

Exhibit D



MEMORANDUM

To: Lin Alder, Rocky Mountain Power
From: Dimitry Burdjalov and Andy Hudson, AEG
CC: Clay Monroe, Rocky Mountain Power
Date: November 1, 2021
Re: Utah Wattsmart Business Program Cost-Effectiveness Analysis, Low (-10%) Participation – PY2022-2023

AEG estimated the cost-effectiveness of Rocky Mountain Power's Wattsmart Business Program in the state of Utah using expected participation rates based on Program Year (PY) 2022 and 2023 costs and savings estimates developed by AEG and confirmed by Rocky Mountain Power. This memo provides cost-effectiveness results at the program level for the low (-10% participation) case. The program passes the Utility Cost Test (UCT) and the Participant Cost Test (PCT) under these conditions.

This memo provides analysis inputs and results in the following tables:

- Table 1: Cost-Effectiveness Analysis Inputs
- Table 2: Annual Program Costs by Program Year, Nominal - PY2022-2023
- Table 3: Annual Savings in kWh by Program Year - PY2022-2023
- Table 4: Benefit/Cost Ratios by Program Year - PY2022-2023
- Table 5: Wattsmart Business Program Cost-Effectiveness Results, PY2022-2023
- Table 6: Wattsmart Business Program Cost-Effectiveness Results, PY2022
- Table 7: Wattsmart Business Program Cost-Effectiveness Results, PY2023
- Table 8: Wattsmart Business Measure Category Level Cost-Effectiveness Results, PY2022
- Table 9: Wattsmart Business Measure Category Level Cost-Effectiveness Results, PY2023



The following assumptions were utilized in the analysis:

- **Avoided Costs:** Hourly values provided by Rocky Mountain Power based on the 2019 Integrated Resource Plan (IRP) Preferred Portfolio, converted into annual values using Utah load shapes from the same IRP.
- **Modeling Inputs:** measure savings, costs, measure lives, incentive levels, program delivery, and portfolio costs were based on estimates developed by implementers, developed and reviewed by AEG, or provided by Rocky Mountain Power.
- **Other Economic Assumptions:** Discount rate, line loss, retail rate, and inflation rate values were provided by Rocky Mountain Power and are presented in Table 1 below.

The following tables summarize cost-effectiveness assumptions and results for the Utah Wattsmart Business Program. The cost-effectiveness analysis inputs are shown in Table 2 and Table 3 below. Tables 4 through 7 present the cost-effectiveness results of the Wattsmart Business program for 2022 and 2023 individually as well as for 2022 and 2023 combined. All results are presented in 2022 dollars¹. Tables 8 and 9 present results at the measure category level for 2022 and 2023, respectively.

Table 1: Cost-Effectiveness Analysis Inputs

Parameter	PY2022	PY2023
Discount Rate	6.92%	6.92%
Commercial Line Loss	5.86%	5.86%
Industrial Line Loss	4.10%	4.10%
Irrigation Line Loss	6.34%	6.34%
Commercial Energy Rate (\$/kWh)	\$0.0809	\$0.0827
Industrial Energy Rate (\$/kWh)	\$0.0568	\$0.0581
Irrigation Energy Rate (\$/kWh)	\$0.0728	\$0.0745
Inflation Rate ²	2.28%	2.28%
Parameter	PY2022	PY2023

Table 2: Annual Program Costs by Program Year, Nominal - PY2022-2023

Program Year	Program Delivery	Utility Admin	Incentives	Total Utility Costs	Gross Customer Costs
2022	\$6,343,000	\$335,310	\$13,517,988	\$20,196,298	\$43,967,384
2023	\$6,533,290	\$345,369	\$15,556,073	\$22,434,732	\$42,531,623
2022-2023	\$12,876,290	\$680,678	\$29,074,062	\$42,631,030	\$86,499,007

¹ To align with annual budget expectations, cost-effectiveness inputs are presented in nominal dollars.

² Future rates determined using a 2.28% annual escalator.



