Bay State Gas

Model Revision Date: 12/17/2003 P:\Massachusetts\Bay State Gas\2004 Updates\[BSG BC Model 3-23-04.xls]Input Worksheet
Analysis Date: 3/11/2004

COST EFFECTIVENESS SCREENING TOOL - GAS PROGRAMS

Bay State Gas
Multi-family Custom Measures Program

PROGRAM ASSUMPTIONS		ECONOMIC ASSUMPTIONS	
Program Life	60 Months	General Inflation	2.500%
		Nominal Discount Rate	4.410%

			1.0000	0.9578	0.9173	0.8786	0.8415	0.8059	0.7719	0.7393	0.7080	0.6781	0.6495	0.6221	0.5958	0.5706	0.5465	0.5234	0.5013	0.4802
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Program Savings Data																				
Natural Gas Savings																				
1. Fuel: NG Old Bldg Heat Fuel Savings (therms) in a particular year			182,975	365,950	548,925	731,900	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875	914,875
2. Cumulative Annual Fuel Savings (therms)	Total:	19,212,375	182,975	548,925	1,097,850	1,829,750	2,744,625	3,659,500	4,574,375	5,489,250	6,404,125	7,319,000	8,233,875	9,148,750	10,063,625	10,978,500	11,893,375	12,808,250	13,723,125	14,638,000
Other Resource Savings																				
3. Incremental Water Savings from Installation in a particular year - (Gallons)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Cumulative Annual Water Savings (Gallons)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Program Costs		*NPV Prog Costs*	*Fiscal Year End $'s* 2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Utility Costs												
5. Internal Admin	$	355,213	$73,690	$75,532	$77,420	$79,356	$81,340	$0	$0	$0	$0	$0
6. External Admin/Implementation	$	1,239,946	$257,230	$263,660	$270,252	$277,008	$283,933	$0	$0	$0	$0	$0
7. Marketing	$	45,805	$9,502	$9,740	$9,983	$10,233	$10,489	$0	$0	$0	$0	$0
8. Evaluation	$	81,947	$17,000	$17,425	$17,861	$18,307	$18,765	$0	$0	$0	$0	$0
9. Rebates / Incentives	$	1,692,678	$351,150	$359,929	$368,927	$378,150	$387,604	$0	$0	$0	$0	$0
10. Direct Utility Costs (Sum Lines 5 thru 9)	$	3,415,588	$708,572	$726,286	$744,443	$763,054	$782,131	$0	$0	$0	$0	$0
Participant Costs												
11. Total Annual Incremental Customer Costs - Planning, Equip, & Instal			$351,150	$359,929	$368,927	$378,150	$387,604	$0	$0	$0	$0	$0
12. Total Customer Admin O & M Costs or Benefits (shows any benefits as negative)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13. Direct Participant Costs (Lns 11+12)	$	1,692,678	$351,150	$359,929	$368,927	$378,150	$387,604	$0	$0	$0	$0	$0
Total Utility & Participant Costs												
14. Total Utility & Participant Costs (Nominal $)	$	5,108,265	1,059,722	1,086,215	1,113,370	1,141,204	1,169,735	-	-	-	-	-
Indirect Program Costs												
15. Indirect Program Costs	$	-	-	-	-	-	-	-	-	-	-	-
16. Total Indirect Program Costs	$	-	-	-	-	-	-	-	-	-	-	-
Total Program Costs												
17. Total Program Costs (Lns 14+16)	$	5,108,265	1,059,722	1,086,215	1,113,370	1,141,204	1,169,735	-	-	-	-	-

