SOUTHERN CALIFORNIA GAS COMPANY
2020 TCAP

Section 1
Long Run Marginal Customer Cost Model

Workpapers to the Prepared Written Testimony of
Marjorie Schmidt-Pines

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
RD Format

		Residential	CCI	G-AC	G-GEN	NGV	Total Core
	Marginal Customer Unit Cost @ various LRMC Allocation Methods						
1	Customer Cust $/Cust/Year Rental Method	$294.03	$1,473.84	$6,882.66	$17,981.93	$45,590.19	
2	Customer Cost $/Cust/Year NCO Method	$125.75	$531.34	$5,437.92	$6,132.06	$40,665.44	
3	Customer Cost $/Cust/Year NCO Method w/Replacement Cost	$274.36	$933.78	$5,877.21	$12,233.90	$43,094.27	

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2	**Input from O&M Loader Model:**		
3	Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses	43.64%	SCG LRMC O&M Loaders
4	General Plant Loading Factor as a % or O&M expenses	44.94%	SCG LRMC O&M Loaders
5	Annualized Distribution Customer Related Costs $000/yr	$2,930,464	SCG LRMC O&M Loaders
6			
7	2017-20 Factor: Capital	1.1319	SCG LRMC O&M Loaders
8	2017-20 Factor: O&M	1.0981	SCG LRMC O&M Loaders

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LRMC Customer Cost/Rental Method

RD Format

		NCCI	EG Tier 1	EG Tier 2	EOR	Total Retail NonCore	Long Beach	SDG&E	South West Gas	Vernon
	Marginal Customer Unit Cost @ various LRMC Allocation Methods									
1	Customer Cust $/Cust/Year Rental Method	$55,139.74	$26,034.22	$154,535.16	$84,456.75		$783,172.48	$1,397,485.22	$687,222.92	$469,030.64
2	Customer Cost $/Cust/Year NCO Method	$18,929.39	$20,371.66	$33,959.11	$39,249.98		$315,310.40	$297,570.68	$376,146.69	$235,810.55
3	Customer Cost $/Cust/Year NCO Method w/Replacement Cost	$27,140.52	$22,729.66	$53,761.93	$47,610.41		$554,810.76	$860,621.08	$535,387.79	$355,196.79

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2 **Input from O&M Loader Model:**

3 Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses

4 General Plant Loading Factor as a % or O&M expenses

5 Annualized Distribution Customer Related Costs $000/yr

6

7 2017-20 Factor: Capital

8 2017-20 Factor: O&M

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LRMC Customer Cost/Rental Method

RD Format

		Total Whole sale	Ecogas	UBS	Total Noncore	SYSTEM TOTAL	Sources
	Marginal Customer Unit Cost @ various LRMC Allocation Methods						
1	Customer Cust $/Cust/Year Rental Method		$182,622.84	$0.00			Cust MC
2	Customer Cost $/Cust/Year NCO Method		$132,198.71	$0.00			Cust MC
3	Customer Cost $/Cust/Year NCO Method w/Replacement Cost		$158,011.01	$0.00	$2,677,683.46		Cust MC
1							
2	**Input from O&M Loader Model:**						
3	Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses						
4	General Plant Loading Factor as a % or O&M expenses						
5	Annualized Distribution Customer Related Costs $000/yr						
6							
7	2017-20 Factor: Capital						
8	2017-20 Factor: O&M						

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Core					Non-Residential						Non-Residential			Noncore Retail				
	Residential					Commercial/Industrial									G-30 - Noncore C&I			Small EG	Large EG
	Single Family (Detached homes)	Multi Family	Master Meter (up to 100,000 therms/year)	(100,001 therms per year and greater)	Residential Total or Avg.	Very Small - up to 300 therms/year	Small - 301 to 3,000 therms/year	Medium - 3,001 to 50,000 therms/year	Large - 50,001 to 250,000 therms/year	Very Large - Over 250,000 therms/year	Average	Air Conditioning	Natural Gas Vehicle	Gas Engine	Distribution	Transmission	Total	< 3million	> 3million
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Marginal Investment: 2016 $/Customer																			
Meter & House Reg	$378.33	$209.17	$1,805.27	$19,464.95	$356.80	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11
Service Lines	$1,773.76	$1,773.65	$9,356.02	$130,050.51	$1,940.10	$9,046.73	$11,048.15	$15,681.51	$45,448.16	$80,180.63	$11,794.90	$7,575.11	$85,563.97	$209,792.28	$313,478.61	$851,964.79	$332,918.54	$102,268.50	$367,802.70
Exclusive Use Facilities	$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	$11,753.92	$28,220.26	$13,193.02	$0.00	$197,632.73
Total	$2,152.09	$1,982.82	$11,161.30	$149,515.46	$2,296.91	$9,653.32	$12,358.13	$18,505.68	$54,402.08	$92,757.09	$13,269.27	$16,564.66	$135,363.77	$215,383.82	$418,460.46	##########	$451,835.01	$172,741.89	$1,332,110.55
Weighted RECC factors used to annualize SRM capital costs																			
Meter & House Reg	9.58%	9.55%	9.52%	9.44%	9.62%	9.54%	9.55%	9.52%	9.49%	9.51%	9.72%	9.50%	9.40%	9.46%	9.43%	9.40%	9.40%	9.40%	9.40%
Service Lines	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%
Exclusive Use															10.05%	10.05%	10.05%	10.05%	10.05%
Annualized Marginal Investment: $/Cust.																			
Meter & House Reg	$36.24	$19.98	$171.82	$1,836.75	$34.32	$57.87	$125.10	$268.89	$849.79	$1,196.25	$143.37	$853.86	$4,680.93	$528.71	$8,789.14	$37,244.84	$9,940.00	$6,621.07	$72,030.18
Service Lines	$138.36	$138.35	$729.80	$10,144.39	$151.33	$705.68	$861.79	$1,223.21	$3,545.11	$6,254.36	$920.04	$590.88	$6,674.28	$16,364.52	$24,452.41	$66,456.18	$25,968.79	$7,977.29	$28,689.88
Exclusive Use Facilities	$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	$1,180.91	$2,835.27	$1,325.49	$0.00	$19,856.00
Total Annualized Marginal Investment: 2020 $/Cust.	**$174.60**	**$158.33**	**$901.62**	**$11,981.14**	**$185.65**	**$763.54**	**$986.89**	**$1,492.10**	**$4,394.91**	**$7,450.62**	**$1,063.42**	**$1,444.74**	**$11,355.21**	**$16,893.23**	**$34,422.45**	**$106,536.29**	**$37,234.29**	**$14,598.37**	**$120,576.05**
O&M: $/Customer																			
Customer Services O&M Cost 2016$'s $000/year	$79,783.59	$37,381.03	$2,610.33	$1.06	$119,776.01	$3,911.12	$4,238.61	$11,867.83	$1,305.03	$188.90	$21,511.49	$4.43	$84.48	$132.33	$0.00	$0.00	$361.16	$49.05	$12.36
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services O&M $/Customer 2016$	$21.71	$21.71	$21.71	$21.71	$21.71	$44.41	$66.45	$241.48	$577.96	$570.68	$105.67	$492.10	$344.83	$184.30	$0.00	$0.00	$651.92	$196.19	$196.19
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Customer Services O&M $/Customer 2020$	$23.84	$23.84	$23.84	$23.84	$23.84	$48.77	$72.97	$265.18	$634.68	$626.69	$116.04	$540.39	$378.67	$202.39	$715.90	$715.90	$715.90	$215.44	$215.44
Customer Accounts O&M 2013$'s $000/yr	$72,561.86	$33,997.43	$2,374.05	$0.97	$108,934.30	$1,741.48	$1,160.97	$1,646.96	$446.13	$319.36	$5,314.89	$19.08	$111.65	$186.66	$0.00	$0.00	$1,286.42	$612.05	$154.24
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services O&M $/Customer 2016$	$19.75	$19.75	$19.75	$19.75	$19.75	$19.78	$18.20	$33.51	$197.58	$964.82	$26.11	$2,120.46	$455.71	$259.97	$0.00	$0.00	$2,322.06	$2,448.20	$2,448.20
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Customer Accounts O&M $/Customer 2020$	$21.69	$21.69	$21.69	$21.69	$21.69	$21.72	$19.99	$36.80	$216.97	$1,059.52	$28.67	$2,328.57	$500.44	$285.49	$2,549.96	$2,549.96	$2,549.96	$2,688.48	$2,688.48
Meter & House Reg O&M Total Cost	$5,159.46	$1,336.51	$805.49	$3.54	$7,305.00	$250.40	$391.69	$650.63	$94.77	$19.51	$1,407.00	$0.00	$0.00	$0.00			$1,087.00	$661.00	$133.00
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services O&M $/Customer 2016$	$1.40	$0.78	$6.70	$72.24	$1.32	$2.84	$6.14	$13.24	$41.97	$58.95	$6.91	$0.00	$0.00	$0.00	$0.00	$0.00	$1,962.09	$2,644.00	$2,111.11
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Meter & House Reg O&M $/Customer 2020$	$1.54	$0.85	$7.36	$79.33	$1.45	$3.12	$6.74	$14.54	$46.09	$64.74	$7.59	$0.00	$0.00	$0.00	$2,154.66	$2,154.66	$2,154.66	$2,903.49	$2,318.31
Total Service Line Footage	226,964,693	58,515,142	11,541,382	13,966	297,035,183	12,666,284	6,872,167	6,485,228	548,173	114,472	26,686,324	250	54,516	623,741	105,177	16,542	121,720	43,277	16,273
Percent of Total Footage	69.93%	18.03%	3.56%	0.00%	91.52%	3.90%	2.12%	2.00%	0.17%	0.04%	8.22%	0.00%	0.02%	0.19%	0.03%	0.01%	0.04%	0.01%	0.01%
Allocated SL O&M Costs $000	$20,713	$5,340	$1,053	$1	$27,108	$1,156	$627	$592	$50	$10	$2,435	$0	$5	$57	$10	$2	$11	$4	$1
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Allocated SL O&M Costs 2020$'s	$22,746	$5,864	$1,157	$1	$29,768	$1,269	$689	$650	$55	$11	$2,674	$0	$5	$63	$11	$2	$12	$4	$2
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Service Lines O&M $/Customer 2020$	$6.19	$3.41	$9.62	$28.57	$5.40	$14.42	$10.80	$13.22	$24.33	$34.66	$13.14	$2.78	$22.30	$87.06	$19.74	$82.89	$22.02	$17.35	$25.89
Customer Service & Information Cost (CSI) Costs Accounts (FERC Accounts 907 to 910):																			
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services & Information O&M $/Customer 2016$	$4.42	$4.42	$4.42	$4.42	$4.42	$46.72	$46.72	$46.72	$46.72	$46.72	$46.72	$0.00	$15,642.74	$0.00	$0.00	$0.00	$3,654.60	$195.31	$11,551.84
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Customer Accounts O&M $/Customer 2020$	$4.85	$4.85	$4.85	$4.85	$4.85	$51.31	$51.31	$51.31	$51.31	$51.31	$51.31	$0.00	$17,177.99	$0.00	$0.00	$0.00	$4,013.28	$214.47	$12,685.60
Total Direct O&M $/customer/yr	**$58.12**	**$54.64**	**$67.36**	**$158.28**	**$57.23**	**$139.34**	**$161.81**	**$381.05**	**$973.38**	**$1,836.92**	**$216.74**	**$2,871.75**	**$18,079.40**	**$574.94**	**$5,440.26**	**$5,503.41**	**$9,455.82**	**$6,039.24**	**$17,933.71**
O&M Loaders: $/Customer																			
Administrative & General as % of O&M	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%
Administrative & General $/customer/yr 2020$'s	$25.36	$23.84	$29.39	$69.07	$24.97	$60.80	$70.61	$166.28	$424.75	$801.56	$94.58	$1,253.13	$7,889.18	$250.88	$2,373.93	$2,401.49	$4,126.17	$2,635.30	$7,825.61
General Plant as % of O&M	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%
General Plant $/customer/yr 2020$'s	$26.12	$24.56	$30.27	$71.13	$25.72	$62.62	$72.72	$171.24	$437.43	$825.50	$97.40	$1,290.54	$8,124.73	$258.37	$2,444.81	$2,473.19	$4,249.37	$2,713.99	$8,059.26
Materials & Supplies Loader:																			
Per Customer Direct+A&G+GP O&M $/customer/yr	$109.59	$103.04	$127.03	$298.48	$107.93	$262.76	$305.14	$718.58	$1,835.55	$3,463.98	$408.72	$5,415.41	$34,093.31	$1,084.20	$10,258.99	$10,378.08	$17,831.35	$11,388.53	$33,818.59
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Total Direct+A&G+GP O&M $000/yr	$402,679	$177,391	$15,271	$15	$595,356	$23,138	$19,463	$35,315	$4,145	$1,147	$83,208	$49	$8,353	$778	$5,478	$208	$9,879	$2,847	$2,131
Percent of Total	57.10%	25.15%	2.17%	0.00%	84.42%	3.28%	2.76%	5.01%	0.59%	0.16%	11.80%	0.01%	1.18%	0.11%	0.78%	0.03%	1.40%	0.40%	0.30%
Allocated M&S $2,930,464.06	$1,673,239	$737,106	$63,455	$61	$2,473,860	$96,146	$80,875	$146,744	$17,222	$4,764	$345,751	$203	$34,708	$3,235	$22,764	$862	$41,048	$11,831	$8,853
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
M&S Loader $/customer/yr 2020$s	$0.46	$0.43	$0.53	$1.24	$0.45	$1.09	$1.27	$2.99	$7.63	$14.39	$1.70	$22.50	$141.67	$4.51	$42.63	$43.12	$74.09	$47.32	$140.53
Total O&M Loaders $/customer/yr	**$51.93**	**$48.83**	**$60.19**	**$141.44**	**$51.14**	**$124.51**	**$144.59**	**$340.51**	**$869.80**	**$1,641.46**	**$193.68**	**$2,566.17**	**$16,155.58**	**$513.76**	**$4,861.36**	**$4,917.80**	**$8,449.63**	**$5,396.61**	**$16,025.40**
LRMC Rental Customer Cost $/customer/year	**$284.65**	**$261.80**	**$1,029.18**	**$12,280.86**	**$294.03**	**$1,027.39**	**$1,293.30**	**$2,213.66**	**$6,238.09**	**$10,928.99**	**$1,473.84**	**$6,882.66**	**$45,590.19**	**$17,981.93**	**$44,724.07**	**$116,957.50**	**$55,139.74**	**$26,034.22**	**$154,535.16**

