Group (Average)						
	Sample Count	Energy	Peak Demand (Kw)		Hours	Load Factor	Coincident Factor	2021 System Peak		Energy	Peak Demand (Kw)		Load Factor	
			Non-Coincident	Coincident				Date	HE		Non-Coincident	Coincident		
1	January	20	7,755.894	10.852	10.451	744	96.0615%	96.3048%	26-Jan	1000	387.79	0.543	0.523	95.9895%
2	February	20	7,016.214	11.667	10.424	672	89.4900%	89.3460%	12-Feb	1100	350.81	0.583	0.521	89.5435%
3	March	20	7,765.219	10.793	10.457	744	96.7027%	96.8869%	30-Mar	1000	388.26	0.540	0.523	96.6398%
4	April	20	7,526.784	10.619	10.431	720	98.4449%	98.2296%	13-Apr	1000	376.34	0.531	0.522	98.4359%
5	May	20	7,797.340	10.836	10.476	744	96.7174%	96.6777%	18-May	1800	389.87	0.542	0.524	96.6824%
6	June	20	7,600.129	10.921	10.549	720	96.6554%	96.5937%	10-Jun	1600	380.01	0.546	0.527	96.6651%
7	July	20	7,862.983	10.957	10.587	744	96.4546%	96.6232%	19-Jul	1700	393.15	0.548	0.529	96.4284%
8	August	20	7,852.229	10.788	10.556	744	97.8316%	97.8495%	16-Aug	1700	392.61	0.539	0.528	97.9038%
9	September	20	7,596.600	10.786	10.600	720	97.8197%	98.2755%	28-Sep	1800	379.83	0.539	0.530	97.8741%
10	October	20	7,837.478	14.594	10.567	744	72.1820%	72.4065%	5-Oct	1700	391.87	0.730	0.528	72.1516%
11	November	20	7,608.289	11.296	10.579	720	93.5470%	93.6526%	17-Nov	1800	380.41	0.565	0.529	93.5128%
12	December	20	7,879.846	10.740	10.557	744	98.6144%	98.2961%	31-Dec	1900	393.99	0.537	0.528	98.6139%
13														
14	Rate 26 Secondary per Study		<u>92,099.005</u>	14.594	10.600	<u>8,760</u>	72.0405%	72.6326%						

- 16 (a) = Count of data points by hour, for large data sets - sum by hour and average the data points for each month
- 17 (b)= Sum of hourly data by month
- 18 (c)= Maximum use for the sample group by month
- 19 (d)= Use for the group at the time of the system peak
- 20 (e)= Hours in the month
- 21 (f)= Total use (energy) / (Group peak use (non-coincident) * number of hours).
- 22 (g)= Coincident peak / Non-coincident peak

Month	Actual Customers	Calculated Based on Load Study				Adjusted Data								
		Energy	Non-Coincident	Coincident	Hours	Billed Energy	Peak Demand (Kw)		Load Factor	Coincident Factor				
						Non-Coincident	Coincident							
28	January	23	8,919	12.5	12.0	744	8,767	12.3	11.8	95.8016%	95.9350%			
29	February	23	8,069	13.4	12.0	672	7,932	13.2	11.8	89.4210%	89.3939%			
30	March	23	8,930	12.4	12.0	744	8,778	12.2	11.8	96.7081%	96.7213%			
31	April	23	8,656	12.2	12.0	720	8,509	12.0	11.8	98.4838%	98.3333%			
32	May	23	8,967	12.5	12.1	744	8,814	12.3	11.9	96.3152%	96.7480%			
33	June	23	8,740	12.6	12.1	720	8,591	12.4	11.9	96.2254%	95.9677%			
34	July	23	9,042	12.6	12.2	744	8,888	12.4	12.0	96.3406%	96.7742%			
35	August	23	9,030	12.4	12.1	744	8,876	12.2	11.9	97.7878%	97.5410%			
36	September	23	8,736	12.4	12.2	720	8,587	12.2	12.0	97.7573%	98.3607%			
37	October	23	9,013	16.8	12.1	744	8,860	16.5	11.9	72.1733%	72.1212%			
38	November	23	8,749	13.0	12.2	720	8,600	12.8	12.0	93.3160%	93.7500%			
39	December	23	9,062	12.4	12.1	744	8,908	12.2	11.9	98.1403%	97.5410%			
40														
41	Rate 26 Secondary		<u>105,913</u>	16.8	12.2	<u>8,760</u>	<u>104,110</u>	16.5	12.0	72.0285%	72.7273%			
42														
43														
44	Total Billed Energy		104,110							11.9				
45	Adjustment Factor		98.297659%							16.5				
46										12.0				SD 2021 Peak occurred on Aug 16 - HE1700

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Large General Secondary Service Rate 30
Twelve Months Ended December 31, 2021**

Line		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	
		Total Study Group							Results Per Customer in Study Group (Average)						
		Sample Count	Energy	Peak Demand (Kw)		Hours	Load Factor	Coincident Factor	2021 System Peak		Energy	Peak Demand (Kw)		Load Factor	
		Non-Coincident	Coincident				Date	HE		Non-Coincident	Coincident				
1	January	71	1,676,626.616	4,140.000	3,714.612	744	54.4331%	89.7249%	26-Jan	1000	23,614.46	58.310	52.318	54.4330%	
2	February	71	1,622,206.382	3,985.629	3,470.444	672	60.5675%	87.0739%	12-Feb	1100	22,847.98	56.136	48.879	60.5671%	
3	March	71	1,577,192.768	3,948.471	3,191.705	744	53.6887%	80.8339%	30-Mar	1000	22,213.98	55.612	44.954	53.6890%	
4	April	71	1,477,236.202	3,653.886	3,318.381	720	56.1516%	90.8179%	13-Apr	1000	20,806.14	51.463	46.738	56.1518%	
5	May	71	1,482,011.115	3,493.641	2,254.456	744	57.0165%	64.5303%	18-May	1800	20,873.40	49.206	31.753	57.0167%	
6	June	71	1,641,518.644	4,101.873	3,742.054	720	55.5816%	91.2279%	10-Jun	1600	23,119.98	57.773	52.705	55.5815%	
7	July	71	1,732,957.617	3,728.676	3,565.587	744	62.4684%	95.6261%	19-Jul	1700	24,407.85	52.517	50.220	62.4679%	
8	August	71	1,734,286.825	4,036.523	3,437.813	744	57.7485%	85.1677%	16-Aug	1700	24,426.58	56.852	48.420	57.7489%	
9	September	71	1,582,673.229	4,067.488	3,178.386	720	54.0421%	78.1413%	28-Sep	1800	22,291.17	57.289	44.766	54.0417%	
10	October	71	1,745,741.098	4,119.266	3,299.355	744	56.9622%	80.0957%	5-Oct	1700	24,587.90	58.018	46.470	56.9621%	
11	November	71	1,799,663.783	4,261.279	2,589.734	720	58.6569%	60.7736%	17-Nov	1800	25,347.38	60.018	36.475	58.6569%	
12	December	71	1,741,699.425	3,886.465	2,232.806	744	60.2345%	57.4508%	31-Dec	1900	24,530.98	54.739	31.448	60.2345%	
13															
14	Rate 30 Secondary per Study		<u>19,813,813.704</u>	4,261.279	3,742.054	<u>8,760</u>	53.0792%	87.8153%							

