

Supporting Workpapers to the Testimony of Jeffrey Reed Contents

<u>Workpaper</u>	<u>Title</u>	<u>Reference</u>
1	"California NGV % of Total Fuel Use Less than 1%"	Chapter I footnote 6
2	"NGV Throughput: State Plan vs. Actual 2006-2012"	Ch. I fn 8; Ch.I pg.7; Ch II fn 4, 5
3	"Europe vehicle growth 2000-2010"	Chapter II footnote 6
4	"GHG Reduction due to Aggressive Case vs. Actual"	Chapter II footnote 7
5	"GHG Reduction per NGV GGE"	Workpapers #4 and #10
6	"IEPR Fuel Price Forecast"	Chapter II footnote 18
7	"Germany Annual NGV Growth Rate"	Chapter II footnote 23
8	"New CHP by size"	Chapter II footnote 29
9	"GHG Savings Due to CHP Investment"	Chapter II footnotes 30, 40, 41
10	"GHG Saved by SoCalGas Customers"	Chapter II footnote 32
11	"Relative Carbon Intensity of NG"	Chapter II footnote 34
12	"CHP Units Installed 2006-2010"	Chapter II footnote 28
13	"Compressor Tariff Rate Impact v9-21-2011"	Chapter II footnote 31

Supporting Workpapers to the Testimony of Jeffrey Reed Index

<u>Location in Testimony</u>	<u>Testimony Excerpt</u>	<u>Workpaper #</u>	<u>Title</u>
Chapter I fn 6	"The State Plan forecasts that, with proper policies and programs to support market growth, natural gas usage can reach 6.2% of all transportation fuel use by 2022, compared with less than 1% of transportation fuel currently."	1	"California NGV % of Total Fuel Use Less than 1%"
Chapter I fn 8	"The conservative and moderate forecasts call for an increase of 41 and 97 million Gasoline Gallons Equivalent (GGE) per year respectively between 2006 and 2012. Through 2010, annual NGV throughput has increased by only 18 million GGE ."	2	"NGV Throughput: State Plan vs. Actual 2006-2012" rows 22-24
Chapter I page 7	"Actual growth has been only about a third of the rate required to meet the moderate forecast and about 30% below the rate required to meet the conservative forecast"	2	"NGV Throughput: State Plan vs. Actual 2006-2012" rows 25-26
Chapter II fn 4	"The growth in CNG fuel consumption is tracking below the "conservative" case forecast laid out in the State Alternative Fuels Plan developed by the California Energy Commission in 2007 (see Exhibit 1 below)"	2	"NGV Throughput: State Plan vs. Actual 2006-2012" row 4 vs. row 20
Chapter II fn 5	"The growth rate in the use of natural gas for transportation in California has been 4.7% per year over the period 2006 to 2010 compared to the State's moderate forecast plan of 12.9% per year and the conservative forecast of 6.5% per year during this same period"	2	"NGV Throughput: State Plan vs. Actual 2006-2012" rows 5, 10, 21

Supporting Workpapers to the Testimony of Jeffrey Reed Index

<u>Location in Testimony</u>	<u>Testimony Excerpt</u>	<u>Workpaper #</u>	<u>Title</u>
Chapter II fn 6	"This is in sharp contrast to international markets, such as Europe, where the annual growth rate in natural gas vehicle population has averaged 14% between 2000 and 2010"	3	"Europe vehicle growth 2000-2010"
Chapter II fn 7	"If California could accelerate the adoption of natural gas vehicles and achieve the growth forecast in the aggressive case in the alternative fuels plan, greenhouse gas emissions in California could be reduced by 1.55 million tons annually within 10 years"	4	"GHG Reduction due to Aggressive Case vs. Actual"
Chapter II fn 18	"The Integrated Energy Policy Report forecasts a sustained price advantage of natural gas relative to petroleum fuels (see Exhibit 2)"	6	"IEPR Fuel Price Forecast"
Chapter II fn 23	"In Germany, where natural gas vehicle population and natural gas fuel use have grown at a compound rate of greater than 25% between 2001 and 2010, ..."	7	"Germany Annual NGV Growth Rate"
Chapter II fn 28	"CHP capacity in California increased by only 65 MW over the past five years"	12	"CHP Units Installed 2006-2010"

Supporting Workpapers to the Testimony of Jeffrey Reed Index

<u>Location in Testimony</u>	<u>Testimony Excerpt</u>	<u>Workpaper #</u>	<u>Title</u>
Chapter II fn 29	"The CEC base case scenario forecasts that as much as 12% of the new CHP installed by 2019 would come from facilities over 20 MW, all of which would be gas turbines or combined cycle power plants requiring natural gas compression in the 250 – 500 psig range. Another 28% of the incremental CHP capacity would fall in the 5-20MW category, the majority of which would be turbines requiring pressures in the 200+ psig range. Another 37% of the incremental capacity are facilities in the 1-5MW range (including microturbines) requiring 75-150 psig."	8	"New CHP by size"
Chapter II fn 30	"Thus, based on SoCalGas' analysis of the AB32 Scoping Plan forecast, CHP operators/developers would need to invest an estimated \$18 - \$29 million per year for compression equipment in the SoCalGas service territory over the coming decade to keep pace with the AB32 target"	9	"GHG Savings Due to CHP Investment"
Chapter II fn 31	"If SoCalGas' Compression Services Tariff enables the market to develop 20-40 incremental NGV fueling stations in the first five years of implementation, the impact on SoCalGas ratepayers due to higher system throughput resulting in lower transportation rates could be between \$170,000 and \$337,000 per year in net ratepayer benefits."	13	"Compressor Tariff Rate Impact v9-21-2011"
Chapter II fn 32	"... between 21,000 and 42,000 tons of annual GHG emissions ... would be avoided ..."	10	"GHG Saved by SoCalGas Customers"