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Noncore Wholesale						Total O&M Cost for All	
	EOR	Wholesale				International		
	G-40	LB	SDG&E	SWG	Vernon	Ecogas	Customers	
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Marginal Investment: 2016 $/Customer								
Meter & House Reg	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Service Lines	$222,966.35	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Exclusive Use Facilities	$31,275.11	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		cust 6
Total	$517,080.69	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		
Weighted RECC factors used to annualize SRM capital costs								
Meter & House Reg	9.39%	0	0	0	0	0		cust 10
Service Lines	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%		cust 10
Exclusive Use	10.05%	10.05%	10.05%	10.05%	10.05%	10.05%		cust 10
Annualized Marginal Investment: $/Cust.								
Meter & House Reg	$24,672.44	$0.00	$0.00	$0.00	$0.00	$0.00		
Service Lines	$17,392.14	$0.00	$0.00	$0.00	$0.00	$0.00		
Exclusive Use Facilities	$3,142.18	$467,862.08	$1,099,914.53	$311,076.23	$233,220.09	$50,424.13		
Total Annualized Marginal Investment: 2020 $/Cust.	**$45,206.77**	**$467,862.08**	**$1,099,914.53**	**$311,076.23**	**$233,220.09**	**$50,424.13**		
O&M: $/Customer								
Customer Services O&M Cost 2016$'s $000/year	$1.50	$0.00	$0.00	$0.00	$0.00	$0.00	$141,932.81	cust 8
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Customer Services O&M $/Customer 2016$	$45.48	$0.00	$0.00	$0.00	$0.00	$0.00	$24.81	
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Customer Services O&M $/Customer 2020$	$49.95	$0.00	$0.00	$0.00	$0.00	$0.00	$27.24	
Customer Accounts O&M 2013$'s $000/yr	$77.78	$7.85	$6.27	$12.60	$5.63	$3.89	$116,733.31	cust 8
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Customer Services O&M $/Customer 2016$	$2,356.87	$7,850.76	$6,267.17	$12,601.52	$5,630.09	$3,891.80	$20.40	
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Customer Accounts O&M $/Customer 2020$	$2,588.19	$8,621.27	$6,882.26	$13,838.29	$6,182.65	$4,273.76	$22.40	
Meter & House Reg O&M Total Cost	$70.00	$13.00	$13.00	$25.00	$2.00	$2.00	$10,718.00	cust 8
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Customer Services O&M $/Customer 2016$	$2,121.21	$13,000.00	$13,000.00	$25,000.00	$2,000.00	$2,000.00	$1.87	
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Meter & House Reg O&M $/Customer 2020$	$2,329.40	$14,275.88	$14,275.88	$27,453.62	$2,196.29	$2,196.29	$2.06	
Total Service Line Footage	11,524	0	0	0	0	0	324,549,532	cust 8
Percent of Total Footage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
Allocated SL O&M Costs $000	$1	$0	$0	$0	$0	$0	$29,619	cust 8
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Allocated SL O&M Costs 2020$'s	$1	$0	$0	$0	$0	$0	$32.526	$0 $0
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Service Lines O&M $/Customer 2020$	$35.00	$0.00	$0.00	$0.00	$0.00	$0.00	$5.68	
Customer Service & Information Cost (CSI) Costs Accounts (FERC A								
2016 Number of Customers	33	1	1	1	1	1	5,721,670	
Customer Services & Information O&M $/Customer 2016$	$14,319.86	$130,781.85	$123,834.41	$143,287.23	$105,771.08	$57,682.49	$7.26	$0.00 $0.00
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Customer Accounts O&M $/Customer 2020$	$15,725.27	$143,617.39	$135,988.10	$157,350.11	$116,151.95	$63,343.72	$7.98	
Total Direct O&M $/customer/yr	**$20,727.80**	**$166,514.54**	**$157,146.25**	**$198,642.02**	**$124,530.89**	**$69,813.77**	**$65.36**	
O&M Loaders: $/Customer								
Administrative & General as % of O&M	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	cust 4, a&g
Administrative & General $/customer/yr 2020$'s	$9,044.85	$72,660.82	$68,572.84	$86,680.07	$54,340.70	$30,464.16	$28.52	
General Plant as % of O&M	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	cust 4, gen plant
General Plant $/customer/yr 2020$'s	$9,314.90	$74,830.26	$70,620.23	$89,268.08	$55,963.16	$31,373.73	$29.37	
Materials & Supplies Loader:								
Per Customer Direct+A&G+GP O&M $/customer/yr	$39,087.56	$314,005.62	$296,339.31	$374,590.17	$234,834.75	$131,651.66		
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Total Direct+A&G+GP O&M $000/yr	$1,290	$314	$296	$375	$235	$132	$705,241.21	
Percent of Total	0.18%	0.04%	0.04%	0.05%	0.03%	0.02%	100.00%	
Allocated M&S $2,930,464.06	$5,360	$1,305	$1,231	$1,557	$976	$547	$2,930,464.06	Loader Model
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
M&S Loader $/customer/yr 2020$s	$162.42	$1,304.78	$1,231.37	$1,556.52	$975.80	$547.05	$0.51	
Total O&M Loaders $/customer/yr	**$18,522.17**	**$148,795.86**	**$140,424.43**	**$177,504.67**	**$111,279.65**	**$62,384.94**	**$58.41**	
LRMC Rental Customer Cost $/customer/year	**$84,456.75**	**$783,172.48**	**$1,397,485.22**	**$687,222.92**	**$469,030.64**	**$182,622.84**	**$123.77**	

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Core					Non-Residential						Non-Residential			Noncore Retail				
	Residential					Commercial/Industrial						Air	Natural Gas	Gas	G-30 - Noncore C&I			Small EG	Large EG
	Single Family (Detached homes)	Multi Family	Master Meter (up to 100,000 therms/year)	(100,001 therms per year and greater)	Residential Total or Avg.	Very Small - up to 300 therms/year	Small - 301 to 3,000 therms/year	Medium - 3,001 to 50,000 therms/year	Large - 50,001 to 250,000 therms/year	Very Large - Over 250,000 therms/year	Average	Conditioning	Vehicle	Engine	Distribution	Transmission	Total	< 3million	> 3million
Total Rental Capital ($000) before RECC					**$12,670,237**	**$850,072**	**$788,263**	**$909,480**	**$122,840**	**$30,703**		**$149**	**$33,164**	**$154,646**	**$223,458**	**$25,530**	**$250,317**	**$43,185**	**$83,923**
NCO Method:																			
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
New Hookups Rate	0.54%	0.70%	0.19%	0.00%	0.59%	0.77%	0.72%	0.59%	0.35%	0.30%	0.70%	0.00%	3.67%	1.81%	0.19%	0.00%	0.18%	19.20%	0.00%
No of New Customer Hookups /year	19,921	12,121	234	0	32,276	679	457	290	8	1	1,435	0	9	13	1	0	1	10	0
Marginal Investment: $/Customer																			
Meter & House Reg	$378.33	$209.17	$1,805.27	$19,464.95	$356.80	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11
Service Lines	$1,773.76	$1,773.65	$9,356.02	$130,050.51	$1,940.10	$9,046.73	$11,048.15	$15,681.51	$45,448.16	$80,180.63	$11,794.90	$7,575.11	$85,563.97	$209,792.28	$313,478.61	$851,964.79	$332,918.54	$102,268.50	$367,802.70
Exclusive Use Facilities	$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	$11,753.92	$28,220.26	$13,193.02	$0.00	$197,632.73
Total Marginal Investment $/customer	$2,152.09	$1,982.82	$11,161.30	$149,515.46	$2,296.91	$9,653.32	$12,358.13	$18,505.68	$54,402.08	$92,757.09	$13,269.27	$16,564.66	$135,363.77	$215,383.82	$418,460.46	##########	$0.00	$172,741.89	$1,332,110.55
Weighted PVRR for Meter & House Reg	129.06%	129.13%	129.12%	129.23%	129.03%	129.10%	129.09%	129.11%	129.12%	129.08%	128.89%	129.11%	129.30%	129.21%	129.28%	129.30%	129.30%	129.31%	129.31%
PVCC for Service Lines	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%
PVRR:																			
Meter & House Reg $/customer	$488.29	$270.10	$2,330.94	$25,154.06	$460.37	$783.12	$1,691.00	$3,646.40	$11,561.12	$16,233.41	$1,900.30	$11,606.23	$64,391.70	$7,224.81	$120,526.94	$512,451.44	$136,701.70	$91,131.66	$991,414.87
Service Lines $/customer	$2,293.99	$2,293.85	$12,100.12	$168,193.98	$2,509.13	$11,700.12	$14,288.54	$20,280.85	$58,777.98	$103,697.40	$15,254.32	$9,796.87	$110,659.66	$271,323.80	$405,421.06	$1,101,843.84	$430,562.68	$132,263.58	$475,678.27
PVRR of Hookup Cost $/customer	$2,782.28	$2,563.95	$14,431.06	$193,348.05	$2,969.50	$12,483.24	$15,979.54	$23,927.25	$70,339.10	$119,930.81	$17,154.62	$21,403.10	$175,051.36	$278,548.61	$525,948.01	##########	$567,264.38	$223,395.24	$1,467,093.15
Total PVRR of Hookup Cost for Class $'s	$55,425,885	$31,077,696	$3,376,867	$0	$95,843,660	$8,476,117	$7,302,651	$6,938,904	$562,713	$119,931	$24,616,875	$0	$1,575,462	$3,621,132	$525,948	$0	$567,264	$2,233,952	$0
PVRR of Hookup Cost $/customer	**$15.08**	**$18.05**	**$28.09**	**$0.00**	**$17.37**	**$96.25**	**$114.49**	**$141.19**	**$249.21**	**$362.33**	**$120.92**	**$0.00**	**$6,430.46**	**$5,043.36**	**$984.92**	**$0.00**	**$1,023.94**	**$8,935.81**	**$0.00**
O&M Cost w/Loaders $/Cust.																			
Total Direct O&M	$58.12	$54.64	$67.36	$158.28	$57.23	$139.34	$161.81	$381.05	$973.38	$1,836.92	$216.74	$2,871.75	$18,079.40	$574.94	$5,440.26	$5,503.41	$9,455.82	$6,039.24	$17,933.71
Total O&M Loaders $/customer/yr	$51.93	$48.83	$60.19	$141.44	$51.14	$124.51	$144.59	$340.51	$869.80	$1,641.46	$193.68	$2,566.17	$16,155.58	$513.76	$4,861.36	$4,917.80	$8,449.63	$5,396.61	$16,025.40
LRMC NCO Customer Cost $/customer/year	**$125.13**	**$121.52**	**$155.65**	**$299.72**	**$125.75**	**$360.10**	**$420.89**	**$862.75**	**$2,092.39**	**$3,840.70**	**$531.34**	**$5,437.92**	**$40,665.44**	**$6,132.06**	**$11,286.54**	**$10,421.20**	**$18,929.39**	**$20,371.66**	**$33,959.11**
NCO w/ Replacement Cost Adder																			
Marginal Investment: Meter & House Reg $/Customer	$378.33	$209.17	$1,805.27	$19,464.95	$356.80	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11
Service Lines Replacement Cost	$6,674.62	$7,917.63	$14,373.42	$160,276.57	$7,231.70	$14,393.15	$17,029.09	$22,772.18	$71,036.90	$182,652.55	$18,143.64	$11,447.04	$112,536.62	$312,229.22	$342,511.43	$917,974.12	$363,286.25	$108,519.95	$350,966.12
Exclusive Use Facilities	$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	$11,753.92	$28,220.26	$13,193.02	$0.00	$197,632.73
Total	$2,152.09	$1,982.82	$11,161.30	$149,515.46	$2,296.91	$9,653.32	$12,358.13	$18,505.68	$54,402.08	$92,757.09	$13,269.27	$16,564.66	$135,363.77	$215,383.82	$418,460.46	##########	$0.00	$172,741.89	$1,332,110.55
Weighted PVRR for Meter & House Reg	129.06%	129.13%	129.12%	129.23%	129.03%	129.10%	129.09%	129.11%	129.12%	129.08%	128.89%	129.11%	129.30%	129.21%	129.28%	129.30%	129.30%	129.31%	129.31%
PVCC for Service Lines	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%
PVCC for Exclusive Use Facilities (Meters)															129%	129%	129%	129%	129%
Weighted Replacement Factor for Meter & House Reg	1.79%	1.27%	1.63%	0.97%	1.96%	1.66%	1.77%	1.65%	1.82%	2.13%	2.75%	1.88%	0.40%	1.04%	0.37%	0.42%	0.38%	0.29%	0.29%
Replacement Factor for Service Lines	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Replacement Factor for Exclusive Use Facilities															4.00%	4.00%	4.00%	4.00%	4.00%
Meter & House Reg, Replacement	$8.76	$3.42	$37.99	$244.29	$9.01	$12.98	$29.88	$60.24	$210.75	$345.38	$52.21	$218.33	$256.55	$74.90	$451.86	$2,128.85	$520.11	$263.24	$2,863.77
Service Lines, Replacement	$128.84	$152.83	$277.45	$3,093.81	$139.59	$277.83	$328.71	$439.57	$1,371.22	$3,525.73	$350.23	$220.96	$2,172.29	$6,026.94	$6,611.48	$17,719.60	$7,012.49	$2,094.75	$6,774.68
Exclusive Use Facilities, Replace															$604.51	$1,451.38	$678.52	$0.00	$10,164.36
Replacement Adder $/Customer	$137.60	$156.25	$315.44	$3,338.10	$148.60	$290.81	$358.59	$499.81	$1,581.97	$3,871.11	$402.43	$439.29	$2,428.84	$6,101.84	$7,667.85	$21,299.83	$8,211.13	$2,358.00	$19,802.81
NCO w/o Repl Cost $/Cust/yr	$125.13	$121.52	$155.65	$299.72	$125.75	$360.10	$420.89	$862.75	$2,092.39	$3,840.70	$531.34	$5,437.92	$40,665.44	$6,132.06	$11,286.54	$10,421.20	$18,929.39	$20,371.66	$33,959.11
NCO w/ Repl Cost: $/Cust/yr.	**$262.73**	**$277.77**	**$471.09**	**$3,637.83**	**$274.36**	**$650.91**	**$779.49**	**$1,362.56**	**$3,674.36**	**$7,711.81**	**$933.78**	**$5,877.21**	**$43,094.27**	**$12,233.90**	**$18,954.39**	**$31,721.04**	**$27,140.52**	**$22,729.66**	**$53,761.93**