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- 19 (d) = Use for the group at the time of the system peak
- 20 (e) = Hours in the month
- 21 (f) = Total use (energy) / (Group peak use (non-coincident) * number of hours).
- 22 (g) = Coincident peak / Non-coincident peak

Month	Actual Customers	Energy	Calculated Based on Load Study		Hours	Adjusted Data								
			Peak Demand (Kw)	Non-Coincident		Coincident	Billed Energy	Peak Demand (Kw)	Coincident	Load Factor	Coincident Factor			
						Non-Coincident	Coincident							
28	January	121	2,857,350	7,055.5	6,330.5	744			2,967,585	7,327.7	6,574.7	54.4330%	89.7239%	
29	February	121	2,764,606	6,792.5	5,914.4	672			2,871,263	7,054.6	6,142.6	60.5663%	87.0723%	
30	March	118	2,621,250	6,562.2	5,304.6	744			2,722,377	6,815.4	5,509.2	53.6888%	80.8346%	
31	April	117	2,434,318	6,021.2	5,468.3	720			2,528,233	6,253.5	5,679.3	56.1515%	90.8179%	
32	May	117	2,442,188	5,757.1	3,715.1	744			2,536,407	5,979.2	3,858.4	57.0168%	64.5304%	
33	June	117	2,705,038	6,759.4	6,166.5	720			2,809,397	7,020.2	6,404.4	55.5816%	91.2282%	
34	July	117	2,855,718	6,144.5	5,875.7	744			2,965,890	6,381.6	6,102.4	62.4673%	95.6249%	
35	August	117	2,857,910	6,651.7	5,665.1	744			2,968,167	6,908.3	5,883.7	57.7490%	85.1686%	
36	September	117	2,608,067	6,702.8	5,237.6	720			2,708,685	6,961.4	5,439.7	54.0418%	78.1409%	
37	October	117	2,876,784	6,788.1	5,437.0	744			2,987,769	7,050.0	5,646.8	56.9620%	80.0965%	
38	November	119	3,016,338	7,142.1	4,340.5	720			3,132,707	7,417.6	4,508.0	58.6575%	60.7744%	
39	December	119	2,919,187	6,513.9	3,742.3	744			3,031,808	6,765.2	3,886.7	60.2349%	57.4514%	
40														
41	Rate 30 Secondary		<u>32,958,754</u>	7,142.1	6,330.5	<u>8,760</u>			<u>34,230,288</u>	7,417.6	6,574.7	52.6797%	88.6365%	
42														
43														
44	Total Billed Energy		34,230,289						Adjusted Data:		5,469.7			
45	Adjustment Factor		103.857958%						12 CP		7,417.6			
46									Non-Coincident Peak		6,574.7			
									Coincident Peak					SD 2021 Peak occurred on Aug 16 - HE1700

Montana-Dakota Utilities Co.
Electric Utility - South Dakota
General Space Heating Secondary Rate 32 Load Study
Twelve Months Ended December 31, 2021

Line	(a)	(b)	(c)				(e)	(f)	(g)	(h)	(i)	(j)				(l)	(m)								
			Total Study Group												Results Per Customer in Study Group (Average)										
			Sample Count	Energy	Peak Demand (Kw)							Hours	Load Factor	Coincident Factor	2021 System Peak			Energy	Peak Demand (Kw)		Load Factor				
Non-Coincident	Coincident	Date			HE	Non-Coincident	Coincident																		
1	January	85	597,401.396	1,480.207	1,329.309	744	54.2464%	89.8056%	26-Jan	1000	7,028.25	17.414	15.639	54.2470%											
2	February	85	763,542.442	2,041.783	1,617.084	672	55.6486%	79.1996%	12-Feb	1100	8,982.85	24.021	19.025	55.6485%											
3	March	85	383,268.600	1,301.340	1,074.520	744	39.5858%	82.5703%	30-Mar	1000	4,509.04	15.310	12.641	39.5855%											
4	April	85	307,619.438	1,004.783	918.596	720	42.5215%	91.4223%	13-Apr	1000	3,619.05	11.821	10.807	42.5214%											
5	May	85	143,601.584	562.781	121.822	744	34.2963%	21.6464%	18-May	1800	1,689.43	6.621	1.433	34.2960%											
6	June	85	76,368.664	164.017	132.943	720	64.6687%	81.0544%	10-Jun	1600	898.45	1.930	1.564	64.6553%											
7	July	85	76,762.399	185.814	140.516	744	55.5261%	75.6219%	19-Jul	1700	903.09	2.186	1.653	55.5275%											
8	August	85	71,744.523	153.252	130.757	744	62.9230%	85.3216%	16-Aug	1700	844.05	1.803	1.538	62.9216%											
9	September	85	63,634.121	163.809	120.021	720	53.9535%	73.2689%	28-Sep	1800	748.64	1.927	1.412	53.9584%											
10	October	85	190,152.144	881.489	110.198	744	28.9942%	12.5013%	5-Oct	1700	2,237.08	10.370	1.296	28.9954%											
11	November	85	419,379.093	1,316.088	741.047	720	44.2578%	56.3068%	17-Nov	1800	4,933.87	15.483	8.718	44.2588%											
12	December	85	705,051.527	1,783.466	1,615.597	744	53.1353%	90.5875%	31-Dec	1900	8,294.72	20.982	19.007	53.1352%											
13																									
14	Rate 32 per Study		<u>3,798,525.931</u>	2,041.783	1,617.084	<u>8,760</u>	21.2374%	79.1996%																	