Supporting Workpapers to the Testimony of Jeffrey Reed Index

<u>Location in Testimony</u>	<u>Testimony Excerpt</u>	<u>Workpaper #</u>	<u>Title</u>
Chapter II fn 34	"CARB's carbon intensity specifications for transportation fuels show that natural gas, when used as a transportation fuel, has 28.2% and 29.1% less carbon intensity than diesel and gasoline, respectively. When renewable natural gas is used, the benefit increases dramatically to 85.8% and 86% less carbon intensity than diesel and gasoline, respectively."	11	"Relative Carbon Intensity of NG"
Chapter II fn 40	"Based on SoCalGas estimates of CHP system costs and the GHG reductions calculated by the CEC , every \$10M in capital investment in the CHP sector results in annual reduction of 4,250 metric tons of GHG."	9	"GHG Savings Due to CHP Investment" row 7
Chapter II fn 41	"Applying that ratio, if, through adoption of the Compression Services Tariff, SoCalGas were to provide \$20 million in incremental capital to the CHP sector in the form of compression facilities over the next five years (supporting existing CHP developers), 8,506 metric tons of GHG would be avoided annually once the systems were deployed. Assuming that compression contributes some 5-8% to the capital cost of an average CHP project, SoCalGas would be involved with projects saving a total of 106,000-170,000 metric tons of GHG per year."	9	"GHG Savings Due to CHP Investment" rows 10, 17, 18

California NGV % of Total Fuel Use Less than 1%

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Total CA transportation energy consumption, 2009, trillion Btu	3,129.5		U.S. Energy Information Administration, "State Energy Consumption Estimates 1960 Through 2009," DOE/EIA-0214(2009) June 2011 http://www.eia.gov/state/seds/sep_use/notes/us_e_print2009.pdf p. 11 table C8
2	CA natural gas for transportation (including both vehicle fuel and pipeline compression), 2009, trillion Btu	20.0		U.S. Energy Information Administration, "State Energy Consumption Estimates 1960 Through 2009," DOE/EIA-0214(2009) June 2011 http://www.eia.gov/state/seds/sep_use/notes/us_e_print2009.pdf p. 11 table C8
3	Natural gas component of total CA transportation energy	0.6%	line 2 / line 1	

Reed Workpaper #2

NGV Throughput: State Plan vs. Actual 2006-2012

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula/Source</u>
1	2006 CNG throughput, million GGE/year, Conservative scenario	90.7	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Conservative tab; cell C13
2	2010 CNG throughput, million GGE/year, Conservative scenario	116.5	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Conservative tab; cell G13
3	2012 CNG throughput, million GGE/year, Conservative scenario	132.0	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Conservative tab; cell I13
4	2006-2010 increase, Conservative scenario	28%	(line 2 / line 1) - 1
5	Compound average growth rate of CA IOU NGV throughput, 2006-2010	6.5%	$(1 + \text{line 4})^{(1/4)} - 1$
6	2006 CNG throughput, million GGE/year, Moderate scenario	90.7	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Moderate tab; cell C13
7	2010 CNG throughput, million GGE/year, Moderate scenario	147.4	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Moderate tab; cell G13
8	2012 CNG throughput, million GGE/year, Moderate scenario	187.9	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Moderate tab; cell I13
9	2006-2010 increase, Moderate scenario	63%	(line 7 / line 6) - 1

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula/Source</u>
10	Compound average growth rate of CA IOU NGV throughput, 2006-2010	12.9%	$(1 + \text{line 9})^{(1/4)} - 1$
11	SDG&E NGV Throughput 2006, therms	10,036,511	Total reported sales volume for G-NGV or equivalent tariff
12	SoCalGas NGV Throughput 2006, therms	80,357,400	Total reported sales volume for G-NGV or equivalent tariff
13	PG&E NGV Throughput 2006, therms	21,792,300	Total reported sales volume for G-NGV or equivalent tariff
14	Gasoline Gallon Equivalent (GGE) per therm	0.8	US DOE Transportation Energy Data Book http://cta.ornl.gov/data/appendix_b.shtml table B.4
15	Total 2006 NGV throughput for CA IOUs, millions of GGE	89.7	$(\text{line 11} + \text{line 12} + \text{line 13}) \times \text{line 14} / 1 \text{ million}$
16	SDG&E NGV Throughput 2010, therms	10,263,075	Total reported sales volume for G-NGV or equivalent tariff
17	SoCalGas NGV Throughput 2010, therms	101,141,675	Total reported sales volume for G-NGV or equivalent tariff
18	PG&E NGV Throughput 2010, therms	23,160,035	Total reported sales volume for G-NGV or equivalent tariff
19	Total 2010 NGV throughput for CA IOUs, millions of GGE	107.7	$(\text{line 16} + \text{line 17} + \text{line 18}) \times \text{line 14} / 1 \text{ million}$
20	2006-2010 increase, total NGV throughput for 3 CA IOUs	20%	$(\text{line 19} / \text{line 15}) - 1$
21	Compound annual growth rate of CA IOU NGV throughput, 2006-2010	4.7%	$(1 + \text{line 20})^{(1/4)} - 1$
22	Conservative scenario increase 2006-2012, million GGE/year	41.3	line 3 - line 1
23	Moderate scenario increase 2006-2012, million GGE/year	97.2	line 8 - line 6

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula/Source</u>
24	Actual increase 2006-2010, million GGE/year	17.9	line 4 - line 2
25	Actual CAGR relative to Moderate	36.0%	line 21 / line 10
26	Actual CAGR relative to Conservative	72.0%	line 21 / line 5

Europe Vehicle Growth 2000-2010

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Vehicles in Europe, 2010	1,372,262		http://www.iangv.org/tools-resources/statistics.html , NGVs by region, Europe 2010
2	Vehicles in Europe, 2000	360,911		http://www.iangv.org/tools-resources/statistics.html , NGVs by region, Europe 2000
3	10-year compound annual growth	14%	$(\text{line 1} / \text{line 2})^{(1/10)} - 1$	

GHG Reduction due to Aggressive Case vs. Actual

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula/Source</u>
1	2010 CNG throughput, SoCalGas/SDG&E/PG&E data	107.7	Workpaper, "NGV Throughput: State Plan vs. Actual 2006-2012" line 19
2	2020 CNG throughput, Aggressive scenario, million GGE/year	610.2	AB 1007 Natural Gas Scenarios, May 2007, per Jerry Wiens (CEC) e-mail May 15, 2007 "NG PROJECTIONS 1007 9.xls"; Aggressive tab; cell Q13
3	2010-2020 increase in CA CNG annual throughput, Aggressive scenario, million GGE/year	502.5	line 2 - line 1
4	GHG savings from displacing diesel with CNG, MT CO ₂ e per million GGE	3,088	Workpaper #5, "GHG reduction per NGV GGE" line 6
5	Annual GHG savings due to 2010-2020 Aggressive scenario CNG increase, MT CO ₂ e/year	1,551,974	line 3 x line 4

