

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

	A	B	C	D	E	F	G	H	I	J
ENERGY EFFICIENCY - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - PROGRAM PORTFOLIO DESCRIPTIONS (1 Year)										
PROGRAMS	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Particip-	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	pants 1 Years	
1 ThermWise® Appliance Rebate	\$4,232,391	1.65	\$27,554,684	4.97	\$4,600,921	1.75	-\$3,057,391	0.78	30,587	
2 ThermWise® Builder Rebates	\$2,036,385	1.29	\$18,385,558	3.27	\$3,282,383	1.56	-\$2,277,388	0.80	18,423	
3 ThermWise® Business Rebates	\$197,563	1.04	\$10,732,282	3.39	\$1,961,953	1.63	-\$1,592,576	0.76	2,778	
4 ThermWise® Weatherization Rebates	\$1,264,052	1.15	\$18,103,667	2.90	\$1,645,172	1.21	-\$3,734,081	0.72	31,943	
5 ThermWise® Home Energy Plan	\$93,791	1.17	\$2,068,010	50.46	\$85,429	1.15	-\$430,952	0.61	2,240	
6 Low Income Efficiency Program	\$393,018	1.42	\$2,956,367	6.96	\$452,079	1.52	-\$446,467	0.75	2,505	
7 Energy Comparison Report	\$60,278	1.11	\$2,252,396	5.25	\$60,278	1.11	-\$667,500	0.49	266,600	
8 Market Transformation Initiative	-\$1,320,000	0.00	\$0	N/A	-\$1,320,000	0.00	-\$1,320,000	0	-	
9 <b>Totals</b>	<b>\$6,957,478</b>	<b>1.23</b>	<b>\$82,052,963</b>	<b>3.72</b>	<b>\$10,768,214</b>	<b>1.41</b>	<b>-\$13,526,355</b>	<b>0.73</b>	<b>88,476</b>	

Note: B/C = Net Present Value of Benefits divided by Net Present Value of Costs

\*2,240 is the projected number of 2020 Home Energy Plans / 12,160 represents projected efficiency measures to be distributed to participants.

\*\*Total participation reflects rebate and energy plan participants. Energy Comparison Report participants are shown only for the purpose of calculating cost effectiveness.