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- 19 (d) = Use for the group at the time of the system peak
- 20 (e) = Hours in the month
- 21 (f) = Total use (energy) / (Group peak use (non-coincident) * number of hours).
- 22 (g) = Coincident peak / Non-coincident peak

Month	Actual Customers	Calculated Based on Load Study				Adjusted Data					
		Energy	Peak Demand (Kw)		Hours	Billed Energy	Peak Demand (Kw)		Load Factor	Coincident Factor	
			Non-Coincident	Coincident			Non-Coincident	Coincident			
28	January	153	1,075,322	2,664.3	2,392.8	744	880,221	2,180.9	1,958.7	54.2479%	89.8115%
29	February	153	1,374,376	3,675.2	2,910.8	672	1,125,016	3,008.4	2,382.7	55.6485%	79.2016%
30	March	153	689,883	2,342.4	1,934.1	744	564,714	1,917.4	1,583.2	39.5861%	82.5701%
31	April	153	553,715	1,808.6	1,653.5	720	453,252	1,480.5	1,353.5	42.5205%	91.4218%
32	May	152	256,793	1,006.4	217.8	744	210,202	823.8	178.3	34.2959%	21.6436%
33	June	154	138,361	297.2	240.9	720	113,257	243.3	197.2	64.6533%	81.0522%
34	July	154	139,076	336.6	254.6	744	113,843	275.5	208.4	55.5408%	75.6443%
35	August	154	129,984	277.7	236.9	744	106,400	227.3	193.9	62.9172%	85.3058%
36	September	154	115,291	296.8	217.4	720	94,373	242.9	178.0	53.9620%	73.2812%
37	October	152	340,036	1,576.2	197.0	744	278,341	1,290.2	161.3	28.9966%	12.5019%
38	November	152	749,948	2,353.4	1,325.1	720	613,881	1,926.4	1,084.7	44.2594%	56.3071%
39	December	153	1,269,092	3,210.2	2,908.1	744	1,038,834	2,627.8	2,380.5	53.1350%	90.5891%
40											
41	Rate 32		<u>6,831,877</u>	3,675.2	2,910.8	<u>8,760</u>	<u>5,592,334</u>	3,008.4	2,382.7	21.2204%	79.2016%

44 Total Billed Energy 5,592,333
 45 Adjustment Factor 81.856465%
 46

Adjusted Data:
 12 CP 988.4
 Non-Coincident Peak 3,008.4
 Coincident Peak 2,382.7 SD 2021 Peak occurred on Aug 16 - HE1700

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Municipal Pumping Rate 48 Load Study
Twelve Months Ended December 31, 2021**

Line		(a)	(b)	(c)		(d)	(e)	(f)	(g)	(h)	(i)	(j)		(k)	(l)	(m)
		Sample Count	Energy	Peak Demand (Kw)		Hours	Load Factor	Coincident Factor	2021 System Peak		Results Per Customer in Study Group (Average)					
				Non-Coincident	Coincident				Date	HE	Energy	Non-Coincident	Coincident	Load Factor		
1	January	24	70,039.749	120.743	116.947	744	77.9668%	96.8561%	26-Jan	1000	2,918.32	5.031	4.873	77.9661%		
2	February	24	67,491.563	133.416	118.600	672	75.2787%	88.8949%	12-Feb	1100	2,812.15	5.559	4.942	75.2788%		
3	March	24	65,329.639	115.400	112.977	744	76.0907%	97.9003%	30-Mar	1000	2,722.07	4.808	4.707	76.0960%		
4	April	24	60,982.559	126.485	94.968	720	66.9629%	75.0824%	13-Apr	1000	2,540.94	5.270	3.957	66.9655%		
5	May	24	60,115.452	107.840	80.499	744	74.9261%	74.6467%	18-May	1800	2,504.81	4.493	3.354	74.9317%		
6	June	24	56,587.545	116.904	88.524	720	67.2294%	75.7237%	10-Jun	1600	2,357.81	4.871	3.689	67.2292%		
7	July	24	56,342.900	109.334	83.283	744	69.2646%	76.1730%	19-Jul	1700	2,347.62	4.556	3.470	69.2582%		
8	August	24	52,167.169	103.159	66.918	744	67.9700%	64.8688%	16-Aug	1700	2,173.63	4.298	2.788	67.9745%		
9	September	24	47,428.757	95.355	71.515	720	69.0821%	74.9987%	28-Sep	1800	1,976.20	3.973	2.980	69.0844%		
10	October	24	50,686.837	99.856	68.996	744	68.2257%	69.0955%	5-Oct	1700	2,111.95	4.161	2.875	68.2202%		
11	November	24	59,865.833	113.091	89.258	720	73.5222%	78.9258%	17-Nov	1800	2,494.41	4.712	3.719	73.5242%		
12	December	24	75,457.951	139.703	113.762	744	72.5983%	81.4313%	31-Dec	1900	3,144.08	5.821	4.740	72.5977%		
14	Rate 48 per Study		<u>722,495.954</u>	139.703	118.600	<u>8,760</u>	59.0372%	84.8944%								

- 15
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- 19 (d)= Use for the group at the time of the system peak
- 20 (e)= Hours in the month
- 21 (f)= Total use (energy) / (Group peak use (non-coincident) * number of hours).
- 22 (g)= Coincident peak / Non-coincident peak

