

CASCADE NATURAL GAS CORPORATION
Program Participant Cost Effectiveness Estimate Summary

PROGRAM	PARTICIPANTS	TOTAL ANNUAL THERM SAVINGS	INSTALLED COSTS	NON-ENERGY BENEFITS (10% of cost)	WEIGHTED MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	TOTAL PROGRAM REBATE	PROGRAM UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		PROGRAM TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
RESIDENTIAL	5,486	266,144	\$ 2,314,028.00	\$ 231,403.00	24.22	3,700,352	\$ 1,107,534.00	\$ 805,115.00	0.218	\$ 0.517	1.649		0.563	\$ 0.862	0.989
COMMERCIAL	123	272,936	\$ 1,244,353.00	\$ 124,435.00	15.45	2,886,736	\$ 596,940.58	\$ 441,872.00	0.153	\$ 0.360	2.394		0.388	\$ 0.595	2.220
LOW INCOME*	168	14,733	\$ 221,754.00	\$ 22,175.00	27.45	236,240	\$ 74,387.00	\$ 168,378.00	0.713	\$ 1.028	0.763		0.845	\$ 1.160	0.676
TOTAL	5,777	553,813	\$ 3,780,135.00	\$ 378,013.00	19.98	6,823,328	\$ 1,778,861.58	\$ 1,415,365.00	\$ 0.21	\$ 0.47	4.067		\$ 0.50	\$ 0.76	1.195

Nominal interest rate (post tax cost of cap.) 7.63%
Inflation rate 3.32%
Long term real discount rate 4.17%

*Low Income Program figures are on a "By Measure" basis. See the Low Income Program cost effectiveness calculation sheet for more details.

CASCADE NATURAL GAS CORPORATION
COMMERCIAL Program Participant Cost Effectiveness