GHG reduction per NGV GGE

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Total Adjusted Carbon Intensity Value for ULSD – based on the average crude oil delivered to California refineries and average California refinery efficiencies, gCO ₂ e/MJ	94.71		CARB staff report: "Initial Statement of Reasons Proposed Regulation to Implement the Low Carbon Fuel Standard, Volume I" March 5, 2009, Table IV-2 "Adjusted Carbon Intensity Values for Diesel and Fuels that Substitute for Diesel" p. IV-4 http://www.arb.ca.gov/regact/2009/lcfs09/lcfsisor1.pdf
2	Total Adjusted Carbon Intensity Value for North American NG delivered via pipeline; compressed in California, gCO ₂ e/MJ	68.00		CARB staff report: "Initial Statement of Reasons Proposed Regulation to Implement the Low Carbon Fuel Standard, Volume I" March 5, 2009, Table IV-2 "Adjusted Carbon Intensity Values for Diesel and Fuels that Substitute for Diesel" p. IV-4 http://www.arb.ca.gov/regact/2009/lcfs09/lcfsisor1.pdf
3	GHG savings from displacing diesel with CNG, gCO ₂ e/MJ	26.71	line 1 - line 2	
4	Energy density of CA RFG MJ/gallon	115.63		CARB staff report: "Initial Statement of Reasons Proposed Regulation to Implement the Low Carbon Fuel Standard, Volume I" March 5, 2009, Table V-2 "Energy Densities of LCFS Fuels and Blendstocks"
5	Grams per metric ton (MT)	1,000,000		
6	GHG savings from displacing diesel with CNG, MT CO ₂ e per million GGE	3,088	line 3 x line 4 x 1 million / line 5	

IEPR Fuel Price Forecast

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	CEC-600-2010-002-SF Table B.3: California Retail Petroleum Transportation Fuel Price Forecasts (2008 cents per gallon)	CEC-600-2010-002-SF Table B.6: High Crude Oil Price Case, California Natural Gas-Based Alternative Transportation Fuel Price Forecasts (2008 cents per gallon)	CEC-600-2010-002-SF Table B.8: Electric Vehicle Electricity Price Forecasts (2008 cents per gallon)			RFG \$/gal	Diesel \$/GGE	CNG High	CNG Low	Electricity
Year	High Crude Forecast RFG	High Crude Forecast Diesel	Linked (high) CNG	Unlinked (low) CNG	High Crude Oil Price Case/High Rate	Col. (2) /100	Col. (3) /100 x 0.9012*	Col. (4) /100	Col. (5) /100	Col. (6) /100
2009	290	309	243	233	473	\$2.90	\$2.78	\$2.43	\$2.33	\$4.73
2010	347	360	288	239	473	\$3.47	\$3.24	\$2.88	\$2.39	\$4.73
2011	369	381	306	242	482	\$3.69	\$3.43	\$3.06	\$2.42	\$4.82
2012	399	406	328	246	491	\$3.99	\$3.66	\$3.28	\$2.46	\$4.91
2013	413	420	340	248	500	\$4.13	\$3.79	\$3.40	\$2.48	\$5.00
2014	427	434	352	250	510	\$4.27	\$3.91	\$3.52	\$2.50	\$5.10
2015	436	443	361	252	520	\$4.36	\$3.99	\$3.61	\$2.52	\$5.20
2016	440	447	364	257	537	\$4.40	\$4.03	\$3.64	\$2.57	\$5.37
2017	442	449	366	260	556	\$4.42	\$4.05	\$3.66	\$2.60	\$5.56
2018	444	452	368	265	575	\$4.44	\$4.07	\$3.68	\$2.65	\$5.75
2019	447	454	370	270	594	\$4.47	\$4.09	\$3.70	\$2.70	\$5.94
2020	446	453	369	272	614	\$4.46	\$4.08	\$3.69	\$2.72	\$6.14
2021	446	454	370	275	614	\$4.46	\$4.09	\$3.70	\$2.75	\$6.14
2022	451	458	374	278	614	\$4.51	\$4.13	\$3.74	\$2.78	\$6.14
2023	448	455	371	281	614	\$4.48	\$4.10	\$3.71	\$2.81	\$6.14
2024	451	458	374	284	614	\$4.51	\$4.13	\$3.74	\$2.84	\$6.14
2025	455	462	377	288	614	\$4.55	\$4.16	\$3.77	\$2.88	\$6.14
2026	458	465	379	292	614	\$4.58	\$4.19	\$3.79	\$2.92	\$6.14
2027	464	471	385	294	614	\$4.64	\$4.24	\$3.85	\$2.94	\$6.14
2028	469	476	389	295	614	\$4.69	\$4.29	\$3.89	\$2.95	\$6.14
2029	472	480	392	297	614	\$4.72	\$4.33	\$3.92	\$2.97	\$6.14
2030	480	487	399	299	614	\$4.80	\$4.39	\$3.99	\$2.99	\$6.14

* 125,000 Btu per gasoline gallon (US DOE Transportation Energy Data Book http://cta.ornl.gov/data/appendix_b.shtml table B.4) / 138,700 btu/gallon of diesel = 0.9012 diesel gallons per gasoline gallon.