Month	Actual Customers	Energy	Calculated Based on Load Study		Hours	Adjusted Data					
			Peak Demand (Kw)	Non-Coincident		Coincident	Billed Energy	Peak Demand (Kw)	Coincident	Load Factor	Coincident Factor
28	January	49	142,998	246.5	238.8	744	145,702	251.2	243.3	77.9602%	96.8551%
29	February	49	137,795	272.4	242.2	672	140,401	277.6	246.8	75.2630%	88.9049%
30	March	49	133,381	235.6	230.6	744	135,903	230.6	235.0	76.0789%	97.8759%
31	April	49	124,506	258.2	193.9	720	126,861	263.1	197.6	66.9691%	75.1045%
32	May	50	125,241	224.7	167.7	744	127,609	228.9	170.9	74.9312%	74.6614%
33	June	51	120,248	248.4	188.1	720	122,522	253.1	191.7	67.2341%	75.7408%
34	July	51	119,729	232.4	177.0	744	121,993	236.8	180.3	69.2437%	76.1402%
35	August	51	110,855	219.2	142.2	744	112,951	223.3	144.9	67.9874%	64.8903%
36	September	51	100,786	202.6	152.0	720	102,692	206.4	154.9	69.1026%	75.0484%
37	October	52	109,821	216.4	149.5	744	111,898	220.5	152.3	68.2089%	69.0703%
38	November	52	129,709	245.0	193.4	720	132,162	249.6	197.1	73.5410%	78.9663%
39	December	50	157,204	291.1	237.0	744	160,177	296.6	241.5	72.5865%	81.4228%
41	Rate 48		<u>1,512,273</u>	291.1	242.2	<u>8,760</u>	<u>1,540,871</u>	296.6	246.8	59.3050%	83.2097%

42

43

44 Total Billed Energy 1,540,872

45 Adjustment Factor 101.891127%

46

47

48

Adjusted Data:
 12 CP 196.4
 Non-Coincident Peak 296.6
 Coincident Peak 246.8 SD 2021 Peak occurred on Aug 16 - HE1700

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Special Residential Dual Fuel Space Heating Rate 53
Twelve Months Ended December 31, 2021**

Line		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	
		Total Study Group							Results Per Customer in Study Group (Average)						
		Sample Count	Energy	Peak Demand (Kw)		Hours	Load Factor	Coincident Factor	2021 System Peak		Energy	Peak Demand (Kw)		Load Factor	
		Non-Coincident	Coincident				Date	HE		Non-Coincident	Coincident				
1	January	33	86,152.330	191.360	156.770	744	60.5122%	81.9241%	26-Jan	1000	2,610.68	5.799	4.751	60.5101%	
2	February	33	105,061.590	281.070	218.000	672	55.6237%	77.5607%	12-Feb	1100	3,183.68	8.517	6.606	55.6254%	
3	March	33	56,882.420	162.550	120.640	744	47.0347%	74.2172%	30-Mar	1000	1,723.71	4.926	3.656	47.0324%	
4	April	33	43,547.990	145.460	104.210	720	41.5807%	71.6417%	13-Apr	1000	1,319.64	4.408	3.158	41.5797%	
5	May	33	21,250.740	86.300	15.210	744	33.0971%	17.6246%	18-May	1800	643.96	2.615	0.461	33.0990%	
6	June	33	10,167.820	50.630	22.960	720	27.8925%	45.3486%	10-Jun	1600	308.12	1.534	0.696	27.8973%	
7	July	33	9,074.330	38.890	10.850	744	31.3620%	27.8992%	19-Jul	1700	274.98	1.178	0.329	31.3749%	
8	August	33	8,040.060	28.670	11.160	744	37.6928%	38.9257%	16-Aug	1700	243.64	0.869	0.338	37.6839%	
9	September	33	8,579.550	36.030	19.160	720	33.0726%	53.1779%	28-Sep	1800	259.99	1.092	0.581	33.0675%	
10	October	33	25,084.560	91.370	9.250	744	36.9003%	10.1237%	5-Oct	1700	760.14	2.769	0.280	36.8976%	
11	November	33	54,974.570	179.980	106.410	720	42.4234%	59.1232%	17-Nov	1800	1,665.90	5.454	3.225	42.4230%	
12	December	33	90,890.800	221.070	215.560	744	55.2608%	97.5076%	31-Dec	1900	2,754.27	6.699	6.532	55.2616%	
13															
14	Rate 53 per Study		<u>519,706.760</u>	281.070	218.000	<u>8,760</u>	21.1076%	77.5607%							

- (a) = Count of data points by hour, for large data sets - sum by hour and average the data points for each month
- (b) = Sum of hourly data by month
- (c) = Maximum use for the sample group by month
- (d) = Use for the group at the time of the system peak
- (e) = Hours in the month
- (f) = Total use (energy) / (Group peak use (non-coincident) * number of hours).
- (g) = Coincident peak / Non-coincident peak

Month	Actual Customers	Calculated Based on Load Study				Adjusted Data					
		Energy	Peak Demand (Kw)		Hours	Billed Energy	Peak Demand (Kw)		Load Factor	Coincident Factor	
		Non-Coincident	Coincident			Non-Coincident	Coincident				
28	January	281	733,601	1,629.5	1,335.0	744	676,070	1,501.7	1,230.3	60.5112%	81.9271%
29	February	279	888,247	2,376.2	1,843.1	672	818,588	2,189.9	1,698.6	55.6252%	77.5652%
30	March	279	480,915	1,374.4	1,020.0	744	443,200	1,266.6	940.0	47.0313%	74.2144%
31	April	278	366,860	1,225.4	877.9	720	338,090	1,129.3	809.1	41.5806%	71.6462%
32	May	277	178,377	724.4	127.7	744	164,388	667.6	117.7	33.0964%	17.6303%
33	June	276	85,041	423.4	192.1	720	78,372	390.2	177.0	27.8960%	45.3614%
34	July	275	75,620	324.0	90.5	744	69,690	298.6	83.4	31.3695%	27.9303%
35	August	272	66,270	236.4	91.9	744	61,073	217.9	84.7	37.6720%	38.8710%
36	September	271	70,457	295.9	157.5	720	64,932	272.7	145.1	33.0705%	53.2087%
37	October	271	205,998	750.4	75.9	744	189,843	691.6	69.9	36.8949%	10.1070%
38	November	269	448,127	1,467.1	867.5	720	412,984	1,352.0	799.5	42.4252%	59.1346%
39	December	265	729,882	1,775.2	1,731.0	744	672,642	1,636.0	1,595.2	55.2621%	97.5061%
40											
41	Rate 530		<u>4,329,395</u>	2,376.2	1,843.1	<u>8,760</u>	<u>3,989,872</u>	2,189.9	1,698.6	20.7984%	77.5652%

