

High-Level NEM Rate Impact Analysis

Rocky Mtn Power - Utah

Model Structure

Sector / Rate Class	Residential
Base Year	2015
Study Period (Years)	20

System Parameters

Residential Sales (MWh)	6,976,758	EIA 86 I, 2013
Residential Revenues (\$)	758,356,800	EIA 86 I, 2013
Number of Residential Customers (count)	733,917	EIA 86 I, 2013
Sales per customer (MWh)	10	Residential Sales / # of Customers
Customer growth rate	1.0%	User input
Electricity usage per customer growth rate	0.0%	User input

Rate Structure Parameters

Energy Rate (\$/MWh)	98.37	Annual weighted average, RMP Residential rate tariff
Customer (\$/Month)	\$6	RMP Residential rate tariff
Minimum Bill (\$/Month)	\$8	RMP Residential rate tariff
Fixed Portion of Energy Rate (%)	67%	RMP Presentation See: MW

PV NEM System Parameters

Average PV installed capacity (MW, DC)	0.005	User input
Unit capacity factor (%)	17%	NREL PV Watts (SLC, UT)
Unit generation (MWh)	7	Calculation based on CF and Capacity
Percent of customers adding DG PV per year	0.5%	User input
Number of years with additional DG PV	10	User input

Levelized Avoided Cost Inputs

Avoided energy (\$/MWh)	\$56	Avoided fuel, variable O&M, and line losses.
Avoided generation capacity capital costs (\$/MWh)	\$14	Capital cost of generation to meet peak load.
Avoided transmission capital costs (\$/MWh)	\$11	Cost of money savings resulting from deferring T&D capacity additions.
Avoided distribution capital costs (\$/MWh)	\$0	Cost of money savings resulting from deferring T&D capacity additions. Default from CPR 2014 (assumes zero avoided distribution)
Avoided environmental Costs (\$/MWh)	\$9	Costs to comply with environmental regulations and policy objectives. Default from CPR 2014.
Fuel price guarantee/avoided risk (\$/MWh)	\$26	Cost of eliminating uncertainty in fuel price fluctuations. Default \$0.00
Variable Avoided Costs (\$/MWh)	\$91	Includes avoided energy, avoided environmental, and fuel price guarantee
Fixed Avoided Costs (\$/MWh)	\$25	Includes avoided capital costs associated with generation and T&D capacity
Total Avoided Costs (\$/MWh)	\$116	Sum of variable and fixed avoided costs

	2015	2016	2017	2018	2019	2020	2021
Universal							
Customers (# of customers)	733,917	741,256	748,669	756,155	763,717	771,354	779,068
Usage per customer (annual MWh / customer)	9.51	9.51	9.51	9.51	9.51	9.51	9.51
Total residential electricity usage (MWh)	6,976,758	7,046,526	7,116,991	7,188,161	7,260,042	7,332,643	7,405,969
No DG PV Case							
Annual Sales							
Annual residential sales (MWh)	6,976,758	7,046,526	7,116,991	7,188,161	7,260,042	7,332,643	7,405,969
Rates							
Energy Rate - variable portion (\$/MWh)	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8
Energy Rate - fixed portion (\$/MWh)	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6
Total Energy Rate (\$/MWh)	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4
Customer (\$/Month)	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00
Minimum bill (\$)	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00
Annual Revenues and Costs							
Variable Revenues and Costs	\$ 228,815,393	\$ 231,103,547	\$ 233,414,582	\$ 235,748,728	\$ 238,106,215	\$ 240,487,278	\$ 242,892,150
Fixed Revenues and Costs	\$ 457,493,524	\$ 462,068,459	\$ 466,689,144	\$ 471,356,035	\$ 476,069,596	\$ 480,830,292	\$ 485,638,595
Total Energy Rate Revenues and Costs	\$ 686,308,917	\$ 693,172,006	\$ 700,103,726	\$ 707,104,764	\$ 714,175,811	\$ 721,317,569	\$ 728,530,745
Customer Charge Revenues and Costs	\$ 52,842,024	\$ 53,370,444	\$ 53,904,149	\$ 54,443,190	\$ 54,987,622	\$ 55,537,498	\$ 56,092,873
Total Revenues and Costs	\$ 739,150,941	\$ 746,542,450	\$ 754,007,875	\$ 761,547,954	\$ 769,163,433	\$ 776,855,068	\$ 784,623,618
Percent of total costs that are "fixed"	69%	69%	69%	69%	69%	69%	69%