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

	A	B	C	D	E	F	G	H	I	J
COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - THERMWISE APPLIANCE REBATES PROGRAM (1 Year)										
MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Participants	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	1 Years	
1	95% Gas Furnace (appliance)	\$3,399,152	3.33	\$13,937,567	8.66	\$1,855,152	1.62	-\$1,487,897	0.77	10,000
2	98% Gas Furnace (appliance)	\$23,670	1.05	\$1,109,799	2.71	\$210,250	1.63	-\$163,464	0.77	950
3	Gas Water Heater - Tier 2 (appliance)	-\$57,893	0.55	\$145,383	1.90	-\$29,093	0.71	-\$81,015	0.47	1,000
4	Condensing Gas Water Heater (appliance)	-\$53,248	0.39	\$46,618	1.43	-\$21,568	0.61	-\$46,781	0.42	160
5	Hybrid Gas Water Heater (appliance)	-\$16,144	0.36	\$6,268	1.20	-\$3,458	0.73	-\$9,817	0.48	36
6	Residential Boiler - Tier 1 (appliance)	\$8,572	2.08	\$40,132	5.04	\$7,727	1.88	-\$2,657	0.86	22
7	Residential Boiler - Tier 2 (appliance)	\$13,106	1.13	\$230,613	2.79	\$47,422	1.69	-\$25,726	0.82	115
8	Solar Water Heater - Domestic (appliance)	-\$2,712	0.75	-\$144	0.99	-\$162	0.93	-\$1,424	0.59	3
9	Solar Water Heater - Pool (appliance)	\$8,819	2.63	\$21,604	4.20	\$5,969	3.65	\$1,001	1.14	3
10	Tankless Gas Water Heater - (appliance)	-\$55,765	0.91	\$1,084,647	2.40	\$114,635	1.25	-\$240,127	0.70	1,500
11	Direct Vent Fireplace - Tier 1 (appliance)	\$45,502	1.11	\$870,618	2.74	\$245,502	2.23	-\$61,251	0.88	1,000
12	Smart Thermostat (appliance)	\$1,849,259	1.91	\$9,473,064	4.71	\$3,139,259	5.19	\$185,216	1.05	15,000
13	Boiler Reset Control (Appliance)	-\$1,007	0.50	\$711	1.28	\$493	1.99	-\$217	0.82	5
14	Combined Space and Hot Water (Appliance)	-\$19,314	0.42	\$16,521	1.40	-\$4,252	0.76	-\$14,694	0.48	24
15	Smart Water Heater Controller (appliance)	-\$14,816	0.38	\$8,972	1.30	-\$816	0.92	-\$8,105	0.53	200
16	95% Gas Furnace (existing multifamily)	\$108,701	2.49	\$535,918	6.89	\$31,501	1.21	-\$93,473	0.66	500
17	98% Gas Furnace (existing multifamily)	-\$587	0.79	\$3,971	2.16	\$395	1.23	-\$1,082	0.66	5
18	Gas Water Heater Tier 2 (existing multifamily)	-\$378	0.41	\$469	1.58	-\$234	0.53	-\$429	0.38	5
19	Condensing Gas Water Heater (existing multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
20	Hybrid Gas Water Heater (existing multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
21	Residential Boiler - Tier 1 (existing multifamily)	\$119	1.33	\$1,123	3.48	\$80	1.20	-\$210	0.70	1
22	Residential Boiler - Tier 2 (existing multifamily)	-\$258	0.71	\$1,044	1.93	\$41	1.07	-\$347	0.65	1
23	Solar Water Heater - Domestic (existing multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
24	Solar Water Heater - Pool (existing multifamily)	\$2,940	2.63	\$7,201	4.20	\$1,990	3.65	\$334	1.14	1
25	Tankless Gas Water Heater - (existing multifamily)	-\$173	0.58	\$385	1.74	-\$59	0.80	-\$210	0.53	1
26	Direct Vent Fireplace - Tier 1 (existing multifamily)	-\$1,154	0.42	\$722	1.29	-\$154	0.85	-\$737	0.53	5
27	Smart Thermostat (existing multifamily)	-\$770	0.89	\$11,478	2.35	\$3,530	2.41	-\$1,050	0.85	50
28	Smart Water Heater Controller (existing multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
29	Combined Space and Hot Water (existing multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
30	Program Costs	-\$1,003,229	0.00	\$0	N/A	-\$1,003,229	0.00	-\$1,003,229	0.00	0
31	<b>Totals</b>	<b>\$4,232,391</b>	<b>1.65</b>	<b>\$27,554,684</b>	<b>4.97</b>	<b>\$4,600,921</b>	<b>1.75</b>	<b>-\$3,057,391</b>	<b>0.78</b>	<b>30,587</b>