Germany Annual NGV Growth Rate

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	NGV vehicles in Germany, 2010	91,500		IANGV Website (http://www.iangv.org/tools-resources/statistics.html), History
2	NGV vehicles in Germany, 2001	10,000		IANGV Website (http://www.iangv.org/tools-resources/statistics.html), History
3	9-year compound annual growth	28%	$(\text{line 1} / \text{line 2})^{(1/9)} - 1$	

Also see "CNG in Germany" presentation by Dr. T. Kehler, CEO of ErdgasMobile (available upon request) at p.16, "2001-2010: Compound Average Annual Growth Rate: 26%"

New CHP by Size

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Cumulative market penetration by 2019 in 50-500 kW range, MW	240		CEC "Combined Heat & Power Market Assessment," April 2010, prepared by ICF International, CEC-500-20090-094-F, Appendix C-1
2	... in 500-1,000 kW range, MW	188		
3	... in 1-5 MW range, MW	718		
4	... in 5-20 MW range, MW	541		
5	... in >20 MW range, MW	239		
6	Total cumulative market penetration by 2019, All Sizes, MW	1,926		
7	Contribution to total of 50-500 kW range, %	12.5%	line 7 / line 6	
8	... 500-1,000 kW range, %	9.8%	line 8 / line 6	
9	... 1-5 MW range, %	37.3%	line 9 / line 6	
10	... 5-20 MW range, %	28.1%	line 10 / line 6	
11	... >20 MW range, %	12.4%	line 11 / line 6	

Reed Workpaper #9

GHG Savings Due to CHP Investment

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Total new CHP adoption by 2019 according to "all-in" case, MW	5,115		California Energy Commission, "Combined Heat and Power Market Assessment," October 2009, prepared by ICF International, CEC-500-2009-094-D Table C-9: All-In Case: Detailed Cumulative Market Penetration by Size, Utility, and Year, total all sizes 2019 cumulative market penetration, MW http://www.energy.ca.gov/2009publications/CEC-500-2009-094/CEC-500-2009-094-D.PDF
2	Annual CO ₂ savings, thousand metric tons	4,351		California Energy Commission, "Combined Heat and Power Market Assessment," October 2009, prepared by ICF International, CEC-500-2009-094-D "Table C-10: All-In Case: Detailed CHP Outputs and GHG Emissions Savings by Utility and Year"
3	CO ₂ savings per MW CHP adoption, tons/year	850.6	(line 2 / line 1) x 1,000	
4	Assumed capital investment	\$10,000,000		Given in testimony
5	CHP system capital costs, \$/kW	\$2,000		Assumed in testimony
6	CHP capacity installed based on assumed capital investment, MW	5.000	(line 4 / line 5) / 1,000	
7	CO ₂ savings per assumed capital investment in CHP, tons/year	4,253.2	line 3 x line 6	
8	Assumed investment in CHP-related compression projects by SoCalGas over 5 years, dollars	\$20,000,000		Given in testimony
9	CHP capacity installed based on assumed SoCalGas investment, MW	10.000	(line 8 / line 5) / 1,000	
10	Proportionate GHG savings due to SoCalGas investment, tons/year	8,506.4	line 3 x line 9	

Reed Workpaper #9

GHG Savings Due to CHP Investment

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
11	Compression component of CHP installation investment, low end	5%		Assumed in testimony
12	Compression component of CHP installation investment, high end	8%		Assumed in testimony
13	Total investment in CHP, given assumed level of SoCalGas investment in compression component, high end, dollars	\$400,000,000	line 8 / line 11	
14	Total investment in CHP, given assumed level of SoCalGas investment in compression component, low end, dollars	\$250,000,000	line 8 / line 12	
15	New CHP capacity for projects SoCalGas is involved in, high end, MW	200	(line 13 / line 5) / 1,000	
16	New CHP capacity for projects SoCalGas is involved in, low end, MW	125	(line 14 / line 5) / 1,000	
17	GHG savings of projects SoCalGas is involved in, high end, tons/year	170,127.1	line 3 x line 15	
18	GHG savings of projects SoCalGas is involved in, low end, tons/year	106,329.4	line 3 x line 16	
19	Additional CHP capacity target by 2020 per AB32 scoping plan, MW	4,000		CARB Climate Change Scoping Plan December 2008 http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf p. 43-44
20	Annual new CHP to reach AB32 goal in 10 years, MW	400	line 19 / 10	
21	Annual capital investment in CHP to reach AB32 goal -- dollars	\$800,000,000	line 20 x line 5	
22	SoCalGas territory component of capital for statewide goal	45%		Assumed in testimony

Reed Workpaper #9

GHG Savings Due to CHP Investment

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
23	Annual capital to reach AB32 goal in SoCalGas territory	\$360,000,000	line 21 x line 22	
24	Compression component of annual capital to meet AB332 goal, low end	\$18,000,000	line 11 x line 23	
25	Compression component of annual capital to meet AB332 goal, high end	\$28,800,000	line 12 x line 23	

GHG Saved by SoCalGas Customers

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Annual throughput per new station, therms/year	339,000		Given in testimony
2	New stations after 5 years, low end	20		Given in testimony
3	New stations after 5 years, high end	40		Given in testimony
4	GHG savings from displacing diesel with CNG, gCO2e/MJ	26.71		See workpaper #5, "GHG Reduction per NGV GGE" row 3
5	GJ per therm	0.105500		US DOE Transportation Energy Data Book http://cta.ornl.gov/data/appendix_b.shtml table B.6 (Energy Unit Conversions)
6	MJ/therm	105.500	line 5 x 1,000	
7	Throughput per station, MJ/year	35,764,500	line 1 x line 6	
8	GHG savings per station, gCO2e/year	955,269,795	line 4 x line 7	
9	Metric tons per gram	0.000001	1 / 1,000,000	
10	Short tons per metric ton	1.1025	2,205 / 2,000	
11	GHG savings per station, tons per year	1,053	line 8 x line 9 x line 10	
12	Annual GHG savings, low end, tons/year	21,064	line 11 x line 2	
13	Annual GHG savings, high end, tons/year	42,127	line 11 x line 3	
14	Value per ton CO2e	\$30		
15	Annual value of GHG savings, low end	\$631,911		
16	Annual value of GHG savings, high end	\$1,263,822		