Program Benefits		*NPV Prog Benefits*	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Avoided Supply Costs																				
18. Water Costs	$	-	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
19. Avoided Other Fuel Costs (cumulative before decay)	$	176,400,276	$128,920	$374,113	$717,086	$1,170,321	$1,734,626	$2,292,347	$2,883,895	$3,423,654	$3,985,263	$4,573,760	$5,191,602	$5,815,890	$6,477,308	$7,156,837	$7,875,965	$8,604,794	$9,333,179	$10,071,077
19. Fuel: NG Old Bldg Heat	$	8,533,610	$128,920	$245,193	$342,973	$453,235	$564,305	$557,721	$591,548	$539,759	$561,609	$588,497	$617,841	$624,289	$661,418	$679,529	$719,128	$728,829	$728,385	$737,898
20. Total Avoided Supply Costs	$	8,533,610	$128,920	$245,193	$342,973	$453,235	$564,305	$557,721	$591,548	$539,759	$561,609	$588,497	$617,841	$624,289	$661,418	$679,529	$719,128	$728,829	$728,385	$737,898
Additional Benefits																				
21. Other Direct Resource Benefits	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22. External Environmental Benefits	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Program Benefits																				
23. Total Avoided Supply Costs + Lines 21 and 22	$	8,533,610	$128,920	$245,193	$342,973	$453,235	$564,305	$557,721	$591,548	$539,759	$561,609	$588,497	$617,841	$624,289	$661,418	$679,529	$719,128	$728,829	$728,385	$737,898
Total Program Benefits Attributable to In-Program Units (Incentivized)																				
24. Total Avoided Fuel Costs	$	8,533,610	$128,920	$245,193	$342,973	$453,235	$564,305	$557,721	$591,548	$539,759	$561,609	$588,497	$617,841	$624,289	$661,418	$679,529	$719,128	$728,829	$728,385	$737,898
25. Total Avoided Water Costs	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
26. Total Additional Benefits	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
27. Total Program Benefits Attributable to In-Program Units	$	8,533,610	$128,920	$245,193	$342,973	$453,235	$564,305	$557,721	$591,548	$539,759	$561,609	$588,497	$617,841	$624,289	$661,418	$679,529	$719,128	$728,829	$728,385	$737,898

Screening Results

28. ***Total Resource Cost Test*** **1.67** Line 23 divided by line 17

Bay State Gas

Model Revision Date: 12/17/2003 P:\Massachusetts\Bay State Gas\2004 Update\[BSG BC Model 3-23-04.xls]Input Worksheet
Analysis Date: 3/11/2004

COST EFFECTIVENESS SCREENING TOOL - GAS PROGRAMS

Bay State Gas
Small C/I Custom Measures Program

PROGRAM ASSUMPTIONS		ECONOMIC ASSUMPTIONS	
Program Life	60 Months	General Inflation	2.500%
		Nominal Discount Rate	4.410%