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Noncore Wholesale							
	EOR	Wholesale				International	Total O&M Cost for All	
	G-40	LB	SDG&E	SWG	Vernon	Ecogas	Customers	
Total Rental Capital ($000) before RECC	**$17,064**	**$4,657**	**$10,948**	**$3,096**	**$2,321**	**$502**		**$16,224,553**
NCO Method:								
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
New Hookups Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
No of New Customer Hookups /year	0	0	0	0	0	0	33,744	
Marginal Investment: $/Customer								
Meter & House Reg	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Service Lines	$222,966.35	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Exclusive Use Facilities	$31,275.11	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		cust 6, cust 7
Total Marginal Investment $/customer	$517,080.69	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		
Weighted PVRR for Meter & House Reg	129.33%							cust 10
PVCC for Service Lines	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%		2013 RECC
PVRR:								
Meter & House Reg $/customer	$339,919.37	$0.00	$0.00	$0.00	$0.00	$0.00		
Service Lines $/customer	$288,361.79	$0.00	$0.00	$0.00	$0.00	$0.00		
PVRR of Hookup Cost $/customer	$628,281.17	$0.00	$0.00	$0.00	$0.00	$0.00		
Total PVRR of Hookup Cost for Class $'s	$0	$0	$0	$0	$0	$0		
PVRR of Hookup Cost $/customer	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**		
O&M Cost w/Loaders $/Cust.								
Total Direct O&M	$20,727.80	$166,514.54	$157,146.25	$198,642.02	$124,530.89	$69,813.77		
Total O&M Loaders $/customer/yr	$18,522.17	$148,795.86	$140,424.43	$177,504.67	$111,279.65	$62,384.94		
LRMC NCO Customer Cost $/customer/year	**$39,249.98**	**$315,310.40**	**$297,570.68**	**$376,146.69**	**$235,810.55**	**$132,198.71**		
NCO w/ Replacement Cost Adder								
Marginal Investment: Meter & House Reg $/Customer	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Service Lines Replacement Cost	$313,328.03	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Exclusive Use Facilities	$31,275.11	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		cust 6, cust 7
Total	$517,080.69	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		
Weighted PVRR for Meter & House Reg	129.33%							cust 10
PVCC for Service Lines	129%							2013 RECC
PVCC for Exclusive Use Facilities (Meters)	129%	129%	129%	129%	129%	129%		
Weighted Replacement Factor for Meter & House Reg	0.21%							cust 10
Replacement Factor for Service Lines	1.5%							
Replacement Factor for Exclusive Use Facilities	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%		cust 10
Meter & House Reg, Replacement	$703.78							
Service Lines, Replacement	$6,048.15							
Exclusive Use Facilities, Replace	$1,608.50	$239,500.36	$563,050.40	$159,241.10	$119,386.24	$25,812.30		
Replacement Adder $/Customer	$8,360.43	$239,500.36	$563,050.40	$159,241.10	$119,386.24	$25,812.30		
NCO w/o Repl Cost $/Cust/yr	$39,249.98	$315,310.40	$297,570.68	$376,146.69	$235,810.55	$132,198.71		
NCO w/ Repl Cost: $/Cust/yr.	**$47,610.41**	**$554,810.76**	**$860,621.08**	**$535,387.79**	**$355,196.79**	**$158,011.01**		

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

	Core														
	Residential					Non-Residential									
						G-10						Gas Air	Natrual Gas	Gas
	Single Family	Multi Family	Master Meter Small	Master Meter Large	Residential Total	Very Small	Small	Medium	Large	Very Large	Total	Conditioning	Vehicle	Engine
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Custom

	Noncore												Total
	Non-Residential												Over All
	G-30			Small	Large	EOR	Wholesale				International		
	Distribution	Transmission	Total	EG	EG	G-40	LB	SDG&E	SWG	Vernon	Mexacali	Rosarito	Customers
2016 Number of Customers	534	20	554	250	63	33	1	1	1	1	1	0	5,721,670

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

1) Residential Segmentation

1a) Segmentation of Residential Total Customer Counts into Bands

	Residential				
	Single Family	Multi Family	Master Meter Small	Master Meter Large	Total
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213
Percent of Total	67%	31%	2%	0%	100%

values from 'Number of Customers', cust 2 tab

1b) Segmentation of Residential Meter, Regulator & MSA Investment Costs into Bands

	Residential				
	Single Family	Multi Family	Master Meter Small	Master Meter Large	Total
Per Cust. Meter, Reg. & MSA Investment	$378.33	$209.17	$1,805.27	$19,464.95	
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213
Total Meter, Reg. & MSA Investment	$1,390,130,056	$360,099,530	$217,024,674	$953,783	$1,968,208,042
Percent of Total Meter, Reg. & MSA Investment	71%	18%	11%	0%	100%

note: used to segment Meters, Regulators & MSAs O&M Costs
values from 'Investment Meters, REGs', cust 5 tab

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

2) G10 Segmentation

2a) Segmentation of G-10 Total Customer Counts into Bands

	G-10					
	Very Small	Small	Medium	Large	Very Large	Total
2016 Number of Customers	88,060	63,785	49,146	2,258	331	203,580
Percent of Total	43%	31%	24%	1%	0%	100%

values from 'Number of Customers', cust 2 tab

2b) Segmentation of G-10 Meter, Regulator & MSA Investment Costs into Bands

	G-10					
	Very Small	Small	Medium	Large	Very Large	Total
Per Cust. Meter, Reg & MSA Investment	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	
2016 Number of Customers	88,060	63,785	49,146	2,258	331	203,580
Total Meter, Reg & MSA Investment	$53,416,216	$83,557,068	$138,796,556	$20,217,962	$4,162,809	$300,150,611
Percent of Total Meter, Reg & MSA Investment	18%	28%	46%	7%	1%	100%

note: used to segment Meters, Regulators & MSAs O&M Costs
values from 'Investment Meters, REGs', cust 5 tab

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

3) G 30 Segmentation

3a) Segmentation of G-30 total customer counts by Service Level

	G-30		
	Distribution	Transmission	Total
2016 Number of Customers	534	20	554
Percent of Total	96%	4%	100%

values from 'cust 2' tab

3b) Allocation of G-30 Total Big GEMS Costs by Service Level

		G-30		
		Distribution	Transmission	Total
Meter/Reg Investment Cost Per Customer	2013 $s	$93,227.93	$396,314.38	
2016 Number of Customers		534	20	554
Total Cost	2013 $s	$49,783,716	$7,926,288	$57,710,004
Percent of Total Cost		86%	14%	100%

note: used to segment Meters, Regulators & MSAs O&M Costs
values from 'Investment Meters, REGs', cust 5 tab

SCG 2020 TCAP
LRMC Customer Cost
Average Per Customer Investment in Meters & Regulators by Customer Class

		Core													
		Residential					Non-Residential								
				Master Meter			G-10								
Investment Per Customer:		Single Family	Multi Family	Small	Large	Residential Average	Very Small	Small	Medium	Large	Very Large	Average	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
Meter, Reg.	2016 $s	$334.23	$184.79	$1,594.85	$17,196.05	$315.21	$535.88	$1,157.28	$2,494.97	$7,910.22	$11,110.51	$1,302.51	$7,941.70	$43,994.96	$4,939.78
Meter, Reg.	2020 $s	$378.33	$209.17	$1,805.27	$19,464.95	$356.80	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55
Total		$378.33	$209.17	$1,805.27	$19,464.95	$356.80	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55

For Res and Non-Residential G10 customers we multiply 5 yr average meter size and pressure type combination for new customers per class times unit cost for each associated combination.
For other classes we multiply average meter size and pressure type combination for all customers per class times unit cost for each associated combination.

Average Per Customer Investment in
Service Lines by Customer Class

		Core													
		Residential					Non-Residential								
				Master Meter			G-10								
Investment Per Customer:		Single Family	Multi Family	Small	Large	Residential Average	Very Small	Small	Medium	Large	Very Large	Average	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
Service Lines	2016 $s	$1,567.00	$1,566.90	$8,265.45	$114,891.36	$1,713.96	$7,992.22	$9,760.34	$13,853.62	$40,150.56	$70,834.49	$10,420.05	$6,692.13	$75,590.33	$185,338.15
Service Lines	2020 $s	1,773.76	1,773.65	9,356.02	130,050.51	1,940.10	9,046.73	11,048.15	15,681.51	45,448.16	80,180.63	11,794.90	7,575.11	85,563.97	209,792.28
Total		1,773.76	1,773.65	9,356.02	130,050.51	1,940.10	9,046.73	11,048.15	15,681.51	45,448.16	80,180.63	11,794.90	7,575.11	85,563.97	209,792.28

formerly tabs: 'Investment Meter, Reg' and 'Investment Service Lines'
For residential and non-residential G10 customers we multiply Ken's 5 yr average footage, pipe type, pipe size configuration per class times Distribution Managers' cost per foot each associated configuration.
For other classes we multiply average footage, pipe type and pipe size combination for all customers per class times unit cost for each associated combination.

Service Lines Replacement Costs

		Core													
		Residential					Non-Residential								
				Master Meter			G-10								
Investment Per Customer:		Single Family	Multi Family	Small	Large	Residential Average	Very Small	Small	Medium	Large	Very Large	Average	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
Service Lines Replaceme	2016 $s	5,896.60	6,994.72	12,698.01	141,594.17	6,388.75	12,715.43	15,044.12	20,117.78	62,756.59	161,361.92	16,028.75	10,112.73	99,418.96	275,834.68
Service Lines	2020 $s	6,674.62	7,917.63	14,373.42	160,276.57	7,231.70	14,393.15	17,029.09	22,772.18	71,036.90	182,652.55	18,143.64	11,447.04	112,536.62	312,229.22
Total		6,674.62	7,917.63	14,373.42	160,276.57	7,231.70	14,393.15	17,029.09	22,772.18	71,036.90	182,652.55	18,143.64	11,447.04	112,536.62	312,229.22

SCG 2020 TCAP
LRMC Customer Cost
Average Per Customer Investment in

		Noncore												Total
		Non-Residential												
		G-30			<3 Million SM. COGEN	>3 Million EG	EOR	Wholesale				International		Over All
Investment Per Customer:		Distribution	Transmission	Average	G-50	G-50	G-40	LB	SDG&E	SWG	Vernon	DGN	Rosarito	Customers
Meter, Reg.	2016 $s	$82,360.96	$350,118.57	$97,210.60	$62,258.77	$677,308.75	$241,675.42	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Meter, Reg.	2020 $s	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Total		$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	