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - THERMWISE BUSINESS REBATES PROGRAM (1 Year)										
MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Particip- ants	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	1 Years	
1	95% Gas Furnace (business)	\$406,283	5.0	\$1,417,971	12.1	\$298,203	2.4	-\$51,724	0.9	700
2	98% Gas Furnace (business)	\$16,199	1.6	\$97,702	3.9	\$26,019	2.5	-\$3,946	0.9	50
3	Boiler Hot Water ≥ 2,500,000 Btu/h (business)	\$61,145	1.3	\$629,284	3.2	\$148,895	2.0	-\$54,329	0.8	15
4	Boiler Hot Water ≥ 2,500,000 Btu/h 95% + (business)	\$62,926	1.3	\$534,854	3.2	\$149,926	2.4	-\$25,605	0.9	10
5	Boiler Reset Control	\$23,886	4.6	\$74,467	9.9	\$28,066	12.2	\$7,020	1.3	10
6	Boiler Steam (Except Natural Draft) ≥ 300,000 Btu/h (business)	-\$118,950	0.5	\$147,349	1.5	\$5,968	1.1	-\$80,641	0.6	10
7	Boiler Steam (Natural Draft) ≥ 300,000 Btu/h (business)	\$13,071	1.1	\$446,643	3.0	\$87,416	1.8	-\$61,056	0.8	10
8	Boiler Tune-up - Tier 1	-\$1,039	0.7	\$8,473	3.0	-\$159	0.9	-\$2,832	0.5	25
9	Boiler Tune-up - Tier 2	-\$138	0.9	\$9,079	3.9	\$334	1.2	-\$2,331	0.5	10
10	Boiler Tune-up - Tier 3	-\$5,665	0.7	\$47,662	3.0	\$1,759	1.1	-\$13,949	0.5	40
11	Building Shell - Attic Insulation (retrofit)	\$23,847	1.4	\$125,073	2.8	\$51,847	2.9	\$8,066	1.1	25
12	Building Shell - Wall Insulation (retrofit)	-\$24,560	0.5	\$3,742	1.1	\$14,640	2.2	\$33	1.0	10
13	Business Custom	\$171,421	1.3	\$1,337,798	3.4	\$451,421	2.6	-\$57,332	0.9	20
14	Charbroiler	-\$23,210	0.2	-\$11,436	0.7	\$1,790	1.4	-\$3,416	0.7	5
15	Charbroiler (Used)	-\$1,715	0.3	\$330	1.1	\$385	1.8	-\$377	0.7	1
16	Combination Oven	-\$73,481	0.2	-\$41,541	0.6	-\$2,009	0.9	-\$15,057	0.5	20
17	Combination Oven (Used)	-\$1,642	0.3	-\$292	0.9	\$145	1.3	-\$366	0.6	1
18	Combined Space / Water Heater (business)	-\$830	0.4	\$241	1.1	\$97	1.2	-\$283	0.7	1
19	Commercial Fryer	-\$12,429	0.6	\$34,452	1.9	\$1,827	1.1	-\$12,013	0.6	20
20	Commercial Fryer (Used)	-\$268	0.6	\$1,290	2.4	\$89	1.2	-\$363	0.6	1
21	Commercial Tankless Water Heater - <200kBTU	\$8,183	1.2	\$87,256	3.1	\$30,583	2.5	-\$3,269	0.9	50
22	Commercial Tankless Water Heater - >200kBTU	\$8,347	1.2	\$89,002	3.1	\$31,195	2.5	-\$3,334	0.9	20
23	Commercial Tankless Water Heater - >200kBTU 90%	\$38,929	1.7	\$177,313	4.3	\$61,573	3.0	-\$198	1.0	20
24	Condensing Gas Water Heater (business)	-\$998	0.5	\$1,960	1.7	-\$206	0.9	-\$1,037	0.5	4
25	Condensing RTU's (business)	-\$2,865	0.6	\$5,936	1.6	\$2,760	2.5	-\$760	0.9	1
26	Convection Oven	-\$17,303	0.6	\$48,999	1.8	\$11,107	1.6	-\$11,334	0.7	25
27	Convection Oven (Used)	-\$556	0.4	\$438	1.4	\$13	1.0	-\$294	0.6	1
28	Conveyor Oven	-\$9,058	0.5	\$10,299	1.4	\$4,866	2.0	-\$2,289	0.8	5
29	Conveyor Oven (Used)	-\$478	0.7	\$2,668	2.1	\$915	2.8	-\$206	0.9	1
30	Demand Control Ventilation Systems (DCV) Tier 1	-\$27,269	0.4	\$24,109	1.4	\$4,731	1.3	-\$13,116	0.6	40