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
		1.0000	0.9578	0.9173	0.8786	0.8415	0.8059	0.7719	0.7393	0.7080	0.6781	0.6495	0.6221	0.5958	0.5706	0.5465	0.5234	0.5013	0.4802
Program Savings Data																			
Natural Gas Savings																			
1. Fuel: Natural Gas Base Fuel Savings (therms) in a particular year		409,612	819,223	1,228,835	1,638,446	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058	2,048,058
2. Cumulative Annual Fuel Savings (therms) Total: 43,009,218		409,612	1,228,835	2,457,670	4,096,116	6,144,174	8,192,232	10,240,290	12,288,348	14,336,406	16,384,464	18,432,522	20,480,580	22,528,638	24,576,696	26,624,754	28,672,812	30,720,870	32,768,928
Other Resource Savings																			
3. Incremental Water Savings from installation in a particular year - (Gallons)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Cumulative Annual Water Savings (Gallons)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Program Costs		***NPV Prog Costs***	***Fiscal Year End $'s*** 2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Utility Costs												
5. Internal Admin	$	355,213	$73,690	$75,532	$77,420	$79,356	$81,340	$0	$0	$0	$0	$0
6. External Admin/Implementation	$	1,503,707	$311,948	$319,746	$327,740	$335,934	$344,332	$0	$0	$0	$0	$0
7. Marketing	$	45,805	$9,502	$9,740	$9,983	$10,233	$10,489	$0	$0	$0	$0	$0
8. Evaluation	$	81,947	$17,000	$17,425	$17,861	$18,307	$18,765	$0	$0	$0	$0	$0
9. Rebates / Incentives	$	3,661,714	$759,631	$778,622	$798,088	$818,040	$838,491	$0	$0	$0	$0	$0
10. Direct Utility Costs (Sum Lines 5 thru 9)	$	5,648,386	$1,171,771	$1,201,065	$1,231,092	$1,261,869	$1,293,416	$0	$0	$0	$0	$0
Participant Costs												
11. Total Annual Incremental Customer Costs - Planning, Equip, & Instal			$759,631	$778,622	$798,088	$818,040	$838,491	$0	$0	$0	$0	$0
12. Total Customer Admin O & M Costs or Benefits (shows any benefits as negative)			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13. Direct Participant Costs (Lns 11+12)	$	3,661,714	$759,631	$778,622	$798,088	$818,040	$838,491	$0	$0	$0	$0	$0
Total Utility & Participant Costs												
14. Total Utility & Participant Costs (Nominal $)	$	9,310,100	1,931,402	1,979,688	2,029,180	2,079,909	2,131,907	-	-	-	-	-
Indirect Program Costs												
15. Indirect Program Costs	$	-	-	-	-	-	-	-	-	-	-	-
16. Total Indirect Program Costs	$	-	-	-	-	-	-	-	-	-	-	-
Total Program Costs												
17. Total Program Costs (Lns 14+16)	$	9,310,100	1,931,402	1,979,688	2,029,180	2,079,909	2,131,907	-	-	-	-	-

Program Benefits		***NPV Prog Benefits***	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Avoided Supply Costs												
18. Water Costs	$	-	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
19. Avoided Other Fuel Costs (cumulative before decay)	$	347,582,561	$257,364	$745,079	$1,423,895	$2,319,245	$3,432,151	$4,529,657	$5,696,135	$6,752,706	$7,853,145	$9,007,932
19. Fuel: Natural Gas Base	$	16,815,076	$257,364	$487,714	$678,816	$895,350	$1,112,906	$1,097,506	$1,166,478	$1,056,570	$1,100,439	$1,154,787
20. Total Avoided Supply Costs	$	16,815,076	$257,364	$487,714	$678,816	$895,350	$1,112,906	$1,097,506	$1,166,478	$1,056,570	$1,100,439	$1,154,787
Additional Benefits												
21. Other Direct Resource Benefits	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22. External Environmental Benefits	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Program Benefits												
23. Total Avoided Supply Costs + Lines 21 and 22	$	16,815,076	$257,364	$487,714	$678,816	$895,350	$1,112,906	$1,097,506	$1,166,478	$1,056,570	$1,100,439	$1,154,787
Total Program Benefits Attributable to In-Program Units (incentivized)												
24. Total Avoided Fuel Costs	$	16,815,076	$257,364	$487,714	$678,816	$895,350	$1,112,906	$1,097,506	$1,166,478	$1,056,570	$1,100,439	$1,154,787
25. Total Avoided Water Costs	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
26. Total Additional Benefits	$	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
27. Total Program Benefits Attributable to In-Program Units	$	16,815,076	$257,364	$487,714	$678,816	$895,350	$1,112,906	$1,097,506	$1,166,478	$1,056,570	$1,100,439	$1,154,787

