

MidAmerican Energy Company
Rate RSD Weather Normalization Calculation
2014 South Dakota Electric Rate Case

Weather Normalization Results Support
Test Year Ending December 31, 2012

I. Monthly Usage and Weather Data

Rate	Month	Billed Sales	Billed Sales Above 1000 kWh	Bills	Total Days Billed	Total Billed HDD 55	Total Billed CDD 65	Total Normal Billed HDD 55	Total Normal Billed CDD 65	Average Billing Days Per Bill	Calendar Days per Month
RSD	201301	135,485	69,203	75	2,563	86,890	-	87,065	-	34	31
RSD	201302	110,407	47,110	75	2,210	68,081	-	73,961	-	29	28
RSD	201303	106,165	44,991	76	2,212	65,716	-	57,000	-	29	31
RSD	201304	93,834	41,183	76	2,234	43,029	-	31,749	-	29	30
RSD	201305	69,672	23,777	76	2,264	22,088	666	10,432	1,596	30	31
RSD	201306	57,993	24,200	75	2,338	1,335	4,991	1,192	6,948	31	30
RSD	201307	72,614	34,698	74	2,188	-	20,347	-	17,304	30	31
RSD	201308	80,532	42,565	75	2,305	-	16,211	-	21,214	31	31
RSD	201309	73,846	33,484	74	2,228	-	20,402	39	13,624	30	30
RSD	201310	65,825	32,499	74	2,168	1,383	6,147	4,225	3,822	29	31
RSD	201311	71,534	27,627	74	2,174	23,866	552	19,201	175	29	30
RSD	201312	107,342	46,354	74	2,378	62,764	-	55,988	-	32	31

Rate	Month	Billing kWh per Customer	Billing kWh per Customer per Day	Actual Billing HDD 55/Day	Actual Billing CDD 65/Day	Normal Billing HDD 55/Day	Normal Billing CDD 65/Day	Normal Calendar HDD 55/Day	Normal Calendar CDD 65/Day
RSD	201301	1,797	52.86	33.90	0.00	33.97	0.00	34.71	0.00
RSD	201302	1,472	49.96	30.81	0.00	33.47	0.00	29.89	0.00
RSD	201303	1,398	48.00	29.71	0.00	25.77	0.00	18.74	0.00
RSD	201304	1,235	42.00	19.26	0.00	14.21	0.00	7.40	0.33
RSD	201305	915	30.77	9.76	0.29	4.61	0.70	1.16	1.74
RSD	201306	770	24.80	0.57	2.13	0.51	2.97	0.00	6.23
RSD	201307	980	33.19	0.00	9.30	0.00	7.91	0.00	9.55
RSD	201308	1,074	34.94	0.00	7.03	0.00	9.20	0.00	7.52
RSD	201309	998	33.14	0.00	9.16	0.02	6.11	0.80	2.73
RSD	201310	890	30.36	0.64	2.84	1.95	1.76	6.29	0.26
RSD	201311	968	32.90	10.98	0.25	8.83	0.08	19.40	0.00
RSD	201312	1,443	45.14	26.39	0.00	23.54	0.00	32.48	0.00

Billing kWh per customer per day and Actual billing HDD and CDD per day are used in the weather normalization regression model.

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II. Weather Normalization Model (Use per customer per day vs. CDD and HDD per day)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.9820
R Square	0.9642
Adjusted R Square	0.9563
Standard Error	1.8882
Observations	12

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	865.0731	432.5365	121.3216	3.09427E-07
Residual	9	32.0869	3.5652		
Total	11	897.1600			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	24.0033	1.4080	17.0474	0.0000	20.8181	27.1884	20.8181	27.1884
HDD 55/Day	0.8332	0.0605	13.7794	0.0000	0.6964	0.9700	0.6964	0.9700
CDD 65/Day	1.1300	0.2232	5.0616	0.0007	0.6250	1.6350	0.6250	1.6350

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I. Monthly Usage and Weather Data