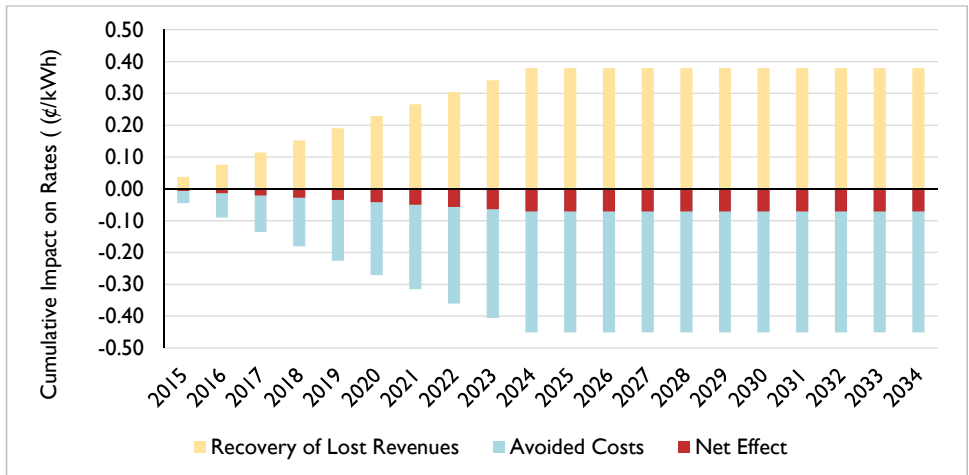
With DG PV									
Annual Sales									
Customers with PV (%)		0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	
Annual Customer PV Gen (MWh)		27,123	54,788	83,004	111,779	141,121	171,039	201,541	
Net annual residential sales [after PV] (MWh)		6,949,635	6,991,737	7,033,986	7,076,381	7,118,921	7,161,604	7,204,428	
Installed DG PV (MW)		18	37	56	76	95	116	136	
Rates									
Energy Rate - variable portion (\$/MWh)	\$	32.5697	\$ 32.3407	\$ 32.1100	\$ 31.8774	\$ 31.6430	\$ 31.4068	\$ 31.1686	
Energy Rate - fixed portion (\$/MWh)	\$	65.7323	\$ 65.8919	\$ 66.0527	\$ 66.2149	\$ 66.3783	\$ 66.5430	\$ 66.7090	
Total Energy Rate (\$/kWh)	\$	98.3019	\$ 98.2326	\$ 98.1627	\$ 98.0923	\$ 98.0213	\$ 97.9497	\$ 97.8776	
Customer (\$/Month)		\$6	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	
Minimum bill (\$)		\$8	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	
Annual Revenues and Costs									
Avoided costs - variable	\$	2,468,191	\$ 4,985,745	\$ 7,553,404	\$ 10,171,918	\$ 12,842,046	\$ 15,564,560	\$ 18,340,240	
Avoided costs - fixed	\$	678,074	\$ 1,369,710	\$ 2,075,111	\$ 2,794,483	\$ 3,528,035	\$ 4,275,978	\$ 5,038,527	
Variable Revenues and Costs	\$	226,347,202	\$ 226,117,802	\$ 225,861,178	\$ 225,576,811	\$ 225,264,169	\$ 224,922,718	\$ 224,551,911	
Fixed Revenues and Costs	\$	456,815,450	\$ 460,698,749	\$ 464,614,033	\$ 468,561,553	\$ 472,541,561	\$ 476,554,314	\$ 480,600,067	
Total Energy Rate Revenues and Costs	\$	683,162,652	\$ 686,816,551	\$ 690,475,211	\$ 694,138,363	\$ 697,805,731	\$ 701,477,032	\$ 705,151,978	
Customer Charge Revenues and Costs	\$	52,842,024	\$ 53,370,444	\$ 53,904,149	\$ 54,443,190	\$ 54,987,622	\$ 55,537,498	\$ 56,092,873	
Total Revenues and Costs	\$	736,004,676	\$ 740,186,995	\$ 744,379,360	\$ 748,581,553	\$ 752,793,353	\$ 757,014,530	\$ 761,244,851	
Percent of total costs that are "fixed"		69%	69%	70%	70%	70%	70%	71%	