31	Demand Control Ventilation Systems (DCV) Tier 2	-\$4,486	0.9	\$57,136	2.5	\$15,914	2.6	-\$6,395	0.8	10
32	Direct Contact Water Heater	\$1,997	5.2	\$5,744	10.8	\$2,169	8.3	\$678	1.4	1
33	Direct Fired Heater	\$17,943	4.0	\$63,427	9.5	\$17,943	4.0	\$1,897	1.1	5
34	Energy Star Commercial Clothes Washer (business 2010 specs)	\$108	1.1	\$3,158	3.3	\$444	1.6	-\$504	0.7	10
35	Gas Dryer Moisture Sensor	\$44	1.3	\$455	3.3	\$178	8.1	\$22	1.1	1
36	Gas Storage Water Heater - (business) >75kBTU	\$137,722	1.6	\$840,513	3.8	\$291,802	4.2	\$26,233	1.1	150
37	Gas Storage Water Heater - (business) Tier 2	-\$2,346	0.3	-\$638	0.8	-\$146	0.9	-\$740	0.5	10
38	Gas Unit Heater Condensing	-\$9,706	0.6	\$25,049	1.8	\$14	1.0	-\$10,178	0.6	10
39	Gas Unit Heater NonCondensing	-\$47	1.0	\$3,719	2.5	\$703	1.6	-\$524	0.8	5
40	Green Certified New Buildings	\$34,936	1.2	\$253,773	2.4	\$153,936	7.2	\$51,097	1.4	5
41	Griddle	-\$1,923	0.5	\$2,024	1.4	\$185	1.1	-\$1,081	0.6	5
42	Griddle (Used)	-\$119	0.7	\$487	2.1	\$92	1.6	-\$106	0.7	1
43	Boiler Hot Water > 300,000 Btu/h (business)	\$167,227	1.8	\$819,347	4.2	\$270,427	3.7	\$15,367	1.0	25
44	Boiler Hot Water ≥ 300,000 < 2,500,000 (business)	\$70,002	1.3	\$704,624	3.2	\$167,502	2.0	-\$59,723	0.8	40
45	Boiler Hot Water ≥ 300,000 < 2,500,000 95% + (business)	\$68,720	1.6	\$411,512	3.7	\$123,095	2.9	-\$6,850	1.0	15
46	Boiler Steam >300,000 Btu/h (business)	\$6,923	1.8	\$33,921	4.2	\$11,196	3.7	\$636	1.0	1
47	Hybrid Gas Water Heater (business)	-\$2,020	0.4	\$1,485	1.3	-\$258	0.9	-\$1,296	0.5	5
48	Infrared Heating System	\$280,681	1.8	\$1,495,472	4.5	\$436,081	3.3	-\$18,984	1.0	250
49	Low Flow Pre-rinse Spray Valve	\$14,758	3.3	\$84,126	11.5	\$13,158	2.6	-\$8,006	0.7	250
50	Modulating Gas Dryer	\$797	1.4	\$6,737	3.6	\$2,522	7.7	\$301	1.1	5
51	Modulating Infrared Heaters (NC or Replacing Non-IR) (business)	\$5,362	1.1	\$113,030	2.8	\$33,353	2.5	-\$6,859	0.9	20
52	Modulating Infrared Heaters (Replacing Non-IR) (business)	-\$811	0.3	-\$185	0.9	\$61	1.2	-\$195	0.6	1
53	Pipe Insulation (Hot Water)	\$4,223	2.2	\$20,148	5.7	\$6,873	10.2	\$1,029	1.2	10
54	Pipe Insulation (Steam)	\$11,476	5.3	\$41,547	13.4	\$13,146	14.1	\$2,301	1.2	5
55	Prescriptive ERV	\$9,449	1.1	\$163,689	3.0	\$47,949	2.7	-\$9,358	0.9	275
56	Smart Thermostat (business)	\$15,523	1.2	\$228,358	3.0	\$70,523	3.0	-\$9,626	0.9	500
57	Solar Water Heater - Pool (business)	\$2,940	2.6	\$7,201	4.2	\$1,990	3.7	\$334	1.1	1
58	Steam Cooker	-\$4,011	0.8	\$34,600	2.4	\$5,989	1.6	-\$6,269	0.7	10
59	Steam Cooker (Used)	-\$584	0.4	\$699	1.6	-\$84	0.8	-\$442	0.5	1
60	Program Costs	-\$1,139,000	0.0	\$0	N/A	-\$1,139,000	0.0	-\$1,139,000	0.0	0
61	<b>Totals</b>	<b>\$197,563</b>	<b>1.04</b>	<b>\$10,732,282</b>	<b>3.39</b>	<b>\$1,961,953</b>	<b>1.63</b>	<b>-\$1,592,576</b>	<b>0.76</b>	<b>2,778</b>