MEASURE	DESCRIPTION	EFFICIENCY TYPE FOR QUALIFICATION	PARTICIPANTS	MEASURE COUNT	ANNUAL THERM SAVINGS/UNIT	UNITS	UNITS INSTALLED	TOTAL ANNUAL THERM SAVINGS	MEASURE INSTALLED COST	TOTAL ANNUAL COST	NON-ENERGY BENEFITS (10% of cost)	MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	PROGRAM REBATE	UNITS	TOTAL REBATES COST	UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO	TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
HVAC Unit Heater	High-Efficiency Non-Condensing with Electronic Ignition	Minimum 86% AFUE	0	0	1.10	kBtu/hr	0	\$ 6.72	\$ -	\$ -	-	18	0	\$ -	\$ 1.50	kBtu/hr	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
HVAC Unit Heater	High Efficiency Condensing	Minimum 92% AFUE	0	0	1.10	kBtu/hr	0	\$ 6.72	\$ -	\$ -	-	18	0	\$ -	\$ 3.00	kBtu/hr	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
Warm Air Furnace	High Efficiency Condensing Furnace	Minimum 91% AFUE	20	44	1.10	kBtu/hr	4,752	\$ 5,227	\$ 6.72	\$ 31,930	\$ 3,193	18	\$ 65,261	\$ 14,130.76	\$ 3.00	kBtu/hr	\$ 14,255	\$ 0.218	\$ 0.435	1,859	\$ 0.440	\$ 0.657	1,836
Radiant Heating	Direct Fired Radiant Heating	None	4	31	4.33	kBtu/hr	2,056	\$ 8,902	\$ 21.00	\$ 43,176	\$ 4,318	18	\$ 111,158	\$ 24,068.72	\$ 6.50	kBtu/hr	\$ 13,364	\$ 0.120	\$ 0.337	2,401	\$ 0.350	\$ 0.566	2,313
Insulation (Attic) (Old Tariff)	Attic Insulation	Minimum R-19	9	9	0.18	sq. ft.	34,738	\$ 6,098	\$ 0.80	\$ 27,790	\$ 2,779	30	\$ 103,310	\$ 16,487.55	\$ 0.20	sq. ft.	\$ 6,948	\$ 0.067	\$ 0.227	3,433	\$ 0.242	\$ 0.402	3,216
Insulation (Roof) (Old Tariff)	Roof Insulation	Minimum R-11	5	5	0.24	sq. ft.	70,621	\$ 16,814.76	\$ 0.95	\$ 67,090	\$ 6,709	30	\$ 284,853	\$ 45,460.34	\$ 0.20	sq. ft.	\$ 14,124	\$ 0.050	\$ 0.209	3,723	\$ 0.212	\$ 0.372	3,673
Insulation (Wall) (Old Tariff)	Wall Insulation	Minimum R-11	3	3	0.16	sq. ft.	3,960	\$ 617.76	\$ 0.55	\$ 2,178	\$ 218	30	\$ 10,465	\$ 1,670.17	\$ 0.20	sq. ft.	\$ 792	\$ 0.076	\$ 0.235	3,310	\$ 0.187	\$ 0.347	4,157
Insulation-Attic (New Tariff)	Attic Insulation (Tier 1)	Minimum R-30	8	8	0.31	sq. ft.	34,018	\$ 10,545.58	\$ 1.35	\$ 45,924	\$ 4,592	30	\$ 178,649	\$ 28,511.00	\$ 0.50	sq. ft.	\$ 17,009	\$ 0.095	\$ 0.255	3,056	\$ 0.231	\$ 0.391	3,366
Insulation-Attic (New Tariff)	Attic Insulation (Tier 2)	Minimum R-45	0	0	0.32	sq. ft.	0	\$ 0.00	\$ -	\$ -	-	30	\$ 0	\$ -	\$ 0.65	sq. ft.	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
Insulation-Roof (New Tariff)	Roof Insulation (Tier 1)	Minimum R-21	1	1	0.45	sq. ft.	5,000	\$ 2,235.00	\$ 1.83	\$ 9,150	\$ 915	30	\$ 37,862	\$ 6,042.54	\$ 0.60	sq. ft.	\$ 3,000	\$ 0.079	\$ 0.239	3,260	\$ 0.217	\$ 0.377	3,580
Insulation-Roof (New Tariff)	Roof Insulation (Tier 2)	Minimum R-30	0	0	0.36	sq. ft.	0	\$ 0.00	\$ -	\$ -	-	30	\$ 0	\$ -	\$ 0.80	sq. ft.	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
Insulation-Wall (New Tariff)	Wall Insulation (Tier 1)	Minimum R-11	3	3	0.22	sq. ft.	12,584	\$ 2,768.48	\$ 0.55	\$ 6,921	\$ 692	30	\$ 46,900	\$ 7,484.86	\$ 0.30	sq. ft.	\$ 3,775	\$ 0.080	\$ 0.240	3,243	\$ 0.133	\$ 0.292	5,863
Insulation-Wall (New Tariff)	Wall Insulation (Tier 2)	Minimum R-19	3	3	0.24	sq. ft.	7,912	\$ 1,922.62	\$ 1.70	\$ 13,450	\$ 1,345	30	\$ 32,570	\$ 5,197.98	\$ 0.40	sq. ft.	\$ 3,165	\$ 0.097	\$ 0.257	3,033	\$ 0.372	\$ 0.531	2,095