For Res and Non-Residential G10 custo
For other classes we multiply average n

Average Per Customer Investment in
Service Lines by Customer Class

		Noncore												Total
		Non-Residential												
		G-30			SM. COGEN	EG	EOR	Wholesale				International		Over All
Investment Per Customer:		Distribution	Transmission	Average	G-50	G-50	G-40	LB	SDG&E	SWG	Vernon	DGN	Rosarito	Customers
Service Lines	2016 $s	$276,938.43	$752,656.77	$294,112.38	$90,347.72	$324,930.32	$196,976.60	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Service Lines	2020 $s	313,478.61	851,964.79	332,918.54	102,268.50	367,802.70	222,966.35	0.00	0.00	0.00	0.00	0.00	0.00	
Total		313,478.61	851,964.79	332,918.54	102,268.50	367,802.70	222,966.35	0.00	0.00	0.00	0.00	0.00	0.00	

formerly tabs: 'Investment Meter, Reg' a
For residential and non-residential G10
For other classes we multiply average fo

Service Lines Replacement Costs

		Noncore												Total
		Non-Residential												
		G-30			SM. COGEN	EG	EOR	Wholesale				International		Over All
Investment Per Customer:		Distribution	Transmission	Average	G-50	G-50	G-40	LB	SDG&E	SWG	Vernon	DGN	Rosarito	Customers
Service Lines Replaceme	2016 $s	302,587.08	810,971.81	320,940.32	95,870.48	310,056.27	276,805.41	0.00	0.00	0.00	0.00	0.00	0.00	
Service Lines	2020 $s	342,511.43	917,974.12	363,286.25	108,519.95	350,966.12	313,328.03	0.00	0.00	0.00	0.00	0.00	0.00	
Total		342,511.43	917,974.12	363,286.25	108,519.95	350,966.12	313,328.03	0.00	0.00	0.00	0.00	0.00	0.00	

Meter Cost Detail
Source: 2016 MSA Field BW cbc20171116

Code	Element	Meter Size	Above Std	avg labor and nonlabor $/meter	avg $/meter	avg $/regulator	Total
S10	SGL	1	0	$144	$47	$18	$209
M10	MULT	1	0	$121	$47	$5	$173
30	AG	3	0	$166	$124	$18	$308
	CMB	3		$363	$427	$112	$902
31	LBS	3	1	$161	$427	$279	$867
S40	SZ	4	0	$171	$577	$219	$967
S50	SZ	5	0	$171	$577	$219	$967
	CMB	4		$309	$713	$258	$1,280
	CMB	5		$309	$713	$258	$1,280
41	@LBS	4	1	$2,120	$463	$278	$2,861
51	@LBS	5	1	$2,120	$463	$278	$2,861
S60	STD	6	0	$1,437	$730	$219	$2,386
S70	STD	7	0	$1,437	$730	$219	$2,386
61	LBS	6	1	$3,386	$730	$279	$4,395
71	LBS	7	1	$3,386	$730	$279	$4,395
S80	STD	8	0	$1,437	$818	$280	$2,535
S90	STD	9	0	$1,437	$818	$280	$2,535
81	LBS	8	1	$3,386	$818	$640	$4,844
91	LBS	9	1	$3,386	$818	$640	$4,844
99	TURBINE METERS	10		$422,967	$17,118	$3,300	$443,385
100	ROTARY METERS	10		$4,770	$4,433	$3,300	$12,503
110	ULTRASONIC METERS	12		$906,081	$119,284	$0	$1,025,365

Calculation of Weighted Average Meter & Regulator CAPEX/ Customer

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
S10	SF	1	0	44,606	$143.91	$47.02	$18.07	$6,419,106	$2,097,153	$806,036	$9,322,294	**$208.99**
30	SF	3	0	30,792	$166.35	$123.97	$18.07	$5,122,146	$3,817,174	$556,415	$9,495,735	**$308.38**
31	SF	3	1	19	$161.18	$427.15	$279.00	$3,062	$8,116	$5,301	$16,479	**$867.33**
S40	SF	4	0	5,457	$171.25	$576.52	$219.00	$934,503	$3,146,047	$1,195,083	$5,275,633	**$966.76**
41	SF	4	1	34	$2,120.25	$462.92	$278.00	$72,088	$15,739	$9,452	$97,280	**$2,861.17**
S50	SF	5	0	282	$171.25	$576.52	$219.00	$48,292	$162,577	$61,758	$272,628	**$966.76**
S60	SF	6	0	985	$1,437.05	$729.76	$219.00	$1,415,492	$718,818	$215,715	$2,350,024	**$2,385.81**
61	SF	6	1	41	$3,386.05	$729.76	$279.00	$138,828	$29,920	$11,439	$180,187	**$4,394.81**
S70	SF	7	0	3	$1,437.05	$729.76	$219.00	$4,311	$2,189	$657	$7,157	**$2,385.81**
S80	SF	8	0	128	$1,437.05	$818.36	$280.00	$183,942	$104,750	$35,840	$324,532	**$2,535.40**
81	SF	8	1	30	$3,386.05	$818.36	$640.00	$101,581	$24,551	$19,200	$145,332	**$4,844.40**
S90	SF	9	0	7	$1,437.05	$818.36	$280.00	$10,059	$5,728	$1,960	$17,748	**$2,535.40**
91	SF	9	1	4	$3,386.05	$818.36	$640.00	$13,544	$3,273	$2,560	$19,378	**$4,844.40**
100	SF	10	1	1	$4,769.78	$4,433.19	$3,300.00	$4,770	$4,433	$3,300	$12,503	**$12,502.97**
	tot SF			82,389				$14,471,725	$10,140,469	$2,924,716	$27,536,910	**$334.23**
M10	MF	1	0	55,746	$121.14	$47.02	$4.52	$6,753,010	$2,620,900	$251,834	$9,625,744	**$172.67**
30	MF	3	0	4,148	$166.35	$123.97	$18.07	$690,006	$514,213	$74,955	$1,279,173	**$308.38**
31	MF	3	1	1	$161.18	$427.15	$279.00	$161	$427	$279	$867	**$867.33**
S40	MF	4	0	157	$171.25	$576.52	$219.00	$26,886	$90,513	$34,383	$151,782	**$966.76**
S60	MF	6	0	6	$1,437.05	$729.76	$219.00	$8,622	$4,379	$1,314	$14,315	**$2,385.81**
61	MF	6	1	4	$3,386.05	$729.76	$279.00	$13,544	$2,919	$1,116	$17,579	**$4,394.81**
81	MF	8	1	2	$3,386.05	$818.36	$640.00	$6,772	$1,637	$1,280	$9,689	**$4,844.40**
	tot MF			60,064				$7,499,001	$3,234,987	$365,161	$11,099,150	**$184.79**
M10	MM Band 1	1	0	473	$121.14	$47.02	$4.52	$57,299	$22,238	$2,137	$81,674	**$172.67**
30	MM Band 1	3	0	141	$166.35	$123.97	$18.07	$23,455	$17,479	$2,548	$43,482	**$308.38**
31	MM Band 1	3	1	13	$161.18	$427.15	$279.00	$2,095	$5,553	$3,627	$11,275	**$867.33**
S40	MM Band 1	4	0	204	$171.25	$576.52	$219.00	$34,935	$117,609	$44,676	$197,220	**$966.76**
41	MM Band 1	4	1	37	$2,120.25	$462.92	$278.00	$78,449	$17,128	$10,286	$105,863	**$2,861.17**
S50	MM Band 1	5	0	14	$171.25	$576.52	$219.00	$2,397	$8,071	$3,066	$13,535	**$966.76**
S60	MM Band 1	6	0	151	$1,437.05	$729.76	$219.00	$216,994	$110,194	$33,069	$360,258	**$2,385.81**
61	MM Band 1	6	1	39	$3,386.05	$729.76	$279.00	$132,056	$28,461	$10,881	$171,398	**$4,394.81**
S70	MM Band 1	7	0	2	$1,437.05	$729.76	$219.00	$2,874	$1,460	$438	$4,772	**$2,385.81**
S80	MM Band 1	8	0	60	$1,437.05	$818.36	$280.00	$86,223	$49,101	$16,800	$152,124	**$2,535.40**
81	MM Band 1	8	1	63	$3,386.05	$818.36	$640.00	$213,321	$51,556	$40,320	$305,197	**$4,844.40**
S90	MM Band 1	9	0	11	$1,437.05	$818.36	$280.00	$15,808	$9,002	$3,080	$27,889	**$2,535.40**
91	MM Band 1	9	1	35	$3,386.05	$818.36	$640.00	$118,512	$28,642	$22,400	$169,554	**$4,844.40**
100	MM Band 1	10	1	31	$4,769.78	$4,433.19	$3,300.00	$147,863	$137,429	$102,300	$387,592	**$12,502.97**
	tot MM 1			1,274				$1,132,280	$603,925	$295,628	$2,031,833	**$1,594.85**
61	MM Band 2	6	1	3	$3,386.05	$729.76	$279.00	$10,158	$2,189	$837	$13,184	**$4,394.81**
71	MM Band 2	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
81	MM Band 2	8	1	5	$3,386.05	$818.36	$640.00	$16,930	$4,092	$3,200	$24,222	**$4,844.40**
91	MM Band 2	9	1	17	$3,386.05	$818.36	$640.00	$57,563	$13,912	$10,880	$82,355	**$4,844.40**
99	MM Band 2	10	1	1	$422,966.95	$17,118.00	$3,300.00	$422,967	$17,118	$3,300	$443,385	**$443,384.95**
100	MM Band 2	10	1	22	$4,769.78	$4,433.19	$3,300.00	$104,935	$97,530	$72,600	$275,065	**$12,502.97**
	tot MM 2			49				$615,939	$135,571	$91,096	$842,606	**$17,196.05**