Table 3: Annual Savings in kWh by Program Year - PY2022-2023

Program Year	Gross kWh Savings at Site	Realization Rate	Adjusted Gross kWh Savings at Site	Net to Gross Ratio	Net kWh Savings at Site	Measure Life
2022	\$85,640,660	97%	\$83,277,875	84%	\$70,189,270	14.15
2023	\$85,884,795	96%	\$82,096,536	84%	\$69,064,960	14.76
2022-2023	\$171,525,455	96%	\$165,374,410	84%	\$139,254,230	14.46

Table 4: Benefit/Cost Ratios by Program Year - PY2022-2023

Program Year	UCT	TRC	PTRC	PCT	RIM
2022	1.80	0.86	0.94	1.92	0.40
2023	1.74	0.88	0.97	1.95	0.41
2022-2023	1.77	0.87	0.95	1.94	0.40

Table 5: Wattsmart Business Program Cost-Effectiveness Results, PY2022-2023

Cost-Effectiveness Test	Levelized \$/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Utility Cost Test (UCT)	\$0.0296	\$41,179,025	\$72,902,805	\$31,723,779	1.77
Total Resource Cost Test (TRC) No Adder	\$0.0614	\$84,018,016	\$72,902,805	(\$11,115,211)	0.87
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0614	\$84,018,016	\$80,193,085	(\$3,824,931)	0.95
Participant Cost Test (PCT)		\$86,499,007	\$167,499,307	\$81,000,300	1.94
Rate Impact Test (RIM)		\$180,399,261	\$72,902,805	(\$107,496,456)	0.40
Lifecycle Revenue Impacts (\$/kWh)					\$0.0006953



Table 6: Wattsmart Business Program Cost-Effectiveness Results, PY2022

Cost-Effectiveness Test	Levelized \$/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Utility Cost Test (UCT)	\$0.0281	\$20,196,298	\$36,346,540	\$16,150,242	1.80
Total Resource Cost Test (TRC) No Adder	\$0.0601	\$42,507,349	\$36,346,540	(\$6,160,808)	0.86
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0601	\$42,507,349	\$39,981,194	(\$2,526,154)	0.94
Participant Cost Test (PCT)		\$43,967,384	\$84,534,821	\$40,567,436	1.92
Rate Impact Test (RIM)		\$91,103,679	\$36,346,540	(\$54,757,139)	0.40
Lifecycle Revenue Impacts (\$/kWh)					\$0.0003604

Table 7: Wattsmart Business Program Cost-Effectiveness Results, PY2023

Cost-Effectiveness Test	Levelized \$/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Utility Cost Test (UCT)	\$0.0312	\$20,982,728	\$36,556,265	\$15,573,537	1.74
Total Resource Cost Test (TRC) No Adder	\$0.0627	\$41,510,667	\$36,556,265	(\$4,954,403)	0.88
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0627	\$41,510,667	\$40,211,891	(\$1,298,776)	0.97
Participant Cost Test (PCT)		\$42,531,623	\$82,964,486	\$40,432,864	1.95
Rate Impact Test (RIM)		\$89,295,582	\$36,556,265	(\$52,739,317)	0.41
Lifecycle Revenue Impacts (\$/kWh)					\$0.0003735

Table 8: Wattsmart Business Measure Category Level Cost-Effectiveness Results, PY2022

Program	Measure Category	Utility Benefits (\$)	Utility Costs (\$)	Utility Cost Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	Participant PV Benefits (\$)	Participant PV Costs (\$)	PCT Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test
Wattsmart Business	Building Shell	\$674,736	\$577,752	1.17	\$674,736	\$1,511,306	0.45	\$742,209	\$1,511,306	0.49	\$1,761,897	\$1,717,690	1.03	\$674,736	\$1,963,275	0.34
Wattsmart Business	Compressed Air	\$1,095,362	\$500,212	2.19	\$1,095,362	\$713,053	1.54	\$1,204,898	\$713,053	1.69	\$1,733,839	\$581,850	2.98	\$1,095,362	\$1,978,450	0.55
Wattsmart Business	Energy Mngmt.	\$989,394	\$713,491	1.39	\$989,394	\$1,425,643	0.69	\$1,088,333	\$1,425,643	0.76	\$2,199,196	\$1,360,598	1.62	\$989,394	\$2,457,326	0.40
Wattsmart Business	Farm & Dairy	\$109,954	\$72,317	1.52	\$109,954	\$112,349	0.98	\$120,949	\$112,349	1.08	\$202,997	\$100,800	2.01	\$109,954	\$240,114	0.46
Wattsmart Business	Food Service	\$174,882	\$92,858	1.88	\$174,882	\$185,440	0.94	\$192,371	\$185,440	1.04	\$423,991	\$175,386	2.42	\$174,882	\$480,661	0.36
Wattsmart Business	HVAC	\$7,330,235	\$7,585,545	0.97	\$7,330,235	\$14,145,953	0.52	\$8,063,258	\$14,145,953	0.57	\$24,134,636	\$17,758,934	1.36	\$7,330,235	\$26,723,512	0.27
Wattsmart Business	Irrigation	\$788,038	\$437,239	1.80	\$788,038	\$665,157	1.18	\$866,842	\$665,157	1.30	\$1,632,693	\$620,342	2.63	\$788,038	\$1,836,908	0.43
Wattsmart Business	Lighting	\$24,451,517	\$9,723,343	2.51	\$24,451,517	\$23,201,334	1.05	\$26,896,669	\$23,201,334	1.16	\$50,411,831	\$21,143,361	2.38	\$24,451,517	\$54,754,547	0.45
Wattsmart Business	Motors	\$440,935	\$168,059	2.62	\$440,935	\$206,339	2.14	\$485,029	\$206,339	2.35	\$918,000	\$131,225	7.00	\$440,935	\$1,025,736	0.43
Wattsmart Business	Refrigeration	\$256,033	\$267,431	0.96	\$256,033	\$231,638	1.11	\$281,637	\$231,638	1.22	\$877,664	\$245,700	3.57	\$256,033	\$1,001,895	0.26
Wattsmart Business	Water Heating	\$35,454	\$58,052	0.61	\$35,454	\$109,137	0.32	\$39,000	\$109,137	0.36	\$128,626	\$131,499	0.98	\$35,454	\$143,252	0.25