Dominion Energy Utah  
 Docket No. 19-057-26  
 DEU Energy Efficiency Exhibit 1.1.1  
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**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

A B C D E F G H I J

**COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - THERMWISE BUILDER REBATES PROGRAM (1 Year)**

	MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Participants 1 Years
		NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	
1	Pay for Performance (builder)	\$970,944	1.5	\$5,555,190	3.1	\$1,604,544	2.1	-\$143,655	1.0	2,400
2	Energy Star 3.0 Bonus (builder)	\$286,934	1.5	\$1,576,975	3.2	\$477,254	2.2	-\$21,528	1.0	600
3	DOE Zero Energy Ready Bonus (builder)	\$23,092	1.4	\$135,976	3.1	\$40,452	2.2	-\$2,963	1.0	50
4	95% Gas Furnace (builder)	\$1,088,234	2.9	\$4,861,817	7.7	\$470,634	1.4	-\$679,693	0.7	4,000
5	98% Gas Furnace (builder)	-\$1,808	0.9	\$39,358	2.4	\$6,048	1.4	-\$7,756	0.7	40
6	Gas Water Heater (builder) Tier 2	-\$57,893	0.6	\$145,383	1.9	-\$29,093	0.7	-\$81,015	0.5	1,000
7	Tankless Gas Water Heater - (builder)	-\$65,360	0.8	\$481,372	2.2	\$97,390	1.4	-\$105,169	0.8	750
8	Condensing Gas Water Heater (builder)	-\$21,632	0.4	\$18,939	1.4	-\$8,762	0.6	-\$19,005	0.4	65
9	Hybrid Gas Water Heater (builder)	-\$448	0.4	\$174	1.2	-\$96	0.7	-\$273	0.5	1
10	Residential Boiler - Tier 1 (builder)	\$24	1.0	\$8,570	2.9	-\$360	0.9	-\$2,647	0.6	10
11	Residential Boiler - Tier 2 (builder)	-\$15,073	0.7	\$65,600	2.0	\$2,831	1.1	-\$21,566	0.6	60
12	Solar Water Heater - Domestic (builder)	-\$904	0.7	-\$48	1.0	-\$54	0.9	-\$475	0.6	1
13	Solar Water Heater - Pool (builder)	\$2,940	2.6	\$7,201	4.2	\$1,990	3.7	\$334	1.1	1
14	2X6 R-23 Walls	-\$112,908	0.9	\$825,321	1.8	\$387,092	2.3	-\$12,610	1.0	2,000
15	Windows - R-5 (builder)	-\$9,550	0.7	\$30,958	1.9	-\$6,550	0.7	-\$17,283	0.5	30
16	Smart Thermostat (builder)	-\$3,815	1.0	\$153,461	2.5	\$47,785	2.6	-\$11,296	0.9	600
17	Combined Space and Hot Water (builder)	-\$2,478	0.4	\$1,882	1.4	-\$595	0.7	-\$1,852	0.5	3
18	Smart Water Heater Controller (Builder)	-\$370	0.4	\$224	1.3	-\$20	0.9	-\$203	0.5	5
19	Pay for Performance (new multifamily)	\$375,480	1.7	\$1,826,466	3.5	\$501,480	2.1	-\$45,016	1.0	1,500
20	Energy Star 3.0 Bonus (new multifamily)	\$180,872	1.7	\$839,108	3.5	\$249,872	2.3	-\$2,934	1.0	600
21	DOE Zero Energy Ready Bonus (new multifamily)	\$8,794	1.6	\$44,441	3.3	\$13,894	2.3	\$19	1.0	30
22	95% Gas Furnace (new multifamily)	\$251,853	2.2	\$1,412,652	6.2	\$20,253	1.0	-\$303,543	0.6	1,500
23	98% Gas Furnace (new multifamily)	-\$4,276	0.7	\$16,334	2.0	\$634	1.1	-\$5,827	0.6	25
24	Gas Water Heater Tier 2 (new multifamily)	-\$160,375	0.3	\$66,818	1.2	-\$111,415	0.3	-\$154,314	0.3	1,700
25	Tankless Gas Water Heater - (new multifamily)	-\$147,498	0.5	\$194,871	1.6	-\$17,298	0.9	-\$119,524	0.6	600
26	Condensing Gas Water Heater (new multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
27	Hybrid Gas Water Heater (new multifamily)	-\$2,427	0.3	\$69	1.0	-\$665	0.6	-\$1,347	0.4	5
28	Residential Boiler - Tier 1 (new multifamily)	-\$7	1.0	\$4,146	2.8	-\$199	0.9	-\$1,288	0.6	5
29	Residential Boiler - Tier 2 (new multifamily)	-\$3,094	0.7	\$12,526	1.9	\$487	1.1	-\$4,160	0.6	12
30	Solar Water Heater - Domestic (new multifamily)	-\$4,521	0.7	-\$240	1.0	-\$271	0.9	-\$2,374	0.6	5
31	Solar Water Heater - Pool (new multifamily)	\$14,698	2.6	\$36,006	4.2	\$9,948	3.7	\$1,668	1.1	5
32	Windows - R-5 (new multifamily)	-\$7	0.5	\$10	1.6	-\$6	0.5	-\$10	0.4	5
33	Smart Thermostat (new multifamily)	-\$67,797	0.4	\$22,848	1.2	\$1,003	1.0	-\$30,140	0.6	800
34	Combined Space and Hot Water (new multifamily)	-\$15,237	0.3	\$1,150	1.0	-\$5,823	0.5	-\$9,945	0.4	15
35	Smart Water Heater Controller (new multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
36	Energy Star Highrise (new multifamily)	\$0	N/A	\$0	N/A	\$0	N/A	\$0	N/A	0
37	Program Costs	-\$470,000	0.0	\$0	N/A	-\$470,000	0.0	-\$470,000	0.0	0
38	<b>Totals</b>	<b>\$2,036,385</b>	<b>1.29</b>	<b>\$18,385,558</b>	<b>3.27</b>	<b>\$3,282,383</b>	<b>1.56</b>	<b>-\$2,277,388</b>	<b>0.80</b>	<b>18,423</b>