Total Billed Energy 3,989,871
Adjustment Factor 92.157703%

Adjusted Data:
12 CP 645.9
Non-Coincident Peak 2,189.9
Coincident Peak 1,698.6 SD 2021 Peak occurred on Aug 16 - HE1700

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA ELECTRIC CASE 2023
LOSS FACTOR CALCULATION**

	Energy		Demand		
	Loss Factor	Service Level Total	Loss Factor	Service Level Total	
Production and Transmission	5.587%	5.587%	7.691%	7.691%	
Substation Transformer Losses	0.353%	5.940%	0.470%	8.161%	
Primary Lines	0.744%	6.684%	2.052%	10.213%	Primary
Distribution Transformer Losses	0.709%	7.393%	1.356%	11.569%	
Service Drop	0.326%	7.719%	0.727%	12.296%	Secondary
	7.719%		12.296%		

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
EMBEDDED CLASS COST OF SERVICE STUDY
WEIGHTED CUSTOMERS
Twelve Months Ending December 31, 2022**

Rate	Customer Class	Pro Forma	Meters 2/		Services 3/		Transformers 4/		Customer Accounts 5/	
		Billing Units 1/	Weight	Customers	Weight	Customers	Weight	Customers	Weight	Customers
Rate 10 -	Residential Electric Service	6,439	1.00	6,439	1.00	6,439	1.00	6,439	1.00	6,439
Rate 53 -	Residential Dual Fuel Service	258	1.61	415	0.83	214	7.26	1,873	1.00	258
	Total Residential	6,697		6,854		6,653		8,312		6,697
Rate 20 -	Small General Electric Service									
	Primary	1	25.76	26	0.00	0	0.00	0	1.00	1
	Secondary	1,998	2.30	4,595	1.08	2,158	2.36	4,715	1.31	2,617
	Total Rate 20	1,999		4,621		2,158		4,715		2,618
Rate 25 -	Irrigation Power Service	7	3.59	25	1.30	9	11.19	78	2.00	14
Rate 26 -	Small General TOD	24	3.36	81	1.57	38	1.17	28	2.08	50
Rate 30 -	Large Gen Electric Secondary	118	12.19	1,438	3.06	361	4.31	509	2.92	345
Rate 32 -	General Electric Space Heating	152	4.18	635	0.00	0	0.00	0	2.00	304
Rate 48 -	Municipal Pumping	51	3.54	181	1.13	58	4.63	236	1.59	81
Rate 24 -	Outdoor Lighting Service									
	Metered	549	2.03	1,114	0.00	0	0.00	0	1.00	549
	Unmetered	11	0.00	0	0.00	0	0.00	0	0.79	9
	Total Rate 24	560		1,114		0		0		558
Rate 41 -	Street Lighting Service									
	Company Owned									
	Metered	1	0.99	1	1.81	2	1.89	2	1.00	1
	Unmetered	29	0.00	0	0.00	0	0.00	0	0.79	23
	Total Company Owned	30		1		2		2		24
	Municipal Owned									
	Metered	22	0.99	22	1.81	40	1.89	42	1.00	22
	Unmetered	1	0.00	0	0.00	0	0.00	0	0.79	1
	Municipal Owned	23		22		40		42		23
	Total Rate 41	53		23		42		44		47
	TOTAL SOUTH DAKOTA	9,661		14,972		9,319		13,922		10,714

1/ Reflects the average of the distinct count customers for the twelve months ended December 31, 2022.
2/ Meters calculated using average meter costs for each class.
3/ Services calculated using average service costs for each class.
4/ Transformers calculated using average transformer costs for each class.
5/ Customer Accounts calculated using average number of registers per meter for each class.

SOUTH DAKOTA METER WEIGHTS

RATENUMBER2	Count of Rate	Total Cost	Cost	Weight
Rate 10 - Residential	6,506	\$ 766,813	\$ 117.86	1.00
Rate 53 - Dual Fuel Space Heating	252	\$ 47,798	\$ 189.67	1.61
Rate 20 - Small General Primary	1	\$ 3,036	\$ 3,036.00	25.76
MDUSD202	550	\$ 317,786		
MDUSD203	1,435	\$ 220,121		
Rate 20 - Small General Secondary	1,985	\$ 537,907	\$ 270.99	2.30
Rate 25 - Irrigation (250)	7	\$ 2,962	\$ 423.14	3.59
MDUSD260	1	\$ 841		
MDUSD261	23	\$ 8,676		
Rate 26 - Small General TOD	24	\$ 9,517	\$ 396.54	3.36
Rate 30 - Large General Secondary	118	\$ 169,495	\$ 1,436.40	12.19
MDUSD322	119	\$ 48,587		
MDUSD323	31	\$ 25,390		
Rate 32 - Space Heating Secondary	150	\$ 73,977	\$ 493.18	4.18
MDUSD410	2	\$ 233		
MDUSD411	22	\$ 2,561		
Rate 41 - Street Lighting	24	\$ 2,794	\$ 116.42	0.99
MDUSD480	23	\$ 5,954		
MDUSD481	28	\$ 15,300		
Rate 48 - Municipal Pumping	51	\$ 21,254	\$ 416.75	3.54
Rate 24 - Outdoor Lighting	12	\$ 2,866	\$ 238.83	2.03

Notes:
Does not include net metering.

South Dakota Service Weights

Notes:

- 1) Weighting for electric service lines is based on a ~80% model representation of the actual service lines. Service lines are not fully represented in the company's GIS because not all premise ID's are present and additionally, some premise ID's are not connected to transformers.
- 2) All primary metered and non-metered accounts do not have services associated with them.