	2014	2015	2016	2017	2018	2019	2020	2021
Avoided Supply Costs								
18. Water Costs	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
19. Avoided Other Fuel Costs (cumulative before decay)	$10,222,152	$11,447,931	$12,749,310	$14,086,515	$15,504,381	$16,940,404	$18,373,339	$19,823,931
19. Fuel: Natural Gas Base	$1,214,220	$1,225,779	$1,301,379	$1,337,205	$1,417,866	$1,436,023	$1,432,934	$1,450,592
20. Total Avoided Supply Costs	$1,214,220	$1,225,779	$1,301,379	$1,337,205	$1,417,866	$1,436,023	$1,432,934	$1,450,592
Additional Benefits								
21. Other Direct Resource Benefits	$0	$0	$0	$0	$0	$0	$0	$0
22. External Environmental Benefits	$0	$0	$0	$0	$0	$0	$0	$0
	$0	$0	$0	$0	$0	$0	$0	$0
Total Program Benefits								
23. Total Avoided Supply Costs + Lines 21 and 22	$1,214,220	$1,225,779	$1,301,379	$1,337,205	$1,417,866	$1,436,023	$1,432,934	$1,450,592
Total Program Benefits Attributable to In-Program Units (incentivized)								
24. Total Avoided Fuel Costs	$1,214,220	$1,225,779	$1,301,379	$1,337,205	$1,417,866	$1,436,023	$1,432,934	$1,450,592
25. Total Avoided Water Costs	$0	$0	$0	$0	$0	$0	$0	$0
26. Total Additional Benefits	$0	$0	$0	$0	$0	$0	$0	$0
27. Total Program Benefits Attributable to In-Program Units	$1,214,220	$1,225,779	$1,301,379	$1,337,205	$1,417,866	$1,436,023	$1,432,934	$1,450,592

Screening Results

28. ***Total Resource Cost Test*** 1.81 Line 23 divided by line 17

Bay State Gas

Model Revision Date: 12/17/2003 P:\Massachusetts\Bay State Gas\2004 Update\[BSG BC Model 3-23-04.xls]Input Worksheet
Analysis Date: 3/11/2004

COST EFFECTIVENESS SCREENING TOOL - GAS PROGRAMS

Bay State Gas
Large C/I Custom Measures Program

PROGRAM ASSUMPTIONS		ECONOMIC ASSUMPTIONS	
Program Life	60 Months	General Inflation	2.500%
		Nominal Discount Rate	4.410%

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
		1.0000	0.9578	0.9173	0.8786	0.8415	0.8059	0.7719	0.7393	0.7080	0.6781	0.6495	0.6221	0.5958	0.5706	0.5465	0.5234	0.5013	0.4802
Program Savings Data																			
Natural Gas Savings																			
1. Fuel: Natural Gas Base Fuel Savings (therms) in a particular year		541,863	1,137,913	1,793,567	2,514,787	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129	3,308,129
2. Cumulative Annual Fuel Savings (therms) Total: 59,546,322		541,863	1,679,776	3,473,343	5,988,130	9,296,259	12,604,388	15,912,517	19,220,646	22,528,775	25,836,904	29,145,033	32,453,162	35,761,291	39,069,420	42,377,549	45,685,678	48,993,808	52,301,937
Other Resource Savings																			
3. Incremental Water Savings from installation in a particular year - (Gallons)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Cumulative Annual Water Savings (Gallons)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Program Costs	***NPV Prog Costs***	***Fiscal Year End $'s*** 2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Utility Costs											
5. Internal Admin	$ 126,767	$26,298	$26,955	$27,629	$28,320	$29,028	$0	$0	$0	$0	$0
6. External Admin/Implementation	$ 289,223	$60,000	$61,500	$63,038	$64,613	$66,229	$0	$0	$0	$0	$0
7. Marketing	$ 69,907	$14,502	$14,865	$15,236	$15,617	$16,008	$0	$0	$0	$0	$0
8. Evaluation	$ 81,947	$17,000	$17,425	$17,861	$18,307	$18,765	$0	$0	$0	$0	$0
9. Rebates / Incentives	$ 3,856,307	$800,000	$820,000	$840,500	$861,513	$883,050	$0	$0	$0	$0	$0
10. Direct Utility Costs (Sum Lines 5 thru 9)	$ 4,424,150	$917,800	$940,745	$964,264	$988,371	$1,013,060	$0	$0	$0	$0	$0
Participant Costs											
11. Total Annual Incremental Customer Costs - Planning, Equip, & Instal		$952,848	$820,000	$840,500	$861,513	$883,050	$0	$0	$0	$0	$0
12. Total Customer Admin O & M Costs or Benefits (shows any benefits as negative)		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13. Direct Participant Costs (Lns 11+12)	$ 4,009,155	$952,848	$820,000	$840,500	$861,513	$883,050	$0	$0	$0	$0	$0
Total Utility & Participant Costs											
14. Total Utility & Participant Costs (Nominal $)	$ 8,433,305	1,870,649	1,760,745	1,804,764	1,849,883	1,896,130	-	-	-	-	-
Indirect Program Costs											
15. Indirect Program Costs	$ -	-	-	-	-	-	-	-	-	-	-
16. Total Indirect Program Costs	$ -	-	-	-	-	-	-	-	-	-	-
Total Program Costs											
17. Total Program Costs (Lns 14+16)	$ 8,433,305	1,870,649	1,760,745	1,804,764	1,849,883	1,896,130	-	-	-	-	-