Domestic Hot Water Tanks	Condensing Tank	Minimum 91% AFUE or 91% Thermal Efficiency	7	10	0.79	kBtu/hr	1,966	\$ 1,553.22	\$ 6.06	\$ 11,915	\$ 1,191	15	\$ 17,066	\$ 4,199.28	\$ 2.50	kBtu/hr	\$ 4,915	\$ 0.288	\$ 0.534	1,552	\$ 0.628	\$ 0.874	1,320
Domestic Tankless with standing pilot	With Standing Pilot	Minimum 70.8% Energy Factor	0	0	21.70	gpm	0	\$ 0.00	\$ 84.00	\$ -	-	18	\$ 0	\$ -	\$ 30.00	gpm	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
Domestic Tankless with electronic ignition	With Electric Ignition	Minimum 73.8% AFUE	7	9	21.70	gpm	69	\$ 1,505.98	\$ 117.00	\$ 8,120	\$ 812	18	\$ 18,804	\$ 4,071.56	\$ 2.776	gpm	\$ 3,500	\$ 0.148	\$ 0.364	2,220	\$ 0.389	\$ 0.605	2,080
Boiler (Old Tariff)	High Efficiency Condensing Boiler with Electronic Ignition	Minimum 90% AFUE and 500 kBtu input	2	2	0.88	kBtu/hr	1,750	\$ 1,540.00	\$ 7.72	\$ 13,510	\$ 1,351	20	\$ 20,618	\$ 4,163.54	\$ 2.00	kBtu/hr	\$ 3,500	\$ 0.170	\$ 0.372	2,153	\$ 0.590	\$ 0.792	1,357
Boiler (New Tariff)	High Efficiency Condensing Boiler with Electronic Ignition	Minimum 90% AFUE and 500 kBtu input	5	8	0.88	kBtu/hr	4,497	\$ 3,957.36	\$ 7.72	\$ 34,717	\$ 3,472	20	\$ 52,981	\$ 10,699.11	\$ 4.00	kBtu/hr	\$ 17,988	\$ 0.340	\$ 0.541	1,478	\$ 0.590	\$ 0.792	1,357
Boiler Vent Damper	Boiler Vent Damper	Minimum 1,000 kBtu input	0	0	0.30	kBtu/hr	0	\$ 0.00	\$ 1.50	\$ -	-	12	\$ 0	\$ -	\$ 1.00	kBtu/hr	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
Gas Fryer	Energy Star	None	8	10	548.00	each	17	\$ 9,316.00	\$ 1,400.00	\$ 23,800	\$ 2,380	8	\$ 62,284	\$ 25,186.71	\$ 600.00	each	\$ 10,200	\$ 0.164	\$ 0.568	1,573	\$ 0.344	\$ 0.748	2,598
Gas Convection Oven	Full Sized Oven	None	8	10	564.00	each	10	\$ 5,640.00	\$ 2,000.00	\$ 20,000	\$ 2,000	12	\$ 52,414	\$ 15,248.29	\$ 600.00	each	\$ 6,000	\$ 0.114	\$ 0.405	2,114	\$ 0.343	\$ 0.634	2,495
Gas Griddle	High Efficiency Infrared Gas Griddle	None	0	0	457.90	each	0	\$ 0.00	\$ 1,048.00	\$ -	-	12	\$ 0	\$ -	\$ 600.00	each	\$ -	\$ -	\$ -	-	\$ -	\$ -	-
Clothes Washer	Commercial Gas Washer	1.8 MEF	1	6	90.00	each	6	\$ 540.00	\$ 200.00	\$ 1,200	\$ 120	10	\$ 4,343	\$ 1,459.94	\$ 180.00	each	\$ 1,080	\$ 0.249	\$ 0.585	1,496	\$ 0.249	\$ 0.585	3,517
Steam Trap (Single Tier) (New Measure)	Steam Traps Line Size <2"	Minimum 300 kBtu system size, steam pressures operating at 7 psig or greater, steam trap line size < 2", Min 25 psig Trap Design Pressure	15	228	136.90	each	228	\$ 31,213.20	\$ 315.00	\$ 71,820	\$ 7,182	7	\$ 186,172	\$ 84,387.93	\$ 80.00	each	\$ 18,240	\$ 0.098	\$ 0.551	1,638	\$ 0.347	\$ 0.800	2,601
Custom Projects																							
McClendon's Hardware	10 Ton Trane Gas Pack	10 Ton Trane Gas Pack	1	1	609.25	/gaspack	4	\$ 2,437.00	\$ 28,188.00	\$ 28,188	\$ 2,819	20	\$ 32,627	\$ 4,475.06	\$ 6,426.00	/gaspack	\$ 6,426	\$ 0.197	\$ 0.334	2,395	\$ 0.778	\$ 0.915	1,029
Bridgeview Auto	Install Trinity T1150 Boiler	Install Trinity T1150 Boiler	1	1	609.00	/boiler	1	\$ 609.00	\$ 6,700.00	\$ 6,700	\$ 670	20	\$ 8,153	\$ 1,118.31	\$ 1,606.00	/boiler	\$ 1,606	\$ 0.197	\$ 0.334	2,395	\$ 0.740	\$ 0.877	1,082
Sidney Museum & Gallery	Crawl-space Underfloor Insulation R-19	Crawl-space Underfloor Insulation R-19	1	1	136.00	/install	1	\$ 136.00	\$ 1,126.00	\$ 1,126	\$ 113	30	\$ 2,304	\$ 249.74	\$ 444.00	/install	\$ 444	\$ 0.193	\$ 0.301	2,586	\$ 0.440	\$ 0.548	1,770