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
S10	G10 Band 1	1	0	2,133	$143.91	$47.02	$18.07	$306,953	$100,283	$38,544	$445,780	**$208.99**
30	G10 Band 1	3	0	447	$166.35	$123.97	$18.07	$74,357	$55,413	$8,077	$137,847	**$308.38**
31	G10 Band 1	3	1	27	$161.18	$427.15	$279.00	$4,352	$11,533	$7,533	$23,418	**$867.33**
S40	G10 Band 1	4	0	309	$171.25	$576.52	$219.00	$52,916	$178,143	$67,671	$298,730	**$966.76**
41	G10 Band 1	4	1	24	$2,120.25	$462.92	$278.00	$50,886	$11,110	$6,672	$68,668	**$2,861.17**
S50	G10 Band 1	5	0	37	$171.25	$576.52	$219.00	$6,336	$21,331	$8,103	$35,770	**$966.76**
51	G10 Band 1	5	1	3	$2,120.25	$462.92	$278.00	$6,361	$1,389	$834	$8,584	**$2,861.17**
S60	G10 Band 1	6	0	88	$1,437.05	$729.76	$219.00	$126,460	$64,219	$19,272	$209,951	**$2,385.81**
61	G10 Band 1	6	1	43	$3,386.05	$729.76	$279.00	$145,600	$31,380	$11,997	$188,977	**$4,394.81**
S70	G10 Band 1	7	0	1	$1,437.05	$729.76	$219.00	$1,437	$730	$219	$2,386	**$2,385.81**
71	G10 Band 1	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
S80	G10 Band 1	8	0	23	$1,437.05	$818.36	$280.00	$33,052	$18,822	$6,440	$58,314	**$2,535.40**
81	G10 Band 1	8	1	26	$3,386.05	$818.36	$640.00	$88,037	$21,277	$16,640	$125,954	**$4,844.40**
91	G10 Band 1	9	1	6	$3,386.05	$818.36	$640.00	$20,316	$4,910	$3,840	$29,066	**$4,844.40**
100	G10 Band 1	10	1	5	$4,769.78	$4,433.19	$3,300.00	$23,849	$22,166	$16,500	$62,515	**$12,502.97**
	tot Band 1			3,173				$944,298	$543,437	$212,621	$1,700,356	**$535.88**
S10	G10 Band 2	1	0	551	$143.91	$47.02	$18.07	$79,293	$25,905	$9,957	$115,155	**$208.99**
30	G10 Band 2	3	0	517	$166.35	$123.97	$18.07	$86,001	$64,091	$9,342	$159,434	**$308.38**
31	G10 Band 2	3	1	22	$161.18	$427.15	$279.00	$3,546	$9,397	$6,138	$19,081	**$867.33**
S40	G10 Band 2	4	0	615	$171.25	$576.52	$219.00	$105,318	$354,557	$134,685	$594,560	**$966.76**
41	G10 Band 2	4	1	49	$2,120.25	$462.92	$278.00	$103,892	$22,683	$13,622	$140,197	**$2,861.17**
S50	G10 Band 2	5	0	66	$171.25	$576.52	$219.00	$11,302	$38,050	$14,454	$63,806	**$966.76**
51	G10 Band 2	5	1	4	$2,120.25	$462.92	$278.00	$8,481	$1,852	$1,112	$11,445	**$2,861.17**
S60	G10 Band 2	6	0	259	$1,437.05	$729.76	$219.00	$372,195	$189,009	$56,721	$617,925	**$2,385.81**
61	G10 Band 2	6	1	50	$3,386.05	$729.76	$279.00	$169,302	$36,488	$13,950	$219,741	**$4,394.81**
S70	G10 Band 2	7	0	1	$1,437.05	$729.76	$219.00	$1,437	$730	$219	$2,386	**$2,385.81**
71	G10 Band 2	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
S80	G10 Band 2	8	0	62	$1,437.05	$818.36	$280.00	$89,097	$50,738	$17,360	$157,195	**$2,535.40**
81	G10 Band 2	8	1	76	$3,386.05	$818.36	$640.00	$257,340	$62,195	$48,640	$368,175	**$4,844.40**
S90	G10 Band 2	9	0	3	$1,437.05	$818.36	$280.00	$4,311	$2,455	$840	$7,606	**$2,535.40**
91	G10 Band 2	9	1	23	$3,386.05	$818.36	$640.00	$77,879	$18,822	$14,720	$111,421	**$4,844.40**
100	G10 Band 2	10	1	6	$4,769.78	$4,433.19	$3,300.00	$28,619	$26,599	$19,800	$75,018	**$12,502.97**
	tot Band 2			2,305				$1,401,399	$904,302	$361,839	$2,667,540	**$1,157.28**
S10	G10 Band 3	1	0	31	$143.91	$47.02	$18.07	$4,461	$1,457	$560	$6,479	**$208.99**
30	G10 Band 3	3	0	180	$166.35	$123.97	$18.07	$29,942	$22,314	$3,253	$55,509	**$308.38**
31	G10 Band 3	3	1	48	$161.18	$427.15	$279.00	$7,736	$20,503	$13,392	$41,632	**$867.33**
S40	G10 Band 3	4	0	695	$171.25	$576.52	$219.00	$119,018	$400,679	$152,205	$671,901	**$966.76**
41	G10 Band 3	4	1	58	$2,120.25	$462.92	$278.00	$122,974	$26,849	$16,124	$165,948	**$2,861.17**
S50	G10 Band 3	5	0	101	$171.25	$576.52	$219.00	$17,296	$58,228	$22,119	$97,643	**$966.76**
51	G10 Band 3	5	1	4	$2,120.25	$462.92	$278.00	$8,481	$1,852	$1,112	$11,445	**$2,861.17**
S60	G10 Band 3	6	0	625	$1,437.05	$729.76	$219.00	$898,155	$456,103	$136,875	$1,491,132	**$2,385.81**
61	G10 Band 3	6	1	117	$3,386.05	$729.76	$279.00	$396,168	$85,382	$32,643	$514,193	**$4,394.81**
S70	G10 Band 3	7	0	6	$1,437.05	$729.76	$219.00	$8,622	$4,379	$1,314	$14,315	**$2,385.81**
71	G10 Band 3	7	1	2	$3,386.05	$729.76	$279.00	$6,772	$1,460	$558	$8,790	**$4,394.81**
S80	G10 Band 3	8	0	234	$1,437.05	$818.36	$280.00	$336,269	$191,495	$65,520	$593,284	**$2,535.40**
81	G10 Band 3	8	1	212	$3,386.05	$818.36	$640.00	$717,842	$173,491	$135,680	$1,027,013	**$4,844.40**
S90	G10 Band 3	9	0	34	$1,437.05	$818.36	$280.00	$48,860	$27,824	$9,520	$86,204	**$2,535.40**
91	G10 Band 3	9	1	119	$3,386.05	$818.36	$640.00	$402,940	$97,384	$76,160	$576,484	**$4,844.40**
100	G10 Band 3	10	1	79	$4,769.78	$4,433.19	$3,300.00	$376,813	$350,222	$260,700	$987,735	**$12,502.97**
	tot Band 3			2,545				$3,502,349	$1,919,623	$927,735	$6,349,706	**$2,494.97**
41	G10 Band 4	4	1	1	$2,120.25	$462.92	$278.00	$2,120	$463	$278	$2,861	**$2,861.17**
61	G10 Band 4	6	1	5	$3,386.05	$729.76	$279.00	$16,930	$3,649	$1,395	$21,974	**$4,394.81**
S80	G10 Band 4	8	0	2	$1,437.05	$818.36	$280.00	$2,874	$1,637	$560	$5,071	**$2,535.40**
81	G10 Band 4	8	1	31	$3,386.05	$818.36	$640.00	$104,967	$25,369	$19,840	$150,176	**$4,844.40**
S90	G10 Band 4	9	0	2	$1,437.05	$818.36	$280.00	$2,874	$1,637	$560	$5,071	**$2,535.40**
91	G10 Band 4	9	1	37	$3,386.05	$818.36	$640.00	$125,284	$30,279	$23,680	$179,243	**$4,844.40**
100	G10 Band 4	10	0	5	$4,769.78	$4,433.19	$3,300.00	$23,849	$22,166	$16,500	$62,515	**$12,502.97**
100	G10 Band 4	10	1	50	$4,769.78	$4,433.19	$3,300.00	$238,489	$221,660	$165,000	$625,149	**$12,502.97**
	tot Band 4			133				$517,388	$306,859	$227,813	$1,052,060	**$7,910.22**

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
91	G10 Band 5	9	1	4	$3,386.05	$818.36	$640.00	$13,544	$3,273	$2,560	$19,378	**$4,844.40**
100	G10 Band 5	10	1	18	$4,769.78	$4,433.19	$3,300.00	$85,856	$79,797	$59,400	$225,054	**$12,502.97**
	tot Band 5			22				$99,400	$83,071	$61,960	$244,431	**$11,110.51**
61	GAC	6	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
S80	GAC	8	0	1	$1,437.05	$818.36	$280.00	$1,437	$818	$280	$2,535	**$2,535.40**
81	GAC	8	1	2	$3,386.05	$818.36	$640.00	$6,772	$1,637	$1,280	$9,689	**$4,844.40**
91	GAC	9	1	1	$3,386.05	$818.36	$640.00	$3,386	$818	$640	$4,844	**$4,844.40**
100	GAC	10	1	4	$4,769.78	$4,433.19	$3,300.00	$19,079	$17,733	$13,200	$50,012	**$12,502.97**
	tot GAC			9				$34,060	$21,736	$15,679	$71,475	**$7,941.70**
S10	NGV	1	0	14	$143.91	$47.02	$18.07	$2,015	$658	$253	$2,926	**$208.99**
30	NGV	3	0	2	$166.35	$123.97	$18.07	$333	$248	$36	$617	**$308.38**
31	NGV	3	1	18	$161.18	$427.15	$279.00	$2,901	$7,689	$5,022	$15,612	**$867.33**
41	NGV	4	1	12	$2,120.25	$462.92	$278.00	$25,443	$5,555	$3,336	$34,334	**$2,861.17**
51	NGV	5	1	5	$2,120.25	$462.92	$278.00	$10,601	$2,315	$1,390	$14,306	**$2,861.17**
61	NGV	6	1	23	$3,386.05	$729.76	$279.00	$77,879	$16,785	$6,417	$101,081	**$4,394.81**
71	NGV	7	1	5	$3,386.05	$729.76	$279.00	$16,930	$3,649	$1,395	$21,974	**$4,394.81**
81	NGV	8	1	40	$3,386.05	$818.36	$640.00	$135,442	$32,734	$25,600	$193,776	**$4,844.40**
91	NGV	9	1	30	$3,386.05	$818.36	$640.00	$101,581	$24,551	$19,200	$145,332	**$4,844.40**
99	NGV	10	1	21	$422,966.95	$17,118.00	$3,300.00	$8,882,306	$359,478	$69,300	$9,311,084	**$443,384.95**
100	NGV	10	1	75	$4,769.78	$4,433.19	$3,300.00	$357,733	$332,489	$247,500	$937,723	**$12,502.97**
	tot NGV			245				$9,613,165	$786,150	$379,449	$10,778,764	**$43,994.96**
S10	GEN	1	0	2	$143.91	$47.02	$18.07	$288	$94	$36	$418	**$208.99**
30	GEN	3	0	12	$166.35	$123.97	$18.07	$1,996	$1,488	$217	$3,701	**$308.38**
31	GEN	3	1	8	$161.18	$427.15	$279.00	$1,289	$3,417	$2,232	$6,939	**$867.33**
S40	GEN	4	0	45	$171.25	$576.52	$219.00	$7,706	$25,943	$9,855	$43,504	**$966.76**
41	GEN	4	1	19	$2,120.25	$462.92	$278.00	$40,285	$8,796	$5,282	$54,362	**$2,861.17**
S50	GEN	5	0	11	$171.25	$576.52	$219.00	$1,884	$6,342	$2,409	$10,634	**$966.76**
51	GEN	5	1	6	$2,120.25	$462.92	$278.00	$12,721	$2,778	$1,668	$17,167	**$2,861.17**
S60	GEN	6	0	109	$1,437.05	$729.76	$219.00	$156,638	$79,544	$23,871	$260,053	**$2,385.81**
61	GEN	6	1	113	$3,386.05	$729.76	$279.00	$382,623	$82,463	$31,527	$496,614	**$4,394.81**
S70	GEN	7	0	6	$1,437.05	$729.76	$219.00	$8,622	$4,379	$1,314	$14,315	**$2,385.81**
71	GEN	7	1	4	$3,386.05	$729.76	$279.00	$13,544	$2,919	$1,116	$17,579	**$4,394.81**
S80	GEN	8	0	114	$1,437.05	$818.36	$280.00	$163,823	$93,293	$31,920	$289,036	**$2,535.40**
81	GEN	8	1	161	$3,386.05	$818.36	$640.00	$545,154	$131,755	$103,040	$779,949	**$4,844.40**
S90	GEN	9	0	17	$1,437.05	$818.36	$280.00	$24,430	$13,912	$4,760	$43,102	**$2,535.40**
91	GEN	9	1	64	$3,386.05	$818.36	$640.00	$216,707	$52,375	$40,960	$310,042	**$4,844.40**
99	GEN	10	1	2	$422,966.95	$17,118.00	$3,300.00	$845,934	$34,236	$6,600	$886,770	**$443,384.95**
100	GEN	10	1	25	$4,769.78	$4,433.19	$3,300.00	$119,244	$110,830	$82,500	$312,574	**$12,502.97**
	tot GEN			718				$2,542,890	$654,562	$349,307	$3,546,759	**$4,939.78**
51	G30 Tran	5	1	1	$2,120.25	$462.92	$278.00	$2,120	$463	$278	$2,861	**$2,861.17**
S60	G30 Tran	6	0	1	$1,437.05	$729.76	$219.00	$1,437	$730	$219	$2,386	**$2,385.81**
71	G30 Tran	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
91	G30 Tran	9	1	1	$3,386.05	$818.36	$640.00	$3,386	$818	$640	$4,844	**$4,844.40**
99	G30 Tran	10	1	4	$422,966.95	$17,118.00	$3,300.00	$1,691,868	$68,472	$13,200	$1,773,540	**$443,384.95**
100	G30 Tran	10	1	7	$4,769.78	$4,433.19	$3,300.00	$33,388	$31,032	$23,100	$87,521	**$12,502.97**
110	G30 Tran	10	1	5	$906,080.94	$119,284.00	$0.00	$4,530,405	$596,420	$0	$5,126,825	**$1,025,364.94**
	tot G30 Tran			20				$6,265,990	$698,665	$37,716	$7,002,371	**$350,118.57**
31	G30 Dist	3	1	1	$161.18	$427.15	$279.00	$161	$427	$279	$867	**$867.33**
S40	G30 Dist	4	0	1	$171.25	$576.52	$219.00	$171	$577	$219	$967	**$966.76**
51	G30 Dist	5	1	1	$2,120.25	$462.92	$278.00	$2,120	$463	$278	$2,861	**$2,861.17**
61	G30 Dist	6	1	6	$3,386.05	$729.76	$279.00	$20,316	$4,379	$1,674	$26,369	**$4,394.81**
81	G30 Dist	8	1	38	$3,386.05	$818.36	$640.00	$128,670	$31,098	$24,320	$184,087	**$4,844.40**
S90	G30 Dist	9	0	2	$1,437.05	$818.36	$280.00	$2,874	$1,637	$560	$5,071	**$2,535.40**
91	G30 Dist	9	1	76	$3,386.05	$818.36	$640.00	$257,340	$62,195	$48,640	$368,175	**$4,844.40**
99	G30 Dist	10	1	89	$422,966.95	$17,118.00	$3,300.00	$37,644,058	$1,523,502	$293,700	$39,461,260	**$443,384.95**
100	G30 Dist	10	1	321	$4,769.78	$4,433.19	$3,300.00	$1,531,099	$1,423,055	$1,059,300	$4,013,454	**$12,502.97**
	tot G30 Dist			535				$39,586,810	$3,047,331	$1,428,970	$44,063,111	**$82,360.96**