Table 9: Wattsmart Business Measure Category Level Cost-Effectiveness Results, PY2023

Program	Measure Category	Utility Benefits (\$)	Utility Costs (\$)	Utility Cost Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	Participant PV Benefits (\$)	Participant PV Costs (\$)	PCT Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test
Wattsmart Business	Building Shell	\$206,896	\$169,734	1.22	\$206,896	\$440,386	0.47	\$227,585	\$440,386	0.52	\$521,723	\$498,921	1.05	\$206,896	\$581,683	0.36
Wattsmart Business	Compressed Air	\$1,122,446	\$492,618	2.28	\$1,122,446	\$700,286	1.60	\$1,234,691	\$700,286	1.76	\$1,712,795	\$566,919	3.02	\$1,122,446	\$1,956,628	0.57
Wattsmart Business	Energy Mngmt.	\$5,761,937	\$4,697,561	1.23	\$5,761,937	\$8,293,968	0.69	\$6,338,131	\$8,293,968	0.76	\$13,389,823	\$8,059,155	1.66	\$5,761,937	\$14,836,955	0.39
Wattsmart Business	Farm & Dairy	\$136,885	\$85,692	1.60	\$136,885	\$132,493	1.03	\$150,574	\$132,493	1.14	\$241,679	\$117,845	2.05	\$136,885	\$286,219	0.48
Wattsmart Business	Food Service	\$174,274	\$88,310	1.97	\$174,274	\$174,899	1.00	\$191,701	\$174,899	1.10	\$404,723	\$164,035	2.47	\$174,274	\$459,187	0.38
Wattsmart Business	HVAC	\$6,867,940	\$6,919,033	0.99	\$6,867,940	\$12,111,905	0.57	\$7,554,734	\$12,111,905	0.62	\$22,295,663	\$15,265,248	1.46	\$6,867,940	\$24,611,404	0.28
Wattsmart Business	Irrigation	\$817,342	\$431,826	1.89	\$817,342	\$648,094	1.26	\$899,077	\$648,094	1.39	\$1,629,379	\$596,904	2.73	\$817,342	\$1,834,285	0.45
Wattsmart Business	Lighting	\$20,705,735	\$7,592,667	2.73	\$20,705,735	\$18,460,105	1.12	\$22,776,309	\$18,460,105	1.23	\$40,695,384	\$16,757,618	2.43	\$20,705,735	\$44,119,990	0.47
Wattsmart Business	Motors	\$436,363	\$159,989	2.73	\$436,363	\$195,792	2.23	\$480,000	\$195,792	2.45	\$876,714	\$122,732	7.14	\$436,363	\$980,285	0.45
Wattsmart Business	Refrigeration	\$291,341	\$290,745	1.00	\$291,341	\$250,409	1.16	\$320,475	\$250,409	1.28	\$972,233	\$259,259	3.75	\$291,341	\$1,109,593	0.26
Wattsmart Business	Water Heating	\$35,104	\$54,553	0.64	\$35,104	\$102,331	0.34	\$38,614	\$102,331	0.38	\$122,002	\$122,988	0.99	\$35,104	\$135,940	0.26