Relative Carbon Intensity of NG

<u>Line No.</u>	<u>Description</u>	<u>Value</u>	<u>Formula</u>	<u>Source</u>
1	Carbon intensity of CNG, gCO2e/MJ	68.00		'California Air Resources Board Final Regulation Order, Low Carbon Fuel Standard, Table 7 "Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel" p.49; total carbon intensity for "Compressed Natural Gas; North American NG delivered via pipeline; compressed in CA"
2	Carbon intensity of renewable CNG, gCO2e/MJ	13.45		'California Air Resources Board Final Regulation Order, Low Carbon Fuel Standard, Table 7 "Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel" p.49; total carbon intensity for "Compressed Natural Gas; Dairy Digester Biogas to CNG"
3	Carbon intensity of diesel, gCO2e/MJ	94.71		'California Air Resources Board Final Regulation Order, Low Carbon Fuel Standard, Table 7 "Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel" p.49; total carbon intensity for "Diesel; ULSD – based on the average crude oil delivered to California refineries and average California refinery efficiencies"
4	Carbon intensity of gasoline, gCO2e/MJ	95.86		'California Air Resources Board Final Regulation Order, Low Carbon Fuel Standard, Table 7 "Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gasoline" p.47; total carbon intensity for "Gasoline; CARBOB – based on the average crude oil delivered to California refineries and average California refinery efficiencies"
5	CNG carbon intensity savings vs. diesel	28.2%	1- (line 1 / line 3)	
6	CNG carbon intensity savings vs. gasoline	29.1%	1- (line 1 / line 4)	
7	Renewable CNG carbon intensity savings vs. diesel	85.8%	1- (line 2 / line 3)	
8	Renewable CNG carbon intensity savings vs. gasoline	86.0%	1- (line 2 / line 4)	

CHP Units Installed 2006-2010Table downloaded from <http://www.eea-inc.com/chpdata/States/CA.html> on July 22, 2011; line items with "Op Year" 2006-2010 listed below:

State	City	Organization Name	Facility Name	Application	SIC4	NAICS	Op Year	Prime Mover	Capacity (kw)	Fuel Type
CA		Commercial Building	Commercial Building	Office Buildings	6512	53112	2007	MT	180	NG
CA	Albany	High School	High School	Schools	8211	61111	2006	MT	60	NG
CA	Arroyo Grande	School	School	Schools	8211	61111	2007	MT	70	NG
CA	Bakersfield	Multifamily Building	Multifamily Building	Multi-Family Building	6513	53111	2009	MT	130	NG
CA	Brentwood	City Facility	City Facility	General Gov't	9100	92119	2007	ERENG	75	NG
CA	Burlingame	Plant	Burlingame WWTP	Wastewater Treatment	4952	11231	2008	ERENG	145	BIOMASS
CA	Carmel	Nursing Home	Nursing Home	Nursing Homes	8051	62311	2007	ERENG	60	NG
CA	City of Industry	Food Processing	Food Processing	Food Processing	2000	311	2008	MT	60	NG
CA	Claremont	Health Club	Health Club	Amusement/Recreation	7997	71394	2007	ERENG	400	NG
CA	Compton	Food Processing	Food Processing	Food Processing	2000	311	2008	ERENG	170	NG
CA	Corcoran	Agriculture	Agriculture	Agriculture	100	111	2008	B/ST	2,700	NG
CA	Downey	Health Club	Health Club	Amusement/Recreation	7990	71399	2008	ERENG	170	NG
CA	Dublin	Santa Rita Jail	Santa Rita Jail	Justice/ Public Order	9223	92214	2006	FCEL	1,000	NG
CA	El Monte	Food Processor	Food Processor	Food Processing	2000	311	2008	MT	180	NG
CA	Elk Grove	International, Inc.	Tollenaar Holsteins Dairy	Agriculture	241	11212	2008	ERENG	250	BIOMASS
CA	Emeryville	Wareham Development	EmeryStation	Office Buildings	6512	53112	2007	ERENG	1,000	NG
CA	Fontana	TST Inc.	TST Inc.	Primary Metals	3341	331314	2006	FCEL	620	NG
CA	Fremont	Hospital	Hospital	Hospitals/Healthcare	8062	62211	2007	ERENG	150	NG
CA	Gardena	Laundry	Laundry	Laundries	7211	81232	2007	ERENG	190	NG
CA	Gardena	Casino	Casino	Amusement/Recreation	7990	71399	2007	ERENG	260	NG
CA	Glendale	550 North Brand Blvd.	550 North Brand Boulevard	Office Buildings	6512	53112	2006	ERENG	750	NG
CA	Keyes	Cilion Ethanol	Cilion Ethanol	Chemicals	2869	325193	2007	B/ST	4,500	WAST
CA	Lafayette	Energy	Oakwood Athletic Center	Amusement/Recreation	7997	71394	2007	ERENG	260	NG
CA	Lodi	Food Processing Facility	Food Processing Facility	Food Processing	2084	31213	2009	ERENG	170	BIOMASS
CA	Los Alamitos	Base	Cell Demo	Military/National Security	9711	92811	2006	FCEL	500	NG
CA	Los Angeles	Industrial Facility	Industrial Facility	Chemicals	2800	325	2006	MT	180	NG
CA	Maricopa	Nestle Purina	Nestle Purina Petcare	Food Processing	2099	312	2009	ERENG	999	NG
CA	Millbrae	City of Millbrae	Plant WWTP	Wastewater Treatment	4952	11231	2006	MT	250	BIOMASS
CA	Modesto	Del Monte Foods	Del Monte Foods	Food Processing	2033	31142	2008	B/ST	715	WAST
CA	Modesto	Fiscalini Farms	Fiscalini Farms	Agriculture	241	11212	2008	ERENG	720	BIOMASS
CA	Monterey	Ft. Ord Military Community	Childcare Center	Schools	8211	61111	2006	MT	60	NG
CA	Newport Beach	West Newport Oil Company	West Newport Oil Company	Refining	2911	32411	2007	MT	70	NG
CA	Oakland	Retirement Community	Retirement Community	Nursing Homes	8051	62311	2007	ERENG	75	NG

CHP Units Installed 2006-2010Table downloaded from <http://www.eea-inc.com/chpdata/States/CA.html> on July 22, 2011; line items with "Op Year" 2006-2010 listed below:

State	City	Organization Name	Facility Name	Application	SIC4	NAICS	Op Year	Prime Mover	Capacity (kw)	Fuel Type
CA	Oceanside	Manufacturing Facility	Manufacturing Facility	Primary Metals	3341	331314	2006	ERENG	70	NG
CA	Ontario	Southern California Gas Company	Southern Pacific Energy	Electronics	3600	335	2007	ERENG	1,000	NG
CA	Ontario	Industrial Facility	Industrial Facility	Misc. Manf.	3900	339999	2009	FCEL	300	NG
CA	Ontario	Verizon Communications	Verizon - Ontario	Communications	4813	51331	2006	MT	360	NG
CA	Petaluma	St. Anthony Farm	St. Anthony Farm	Agriculture	241	11212	2007	ERENG	240	BIOMASS
CA	Pixley	Agriculture	Agriculture	Agriculture	100	111	2008	CT	5,500	NG
CA	Pixley	Calgren Renewable Fuels	Calgren Renewable Fuels	Chemicals	2869	325199	2009	CT	5,800	NG
CA	Placentia	Food Processing Facility	Food Processing Facility	Food Processing	2000	312	2009	ERENG	660	NG
CA	Pleasanton	Dublin San Ramon Services District	Treatment Plant	Wastewater Treatment	4952	22132	2007	FCEL	600	BIOMASS
CA	Point Reyes Station	Engineering Associates	Bob Giacomini Dairy	Agriculture	241	11212	2009	ERENG	80	BIOMASS
CA	Pomona	Hospital	Hospital	Hospitals/Healthcare	8062	62211	2007	ERENG	1,960	NG
CA	Pomona	Arena	Arena	Amusement/Recreation	7900	71399	2007	ERENG	2,250	NG
CA	Pomona	Verizon Communications	Verizon - Pomona	Communications	4813	51331	2006	MT	240	NG
CA	Pomona	FDS Manufacturing	FDS - Pomona	Misc. Manf.	3900	339999	2008	MT	360	NG
CA	Rancho Cucamonga	Chaffey College	Chaffey College	Colleges/Univ.	8222	61132	2006	ERENG	1,000	NG
CA	Rancho Mirage	Personal Residence	Personal Residence	Private Households	8811	81411	2008	MT	60	NG
CA	Redondo Beach	Beach Cities Health District	Beach Cities Health District	Hospitals/Healthcare	8062	62211	2008	MT	120	NG
CA	Rialto	City of Rialto	Plant	Wastewater Treatment	4952	22132	2007	FCEL	900	BIOMASS
CA	Richmond	Detention Center	Detention Center	Justice/ Public Order	9223	92214	2007	ERENG	75	NG
CA	Richmond	Laboratory	Laboratory	Misc. Services	8900	54169	2007	ERENG	60	NG
CA	Richmond	Medical Center	Medical Center	Health Clinics	8011	621491	2007	ERENG	150	NG
CA	Richmond	Government Building	Government Building	General Gov't	9100	92119	2007	ERENG	260	NG
CA	Riverside	City of Riverside	Control Plant	Wastewater Treatment	4952	22132	2008	FCEL	1,200	BIOMASS
CA	Rocklin	High School	High School	Schools	8211	61111	2007	ERENG	75	NG
CA	Sacramento	School	School	Schools	8211	61111	2008	ERENG	75	NG
CA	San Diego	United States Postal Service	and Distribution Center	Postal Service	4311	49111	2006	ERENG	1,500	NG
CA	San Diego	Food Processing	Food Processing	Food Processing	2000	311	2007	ERENG	1,000	NG
CA	San Fernando	Pool Facility	Pool Facility	Amusement/Recreation	7990	71399	2008	ERENG	75	NG
CA	San Francisco	Commercial Building	Commercial Building	Office Buildings	6512	53112	2007	ERENG	60	NG
CA	San Francisco	TransAmerica Pyramid Building	600 Montgomery St.	Office Buildings	6512	53112	2007	ERENG	1,000	NG
CA	San Francisco	Francisco	The Westin San Francisco	Hotels	7011	72112	2007	FCEL	500	NG
CA	San Jose	School	School	Schools	8211	61111	2008	ERENG	75	NG
CA	San Jose	High School	High School	Schools	8211	61111	2007	ERENG	75	NG

CHP Units Installed 2006-2010

Table downloaded from <http://www.eea-inc.com/chpdata/States/CA.html> on July 22, 2011; line items with "Op Year" 2006-2010 listed below:

State	City	Organization Name	Facility Name	Application	SIC4	NAICS	Op Year	Prime Mover	Capacity (kw)	Fuel Type
CA	San Jose	High School	High School	Schools	8211	61111	2007	ERENG	150	NG
CA	San Jose	Electronics Manufacturer	Electronics Manufacturer	Electronics	3600	335	2008	MT	80	NG
CA	San Mateo	San Mateo Youth Center	San Mateo Youth Center	Amusement/Recreation	7991	71394	2006	MT	960	NG
CA	San Mateo	Glenborough Realty Trust	Glenborough Realty Trust	Office Buildings	6512	53112	2006	MT	120	NG
CA	Santa Clara	Medical Center	Medical Center	Health Clinics	8011	621491	2007	ERENG	450	NG
CA	Santa Cruz	Hotel / BluePoint Energy	and Hotel	Hotels	7011	72112	2006	ERENG	270	NG
CA	Santa Maria	City of Santa Maria	Santa Maria Refuse Disposal	Solid Waste Facilities	4953	562212	2007	ERENG	1,000	BIOMASS
CA	Santa Maria	City of Santa Maria	Marian Medical Center	Hospitals/Healthcare	8062	62211	2008	ERENG	1,000	BIOMASS
CA	South El Monte	City Facility	City Facility	General Gov't	9199	92119	2006	ERENG	70	NG
CA	Stanton	Entrev Leasing	County	Primary Metals	3300	331	2006	MT	120	NG
CA	Sunnyvale	Fujitsu America	Fujitsu America Data Center	Business Services	7374	51421	2007	FCEL	200	NG
CA	Susanville	Sierra Rural Elec Coop	California Correctional Center	Justice/ Public Order	9223	92214	2010	ERENG	6,000	NG
CA	Temecula	Casino Resort	Casino Resort	Hotels	7011	72112	2008	CT	4,500	NG
CA	Tulare	Tulare Wastewater Treatment Plant	Tulare WWTP	Wastewater Treatment	4952	22132	2007	FCEL	900	BIOMASS
CA	Turlock	Turlock Irrigation District	Treatment Plant	Wastewater Treatment	4952	22132	2009	FCEL	1	BIOMASS
CA	Vacaville	Kaiser Permanente	Kaiser Permanente	Hospitals/Healthcare	8062	62211	2008	MT	780	NG
CA	Valencia	College of the Canyons	College of the Canyons	Colleges/Univ.	8221	62231	2007	ERENG	850	NG
CA	Walnut Creek	Retirement Community	Retirement Community	Nursing Homes	8051	62311	2007	ERENG	60	NG
CA	Whittier	Whittier Utility Authority	Savage Canyon Landfill	Solid Waste Facilities	4953	562212	2006	ERENG	2,000	BIOMASS
CA	Wilmington	Community College	Community College	Colleges/Univ.	8221	61131	2009	MT	240	NG
								Total MW	64.55	

Reed Workpaper #13

SCG/SDGE Incremental NGV Assumptions

Rate Impact of new NGV v9-21-2011

339,000 therms/station

Oct- 2011 Model output

The incremental benefit is the incremental revenue from a new NGV customer, less the incremental cost incurred to serve this new demand.