Differences														
Rates														
Change in Energy Rate - variable portion (\$/MWh)	\$	(0.2272)	\$	(0.4561)	\$	(0.6868)	\$	(0.9194)	\$	(1.1538)	\$	(1.3901)	\$	(1.6282)
Change in Energy Rate - fixed portion (\$/MWh)	\$	0.1584	\$	0.3179	\$	0.4788	\$	0.6409	\$	0.8043	\$	0.9690	\$	1.1350
Change in Total Energy Rate (\$/MWh)	\$	(0.0688)	\$	(0.1381)	\$	(0.2080)	\$	(0.2785)	\$	(0.3495)	\$	(0.4210)	\$	(0.4932)
Change in Customer (\$/Month)	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Change in Minimum bill (\$)	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Change in Energy Rate - variable portion (%)		-0.69%		-1.39%		-2.09%		-2.80%		-3.52%		-4.24%		-4.96%
Change in Energy Rate - fixed portion (%)		0.24%		0.48%		0.73%		0.98%		1.23%		1.48%		1.73%
Change in Total Energy Rate (%)		-0.07%		-0.14%		-0.21%		-0.28%		-0.36%		-0.43%		-0.50%
Energy Rate impact due to AC ($\text{\$/kWh}$)		(0.0451)		(0.0902)		(0.1353)		(0.1804)		(0.2255)		(0.2706)		(0.3157)
Energy rate impact due to lost revenues ($\text{\$/kWh}$)		0.0382		0.0764		0.1145		0.1525		0.1905		0.2285		0.2664
Energy rate impact of both ($\text{\$/kWh}$)		(0.0069)		(0.0138)		(0.0208)		(0.0278)		(0.0349)		(0.0421)		(0.0493)
		Averages												
		10 yrs		20 yrs										
Change in Energy Rate - variable portion (\$/MWh)		-\$1.2794		-\$1.8168										
Change in Energy Rate - fixed portion (\$/MWh)		\$0.8919		\$1.2665										
Change in Total Energy Rate (\$/MWh)		-\$0.3875		-\$0.5503										
Customer (\$/Month)		\$0.0000		\$0.0000										
Minimum bill (\$)		\$0.0000		\$0.0000										
Change in Energy Rate - variable portion (%)		-3.90%		-5.54%										
Change in Energy Rate - fixed portion (%)		1.36%		1.93%										
Total Energy Rate (%)														
Energy Rate impact due to AC ($\text{\$/kWh}$)		(0.2480)		(0.3495)										
Energy rate impact due to lost revenues ($\text{\$/kWh}$)		0.2093		0.2945										
Energy rate impact of both ($\text{\$/kWh}$)		(0.0388)		(0.0550)										

	2022	2023	2024	2025	2026	2027	2028	2029	2030
	786,858	794,727	802,674	810,701	818,808	826,996	835,266	843,619	852,055
	9.51	9.51	9.51	9.51	9.51	9.51	9.51	9.51	9.51
	7,480,029	7,554,829	7,630,377	7,706,681	7,783,748	7,861,586	7,940,201	8,019,603	8,099,799
	7,480,029	7,554,829	7,630,377	7,706,681	7,783,748	7,861,586	7,940,201	8,019,603	8,099,799
\$	32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8	\$ 32.8
\$	65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6	\$ 65.6
\$	98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4	\$ 98.4
\$	6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00
\$	8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00
\$	245,321,072	\$ 247,774,283	\$ 250,252,025	\$ 252,754,546	\$ 255,282,091	\$ 257,834,912	\$ 260,413,261	\$ 263,017,394	\$ 265,647,568
\$	490,494,981	\$ 495,399,930	\$ 500,353,930	\$ 505,357,469	\$ 510,411,044	\$ 515,515,154	\$ 520,670,306	\$ 525,877,009	\$ 531,135,779
\$	735,816,052	\$ 743,174,213	\$ 750,605,955	\$ 758,112,015	\$ 765,693,135	\$ 773,350,066	\$ 781,083,567	\$ 788,894,402	\$ 796,783,346
\$	56,653,802	\$ 57,220,340	\$ 57,792,543	\$ 58,370,469	\$ 58,954,174	\$ 59,543,715	\$ 60,139,152	\$ 60,740,544	\$ 61,347,949
\$	792,469,854	\$ 800,394,553	\$ 808,398,498	\$ 816,482,483	\$ 824,647,308	\$ 832,893,781	\$ 841,222,719	\$ 849,634,946	\$ 858,131,296
	69%	69%	69%	69%	69%	69%	69%	69%	69%

