

2022 SD DSM Plan Cost-Effectiveness Analysis

HEAT PUMP WATER HEATERS						2022	ELECTRIC	GOAL
2022 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Total Resource Test (\$Total)	Societal Test (\$Total)	Program "Inputs" per Customer kW		
Benefits						Lifetime (Weighted on Generator kWh)	A	13.0 years
Avoided Revenue Requirements						Annual Hours	B	8760
Generation	N/A	\$4,768	\$4,768	\$4,768	\$4,768	Gross Customer kW	C	1 kW
T & D	N/A	\$845	\$845	\$845	\$845	Generator Peak Coincidence Factor	D	100.00%
Marginal Energy	N/A	\$14,186	\$14,186	\$14,186	\$14,186	Gross Load Factor at Customer	E	89.75%
Environmental Externality	N/A	N/A	N/A	N/A	\$1	Transmission Loss Factor (Energy)	F	5.830%
Subtotal	N/A	\$19,800	\$19,800	\$19,800	\$19,801	Transmission Loss Factor (Demand)	G	7.100%
Participant Benefits						Societal Net Benefit (Cost)	H	\$2
Bill Reduction - Electric	\$70,941	N/A	N/A	N/A	N/A	Program Summary per Participant		
Rebates from Xcel Energy	\$8,400	N/A	N/A	\$8,400	\$8,400	Gross kW Saved at Customer	I	0.35 kW
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Subtotal	\$79,341	N/A	N/A	\$8,400	\$8,400	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Total Benefits						Program Summary All Participants		
Total Benefits	\$79,341	\$19,800	\$19,800	\$28,200	\$28,201	Total Participants	J	21
Costs						Total Budget	K	\$10,250
Utility Project Costs						Gross kW Saved at Customer	$(J \times I)$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Administration	N/A	\$1,850	\$1,850	\$1,850	\$1,850	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Societal Net Benefits	$(J \times I \times H)$	
Rebates	N/A	\$8,400	\$8,400	\$8,400	\$8,400	Utility Program Cost per kWh Lifetime		
Other	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Subtotal	N/A	\$10,250	\$10,250	\$10,250	\$10,250			\$942.86
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$70,941	N/A	N/A			
Subtotal	N/A	N/A	\$70,941	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$16,464	N/A	N/A	\$16,464	\$16,464			
Incremental O&M Costs	\$1,476	N/A	N/A	\$1,476	\$1,476			
Subtotal	\$17,940	N/A	N/A	\$17,940	\$17,940			
Total Costs								
Total Costs	\$17,940	\$10,250	\$81,191	\$28,190	\$28,190			
Net Benefit (Cost)	\$61,401	\$9,550	(\$61,391)	\$10	\$11			
Benefit/Cost Ratio	4.42	1.93	0.24	1.00	1.00			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.