Program Benefits	***NPV Prog Benefits***	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Avoided Supply Costs											
18. Water Costs	$ -	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
19. Avoided Other Fuel Costs (cumulative before decay)	$ 490,894,337	$340,460	$1,017,902	$2,008,680	$3,382,918	$5,180,541	$6,953,290	$8,837,445	$10,544,072	$12,321,559	$14,186,830
19. Fuel: Natural Gas Base	$ 23,540,812	$340,460	$677,442	$990,778	$1,374,238	$1,797,623	$1,772,749	$1,884,155	$1,706,627	$1,777,486	$1,865,271
20. Total Avoided Supply Costs	$ 23,540,812	$340,460	$677,442	$990,778	$1,374,238	$1,797,623	$1,772,749	$1,884,155	$1,706,627	$1,777,486	$1,865,271
Additional Benefits											
21. Other Direct Resource Benefits	$ -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22. External Environmental Benefits	$ -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$ -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Program Benefits											
23. Total Avoided Supply Costs + Lines 21 and 22	$ 23,540,812	$340,460	$677,442	$990,778	$1,374,238	$1,797,623	$1,772,749	$1,884,155	$1,706,627	$1,777,486	$1,865,271
Total Program Benefits Attributable to In-Program Units (incentivized)											
24. Total Avoided Fuel Costs	$ 23,540,812	$340,460	$677,442	$990,778	$1,374,238	$1,797,623	$1,772,749	$1,884,155	$1,706,627	$1,777,486	$1,865,271
25. Total Avoided Water Costs	$ -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
26. Total Additional Benefits	$ -	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
27. Total Program Benefits Attributable to In-Program Units	$ 23,540,812	$340,460	$677,442	$990,778	$1,374,238	$1,797,623	$1,772,749	$1,884,155	$1,706,627	$1,777,486	$1,865,271

	2014	2015	2016	2017	2018	2019	2020	2021
28. Total Avoided Supply Costs	$1,961,271	$1,979,942	$2,102,055	$2,159,922	$2,290,211	$2,319,539	$2,314,550	$2,343,072
29. Total Avoided Fuel Costs	$1,961,271	$1,979,942	$2,102,055	$2,159,922	$2,290,211	$2,319,539	$2,314,550	$2,343,072
30. Total Avoided Water Costs	$0	$0	$0	$0	$0	$0	$0	$0
31. Total Additional Benefits	$0	$0	$0	$0	$0	$0	$0	$0
32. Total Program Benefits Attributable to In-Program Units	$1,961,271	$1,979,942	$2,102,055	$2,159,922	$2,290,211	$2,319,539	$2,314,550	$2,343,072

Screening Results	
28. ***Total Resource Cost Test***	2.79 Line 23 divided by line 17