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
31	Sml G50	3	1	1	$161.18	$427.15	$279.00	$161	$427	$279	$867	**$867.33**
51	Sml G50	5	1	2	$2,120.25	$462.92	$278.00	$4,240	$926	$556	$5,722	**$2,861.17**
61	Sml G50	6	1	99	$3,386.05	$729.76	$279.00	$335,219	$72,247	$27,621	$435,086	**$4,394.81**
71	Sml G50	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
81	Sml G50	8	1	49	$3,386.05	$818.36	$640.00	$165,916	$40,099	$31,360	$237,376	**$4,844.40**
91	Sml G50	9	1	37	$3,386.05	$818.36	$640.00	$125,284	$30,279	$23,680	$179,243	**$4,844.40**
99	Sml G50	10	1	30	$422,966.95	$17,118.00	$3,300.00	$12,689,008	$513,540	$99,000	$13,301,548	**$443,384.95**
100	Sml G50	10	1	30	$4,769.78	$4,433.19	$3,300.00	$143,093	$132,996	$99,000	$375,089	**$12,502.97**
110	Sml G50	10	1	1	$906,080.94	$119,284.00	$0.00	$906,081	$119,284	$0	$1,025,365	**$1,025,364.94**
	tot G50			250				$14,372,389	$910,528	$281,775	$15,564,692	**$62,258.77**
81	G50 EG	8	1	3	$3,386.05	$818.36	$640.00	$10,158	$2,455	$1,920	$14,533	**$4,844.40**
91	G50 EG	9	1	1	$3,386.05	$818.36	$640.00	$3,386	$818	$640	$4,844	**$4,844.40**
99	G50 EG	10	1	15	$422,966.95	$17,118.00	$3,300.00	$6,344,504	$256,770	$49,500	$6,650,774	**$443,384.95**
100	G50 EG	10	1	9	$4,769.78	$4,433.19	$3,300.00	$42,928	$39,899	$29,700	$112,527	**$12,502.97**
110	G50 EG	12	1	35	$906,080.94	$119,284.00	$0.00	$31,712,833	$4,174,940	$0	$35,887,773	**$1,025,364.94**
	tot G50 EG			63				$38,113,809	$4,474,882	$81,760	$42,670,451	**$677,308.75**
71	G40	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
81	G40	8	1	2	$3,386.05	$818.36	$640.00	$6,772	$1,637	$1,280	$9,689	**$4,844.40**
91	G40	9	1	3	$3,386.05	$818.36	$640.00	$10,158	$2,455	$1,920	$14,533	**$4,844.40**
99	G40	10	1	15	$422,966.95	$17,118.00	$3,300.00	$6,344,504	$256,770	$49,500	$6,650,774	**$443,384.95**
100	G40	10	1	7	$4,769.78	$4,433.19	$3,300.00	$33,388	$31,032	$23,100	$87,521	**$12,502.97**
	tot G40			28				$6,398,209	$292,624	$76,079	$6,766,912	**$241,675.42**

Service Cost Detail
Sources: Table 11

Code	Pipe Diameter Inches	Pipe Type	New Business $/ft	Replacement $/ft
0.5P	0.5	P	$91.55	$133.24
1P	1	P	$92.90	$164.92
2P	2	P	$223.00	$291.44
3P	3	P	$279.28	$357.77
4P	4	P	$288.94	$835.13
6P	6	P	$1,224.04	$1,057.43
3P	8	P	$1,769.02	$1,629.24
0.5	0.5	S	$293.61	$404.07
0.75	0.75	S	$293.61	$404.07
1S	1	S	$305.21	$515.37
1.25	1.25	S	$349.59	$569.65
2S	2	S	$512.81	$629.92
3S	3	S	$543.96	$645.55
4S	4	S	$601.81	$659.11
6S	6	S	$1,312.90	$1,223.19
8S	8	S	$1,932.47	$1,683.38
10S	10	S	$2,510.02	$2,475.18
12S	12	S	$3,207.66	$2,791.03
16S	16	S	$8,106.28	$7,077.29
20S	20	S	$8,106.28	$7,077.29

Calculation of Weighted Average Service Line and Service Line Replacement Cost $/customer

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.5P	SF	0	12	P	61,397	39.4	$91.55	$133.24	**$1,567**	**$5,254**	$96,209,099	$322,608,284
0.75	SF	0	34	S	96	30.0	$293.61	$404.07	**$1,567**	**$12,122**	$150,432	$1,163,711
1P	SF	1	0	P	9,975	57.4	$92.90	$164.92	**$1,567**	**$9,469**	$15,630,825	$94,451,450
1S	SF	1	0	S	44	8.5	$305.21	$515.37	**$1,567**	**$4,369**	$68,948	$192,225
2P	SF	2	0	P	44	274.6	$223.00	$291.44	**$1,567**	**$80,034**	$68,948	$3,521,486
	Tot SF				71,556				**$1,567**	**$5,897**	$112,128,252	$421,937,157
0.5P	MF	0	12	P	2,466	34.9	$91.55	$133.24	**$1,567**	**$4,656**	$3,864,222	$11,480,911
0.75	MF	0	34	S	100	7.6	$293.61	$404.07	**$1,567**	**$3,087**	$156,700	$308,707
1P	MF	1	0	P	4,061	37.6	$92.90	$164.92	**$1,567**	**$6,204**	$6,363,587	$25,193,673
1S	MF	1	0	S	107	27.6	$305.21	$515.37	**$1,567**	**$14,204**	$167,669	$1,519,827
1.25	MF	1	25	S	2	3.5	$349.59	$569.65	**$1,224**	**$1,994**	$2,447	$3,988
2P	MF	2	0	P	269	78.0	$223.00	$291.44	**$1,567**	**$22,742**	$421,523	$6,117,601
2S	MF	2	0	S	193	45.3	$512.81	$629.92	**$1,567**	**$28,512**	$302,431	$5,502,909
3P	MF	3	0	P	1	20.0	$279.28	$357.77	**$1,567**	**$7,155**	$1,567	$7,155
3S	MF	3	0	S	1	352.0	$543.96	$645.55	**$1,567**	**$227,235**	$1,567	$227,235
	Tot MF				7,200				**$1,567**	**$6,994.72**	$11,281,713	$50,362,004
0.5P	MM Band 1	0	12	P	76	40.2	$91.55	$133.24	**$3,684**	**$5,361**	$279,971	$407,450
0.75	MM Band 1	0	34	S	21	5.8	$293.61	$404.07	**$1,706**	**$2,348**	$35,823	$49,300
1P	MM Band 1	1	0	P	470	68.4	$92.90	$164.92	**$6,351**	**$11,275**	$2,985,056	$5,299,239
1S	MM Band 1	1	0	S	61	14.6	$305.21	$515.37	**$4,468**	**$7,544**	$272,549	$460,211
1.25	MM Band 1	1	25	S	7	1.3	$349.59	$569.65	**$450**	**$733**	$3,147	$5,128
2P	MM Band 1	2	0	P	89	90.0	$223.00	$291.44	**$20,065**	**$26,223**	$1,785,829	$2,333,871
2S	MM Band 1	2	0	S	49	36.7	$512.81	$629.92	**$18,806**	**$23,101**	$921,516	$1,131,943
3P	MM Band 1	3	0	P	2	230.0	$279.28	$357.77	**$64,233**	**$82,287**	$128,467	$164,574
3S	MM Band 1	3	0	S	1	3.0	$543.96	$645.55	**$1,632**	**$1,937**	$1,632	$1,937
	Tot MM 1				776				**$8,265**	**$12,698**	$6,413,991	$9,853,653
0.5P	MM Band 2	0	12	P	1	222.0	$91.55	$133.24	**$20,325**	**$29,579**	$20,325	$29,579
0.75	MM Band 2	0	34	S	2	332.0	$293.61	$404.07	**$97,479**	**$134,150**	$194,958	$268,300
1S	MM Band 2	1	0	S	1	198.0	$305.21	$515.37	**$60,432**	**$102,042**	$60,432	$102,042
1.25	MM Band 2	1	25	S	3	96.3	$349.59	$569.65	**$33,676**	**$54,874**	$101,028	$164,623
2P	MM Band 2	2	0	P	4	736.8	$223.00	$291.44	**$164,299**	**$214,719**	$657,194	$858,876
2S	MM Band 2	2	0	S	9	151.0	$512.81	$629.92	**$77,435**	**$95,117**	$696,915	$856,055
3P	MM Band 2	3	0	P	1	96.0	$279.28	$357.77	**$26,810**	**$34,346**	$26,810	$34,346
3S	MM Band 2	3	0	S	7	287.0	$543.96	$645.55	**$156,117**	**$185,274**	$1,092,817	$1,296,915
4P	MM Band 2	4	0	P	1	52.0	$288.94	$835.13	**$15,025**	**$43,427**	$15,025	$43,427
4S	MM Band 2	4	0	S	2	616.0	$601.81	$659.11	**$370,718**	**$406,010**	$741,436	$812,020
6S	MM Band 2	6	0	S	1	53.0	$1,312.90	$1,223.19	**$69,584**	**$64,829**	$69,584	$64,829
	Tot MM 2				32				**$114,891**	**$141,594**	$3,676,524	$4,531,013
0.5P	G10 Band 1	0	12	P	111	55.0	$91.55	$133.24	**$5,037**	**$7,331**	$559,117	$813,698
0.75	G10 Band 1	0	34	S	140	8.2	$293.61	$404.07	**$2,397**	**$3,299**	$335,586	$461,832
1P	G10 Band 1	1	0	P	489	96.8	$92.90	$164.92	**$8,995**	**$15,969**	$4,398,752	$7,808,912
1S	G10 Band 1	1	0	S	184	4.0	$305.21	$515.37	**$1,228**	**$2,073**	$225,872	$381,395
1.25	G10 Band 1	1	25	S	1	2.0	$349.59	$569.65	**$699**	**$1,139**	$699	$1,139
2P	G10 Band 1	2	0	P	48	221.5	$223.00	$291.44	**$49,386**	**$64,542**	$2,370,534	$3,098,013
2S	G10 Band 1	2	0	S	23	2.1	$512.81	$629.92	**$1,092**	**$1,342**	$25,123	$30,860
3P	G10 Band 1	3	0	P	2	101.5	$279.28	$357.77	**$28,346**	**$36,314**	$56,693	$72,627
4P	G10 Band 1	4	0	P	1	41.0	$288.94	$835.13	**$11,847**	**$34,240**	$11,847	$34,240
	tot Band 1				999				**$7,992**	**$12,715**	$7,984,223	$12,702,716

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.5P	G10 Band 2	0	12	P	78	60.4	$91.55	$133.24	**$5,532**	**$8,051**	$431,491	$627,961
0.75	G10 Band 2	0	34	S	207	7.1	$293.61	$404.07	**$2,085**	**$2,869**	$431,581	$593,940
1P	G10 Band 2	1	0	P	629	104.3	$92.90	$164.92	**$9,686**	**$17,194**	$6,092,202	$10,815,219
1S	G10 Band 2	1	0	S	252	2.7	$305.21	$515.37	**$836**	**$1,411**	$210,590	$355,590
1.25	G10 Band 2	1	25	S	4	11.8	$349.59	$569.65	**$4,108**	**$6,693**	$16,431	$26,773
2P	G10 Band 2	2	0	P	101	206.1	$223.00	$291.44	**$45,950**	**$60,051**	$4,640,958	$6,065,192
2S	G10 Band 2	2	0	S	33	20.1	$512.81	$629.92	**$10,288**	**$12,637**	$339,490	$417,012
3P	G10 Band 2	3	0	P	3	709.0	$279.28	$357.77	**$198,006**	**$253,658**	$594,019	$760,975
	tot Band 2				1,307				**$9,760**	**$15,044**	$12,756,761	$19,662,662
0.5P	G10 Band 3	0	12	P	33	55.4	$91.55	$133.24	**$5,072**	**$7,381**	$167,360	$243,563
0.75	G10 Band 3	0	34	S	266	6.2	$293.61	$404.07	**$1,824**	**$2,511**	$485,317	$667,891
1P	G10 Band 3	1	0	P	694	95.2	$92.90	$164.92	**$8,841**	**$15,694**	$6,135,402	$10,891,911
1S	G10 Band 3	1	0	S	417	3.6	$305.21	$515.37	**$1,105**	**$1,865**	$460,604	$777,750
1.25	G10 Band 3	1	25	S	13	2.2	$349.59	$569.65	**$753**	**$1,227**	$9,789	$15,951
2P	G10 Band 3	2	0	P	276	219.7	$223.00	$291.44	**$48,986**	**$64,019**	$13,520,091	$17,669,187
2S	G10 Band 3	2	0	S	62	43.8	$512.81	$629.92	**$22,440**	**$27,564**	$1,391,264	$1,708,957
3P	G10 Band 3	3	0	P	7	801.9	$279.28	$357.77	**$223,939**	**$286,880**	$1,567,573	$2,008,157
4P	G10 Band 3	4	0	P	6	283.8	$288.94	$835.13	**$82,011**	**$237,038**	$492,067	$1,422,227
6P	G10 Band 3	6	0	P	2	153.0	$1,224.04	$1,057.43	**$187,279**	**$161,788**	$374,557	$323,575
	tot Band 3				1,776				**$13,854**	**$20,118**	$24,604,024	$35,729,169
0.75	G10 Band 4	0	34	S	1	1.0	$293.61	$404.07	**$294**	**$404**	$294	$404
1P	G10 Band 4	1	0	P	20	83.4	$92.90	$164.92	**$7,743**	**$13,746**	$154,859	$274,915
1S	G10 Band 4	1	0	S	4	19.5	$305.21	$515.37	**$5,952**	**$10,050**	$23,807	$40,199
2P	G10 Band 4	2	0	P	65	149.4	$223.00	$291.44	**$33,327**	**$43,555**	$2,166,263	$2,831,054
2S	G10 Band 4	2	0	S	8	38.4	$512.81	$629.92	**$19,679**	**$24,173**	$157,434	$193,384
3P	G10 Band 4	3	0	P	6	196.3	$279.28	$357.77	**$54,831**	**$70,242**	$328,986	$421,451
3S	G10 Band 4	3	0	S	3	556.0	$543.96	$645.55	**$302,442**	**$358,927**	$907,326	$1,076,782
4P	G10 Band 4	4	0	P	5	524.6	$288.94	$835.13	**$151,579**	**$438,110**	$757,893	$2,190,549
	tot Band 4				112				**$40,151**	**$62,757**	$4,496,863	$7,028,738
2P	G10 Band 5	2	0	P	4	217.3	$223.00	$291.44	**$48,448**	**$63,316**	$193,791	$253,262
2S	G10 Band 5	2	0	S	1	5.0	$512.81	$629.92	**$2,564**	**$3,150**	$2,564	$3,150
3P	G10 Band 5	3	0	P	2	305.0	$279.28	$357.77	**$85,179**	**$109,120**	$170,358	$218,239
4P	G10 Band 5	3	0	P	6	408.7	$288.94	$835.13	**$118,081**	**$341,291**	$708,485	$2,047,743
4S	G10 Band 5	4	0	S	2	26.5	$601.81	$659.11	**$15,948**	**$17,466**	$31,896	$34,933
6S	G10 Band 5	6	0	S	1	20.0	$1,312.90	$1,223.19	**$26,258**	**$24,464**	$26,258	$24,464
	tot Band 5				16				**$70,834**	**$161,362**	$1,133,352	$2,581,791
1P	GAC	1	0	P	2	27.5	$92.90	$164.92	**$2,555**	**$4,535**	$5,109	$9,070
1S	GAC	1	0	S	1	34.0	$305.21	$515.37	**$10,377**	**$17,522**	$10,377	$17,522
2S	GAC	2	0	S	1	22.0	$512.81	$629.92	**$11,282**	**$13,858**	$11,282	$13,858
	tot GAC				4				**$6,692**	**$10,113**	$26,769	$40,451