III. Billed Sales and Revenue Adjustment

Winter Usage	1st Step Percentage	Actual Use/Bill	Actual % in 2nd Step	Weather Normalized Use/Bill	Weather Normalized % in 2nd Step	Step 1 Adjustment	Step 2 Adj. Adjustment	HDD Weather Normalization Adjustment	CDD Weather Normalization Adjustment	Total Weather Normalization Adjustment
1,797	51.1%	1797	51.1%	1799	51.1%	49	97	146	-	146
1,472	42.7%	1472	42.7%	1537	43.2%	2,170	2,729	4,899	-	4,899
1,398	42.4%	1398	42.4%	1302	41.6%	(3,383)	(3,880)	(7,263)	-	(7,263)
1,235	43.9%	1235	43.9%	1111	42.8%	(4,388)	(5,011)	(9,399)	-	(9,399)
915	34.1%	915	34.1%	801	33.2%	(5,117)	(3,544)	(9,712)	1,051	(8,661)
890	49.4%	770	41.7%	798	42.6%	688	1,405	(120)	2,212	2,092
968	38.6%	980	47.8%	934	46.3%	(773)	(2,666)	-	(3,439)	(3,439)
1,443	43.2%	1074	52.9%	1150	55.3%	596	5,057	-	5,653	5,653
		998	45.3%	895	42.1%	(1,995)	(5,632)	32	(7,659)	(7,627)
Summer Usage	1st Step Percentage	890	49.4%	886	49.3%	(111)	(147)	2,368	(2,627)	(258)
770	41.7%	968	38.6%	909	38.1%	(2,314)	(1,998)	(3,887)	(425)	(4,312)
980	47.8%	1443	43.2%	1367	42.5%	(2,553)	(3,092)	(5,646)	-	(5,646)
1,074	52.9%		W Slope: 0.0000848		Winter kWh Adjustment:	(15,648)	(14,846)			(33,815)
998	45.3%		S Slope: 0.0003184		Summer kWh Adjustment:	(1,484)	(1,837)			
					Winter Revenue Rate: \$	0.0612	\$ 0.0180			
					Summer Revenue Rate: \$	0.0634	\$ 0.0610			
					Winter Revenue Adjustment: \$	(958)	\$ (267)			
					Summer Revenue Adjustment: \$	(94)	\$ (112)			

The differences normal and actual billed HDD and CDD per day are multiplied by the respective model coefficients to get a normalization amount per day, which is then multiplied by the average billing days in the month (per bill) and the total number of bills in the month to determine the total weather adjustment or the billing month.

Normalization amounts by step are calculated for each month by estimating the difference in the split between the first and second step of the rate between actual use per month and weather normalized use per month. The difference between these splits is used to allocate the monthly adjustment between setp.

The adjustments in each step are multiplied by the respective rates to calculate a revenue adjustment amount.

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IV. Unbilled Sales and Revenue Adjustment

HDD Weather Adjustment Actual Billed to Normal Calendar	CDD Weather Adjustment Actual Billed to Normal Calendar	Weather Normalized Calendar Use per Cust. per Day	Weather Normalized Monthly Calendar Sales				
0.67	-	53.54	125,132	unbilled sales adj. step 1	53.2%	(18,220)	
(0.76)	-	49.20	103,314	unbilled sales adj. step 2	46.8%	(16,039)	
(9.14)	-	38.86	91,506	unbilled revenue adj. step 1	\$ 0.0612	\$ (1,115)	
(9.88)	0.38	32.50	74,092	unbilled revenue adj. step 2	\$ 0.0180	\$ (289)	
(7.16)	1.64	25.25	59,590				
(0.48)	4.63	28.96	65,421				
-	0.28	33.47	76,847	Actual Billed Sales:		1,045,249	
-	0.55	35.48	82,464	W.N. Billed Sales:		1,011,434	(33,815) adjustment
0.67	(7.26)	26.55	58,920	Actual Unbilled Sales:		37,574	
4.71	(2.91)	32.16	73,741	W.N. Unbilled Sales:		3,316	(34,258) adjustment
7.02	(0.29)	39.64	87,909	Actual Calendar Sales:		1,082,823	
5.07	-	50.21	115,814	W.N. Calendar Sales:		1,014,750	
			1,014,750				

The differences normal calendar HDD and CDD per day and actual billed HDD and CDD per day are multiplied by the respective model coefficients to get a normalization amount per calendar day, which is then multiplied by the calendar days in the month and the total number of bills in the month to determine total calendar month weather normalized sales.

The difference between annual weather normalized billed sales and annual weather normalized calendar sales is assumed to be weather normalized unbilled sales. The difference between weather normalized and actual unbilled sales is the unbilled sales adjustment, which is allocated to step based on the weather normalized split for January and December. The adjustment amount for each step is multiplied by the respective rate to calculate an unbilled revenue adjustment amount.