	4.0%	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
	232,636	264,333	296,640	299,606	302,602	305,628	308,685	311,772	314,889
	7,247,393	7,290,497	7,333,737	7,407,075	7,481,146	7,555,957	7,631,517	7,707,832	7,784,910
	157	179	201	203	205	207	209	211	213
\$	30.9285	\$ 30.6865	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426
\$	66.8763	\$ 67.0450	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151
\$	97.8049	\$ 97.7316	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577
\$	6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00
\$	8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00
\$	21,169,877	\$ 24,054,272	\$ 26,994,239	\$ 27,264,181	\$ 27,536,823	\$ 27,812,191	\$ 28,090,313	\$ 28,371,216	\$ 28,654,928
\$	5,815,900	\$ 6,608,317	\$ 7,416,000	\$ 7,490,160	\$ 7,565,061	\$ 7,640,712	\$ 7,717,119	\$ 7,794,290	\$ 7,872,233
\$	224,151,195	\$ 223,720,010	\$ 223,257,787	\$ 225,490,364	\$ 227,745,268	\$ 230,022,721	\$ 232,322,948	\$ 234,646,177	\$ 236,992,639
\$	484,679,080	\$ 488,791,614	\$ 492,937,930	\$ 497,867,309	\$ 502,845,982	\$ 507,874,442	\$ 512,953,187	\$ 518,082,718	\$ 523,263,546
\$	708,830,276	\$ 712,511,624	\$ 716,195,717	\$ 723,357,674	\$ 730,591,250	\$ 737,897,163	\$ 745,276,135	\$ 752,728,896	\$ 760,256,185
\$	56,653,802	\$ 57,220,340	\$ 57,792,543	\$ 58,370,469	\$ 58,954,174	\$ 59,543,715	\$ 60,139,152	\$ 60,740,544	\$ 61,347,949
\$	765,484,078	\$ 769,731,964	\$ 773,988,260	\$ 781,728,143	\$ 789,545,424	\$ 797,440,878	\$ 805,415,287	\$ 813,469,440	\$ 821,604,134
	71%	71%	71%	71%	71%	71%	71%	71%	71%

\$	(1.8683)	\$	(2.1103)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)
\$	1.3024	\$	1.4711	\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412
\$	(0.5659)	\$	(0.6392)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)
\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	-5.70%		-6.43%		-7.18%		-7.18%		-7.18%		-7.18%		-7.18%		-7.18%		-7.18%		-7.18%		-7.18%
	1.99%		2.24%		2.50%		2.50%		2.50%		2.50%		2.50%		2.50%		2.50%		2.50%		2.50%
	-0.58%		-0.65%		-0.72%		-0.72%		-0.72%		-0.72%		-0.72%		-0.72%		-0.72%		-0.72%		-0.72%
	(0.3608)		(0.4059)		(0.4510)		(0.4510)		(0.4510)		(0.4510)		(0.4510)		(0.4510)		(0.4510)		(0.4510)		(0.4510)
	0.3042		0.3419		0.3797		0.3797		0.3797		0.3797		0.3797		0.3797		0.3797		0.3797		0.3797
	(0.0566)		(0.0639)		(0.0713)		(0.0713)		(0.0713)		(0.0713)		(0.0713)		(0.0713)		(0.0713)		(0.0713)		(0.0713)



	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>
	860,575	869,181	877,873	886,652
	9.51	9.51	9.51	9.51
	8,180,797	8,262,605	8,345,231	8,428,684
	8,180,797	8,262,605	8,345,231	8,428,684
\$	32.8	\$ 32.8	\$ 32.8	\$ 32.8
\$	65.6	\$ 65.6	\$ 65.6	\$ 65.6
\$	98.4	\$ 98.4	\$ 98.4	\$ 98.4
\$	6.00	\$ 6.00	\$ 6.00	\$ 6.00
\$	8.00	\$ 8.00	\$ 8.00	\$ 8.00
\$	268,304,043	\$ 270,987,084	\$ 273,696,955	\$ 276,433,924
\$	536,447,137	\$ 541,811,608	\$ 547,229,724	\$ 552,702,021
\$	804,751,180	\$ 812,798,692	\$ 820,926,679	\$ 829,135,945
\$	61,961,429	\$ 62,581,043	\$ 63,206,854	\$ 63,838,922
\$	866,712,609	\$ 875,379,735	\$ 884,133,532	\$ 892,974,868
	69%	69%	69%	69%