The benefit is realized as lower rates to existing customers totaling, \$9,000/new customer.

		Current Rates 10/1/2011	New NGV Stations	increase (decrease)	Current Rates 10/1/2011	New NGV Stations	increase (decrease)	Current Rates 10/1/2011	New NGV Stations	increase (decrease)
1	# Stations	0	1	1	0	20	20	0	40	40
2	Total System Volumes Mth/yr	9,457,396	9,457,735	339	9,457,396	9,464,176	6,780	9,457,396	9,470,956	13,560
3										
4	Incremental Revenue from New NGV Customers \$000			\$24			\$472			\$940
5	Less Incremental Costs \$000			\$15			\$302			\$603
6	Savings to existing customers \$000			(\$9)			(\$170)			(\$337)
7										
8										
9	<u>New NGV Station Assumptions:</u>									
10	# Stations added at SCG only	0	1	1	0	20	20	0	40	40
11	Mth/station/year		339			339			339	
12	NGV Volumes added MMth/yr	0.0	0.3	0.3	0.0	6.8	6.8	0.0	13.6	13.6
13										
14	<u>SCG Transportation Rates:</u>									
15	Core Rates:									
16	Residential \$/th	\$0.52526	\$0.52526	(\$0.00000)	\$0.52526	\$0.52522	(\$0.00004)	\$0.52526	\$0.52519	(\$0.00007)
17	Residential Monthly Bill \$/month	\$38.71	\$38.71	(\$0.00)	\$1,035.19	\$38.71	(\$0.00)	\$1,048.84	\$38.70	(\$0.00)
18										
19	Core C&I \$/th	\$0.30528	\$0.30528	(\$0.00000)	\$0.30528	\$0.30525	(\$0.00003)	\$0.30528	\$0.30522	(\$0.00006)
20	NGV Uncompressed \$/th	\$0.06773	\$0.06771	(\$0.00002)	\$0.06773	\$0.06738	(\$0.00035)	\$0.06773	\$0.06705	(\$0.00068)
21	Core Class Average \$/th	\$0.44896	\$0.44892	(\$0.00004)	\$0.44896	\$0.44820	(\$0.00076)	\$0.44896	\$0.44744	(\$0.00152)
22										
23	Noncore Rates:									
24	NonCore C&I - Distribution \$/th	\$0.06529	\$0.06529	(\$0.00000)	\$0.06529	\$0.06528	(\$0.00001)	\$0.06529	\$0.06528	(\$0.00001)
25	Electric Generation - Distribution Tier 1 \$/th	\$0.05733	\$0.05733	(\$0.00000)	\$0.05733	\$0.05733	(\$0.00000)	\$0.05733	\$0.05733	(\$0.00001)
26	Electric Generation - Distribution Tier 2 \$/th	\$0.02401	\$0.02401	(\$0.00000)	\$0.02401	\$0.02401	(\$0.00000)	\$0.02401	\$0.02400	(\$0.00001)
27	Transmission Level Service CA Rate \$/th	\$0.01587	\$0.01587	(\$0.00000)	\$0.01587	\$0.01587	(\$0.00000)	\$0.01587	\$0.01587	(\$0.00000)
28	RS rate \$/th/day	\$0.00842	\$0.00842	(\$0.00000)	\$0.00842	\$0.00841	(\$0.00000)	\$0.00842	\$0.00841	(\$0.00001)
29	RS Usage rate \$/th	\$0.00306	\$0.00306	\$0.00000	\$0.00306	\$0.00306	\$0.00000	\$0.00306	\$0.00306	\$0.00000
30	UnBundled Storage \$000	\$26,470	\$26,470	\$0	\$26,470	\$26,470	\$0	\$26,470	\$26,470	\$0
31	Firm Access Rights \$/dth/day	\$0.10955	\$0.10955	\$0.00000	\$0.10955	\$0.10955	\$0.00000	\$0.10955	\$0.10955	\$0.00000
32										
33	SCG System Average Rate \$/th	\$0.20083	\$0.20082	(\$0.00001)	\$0.20083	\$0.20071	(\$0.00011)	\$0.20083	\$0.20060	(\$0.00022)
34										
35										