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

	A	B	C	D	E	F	G	H	I	J
COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - THERMWISE WEATHERIZATION REBATES PROGRAM (1 Year)										
MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Participants	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	1 Years	
1 Attic Insulation - Tier 1 (weatherization)	\$1,010,043	1.6	\$5,157,511	3.6	\$942,723	1.6	-\$496,978	0.8	13,200	
2 Attic Insulation - Tier 2 (weatherization)	\$99,103	1.3	\$754,414	3.0	\$107,477	1.4	-\$112,156	0.8	5,300	
3 Floor Insulation (weatherization)	\$11,802	1.5	\$59,369	3.0	\$21,564	2.5	\$1,869	1.1	185	
4 Wall Insulation (weatherization)	-\$48,517	0.8	\$189,400	1.7	\$35,816	1.3	-\$49,257	0.8	780	
5 Windows - R-5 (weatherization)	\$450,841	1.6	\$2,452,571	3.5	\$538,531	1.8	-\$178,323	0.9	1,500	
6 Duct Sealing & Insulation (weatherization)	\$153,341	1.9	\$584,472	3.8	\$201,725	2.7	\$24,795	1.1	400	
7 Air Sealing (weatherization)	\$143,518	1.0	\$7,713,741	2.5	\$350,318	1.1	-\$1,996,169	0.7	9,400	
8 Pipe Insulation (weatherization)	\$766	1.7	\$4,892	4.7	\$1,560	7.2	\$2	1.0	100	
9 Attic Insulation (multifamily) Tier 1	\$1,303	1.4	\$8,016	3.1	\$1,546	1.6	-\$815	0.8	24	
10 Attic Insulation (multifamily) Tier 2	\$145	1.1	\$3,037	2.5	\$487	1.4	-\$508	0.8	24	
11 Floor Insulation (multifamily)	\$299	1.5	\$1,504	3.0	\$546	2.5	\$47	1.1	10	
12 Wall Insulation (multifamily)	-\$415	0.8	\$1,619	1.7	\$306	1.3	-\$421	0.8	10	
13 Windows - R-5 (multifamily)	\$747	1.6	\$4,066	3.5	\$893	1.8	-\$296	0.9	5	
14 Duct Sealing & Insulation (multifamily)	\$1,917	1.9	\$7,306	3.8	\$2,522	2.7	\$310	1.1	5	
15 ICAST pilot	\$109,157	1.2	\$1,161,750	3.6	\$109,157	1.2	-\$256,181	0.7	1,000	
16 Program Costs	-\$670,000	0.0	\$0	N/A	-\$670,000	0.0	-\$670,000	0.0	0	
17 <b>Totals</b>	<b>\$1,264,052</b>	<b>1.15</b>	<b>\$18,103,667</b>	<b>2.90</b>	<b>\$1,645,172</b>	<b>1.21</b>	<b>-\$3,734,081</b>	<b>0.72</b>	<b>31,943</b>	

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - THERMWISE HOME ENERGY PLAN PROGRAM (1 Year)										
MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Participants	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	1 Years	
1 Pipe Insulation	\$74,869	10.0	\$273,436	27.2	\$72,779	8.0	\$1,126	1.0	3,120	
2 Faucet Aerator	\$23,747	3.8	\$105,769	11.0	\$21,635	3.0	-\$6,081	0.8	3,840	
3 Low Flow Showerhead	\$528,175	32.7	\$1,688,805	82.2	\$524,015	26.2	\$107,003	1.2	5,200	
4 Program Costs	-\$533,000	0.0	\$0	N/A	-\$533,000	0.0	-\$533,000	0.0	0	
5 <b>Totals</b>	<b>\$93,791</b>	<b>1.17</b>	<b>\$2,068,010</b>	<b>50.46</b>	<b>\$85,429</b>	<b>1.15</b>	<b>-\$430,952</b>	<b>0.61</b>	<b>12,160</b>	

\*2,240 is the projected number of 2020 Home Energy Plans / 12,160 represents projected efficiency measures to be distributed to participants.