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.5P	NGV	0	12	P	3	43.7	$91.55	$133.24	**$3,998**	**$5,819**	$11,994	$17,456
0.75	NGV	0	34	S	4	81.0	$293.61	$404.07	**$23,783**	**$32,729**	$95,130	$130,918
1P	NGV	1	0	P	9	134.8	$92.90	$164.92	**$12,521**	**$22,227**	$112,686	$200,046
1S	NGV	1	0	S	7	89.3	$305.21	$515.37	**$27,252**	**$46,017**	$190,767	$322,119
1.25	NGV	1	25	S	1	330.0	$349.59	$569.65	**$115,364**	**$187,984**	$115,364	$187,984
2P	NGV	2	0	P	51	159.9	$223.00	$291.44	**$35,649**	**$46,590**	$1,818,124	$2,376,077
2S	NGV	2	0	S	10	107.6	$512.81	$629.92	**$55,179**	**$67,779**	$551,789	$677,789
3P	NGV	3	0	P	11	314.3	$279.28	$357.77	**$87,768**	**$112,436**	$965,447	$1,236,797
3S	NGV	3	0	S	13	210.3	$543.96	$645.55	**$114,400**	**$135,766**	$1,487,205	$1,764,960
4P	NGV	4	0	P	17	233.3	$288.94	$835.13	**$67,407**	**$194,828**	$1,145,921	$3,312,072
4S	NGV	4	0	S	15	182.3	$601.81	$659.11	**$109,729**	**$120,175**	$1,645,933	$1,802,626
6P	NGV	6	0	P	2	576.5	$1,224.04	$1,057.43	**$705,661**	**$609,611**	$1,411,321	$1,219,222
6S	NGV	6	0	S	7	194.4	$1,312.90	$1,223.19	**$255,267**	**$237,825**	$1,786,867	$1,664,778
	tot NGV				150				**$75,590**	**$99,419**	$11,338,550	$14,912,843
0.5P	GEN	0	12	P	23	141.3	$91.55	$133.24	**$12,936**	**$18,827**	$297,539	$433,018
0.75	GEN	0	34	S	184	214.2	$293.61	$404.07	**$62,883**	**$86,539**	$11,570,417	$15,923,161
1P	GEN	1	0	P	211	312.3	$92.90	$164.92	**$29,013**	**$51,505**	$6,121,673	$10,867,537
1S	GEN	1	0	S	23	730.6	$305.21	$515.37	**$222,992**	**$376,531**	$5,128,810	$8,660,216
1S	GEN	1	25	S	6	1,314.5	$305.21	$515.37	**$401,203**	**$677,448**	$2,407,215	$4,064,687
2P	GEN	2	0	P	174	1,714.9	$223.00	$291.44	**$382,433**	**$499,795**	$66,543,279	$86,964,328
2S	GEN	2	0	S	32	405.3	$512.81	$629.92	**$207,864**	**$255,330**	$6,651,657	$8,170,555
3P	GEN	3	0	P	21	2,917.6	$279.28	$357.77	**$814,820**	**$1,043,834**	$17,111,215	$21,920,512
3S	GEN	3	0	S	4	259.5	$543.96	$645.55	**$141,158**	**$167,521**	$564,631	$670,084
4P	GEN	4	0	P	9	4,268.4	$288.94	$835.13	**$1,233,329**	**$3,564,707**	$11,099,959	$32,082,366
4S	GEN	4	0	S	1	27.0	$601.81	$659.11	**$16,249**	**$17,796**	$16,249	$17,796
	tot GEN				688				**$185,338**	**$275,835**	$127,512,645	$189,774,259
0.5P	G30 Dist	0	12	P	6	163.5	$91.55	$133.24	**$14,969**	**$21,785**	$89,814	$130,709
0.75	G30 Dist	0	34	S	18	95.3	$293.61	$404.07	**$27,990**	**$38,520**	$503,819	$693,354
1P	G30 Dist	1	0	P	6	376.3	$92.90	$164.92	**$34,960**	**$62,063**	$209,760	$372,377
1S	G30 Dist	1	0	S	11	56.5	$305.21	$515.37	**$17,229**	**$29,092**	$189,522	$320,016
1.25	G30 Dist	1	25	S	16	111.8	$349.59	$569.65	**$39,067**	**$63,658**	$625,064	$1,018,531
2P	G30 Dist	2	0	P	51	261.7	$223.00	$291.44	**$58,367**	**$76,279**	$2,976,715	$3,890,221
2S	G30 Dist	2	0	S	104	213.1	$512.81	$629.92	**$109,291**	**$134,248**	$11,366,270	$13,961,743
3P	G30 Dist	3	0	P	48	342.4	$279.28	$357.77	**$95,624**	**$122,500**	$4,589,949	$5,880,004
3S	G30 Dist	3	0	S	64	375.8	$543.96	$645.55	**$204,410**	**$242,586**	$13,082,212	$15,525,490
4P	G30 Dist	4	0	P	13	670.4	$288.94	$835.13	**$193,700**	**$559,855**	$2,518,106	$7,278,118
4S	G30 Dist	4	0	S	76	788.9	$601.81	$659.11	**$474,790**	**$519,990**	$36,084,019	$39,519,210
6P	G30 Dist	6	0	P	2	2,339.5	$1,224.04	$1,057.43	**$2,863,648**	**$2,473,868**	$5,727,297	$4,947,737
6S	G30 Dist	6	0	S	24	866.3	$1,312.90	$1,223.19	**$1,137,403**	**$1,059,689**	$27,297,669	$25,432,534
8S	G30 Dist	8	0	S	5	1,841.6	$1,932.47	$1,683.38	**$3,558,831**	**$3,100,104**	$17,794,155	$15,500,519
10S	G30 Dist	10	0	S	1	73.0	$2,510.02	$2,475.18	**$183,232**	**$180,688**	$183,232	$180,688
	tot G30 Dist				445				**$276,938**	**$302,587**	$123,237,602	$134,651,252
2P	G30 Tran	2	0	P	3	1,363.0	$223.00	$291.44	**$303,955**	**$397,234**	$911,865	$1,191,702
2S	G30 Tran	2	0	S	5	1,484.6	$512.81	$629.92	**$761,325**	**$935,172**	$3,806,623	$4,675,861
4S	G30 Tran	4	0	S	1	53.0	$601.81	$659.11	**$31,896**	**$34,933**	$31,896	$34,933
6S	G30 Tran	6	0	S	2	1,593.0	$1,312.90	$1,223.19	**$2,091,446**	**$1,948,547**	$4,182,893	$3,897,093
8S	G30 Tran	8	0	S	1	42.0	$1,932.47	$1,683.38	**$81,164**	**$70,702**	$81,164	$70,702
16S	G30 Tran	16	0	S	1	95.0	$8,106.28	$7,077.29	**$770,097**	**$672,343**	$770,097	$672,343
	tot G30 Tran				13				**$752,657**	**$810,972**	$9,784,538	$10,542,634

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.75	Sml G50	0	34	S	9	4.1	$293.61	$404.07	**$1,207**	**$1,661**	$10,861	$14,946
1P	Sml G50	1	0	P	44	88.3	$92.90	$164.92	**$8,205**	**$14,565**	$361,005	$640,877
1S	Sml G50	1	0	S	19	28.2	$305.21	$515.37	**$8,595**	**$14,513**	$163,301	$275,741
1.25	Sml G50	1	25	S	3	142.7	$349.59	$569.65	**$49,876**	**$81,272**	$149,627	$243,815
2P	Sml G50	2	0	P	61	113.5	$223.00	$291.44	**$25,307**	**$33,073**	$1,543,700	$2,017,436
2S	Sml G50	2	0	S	21	52.2	$512.81	$629.92	**$26,764**	**$32,875**	$562,040	$690,381
3P	Sml G50	3	0	P	3	530.7	$279.28	$357.77	**$148,203**	**$189,857**	$444,609	$569,572
3S	Sml G50	3	0	S	3	28.0	$543.96	$645.55	**$15,231**	**$18,075**	$45,693	$54,226
4P	Sml G50	4	0	P	3	284.3	$288.94	$835.13	**$82,155**	**$237,453**	$246,464	$712,359
4S	Sml G50	4	0	S	7	525.9	$601.81	$659.11	**$316,470**	**$346,598**	$2,215,292	$2,426,188
6P	Sml G50	6	0	P	2	131.5	$1,224.04	$1,057.43	**$160,962**	**$139,053**	$321,923	$278,105
6S	Sml G50	6	0	S	7	750.3	$1,312.90	$1,223.19	**$985,054**	**$917,750**	$6,895,379	$6,424,247
8S	Sml G50	8	0	S	3	461.0	$1,932.47	$1,683.38	**$890,867**	**$776,036**	$2,672,602	$2,328,108
10S	Sml G50	10	0	S	1	467.0	$2,510.02	$2,475.18	**$1,172,180**	**$1,155,909**	$1,172,180	$1,155,909
	tot Sml G50				186				**$90,348**	**$95,870**	$16,804,676	$17,831,910
1.25	G50 EG	1	25	S	2	84.5	$349.59	$569.65	**$29,540**	**$48,135**	$59,080	$96,271
2S	G50 EG	2	0	S	2	27.0	$512.81	$629.92	**$13,846**	**$17,008**	$27,692	$34,015
3S	G50 EG	3	0	S	1	520.0	$543.96	$645.55	**$282,860**	**$335,687**	$282,860	$335,687
4S	G50 EG	4	0	S	5	402.2	$601.81	$659.11	**$242,050**	**$265,093**	$1,210,250	$1,325,465
6S	G50 EG	6	0	S	6	199.7	$1,312.90	$1,223.19	**$262,146**	**$244,235**	$1,572,878	$1,465,410
8S	G50 EG	8	0	S	5	338.2	$1,932.47	$1,683.38	**$653,560**	**$569,317**	$3,267,802	$2,846,587
10S	G50 EG	10	0	S	1	290.0	$2,510.02	$2,475.18	**$727,906**	**$717,802**	$727,906	$717,802
	tot G50 EG				22				**$324,930**	**$310,056**	$7,148,467	$6,821,238
2S	G40	2	0	S	8	83.3	$512.81	$629.92	**$42,692**	**$52,440**	$341,535	$419,524
3S	G40	3	0	S	6	448.5	$543.96	$645.55	**$243,966**	**$289,530**	$1,463,798	$1,737,182
4P	G40	4	0	P	2	1,747.5	$288.94	$835.13	**$504,925**	**$1,459,392**	$1,009,850	$2,918,783
4S	G40	4	0	S	8	394.0	$601.81	$659.11	**$237,115**	**$259,688**	$1,896,920	$2,077,507
6S	G40	6	0	S	2	8.5	$1,312.90	$1,223.19	**$11,160**	**$10,397**	$22,319	$20,794
8S	G40	8	0	S	2	26.5	$1,932.47	$1,683.38	**$51,210**	**$44,609**	$102,421	$89,219
16S	G40	16	0	S	1	108.0	$8,106.28	$7,077.29	**$875,479**	**$764,348**	$875,479	$764,348
	tot G40				29				**$196,977**	**$276,805**	$5,712,321	$8,027,357

Notes::

(1) “code” shows Pipe type and pipe diameter size
(2) “Pipe fraction” is a code for the pipe size—the codes 12, 34, and 25 represent .5, .75, and .25 inch diameter pipes, respectively
(3) "Pipe type":**P** means plastic and **S** means steel.
(4)“# of new customers” represents new customers added to SoCalGas’ system in the past 5 years. For residential, core commercial and industrial customers, new customer data were used (premises that initial gas service started between 2012-2016) while all the other rate classes cover the entire population that service line history could be matched by premise as very few large new customers are added to SoCalGas system each year.
(5) The average length was computed by dividing the total service line footage by rate class, line diameter, and pipe type by the number of customers used in the analysis
(6) New Business is newly installed pipe, and Replacement is when we replace existing pipe. The costs represent the unit cost that is the best representation of the cost per foot, by pipe size and pipe material, to install New Business service pipe and Replacement service pipe on the Gas Distribution system.
(7) Line Extension Credit, per SoCalGas' Rule 20, effective 04/2017