36	<u>SDGE Transportation Rates:</u>									
37	Core Rates:									
38	Residential \$/th	\$0.66424	\$0.66424	(\$0.00000)	\$0.66424	\$0.66424	(\$0.00000)	\$0.66424	\$0.66423	(\$0.00001)
39	Residential Monthly Bill \$/month	\$38.76	\$38.45	(\$0.31)	\$38.76	\$38.44	(\$0.31)	\$38.76	\$38.44	(\$0.31)
40										
41	Core C&I \$/th	\$0.23968	\$0.23968	(\$0.00000)	\$0.23968	\$0.23967	(\$0.00000)	\$0.23968	\$0.23967	(\$0.00001)
42	NGV Uncompressed \$/th	\$0.06812	\$0.06810	(\$0.00002)	\$0.06812	\$0.06776	(\$0.00036)	\$0.06812	\$0.06744	(\$0.00068)
43	Core Class Average \$/th	\$0.51159	\$0.51159	(\$0.00000)	\$0.51159	\$0.51157	(\$0.00001)	\$0.51159	\$0.51156	(\$0.00003)
44										
45	Noncore Rates:									
46	NonCore C&I - Distribution \$/th	\$0.14451	\$0.14451	\$0.00000	\$0.14451	\$0.14452	\$0.00001	\$0.14451	\$0.14452	\$0.00002
47	Electric Generation - Distribution Tier 1 \$/th	\$0.05632	\$0.05632	(\$0.00000)	\$0.05632	\$0.05632	(\$0.00000)	\$0.05632	\$0.05632	(\$0.00001)
48	Electric Generation - Distribution Tier 2 \$/th	\$0.02415	\$0.02415	(\$0.00000)	\$0.02415	\$0.02414	(\$0.00000)	\$0.02415	\$0.02414	(\$0.00001)
49	Transmission Level Service CA Rate \$/th	\$0.01765	\$0.01765	(\$0.00000)	\$0.01765	\$0.01765	(\$0.00000)	\$0.01765	\$0.01765	(\$0.00000)
50	RS rate \$/th/day	\$0.00846	\$0.00846	(\$0.00000)	\$0.00846	\$0.00846	(\$0.00000)	\$0.00846	\$0.00846	(\$0.00001)
51	RS Usage rate \$/th	\$0.00476	\$0.00476	\$0.00000	\$0.00476	\$0.00476	\$0.00000	\$0.00476	\$0.00477	\$0.00000
52										
53	SDGE System Average Rate \$/th	\$0.22555	\$0.22555	(\$0.00000)	\$0.22555	\$0.22554	(\$0.00001)	\$0.22555	\$0.22554	(\$0.00001)
54	Volumes Mth/yr	1,216,345	1,216,345	0	1,216,345	1,216,345	0	1,216,345	1,216,345	0
55										

Reed Workpaper #13

SCG/SDGE Incremental NGV Assumptions

Rate Impact of new NGV Model v9-21-2011

339,000 therms (339 Mth) per year per station

Assumptions

- 1) 339 Mtherms/station.
- 2) All stations are P-2A customer charge on SCG system.
- 3) Incremental Costs based on BCAP 2009 LRMC Application.
 - Customer Cost allocated to NGV class.
 - Medium Pressure Distribution (MPD) allocated to all classes at current allocation of Cold Year Peak Day (CYPD).
 - High Pressure Distribution (HPD) allocated to all classes at current allocation of Peak Month

Incremental Volumes & Station (i.e. customers)	Total (Mth)	SCG	SDGE	Source
Therms/station	339			Testimony Mr. J. Reed
<u>Volumes</u>				
Current volumes Mth/yr	132,469	117,231	15,238	2011 RD Model, Rate Tables
Incremental Volumes Mth/yr	339	339	0	Testimony Mr. J. Reed
Total Volumes Mth/yr	132,808	117,570	15,238	
<u>Stations</u>				
Current Stations	313	273	40	2011 RD Model
Additional Stations	1	1	0	Testimony Mr. J. Reed
Total Stations	314	274	40	
<u>Incremental demand on Distribution System:</u>				
MP Stations	12%	0	0	2011 RD Model, Alloc Factors
HP Stations	88%	1	0	2011 RD Model, Alloc Factors
<u>Volumes/Stations</u>				
Current Volumes (th)/Station	423	429	377	
Proposed Volumes (th)/Station	339	339	0	
Total Volumes (th)/Station	422	429	377	

# customers in P-1 & P-2A for Customer Charge:	Total	P-1	P-2A	Source
SoCalGas Present Stations	273	229	44	2011 RD Model
SoCalGas Proposed Station	1		1	SCG Gas Transport Rate Dpt.
Total SoCalGas Stations	274	229	45	
SDG&E Present Stations	40	30	10	2011 RD Model
SDG&E Proposed Station	0		0	
Total SDG&E Stations	40	30	10	

Incremental Customer Costs for new NGV customers

	<u>SCG</u>	<u>Source</u>
Annualized Cost(\$/ per NGV Station) 2009 \$	\$5,617.92	2009 BCAP LRM models
escalate 2009 to 2010 \$'s	1.03	SCG Gas Transport Rate Dpt.
escalate 2010 to 2011 \$s	1.03	SCG Gas Transport Rate Dpt.
Annualized Cost(\$/ per NGV Station) 2011 \$	<u>\$5,960.05</u>	
Number of Station	<u>1</u>	
Total cost of NGV Stations	\$5,960	
Total customer costs of NGV Stations (\$000)	<u>\$5,960</u>	

Incremental Medium Pressure Distribution (MPD) for new NGV customers

	<u>SCG</u>	<u>Source</u>
Medium Pressure Distribution LRM (\$000/mmcfd) 2009 =	\$135.96	2009 BCAP LRM models
escalate 2009 to 2010 \$'s	1.03	SCG Gas Transport Rate Dpt.
escalate 2010 to 2011 \$s	1.03	SCG Gas Transport Rate Dpt.
Annualized cost per mmcfd 2011 \$000	<u>\$144.24</u>	
Medium Pressure Distribution (MPD) Peak Day Demand (mmcfd)	0.012	SCG Gas Transport Rate Dpt.
Total MDP/mmcfd of NGV station (\$000)	<u>\$1,666</u>	

Incremental High Pressure Distribution (HPD) for new NGV customers

	<u>SCG</u>	
High Pressure Distribution LRM (\$000/mmcfd) 2009 =	\$1.76	2009 BCAP LRM models
escalate 2009 to 2010 \$'s	1.03	SCG Gas Transport Rate Dpt.
escalate 2010 to 2011 \$s	1.03	SCG Gas Transport Rate Dpt.
Annualized cost per mmcf 2011 \$000	<u>\$1.87</u>	
Cumulative MPD and HPD Peak Month Demand (mmcf)	2.825	SCG Gas Transport Rate Dpt.
Total HDP/mmcfd of NGV station (\$000)	<u>\$5,289</u>	

Summary of Costs \$000/yr

Customer costs	\$5,960	
MDP costs	\$1,666	
HPD costs	<u>\$5,289</u>	
Total Customer costs, MDP and HDP costs w/o FFU	\$12,915	
Customer costs, MDP and HDP costs w FFU	\$13,138	2011 RD Model
LUAF	\$1,383	2011 RD Model
Other adjustments (EOR , TLS, EG sempra wide and Local Transmission)	\$0,589	2011 RD Model
Total (\$000)	<u>\$15,110</u>	