	5.0%	5.0%	5.0%	5.0%
	318,038	321,219	324,431	327,675
	7,862,759	7,941,387	8,020,801	8,101,009
	215	217	219	222
\$	30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426
\$	67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151
\$	97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577
\$	6.00	\$ 6.00	\$ 6.00	\$ 6.00
\$	8.00	\$ 8.00	\$ 8.00	\$ 8.00
\$	28,941,478	\$ 29,230,893	\$ 29,523,201	\$ 29,818,433
\$	7,950,955	\$ 8,030,465	\$ 8,110,770	\$ 8,191,877
\$	239,362,566	\$ 241,756,191	\$ 244,173,753	\$ 246,615,491
\$	528,496,181	\$ 533,781,143	\$ 539,118,954	\$ 544,510,144
\$	767,858,747	\$ 775,537,334	\$ 783,292,708	\$ 791,125,635
\$	61,961,429	\$ 62,581,043	\$ 63,206,854	\$ 63,838,922
\$	829,820,176	\$ 838,118,377	\$ 846,499,561	\$ 854,964,557
	71%	71%	71%	71%

\$	(2.3542)	\$	(2.3542)	\$	(2.3542)	\$	(2.3542)
\$	1.6412	\$	1.6412	\$	1.6412	\$	1.6412
\$	(0.7131)	\$	(0.7131)	\$	(0.7131)	\$	(0.7131)
\$	-	\$	-	\$	-	\$	-
\$	-	\$	-	\$	-	\$	-
	-7.18%		-7.18%		-7.18%		-7.18%
	2.50%		2.50%		2.50%		2.50%
	-0.72%		-0.72%		-0.72%		-0.72%
	(0.4510)		(0.4510)		(0.4510)		(0.4510)
	0.3797		0.3797		0.3797		0.3797
	(0.0713)		(0.0713)		(0.0713)		(0.0713)

		2015	2016	2017	2018	2019	2020
No DG PV Case							
Rates							
Energy Rate - variable portion (\$/MWh)	\$	32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968
Energy Rate - fixed portion (\$/MWh)	\$	65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739
Total Energy Rate (\$/MWh)	\$	98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708
Customer (\$/Month)	\$	6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0
Minimum bill (\$)	\$	8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0
With DG PV							
Rates							
Energy Rate - variable portion (\$/MWh)	\$	32.5697	\$ 32.3407	\$ 32.1100	\$ 31.8774	\$ 31.6430	\$ 31.4068
Energy Rate - fixed portion (\$/MWh)	\$	65.7323	\$ 65.8919	\$ 66.0527	\$ 66.2149	\$ 66.3783	\$ 66.5430
Total Energy Rate (\$/MWh)	\$	98.3019	\$ 98.2326	\$ 98.1627	\$ 98.0923	\$ 98.0213	\$ 97.9497
Customer (\$/Month)	\$	6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0
Minimum bill (\$)	\$	8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0
Year-to-Year Impacts							
Rates - Change from Previous Year							
Energy Rate - variable portion (\$/MWh)	----	\$	(0.2289)	\$ (0.2307)	\$ (0.2326)	\$ (0.2344)	\$ (0.2363)
Energy Rate - fixed portion (\$/MWh)	----	\$	0.1596	\$ 0.1608	\$ 0.1621	\$ 0.1634	\$ 0.1647
Total Energy Rate (\$/MWh)	----	\$	(0.0693)	\$ (0.0699)	\$ (0.0704)	\$ (0.0710)	\$ (0.0716)
Customer (\$/Month)	----	\$	-	\$ -	\$ -	\$ -	\$ -
Minimum bill (\$)	----	\$	-	\$ -	\$ -	\$ -	\$ -
Energy Rate - variable portion (%)	----		-0.70%	-0.71%	-0.72%	-0.74%	-0.75%
Energy Rate - fixed portion (%)	----		0.24%	0.24%	0.25%	0.25%	0.25%
Total Energy Rate (%)	----		-0.07%	-0.07%	-0.07%	-0.07%	-0.07%

2021	2022	2023	2024	2025	2026	2027
\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968
\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739
\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708
\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0
\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0
\$ 31.1686	\$ 30.9285	\$ 30.6865	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426
\$ 66.7090	\$ 66.8763	\$ 67.0450	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151
\$ 97.8776	\$ 97.8049	\$ 97.7316	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577
\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0
\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0
\$ (0.2382)	\$ (0.2401)	\$ (0.2420)	\$ (0.2440)	\$ -	\$ -	\$ -
\$ 0.1660	\$ 0.1674	\$ 0.1687	\$ 0.1701	\$ -	\$ -	\$ -
\$ (0.0721)	\$ (0.0727)	\$ (0.0733)	\$ (0.0739)	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-0.76%	-0.77%	-0.78%	-0.80%	0.00%	0.00%	0.00%
0.25%	0.25%	0.25%	0.25%	0.00%	0.00%	0.00%
-0.07%	-0.07%	-0.07%	-0.08%	0.00%	0.00%	0.00%