RATENUMBER2	Number of Services	Total Service		Weight
		Cost per Rate	Cost	
Rate 10 - Residential	6,538	\$ 4,061,428	\$ 621.20	1.00
Rate 53 - Dual Fuel Space Heating	252	\$ 129,363	\$ 513.35	0.83
Rate 20 - Small General Primary	1	\$ 1,159	\$ 1,159.00	1.87
MDUSD202	551	\$ 424,206		
MDUSD203	1,415	\$ 893,129		
Rate 20 - Small General Secondary	1,966	\$ 1,317,335	\$ 670.06	1.08
Rate 25 - Irrigation (250)	7	\$ 5,657	\$ 808.14	1.30
MDUSD260	1	\$ 304		
MDUSD261	23	\$ 23,049		
Rate 26 - Small General TOD	24	\$ 23,353	\$ 973.04	1.57
Rate 30 - Large General Secondary	116	\$ 220,189	\$ 1,898.18	3.06
MDUSD322	120	\$ 61,805		
MDUSD323	31	\$ 30,938		
Rate 32 - Space Heating Secondary	151	\$ 92,743	\$ 614.19	0.99
MDUSD410	1	\$ 304		
MDUSD411	20	\$ 23,323		
Rate 41 - Street Lighting	21	\$ 23,627	\$ 1,125.10	1.81
MDUSD480	23	\$ 14,244		
MDUSD481	29	\$ 22,390		
Rate 48 - Municipal Pumping	52	\$ 36,634	\$ 704.50	1.13
Rate 24 - Outdoor Lighting	10	\$ 3,382	\$ 338.20	0.54

Notes:

Does not include net metering.

South Dakota Transformer Weighting by Customer Rate

RATE AND DESCRIPTION	Sample Size	Weighted Average	Weighting
<i>MDUSD100 (Residential Electric Service)</i>	6484	\$634.80	1.00
MDUSD201 (Small General Secondary Service Rate 20)	1	\$267.32	0.42
MDUSD202 (Small General Secondary Service Rate 20)	536	\$2,108.07	3.32
MDUSD203 (Small General Secondary Service Rate 20)	1385	\$1,264.49	1.99
MDUSD201, 202, 203 (Small General Secondary Service) Total	1922	\$1,499.22	2.36
MDUSD242 (Outdoor Lighting Service Rate 24)	9	\$1,314.66	2.07
MDUSD250 (Irrigation Power Service Rate25)	7	\$7,102.99	11.19
MDUSD260 (Optional Time-of-Day Small General Electric Service Rate26)	1	\$534.63	0.84
MDUSD261 (Optional Time-of-Day Small General Electric Service Rate26)	23	\$748.63	1.18
MDUSD260, 261 (Optional Time-of-Day Small General Electric Service) Total	24	\$739.72	1.17
<i>MDUSD200 (SMALL GENERAL)</i>	1962	\$1,509.08	2.38
MDUSD301 (Large General Electric Service Rate 30)	113	\$2,736.06	4.31
MDUSD322 (General Electric Space Heating Service Rate 32)	119	\$1,083.32	1.71
MDUSD323 (Optional Time-of-Day Large General Electric Service Rate 32)	31	\$1,184.43	1.87
<i>MDUSD300 (LARGE GENERAL)</i>	263	\$1,805.35	2.84
MDUSD410 (Street Light Service Rate 41)	1	\$712.84	1.12
MDUSD411 (Street Light Service Rate 41)	20	\$1,221.89	1.92
MDUSD410, 411 (Street Light Service Rate 41) Total	21	\$1,197.65	1.89
MDUSD480 (Municipal Pumping Service Rate 48)	22	\$2,770.68	4.36
MDUSD481 (Municipal Pumping Service Rate 48)	28	\$141.89	0.22
MDUSD480, 481 (Municipal Pumping Service Rate 48) Total	50	\$2,938.91	4.63
<i>MDUSD400 (MUNICIPAL ST. LIGHT & PUMPING)</i>	71	\$2,423.89	3.82
MDUSD530 (Residential Electric Dual Fuel Space Heating Service Rate 53)	251	\$4,610.69	7.26
MDUSD542 (Residential Electric Dual Fuel Space Heating Service Rate 54)	1	\$0.00	0.00
<i>MDUSD500 (DUEL FUEL SPACE HEATING)</i>	252	\$4,610.69	7.26

SOUTH DAKOTA CUSTOMER WEIGHTS

RATENUMBER2	Count of Rate	Count of Registers	Registers Per Meter	Weight
Rate 10 - Residential	6,506	6,506	\$ 1.00	1.00
Rate 53 - Dual Fuel Space Heating	252	252	\$ 1.00	1.00
Rate 20 - Small General Primary	1	1	\$ 1.00	1.00
MDUSD202	550	1,139		
MDUSD203	1,435	1,455		
Rate 20 - Small General Secondary	1,985	2,594	\$ 1.31	1.31
Rate 25 - Irrigation (250)	7	14	\$ 2.00	2.00
MDUSD260	1	4		
MDUSD261	23	46		
Rate 26 - Small General TOD	24	50	\$ 2.08	2.08
Rate 30 - Large General Secondary	118	345	\$ 2.92	2.92
MDUSD322	119	238		
MDUSD323	31	62		
Rate 32 - Space Heating Secondary	150	300	\$ 2.00	2.00
MDUSD410	2	2		
MDUSD411	22	22		
Rate 41 - Street Lighting	24	24	\$ 1.00	1.00
MDUSD480	23	23		
MDUSD481	28	58		
Rate 48 - Municipal Pumping	51	81	\$ 1.59	1.59
Rate 24 - Outdoor Lighting	12	12	\$ 1.00	1.00

Notes:
Does not include net metering.

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC O&M BY FERC ACCOUNT
TWELVE MONTHS ENDING DECEMBER 31, 2022**

<u>Customer Accounts</u>		<u>South Dakota</u>
901	Supervision	5,938
902	Meter Reading Expense	53,274
903	Customer Records & Collections	146,239
904	Uncollectible Accounts	36,326
905	Misc. Customer Accounts Exp.	10,310
		<u>252,087</u>
	Total Customer Accts	252,087
	Less Meter Reading 1/	53,274
	Total	<u>198,813</u>
	% of Total	79%
	Non-Metered Weight	<u><u>0.79</u></u>

1/ Meter Reading Expense is FERC Account 902 per Customer Accounts O&M Expense Explanations from FERC website.

