

**Value of Lifetime GHG Emissions Reductions from the Proposed Geothermal Program**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
<b>Retrofit Customers</b>													
Conversions (#)	80	120	160	200	320	440	520	520	520	520	-	-	-
Cumulative number of customers (#)	80	200	360	560	880	1,320	1,840	2,360	2,880	3,400	3,400	3,400	3,400
Cumulative number of customers (#) [50% effective]	40	140	280	460	720	1,100	1,580	2,100	2,620	3,140	3,400	3,400	3,400
Forecast annual NG savings (m <sup>3</sup> ) <sup>(1)</sup>	96,000	336,000	672,000	1,104,000	1,728,000	2,640,000	3,792,000	5,040,000	6,288,000	7,536,000	8,160,000	8,160,000	8,160,000
Forecast annual GHG reduction from NG (t CO <sub>2</sub> e) <sup>(2)</sup>	180	630	1,260	2,070	3,239	4,949	7,109	9,448	11,788	14,127	15,297	15,297	15,297
Forecast carbon price (\$/tonne) <sup>(3)(4)(5)</sup>	\$ 17.00	\$ 18.00	\$ 18.00	\$ 19.00	\$ 20.00	\$ 21.00	\$ 31.00	\$ 36.00	\$ 43.00	\$ 50.00	\$ 57.00	\$ 60.88	\$ 65.02
Value of GHG reduction (\$, nominal)	\$ 3,059	\$ 11,338	\$ 22,675	\$ 39,322	\$ 64,787	\$ 103,929	\$ 220,366	\$ 340,132	\$ 506,869	\$ 706,359	\$ 871,927	\$ 931,218	\$ 994,540
Value of GHG reduction (\$, NPV)	\$ 10,000,100												
<b>New Construction</b>													
New Construction (#)	90	180	270	540	900	1,800	2,700	2,700	2,700	2,700	-	-	-
Cumulative number of customers (#)	90	270	540	1,080	1,980	3,780	6,480	9,180	11,880	14,580	14,580	14,580	14,580
Cumulative number of customers (#) [50% effective]	45	180	405	810	1,530	2,880	5,130	7,830	10,530	13,230	14,580	14,580	14,580
Forecast annual NG savings (m <sup>3</sup> ) <sup>(1)</sup>	99,000	396,000	891,000	1,782,000	3,366,000	6,336,000	11,286,000	17,226,000	23,166,000	29,106,000	32,076,000	32,076,000	32,076,000
Forecast annual GHG reduction from NG (t CO <sub>2</sub> e) <sup>(2)</sup>	186	742	1,670	3,341	6,310	11,878	21,157	32,292	43,428	54,563	60,131	60,131	60,131
Forecast carbon price (\$/tonne) <sup>(3)(4)(5)</sup>	\$ 17.00	\$ 18.00	\$ 18.00	\$ 19.00	\$ 20.00	\$ 21.00	\$ 31.00	\$ 36.00	\$ 43.00	\$ 50.00	\$ 57.00	\$ 60.88	\$ 65.02
Value of GHG reduction (\$, nominal)	\$ 3,155	\$ 13,362	\$ 30,065	\$ 63,471	\$ 126,200	\$ 249,430	\$ 655,868	\$ 1,162,524	\$ 1,867,387	\$ 2,728,145	\$ 3,427,441	\$ 3,660,506	\$ 3,909,421
Value of GHG reduction (\$, NPV)	\$ 39,010,274												
<b>Totals</b>													
Forecast annual NG savings (m <sup>3</sup> )	195,000	732,000	1,563,000	2,886,000	5,094,000	8,976,000	15,078,000	22,266,000	29,454,000	36,642,000	40,236,000	40,236,000	40,236,000
Forecast annual GHG reduction from NG (t CO <sub>2</sub> e)	366	1,372	2,930	5,410	9,549	16,827	28,266	41,740	55,215	68,690	75,427	75,427	75,427
Value of GHG reduction (\$, nominal)	\$ 6,214	\$ 24,700	\$ 52,741	\$ 102,793	\$ 190,987	\$ 353,360	\$ 876,234	\$ 1,502,656	\$ 2,374,256	\$ 3,434,504	\$ 4,299,367	\$ 4,591,724	\$ 4,903,961
Value of GHG reduction (\$, NPV)	\$ 49,010,374												

1. Avoided natural gas volume for conversion of existing customers is 2,400 m<sup>3</sup>/yr and of new construction is 2,200 m<sup>3</sup>/yr.

2. Assumes a conversion rate of 1.875 kg of CO<sub>2</sub>e per cubic meter of gas.

3. For 2018 - 2028, assumes the Mid-Range LTCPP Carbon Price (Real 2017 CAD) per the "Long Term Carbon Price Forecast Report" (ICF, 2017).

4. For 2029 - 2033, assumes LTCPP Carbon Price (Real 2017 CAD) escalated using the Minimum LTCPP methodology per the "Long Term Carbon Price Forecast Report" (ICF, 2017) of 5% annual growth

5. For 2034 and beyond, assumes the carbon price is constant.





Value of Lifetime GHG Emissions Reductions from

	Year 40	TOTAL
<b>Retrofit Customers</b>		
Conversions (#)	-	-
Cumulative number of customers (#)	-	-
Cumulative number of customers (#) [50% effective]	260	
Forecast annual NG savings (m <sup>3</sup> ) <sup>(1)</sup>	624,000	244,800,000
Forecast annual GHG reduction from NG (t CO <sub>2</sub> e) <sup>(2)</sup>	1,170	458,909
Forecast carbon price (\$/tonne) <sup>(3)(4)(5)</sup>	\$ 79.20	-
Value of GHG reduction (\$, nominal)	\$ 92,647	\$ 32,961,328
Value of GHG reduction (\$, NPV)		
<b>New Construction</b>		
New Construction (#)	-	-
Cumulative number of customers (#)	-	-
Cumulative number of customers (#) [50% effective]	1,350	
Forecast annual NG savings (m <sup>3</sup> ) <sup>(1)</sup>	2,970,000	962,280,000
Forecast annual GHG reduction from NG (t CO <sub>2</sub> e) <sup>(2)</sup>	5,568	1,803,916
Forecast carbon price (\$/tonne) <sup>(3)(4)(5)</sup>	\$ 79.20	-
Value of GHG reduction (\$, nominal)	\$ 440,963	\$ 131,686,463
Value of GHG reduction (\$, NPV)		
<b>Totals</b>		
Forecast annual NG savings (m <sup>3</sup> )	3,594,000	1,207,080,000
Forecast annual GHG reduction from NG (t CO <sub>2</sub> e)	6,737	2,262,825
Value of GHG reduction (\$, nominal)	\$ 533,610	\$ 164,647,791
Value of GHG reduction (\$, NPV)		