Washington Veterans Home	Bldg 10 Run Around Loop Heat Recovery	Bldg 10 Run Around Loop Heat Recovery	1	1	8,963.00	/heat loop	1	\$ 8,963.00	\$ 70,005.00	\$ 70,005	\$ 7,001	20	\$ 119,997	\$ 16,458.75	\$ 23,633.00	/heat loop	\$ 23,633	\$ 0.197	\$ 0.334	2,395	\$ 0.662	\$ 0.862	1,524
Washington Veterans Home	Retrocommissioning of HVAC	Retrocommissioning of HVAC	1	1	38,290.00	/project	1	\$ 38,290.00	\$ 120,489.00	\$ 120,489	\$ 12,049	5	\$ 169,649	\$ 70,311.91	\$ 39,290.00	/project	\$ 39,290	\$ 0.232	\$ 0.646	1,425	\$ 0.639	\$ 1.054	1,440
Washington Veterans Home	Various upgrades to steam system	Various upgrades to steam system	1	1	59,669.00	/project	1	\$ 59,669.00	\$ 266,627.00	\$ 266,627	\$ 26,663	18	\$ 745,037	\$ 109,570.16	\$ 121,844.00	/project	\$ 121,844	\$ 0.164	\$ 0.311	2,603	\$ 0.322	\$ 0.469	2,510
North Kitsap School District	Installation of DDC controls, software changes, retrocomm.	Installation of DDC controls, software changes, retrocomm.	1	1	19,618.00	/project	1	\$ 19,618.00	\$ 129,905.00	\$ 129,905	\$ 12,991	11	\$ 170,298	\$ 36,024.52	\$ 35,683.00	/project	\$ 35,683	\$ 0.210	\$ 0.421	2,056	\$ 0.687	\$ 0.898	1,261
Stanwood Camano School District	Air system, install VSD for pool room & solar pool pre-heating	Air system, install VSD for pool room & solar pool pre-heating	1	1	520.00	/project	1	\$ 520.00	\$ 4,000.00	\$ 4,000	\$ 400	18	\$ 6,493	\$ 954.88	\$ 1,287.00	dishwashe	\$ 1,287	\$ 0.198	\$ 0.345	2,341	\$ 0.554	\$ 0.702	1,458
Pacific Crest Assets	High temp single tank conveyor dishwasher	High Efficiency Boiler Retrofit	1	1	783.00	/project	1	\$ 783.00	\$ 10,965.00	\$ 10,965	\$ 1,097	25	\$ 12,015	\$ 1,437.82	\$ 2,340.00	/project	\$ 2,340	\$ 0.195	\$ 0.314	2,507	\$ 0.821	\$ 0.941	0,960
Mt Vernon School District	Retrofit existing AHUs to VAV, new term boxes, drives, controls.	Retrofit existing AHUs to VAV, new term boxes, drives, controls.	1	1	24,548.00	/project	1	\$ 24,548.00	\$ 145,000.00	\$ 145,000	\$ 14,500	15	\$ 269,718	\$ 45,077.48	\$ 54,706.00	/project	\$ 54,706	\$ 0.203	\$ 0.370	2,241	\$ 0.484	\$ 0.651	1,714
Sound City Foods	Add CO2 demand controls, scheduling changes.	Add CO2 demand controls, scheduling changes.	1	1	1,161.00	/broiler	1	\$ 1,161.00	\$ 7,305.00	\$ 7,305	\$ 731	12	\$ 10,789	\$ 2,131.94	\$ 2,247.00	/broiler	\$ 2,247	\$ 0.208	\$ 0.406	2,111	\$ 0.609	\$ 0.807	1,406
BKB, Inc.	Flexible High Efficiency Batch Broiler	Flexible High Efficiency Batch Broiler	1	1	1,161.00	/broiler	1	\$ 1,161.00	\$ 7,305.00	\$ 7,305	\$ 731	12	\$ 10,789	\$ 2,131.94	\$ 2,247.00	/broiler	\$ 2,247	\$ 0.208	\$ 0.406	2,111	\$ 0.609	\$ 0.807	1,406
Benton King	Flexible High Efficiency Batch Broiler	Flexible High Efficiency Batch Broiler	1	1	1,161.00	/broiler	1	\$ 1,161.00	\$ 7,305.00	\$ 7,305	\$ 731	12	\$ 10,789	\$ 2,131.94	\$ 2,247.00	/broiler	\$ 2,247	\$ 0.208	\$ 0.406	2,111	\$ 0.609	\$ 0.807	1,406
Pacific Restaurant Ventures	Flexible High Efficiency Batch Broiler	Flexible High Efficiency Batch Broiler	1	1	3,483.00	/broiler	3	\$ 3,483.00	\$ 6,741.00	\$ 6,741	\$ 674	12	\$ 32,368	\$ 6,395.83	\$ 6,741.00	/broiler	\$ 6,741	\$ 0.208	\$ 0.406	2,111	\$ 0.187	\$ 0.385	4,572
TOTAL PROGRAM			123	390				272,936	\$ 1,244,353	\$ 124,435	15.45		2,886,736	\$ 596,940.58		\$ 441,872	\$ 0.153	\$ 0.360	2,394	\$ 0.388	\$ 0.595	2,202	