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
CLASS COST OF SERVICE STUDY
12-Months Ending December 31, 2022
Allocation Factors**

<u>Rate</u>	<u>Customer Class</u>	<u>Factor No. 1</u> Pro Forma Energy @ Generation Level	<u>Factor No. 2</u> 12 CP @ Supply	<u>Factor No. 4</u> Pro Forma NCP KW @ Supply	<u>Factor No. 5</u> Pro Forma NCP KW @ Supply (Secondary)	<u>Factor No. 6</u> Weighted Customer Meters	<u>Factor No. 8</u> Total Customers	<u>Factor No. 10</u> Weighted Customer Services	<u>Factor No. 11</u> Weighted Customers [transformer]	<u>Factor No. 12</u> Weighted Customers (Customer Accounts)
Rate 10	- Residential Electric Service	74,704,385	11,488	22,326	22,326	6,854	6,697	6,653	8,312	6,697
Rate 20	- Small General Electric Service									
	Primary	7,715	1	2	0	26	1	0	0	1
	Secondary	32,612,946	5,187	7,892	7,892	4,595	1,998	2,158	4,715	2,617
	Total Rate 20	32,620,661	5,188	7,894	7,892	4,621	1,999	2,158	4,715	2,618
Rate 25	- Irrigation Power Service	215,865	32	226	226	25	7	9	78	14
Rate 26	- Small General TOD	162,485	13	27	27	81	24	38	28	50
	Total Small General	32,999,011	5,233	8,147	8,145	4,727	2,030	2,205	4,821	2,682
Rate 30	- Large Gen Electric Service Secondary	37,150,037	5,654	8,471	8,471	1,438	118	361	509	345
Rate 32	- General Electric Space Heating	7,256,076	1,022	4,107	4,107	635	152	0	0	304
	Total Large General	44,406,113	6,676	12,578	12,578	2,073	270	361	509	649
Rate 48	- Municipal Pumping	1,836,144	203	372	372	181	51	58	236	81
Rate 24	- Outdoor Lighting Service	315,057	70	83	83	1,114	560	0	0	558
Rate 41	- Street Lighting Service									
	Company Owned	809,211	116	213	213	1	30	2	2	24
	Municipal Owned	499,600	75	131	131	22	23	40	42	23
	Total Rate 41	1,308,811	191	344	344	23	53	42	44	47
	TOTAL SOUTH DAKOTA	155,569,521	23,861	43,850	43,848	14,972	9,661	9,319	13,922	10,714

Calculation of Energy and Demand share for Factor 3:

	<u>Size</u>	<u>2023 ZRCs</u>	<u>Demand</u>	<u>Energy</u>
Summer	199.5	46	23.1%	76.9%
Fall	199.5	52	26.1%	73.9%
Winter	199.5	122	61.2%	38.8%
Spring	199.5	58	29.1%	70.9%
	798.0	278	34.8%	65.2%

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
CLASS COST OF SERVICE STUDY
12 MONTHS ENDING DECEMBER 31, 2022
CUSTOMER ADVANCES FOR CONSTRUCTION WORKPAPER**

	Per Books			Pro Forma Adjustment-DIT			Pro Forma Adjustment		
	Demand	Customer	Total	Demand	Customer	Total	Demand	Customer	Total
Residential - Rate 10	(\$4,877)	(\$6,179)	(\$11,056)	\$16,402	\$20,782	\$37,184	\$0	\$0	\$0
Small General - Rate 20	(19,362)	(27,225)	(46,587)	65,109	91,553	156,662	-	-	-
Large General - Rate 30 Secondary	(20,407)	(3,486)	(23,893)	68,632	11,724	80,356	-	-	-
Municipal Pumping - Rate 48	(2,200)	(2,311)	(4,511)	7,396	7,766	15,162	-	-	-
	(\$46,846)	(\$39,201)	(\$86,047)	\$157,539	\$131,825	\$289,364	\$0	\$0	\$0
						289,364	Adjustment Check		0 Adjustment Check

	2022		Allocated Total Balance	Distribution Plant 1/ Plant Balances			% of Total		
	Balance	% of Total		Demand	Customer	Total	Demand	Customer	
	Residential - Rate 10	(\$11,056)		12.85%	(\$11,056)	\$5,212,610	\$6,605,469	\$11,818,079	
Small General - Rate 20	(46,587)	54.14%	(46,587)	1,842,937	2,590,999	4,433,936	41.56%	58.44%	100.00%
Large General - Rate 30 Secondary	(23,893)	27.77%	(23,893)	1,977,784	337,984	2,315,768	85.41%	14.59%	100.00%
Municipal Pumping - Rate 48	(4,511)	5.24%	(4,511)	86,853	91,215	178,068	48.78%	51.22%	100.00%
	(86,047)	100.00%	(86,047)	\$9,120,184	\$9,625,667	\$18,745,851			
31-Dec-20	(86,047)								

1/ Based on Allocation Factor 14.

Distribution Plant	Total		
	Demand	Customer	Total
Residential Rate 10	5,212,610	6,605,469	11,818,079
Small General Rate 20	1,842,937	2,590,999	4,433,936
Irrigation Power Rate 25	52,765	20,422	73,187
Large General Primary Rate 30	6,304	31,112	37,416
Large General Secondary Rate 30	1,977,784	337,984	2,315,768
Space & Water Heating Rate 32	958,890	121,843	1,080,733
Municipal Pumping Rate 48	86,853	91,215	178,068
Private Lighting Rate 52	19,378	351,610	370,988
Street Lighting Co. Owned Rate 41	49,730	892,549	942,279
Street Lighting Municipal Rate 41	30,586	28,751	59,337
	10,237,837	11,071,954	21,309,791