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS & COSTS - LOW INCOME EFFICIENCY PROGRAM (1 Year)									
MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Participants
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	1 Years
1 Low Income Furnace Replacement	\$565,564	N/A	\$1,234,997	N/A	\$565,564	N/A	\$161,034	1.4	600
2 95% Gas Furnace (low income)	\$210,009	5.8	\$702,002	13.9	\$163,689	2.8	-\$10,990	1.0	300
3 98% Gas Furnace (low income)	-\$153	1.0	-\$301	0.9	\$1,983	2.4	-\$347	0.9	4
4 Attic Insulation - Tier 1 (low income)	\$28,565	1.4	\$182,981	3.2	\$26,629	1.4	-\$25,125	0.8	220
5 Attic Insulation - Tier 2 (low income)	\$1,012	1.1	\$21,144	2.5	\$3,388	1.4	-\$3,536	0.8	120
6 Floor Insulation (low income)	\$8,405	1.5	\$42,281	3.0	\$15,358	2.5	\$1,331	1.1	48
7 Wall Insulation (low income)	-\$4,113	0.8	\$17,741	1.8	\$1,350	1.1	-\$5,861	0.7	40
8 Duct Sealing & Insulation (low income)	\$23,305	1.9	\$91,878	3.8	\$28,639	2.4	\$1,443	1.0	50
9 Air Sealing (low income)	\$2,960	1.0	\$159,116	2.5	\$7,226	1.1	-\$41,176	0.7	280
10 Gas Water Heater - Tier 2 (low income)	-\$8,429	0.3	-\$541	1.0	-\$69	1.0	-\$2,801	0.6	38
11 Tankless Gas Water Heater (low income)	-\$3,452	0.4	-\$159	1.0	\$178	1.1	-\$1,033	0.7	5
12 Smart Thermostat (low income)	\$98,627	1.9	\$505,230	4.7	\$167,427	5.2	\$9,878	1.1	800
13 Program Costs	-\$529,283	0.0	\$0	N/A	-\$529,283	0.0	-\$529,283	0.0	0
14 <b>Totals</b>	<b>\$393,018</b>	<b>1.4</b>	<b>\$2,956,367</b>	<b>7.0</b>	<b>\$452,079</b>	<b>1.5</b>	<b>-\$446,467</b>	<b>0.7</b>	<b>2,505</b>

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

	A	B	C	D	E	F	G	H	I	J
<b>COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS &amp; COSTS - MARKET TRANSFORMATION (1 Year)</b>										
MEASURE	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test		Total Participants	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	1 Years	
1 Program Costs	-\$1,320,000	0.0	\$0	N/A	-\$1,320,000	0.0	-\$1,320,000	0.0		0
2 Totals	-\$1,320,000	0.0	\$0	N/A	-\$1,320,000	0.0	-\$1,320,000	0.0		0

**ENERGY EFFICIENCY PROGRAMS BENEFIT-COST TESTS SUMMARY**

	A	B	C	D	E	F	G	H	I	J
	<b>COST EFFECTIVENESS TESTS - BUDGET 2020 - FORECASTED PARTICIPANTS &amp; COSTS - ENERGY COMPARISON REPORT (1 Year)</b>									
	<b>Total Resource Cost</b>		<b>Participant Test</b>		<b>Utility Cost Test</b>		<b>Ratepayer Impact Measure Test</b>		<b>Total Participants</b>	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C	NPV	1 Years
1 Energy Comparison Report	\$100,278	1.2	\$2,252,396	5.2	\$100,278	1.2	-\$627,500	0.5		266,600
2 Program Costs	-\$40,000	0.0	\$0	N/A	-\$40,000	0.0	-\$40,000	0.0		0
3 <b>Totals</b>	\$60,278	1.11	\$2,252,396	5.25	\$60,278	1.11	-\$667,500	0.5		266,600