Nominal interest rate (post tax cost of cap.) 7.63%
Inflation rate 3.32%
Long term real discount rate 4.17%

CASCADE NATURAL GAS CORPORATION
LOW INCOME Program Participant Cost Effectiveness
TOTAL IN FIRST YEAR by MEASURE

MEASURE	PARTICIPANTS	TOTAL ANNUAL THERM SAVINGS	MEASURE INSTALLED COST	NON-ENERGY BENEFITS 10% of cost	MEASURE LIFE	DISCOUNTED THERM SAVINGS	PROGRAM DELIVERY & ADMIN	PROGRAM REBATE	UTILITY COST	UC W/DELIVERY & ADMIN	BENEFIT COST RATIO		TOTAL RESOURCE COST	TRC W/DELIVERY & ADMIN	BENEFIT COST RATIO
Attic/Ceiling Insulation	46	4,042	\$ 73,478	\$ 7,348	30	68,481	\$ 20,410	\$ 52,403	\$ 0.765	\$ 1.063	0.732		\$ 0.966	\$ 1.264	0.616
Floor Insulation	32	3,974	\$ 56,675	\$ 5,668	30	67,324	\$ 20,065	\$ 47,008	\$ 0.698	\$ 0.996	0.782		\$ 0.758	\$ 1.056	0.738
Wall Insulation	25	2,959	\$ 42,154	\$ 4,215	30	50,125	\$ 14,939	\$ 32,856	\$ 0.655	\$ 0.954	0.817		\$ 0.757	\$ 1.055	0.738
Duct Insulation	17	1,463	\$ 20,695	\$ 2,069	20	19,582	\$ 7,385	\$ 14,414	\$ 0.736	\$ 1.113	0.719		\$ 0.951	\$ 1.328	0.603
Infiltration Reduction	48	2,295	\$ 28,751	\$ 2,875	20	30,728	\$ 11,588	\$ 21,697	\$ 0.706	\$ 1.083	0.739		\$ 0.842	\$ 1.219	0.656
TOTAL PROGRAM	168	14,733	\$ 221,754	\$ 22,175	27.45	236,240	\$ 74,387	\$ 168,378	\$ 0.713	\$ 1.0276	\$ 0.7626		\$ 0.845	\$ 1.160	0.676