Work Order	WO Description	2022	Class
287694	Repl OH to UG Elevator Fredrick SD	(23,893.00)	Large General Sec
287730	Instl UG New Asphalt Plant Mobridge	-	Large General Sec
		<u>(23,893.00)</u>	
287320	Instl OH Water Tower McIntosh SD	(4,511.00)	Municipal Pumping
283529	Instl UG 600 1/2 Broadway St Leola	(4,966.00)	Residential
293736	Instl UG 404 S Broadway Ipswich	(6,090.00)	Residential
		<u>(11,056.00)</u>	
282326	Instl UG & OH McIntosh Cell Tower	-	Small General Electric Sec
283545	Instl UG Sumption Farms Frederick	(11,167.00)	Small General Electric Sec
287719	Install UG Campsites Eureka	(3,176.00)	Small General Electric Sec
288452	Instl UG Greg Langlier Pump Pollock	(4,578.00)	Small General Electric Sec
288457	Instl UG 200 Chestnut Av Ipswich	(6,537.00)	Small General Electric Sec
291150	Instl UG 602 E Division Gettysburg	(4,124.00)	Small General Electric Sec
282326	Instl UG & OH McIntosh Cell Tower	(17,005.00)	Small General Electric Sec
		<u>(46,587.00)</u>	

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
CLASS COST OF SERVICE STUDY
12 MONTHS ENDING DECEMBER 31, 2022
SALES REVENUES ALLOCATION
PER BOOKS**

Rate	Total Sales Revenue	Basic Service Charge	Fuel & Purch. Power 1/		Energy	Demand
			Energy 2/	Demand 3/		
Residential - Rate 10	\$8,313,883	\$601,699	1,726,799	\$96,114	\$5,889,271	\$0
Small General Service - Rate 20 Primary	943	186	178	8	571	0
Small General Service - Rate 20 Secondary	3,656,758	392,705	753,853	43,397	2,226,777	240,026
Irrigation Power - Rate 25	17,407	1,437	4,990	268	5,693	5,019
Small General Service TOD - Rate 26	19,592	5,697	3,756	109	9,591	439
Large General Service - Rate 30 Secondary	3,506,287	42,487	858,727	47,303	1,464,419	1,093,351
General Electric Space Heating Rate 32	495,146	31,023	167,725	8,550	287,848	0
Municipal Pumping - Rate 48	157,538	11,633	42,443	1,698	63,310	38,454
Outdoor Lighting - Rate 24	30,733	0	7,283	586	22,864	0
Street Lighting - Rate 41 Company Owned	84,290	0	18,705	970	64,615	0
Street Lighting - Rate 41 Municipal Owned	48,629	0	11,548	627	36,454	0
Total	\$16,331,206	\$1,086,867	\$3,596,007	\$199,630	\$10,071,413	\$1,377,289

1/ Energy/Demand split based on Per Books Fuel & Purchased Power Costs.

2/ Allocated to customer class on Allocation Factor 1 - Energy at Customer Level Kwh Sales.

3/ Allocated to customer class on Allocation Factor 2 - 12 CP.

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
CLASS COST OF SERVICE STUDY
12 MONTHS ENDING DECEMBER 31, 2022
SALES REVENUES ALLOCATION
PRO FORMA ADJUSTMENT**

Rate	Total Sales Revenue	Basic Service Charge	Fuel & Purch. Power 1/		Energy	Demand
			Energy 2/	Demand 3/		
Residential - Rate 10	(\$314,853)	\$2,095	(\$219,970)	\$3,433	(\$100,411)	\$0
Small General Service - Rate 20 Primary	(41)	0	(23)	-	(18)	0
Small General Service - Rate 20 Secondary	(143,667)	1,101	(96,030)	1,550	(50,718)	430
Irrigation Power - Rate 25	(1,146)	(83)	(636)	10	(475)	38
Small General Service TOD - Rate 26	(757)	(3)	(478)	4	(280)	0
Large General Service - Rate 30 Secondary	(166,462)	(7)	(109,390)	1,690	(60,706)	1,951
General Electric Space Heating Rate 32	(22,964)	177	(21,366)	305	(2,080)	0
Municipal Pumping - Rate 48	(8,806)	(985)	(5,407)	61	1,146	(3,621)
Outdoor Lighting - Rate 24	(1,310)	0	(928)	21	(403)	0
Street Lighting - Rate 41 Company Owned	(4,136)	0	(2,383)	35	(1,788)	0
Street Lighting - Rate 41 Municipal Owned	(2,614)	0	(1,471)	22	(1,165)	0
Total	(\$666,756)	\$2,295	(\$458,082)	\$7,131	(\$216,898)	(\$1,202)

1/ Energy/Demand split based on Pro Forma Fuel & Purchased Power Costs..

2/ Allocated to customer class on Allocation Factor 1 - Energy at Customer Level Kwh Sales.

3/ Allocated to customer class on Allocation Factor 2 - CP.

F&PP Workpaper

Energy Cost Calculation	Per Books	Pro Forma	Adjustment
Fuel	\$1,430,852	\$1,482,957	\$52,105
PP - Energy	1,828,656	1,634,355	(194,301)
Market Administration	20,719	20,613	(106)
Deferred Fuel & Purchased Power /MSA	315,780	0	(315,780)
	<u>3,596,007</u>	<u>3,137,925</u>	<u>(458,082)</u>
Less: Revenues			
Wholesale Sales	0	0	0
Sale of RECs	0	0	0
	<u>0</u>	<u>0</u>	<u>0</u>
Total Energy	\$3,596,007	\$3,137,925	(\$458,082)
Demand	\$199,630	\$206,761	\$7,131
Total F&PP	<u>\$3,795,637</u>	<u>\$3,344,686</u>	<u>(\$450,951)</u>

**MONTANA-DAKOTA UTILITIES CO.
ELECTRIC UTILITY - SOUTH DAKOTA
CLASS COST OF SERVICE STUDY
12 MONTHS ENDING DECEMBER 31, 2022
KVAR PENALTY REVENUE
PER BOOKS**

<u>Rate</u>	<u>KVAR Penalty Rev.</u>
Rate 20 - Secondary	\$5,745
Rate 30 - Secondary	73,895
Rate 48 - Municipal Pumping	923
	<u>\$80,563</u>