2028	2029	2030	2031	2032	2033	2034
\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968	\$ 32.7968
\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739	\$ 65.5739
\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708	\$ 98.3708
\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0
\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0
\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426	\$ 30.4426
\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151	\$ 67.2151
\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577	\$ 97.6577
\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0	\$ 6.0
\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0	\$ 8.0
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 1: RMP Residential Tariff				
https://www.rockymountainpower.net/content/dam/rocky_mountain_power/doc/About_Us/Rates_and_Regulation/Utah/Approved_Tariffs/Rate_Schedules/Residential_Service.pdf				
Customer Charge				
Single Phase			6 per customer month	
Three phase			12 per customer month	
Energy Charge	cents per kwh		usage block	
Summer Block 1	8.8498	400 kWh		5 moths of the year
Summer Block 2	11.5429	600 kWh		5 moths of the year
Summer Block 3	14.4508	all remainir		5 moths of the year
Winter Block 1	8.8498	400		7 months of the year
Winter Block 2	10.3111	600 all remainir		7 months of the year
Summer Average	10.19635	Synapse Calculation		
Winter Average	9.58045	Synapse Calculation		
Annual Weighted Average	9.837075	Synapse Calculation		
Minimum Bill				
Single Phase			8 per customer month	
Three phase			16 per customer month	

Table 2: Utah Solar Generation Profile				
Available online at: www.pvwatts.nrel.gov				
PVWatts: Monthly PV Performance Data				
Requested Location:	Salt Lake City Utah			
Location:	SALT LAKE CITY, UT			
Lat (deg N):	40.77			
Long (deg W):	111.97			
Elev (m):	1288			
DC System Size (kW):	5			
Module Type:	Standard			
Array Type:	Fixed (roof mount)			
Array Tilt (deg):	20			
Array Azimuth (deg):	180			
System Losses:	14			
Invert Efficiency:	96			
DC to AC Size Ratio:	1.1			
Average Cost of Electricity Purchased from Utility:	0.1			
Initial Cost:	3.3			
Cost of Electricity Generated by System (\$/kWh)	0.18			
Month	AC System Output(kWh)	Solar Radi Plane of Ar	DC array C Value (\$)	
1	362.8890076	2.756125	85.43987	381.1025 37.41
2	455.8474121	3.898676	109.1629	477.0622 47
3	608.9019165	4.835629	149.9045	636.7689 62.78
4	678.0981445	5.717371	171.5211	708.8629 69.91
5	836.8475952	7.018649	217.5781	873.9233 86.28
6	802.8485107	7.256892	217.7068	838.452 82.77
7	840.4923706	7.551991	234.1117	877.5559 86.65
8	812.5726318	7.217674	223.7479	848.5435 83.78
9	698.034729	6.16008	184.8024	728.7742 71.97
10	594.208374	4.935166	152.9901	620.8773 61.26
11	401.7036743	3.314213	99.42639	421.0105 41.42
12	298.8479309	2.268929	70.3368	314.5163 30.81
Total	7391.292297	62.93139	1916.729	7727.45 762.04

Table 3: Avoided Costs in Utah		
Value of Solar in Utah Clean Power Research 2014.		
Available online: http://www.psc.utah.gov/utilities/electric/13docs/13035184255147Exhibit%20A%20to%20Wright%20Testimony%20-%20UCE%20_1%20DT%20-%20Value%20of%20Solar%20in%20Utah%205-22-2014.pdf		
Fuel Value	0.043 (\$/kWh)	43 \$/MWh
Plant O&M Value	0.013 (\$/kWh)	13 \$/MWh
Generation Capacity Value	0.014 (\$/kWh)	14 \$/MWh
Avoided T&D Capacity Cost	0.011 (\$/kWh)	11 \$/MWh
Avoided Environmental Cost	0.009 (\$/kWh)	9 \$/MWh
Fuel Price Guarantee Value	0.026 (\$/kWh)	26 \$/MWh

Table 4: Conversion factors	
kWh per MWh	1000
cents per dollar	100