WATER HEATING	$	625
SPACE HEATING	$	677
COOKTOP & OVEN	$	110
DRYER STUB	$	155
Total	$	1,567

SCG 2020 TCAP
LRMC Customer Cost
Big GEMS Investment by Customer Class for Retail Noncore (exclusive use on Cust MC)

		NonCore C&I Distribution G30	NonCore C&I Transmission G30	Total NonCore C&I G30	EG G-50	EOR G-40	LB	SDG&E	SWG	Vernon	Mexicali	Source
# of Meters												
ROTARY 11M & LARGER: (*)				0	0	2	1	0	6	0	0	
TURBINE MSA'S (*)				3	40	2	0	1	6	0	1	
ORIFICE METERS (ultra sonic)				5	36	0	4	9	0	2	0	
Total # meters				8	76	4	5	10	12	2	1	
Investment in Meters:	Exclusive Use Meter Cost $/meter											
ROTARY 11M & LARGER: (*)	$12,503	$0	$0	$0	$0	$25,006	$12,503	$0	$75,018	$0	$0	
TURBINE MSA'S (*)	$443,385	$1,165,809	$164,346	$1,330,155	$17,735,398	$886,770	$0	$443,385	$2,660,310	$0	$443,385	
ORIFICE METERS (ultra sonic)	$1,025,365	$4,493,385	$633,440	$5,126,825	$36,913,138	$0	$4,101,460	$9,228,284	$0	$2,050,730	$0	
Total Investment $'s	2016 $s	$5,659,194	$797,786	$6,456,980	$54,648,536	$911,776	$4,113,963	$9,671,669	$2,735,328	$2,050,730	$443,385	
allocation of Total NonCore C&I to Distribution & Transmission		88%	12%									
Total Investment $'s	**2020 $s**	**$6,405,886**	**$903,048**	**$7,308,935**	**$61,859,044**	**$1,032,079**	**$4,656,773**	**$10,947,781**	**$3,096,236**	**$2,321,310**	**$501,887**	
2016 Number of Customers		545	32	554	313	33	1	1	1	1	1	Tab 'cust 2"
Exclusive Use Cost Per Customer	2020 $s	**$11,753.92**	**$28,220.26**	**$13,193.02**	**$197,632.73**	**$31,275.11**	**$4,656,772.60**	**$10,947,781.49**	**$3,096,235.69**	**$2,321,309.97**	**$501,886.62**	

Note : This is part of Exclusive Use Facilities Costs

Exclusive Use Meter Cost $/meter	2016 $s	**TURBINE METERS 4"-12"**	**ROTARY METERS 4" - 6"**	**ULTRASONIC METERS 4" - 16"**
Avg. Labor Cost		$60,092	$1,690	$123,995
Avg. Contract Cost		$170,500	$0	$247,500
Avg. Materials Cost		$212,793	$10,813	$653,870
TOTAL		**$443,385**	**$12,503**	**$1,025,365**

SCG 2020 TCAP
LRMC Customer Cost
Allocation of Customer-Related Distribution O&M

								Core								
				Residential				Non-Residential								
			Single	Multi	Master Meter		Residential	G-10						Gas Air	Natrual Gas	Gas
			Family	Family	Small	Large	Total	Very Small	Small	Medium	Large	Very Large	Total	Conditioning	Vehicle	Engine
1	**2016 Number of Customers**		3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718
	Customer Services O&M Costs															
2	Total Cost	2016 M$s	$79,784	$37,381	$2,610	$1	$119,776	$3,911	$4,239	$11,868	$1,305	$189	$21,511	$4	$84	$132
3	Cost Per Customer:	2016 $s	21.71	21.71	21.71	21.71	21.71	44.41	66.45	241.48	577.96	570.68	105.67	492.10	344.83	184.30
4		2020 $s	23.84	23.84	23.84	23.84	23.84	48.77	72.97	265.18	634.68	626.69	116.04	540.39	378.67	202.39
	Customer Accounts O&M Costs															
5	Total Cost:	2016 M$s	$72,562	$33,997	$2,374	$1	$108,934	$1,741	$1,161	$1,647	$446	$319	$5,315	$19	$112	$187
6	Cost Per Customer:	2016 $s	19.75	19.75	19.75	19.75	19.75	19.78	18.20	33.51	197.58	964.82	26.11	2,120.46	455.71	259.97
7		2020 $s	21.69	21.69	21.69	21.69	21.69	21.72	19.99	36.80	216.97	1,059.52	28.67	2,328.57	500.44	285.49
8																
9	segmentation by number of customers		66.61%	31.21%	2.18%	0.001%										
	Meters, Reg & MSAs O&M Costs															
10	Total Cost	2016 M$s	$5,159	$1,337	$805	$4	$7,305	$250	$392	$651	$95	$20	$1,407	$0	$0	$0
11	Cost Per Customer:	2016 $s	1.40	0.78	6.70	72.24	1.32	2.84	6.14	13.24	41.97	58.95	6.91			
12		2020 $s	1.54	0.85	7.36	79.33	1.45	3.12	6.74	14.54	46.09	64.74	7.59	64.74	64.74	64.74
	Service Lines O&M Costs															
13	Total Costs	2016M $s	$29,619													
14		2020 $s	$32,525,947													
15	Total Service Line Footage		226,964,693	58,515,142	11,541,382	13,966	297,035,183	12,666,284	6,872,167	6,485,228	548,173	114,472	26,686,324	250	54,516	623,741
16	Percent of Total Footage		69.92%	18.03%	3.56%	0.00%	91.51%	3.90%	2.12%	2.00%	0.17%	0.04%	8.22%	0.00%	0.02%	0.19%
17	Allocated SL O&M Costs	2020 $s	$22,743,084	$5,863,532	$1,156,509	$1,400	$29,764,525	$1,269,230	$688,628	$649,855	$54,930	$11,471	$2,674,113	$25	$5,463	$62,502
18	Cost Per Customer	2020 $s	$6.19	$3.41	$9.62	$28.56	$5.40	$14.41	$10.80	$13.22	$24.33	$34.65	$13.14	$2.78	$22.30	$87.05
	Calculation of Customer Service & Information Cost (CSI) Costs Accounts (FERC Accounts 907 to 910):															
5	Total Cost:	2016 M$s	$16,235	$7,606	$531	$0	$24,373	$4,115	$2,980	$2,296	$106	$15	$9,512	$0	$3,832	$0
3	Cost Per Customer:	2016 $s	4.42	4.42	4.42	4.42	4.42	46.72	46.72	46.72	46.72	46.72	46.72	0.00	15,642.74	0.00
4		2020 $s	4.85	4.85	4.85	4.85	4.85	51.31	51.31	51.31	51.31	51.31	51.31	0.00	17,177.99	0.00

Calculation of Customer Service & Information Cost (CSI) Costs Accounts (FERC Accounts 907 to 910):

139	**Calculation of Customer Service & Information Costs (CSI Costs):**		2016 Costs M$	PBR Exclusion Items	Other Adjustments	2016 Costs in Transport Rates			
140	907 Cus Svc-Supervision + Payroll Taxes	NON-DSM CUST. INFO	$706	$0	$0	$706	FERC Form 2		
141	908 Cus Svc-Cust Assist Exp (PBR Ex DAP, DSM &Self-Gen)	NON-DSM CUST. INFO	$202,027	($164,317)	$0	$37,709	FERC Form 2		
142	909 Cus Svc-Info & Instruction Exp	NON-DSM CUST. INFO	$630	$0	$0	$630	FERC Form 2		
143	910 Cus Svc-Misc CSI Exp	NON-DSM CUST. INFO	$2,507	$0	$0	$2,507	FERC Form 2		
144			$205,870	($164,317)	$0	$41,552			
147									
148	**CS&I O&M, 2016 $000's**					**$41,552**			
149									

Exclusions	2016 $
Self Generation (acct 908)	$10,380,031
Energy Efficiency (acct 908)	$82,565,008
Low Income Energy Efficiency (a	$58,819,473
AB802MA (acct 908)	$1,608
MEOMA (acct 908)	$10,787,248
WDRMA (acct 908 and 907001)	$1,764,125
	$164,317,493

			Residential	CCI	G-AC	G-GEN	NGV	Total Core	NCCI	EG Tier 1	EG Tier 2	EOR	Total Retail NonCore	Long Beach
1	**Calculation of CSI Cost Allocator:**													
2	Energy Markets Costs:													
3	Mgmnt estimate - FTE			0.3	0.0	0.0	0.0	0	0.7	0.2	3.3	2.2	6.4	0.6
4	Energy Markets		0.0%	2.8%	0.0%	0.0%	0.0%	2.8%	7.3%	2.4%	36.1%	23.5%	69.3%	6.5%
5	**Energy Markets**	$1,072	**$0**	**$30**	**$0**	**$0**	**$0**	**$30**	**$78**	**$26**	**$387**	**$252**	**$743**	**$70**
6	Large C&I:													
7	# Large C&I Customers		0	2,589	0	0	0	2,589	554	0	0	0	554	0
8	% Large C&I only		0.0%	82.4%	0.0%	0.0%	0.0%	82.4%	17.6%	0.0%	0.0%	0.0%	17.6%	0.0%
9	**Large C&I**	$5,739	**$0**	**$4,727**	**$0**	**$0**	**$0**	**$4,727**	**$1,012**	**$0**	**$0**	**$0**	**$1,012**	**$0**
10	**NGV**	$2,040	**$0**	**$0**	**$0**	**$0**	**$2,040**	**$2,040**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
11	**Residential**	$7,693	**$7,693**	**$0**	**$0**	**$0**	**$0**	**$7,693**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
12	Small Business													
13	# G10, G-AC, G-GE Customers only		0	203,580	0	0	0	203,580	0	0	0	0	0	0
14	Small Business		0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15	**Small Business**	$364	**$0**	**$364**	**$0**	**$0**	**$0**	**$364**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
16	Econ Development													
17	# Large C&I Customers		0	2,589	0	0	0	2,589	554	0	0	0	554	0
18	% Large C&I only		0.0%	82.4%	0.0%	0.0%	0.0%	82.4%	17.6%	0.0%	0.0%	0.0%	17.6%	0.0%
19	**Econ Development**	($70)	**$0**	**($58)**	**$0**	**$0**	**$0**	**($58)**	**($12)**	**$0**	**$0**	**$0**	**($12)**	**$0**
20	**Other Residential**	$5,279	**$5,279**	**$0**	**$0**	**$0**	**$0**	**$5,279**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
21	Total	$22,117	$12,973	$5,063	$0	$0	$2,040	$20,075	$1,078	$26	$387	$252	$1,743	$70
22	**Allocator %**		**58.7%**	**22.9%**	**0.0%**	**0.0%**	**9.2%**	**90.8%**	**4.9%**	**0.1%**	**1.8%**	**1.1%**	**7.9%**	**0.3%**

SCG 2020 TCAP
LRMC Customer Cost
Allocation of Customer-Related Distribution O&M

			Noncore												Total
			Non-Residential												
			G-30			Small EG	EG	EOR	Wholesale				Intl		Over All
			Distribution	Transmission	Total		G-50	G-40	LB	SDG&E	SWG	Vernon	ECOGAS		Customers
1	**2016 Number of Customers**		534	20	554	250	63	33	1	1	1	1	1		5,721,670
	Customer Services O&M Costs														
2	Total Cost	2016 M$s			$361	$49	$12	$2	$0	$0	$0	$0	$0		$141,933
3	Cost Per Customer:	2016 $s			651.92	196.19	196.19	45.48	0.00	0.00	0.00	0.00	0.00		
4		2020 $s			715.90	215.44	215.44	49.95	0.00	0.00	0.00	0.00	0.00		
						Total EG	$61								
	Customer Accounts O&M Costs														
5	Total Cost:	2016 M$s			$1,286	$612	$154	$78	$8	$6	$13	$6	$4		$116,733
6	Cost Per Customer:	2016 $s			2,322.06	2,448.20	2,448.20	2,356.87	7,850.76	6,267.17	12,601.52	5,630.09	3,891.80		
7		2020 $s			2,549.96	2,688.48	2,688.48	2,588.19	8,621.27	6,882.26	13,838.29	6,182.65	4,273.76		
8															
9	segmentation by number of customers					EG O&M cost	$766								
						80%	20%	note: split EG costs by # of customers							
	Meters, Reg & MSAs O&M Costs														
10	Total Cost	2016 M$s			$1,087	$661	$133	$70	$13	$13	$25	$2	$2		$10,718
11	Cost Per Customer:	2016 $s			1,962.09	2,644.00	2,111.11	2,121.21	13,000.00	13,000.00	25,000.00	2,000.00	2,000.00		
12		2020 $s	2,154.66	2,154.66	2,154.66	2,903.49	2,318.31	2,329.40	14,275.88	14,275.88	27,453.62	2,196.29	2,196.29		
	Service Lines O&M Costs														
13	Total Costs	2016M $s													
14		2020 $s													
15	Total Service Line Footage		105,177	16,542	121,720	43,277	16,273	11,524	0	0	0	0	0		324,592,809
16	Percent of Total Footage		0.03%	0.01%	0.04%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		100.00%
17	Allocated SL O&M Costs	2020 $s	$10,539	$1,658	$12,197	$4,337	$1,631	$1,155	$0	$0	$0	$0	$0		$32,525,947
18	Cost Per Customer	2020 $s	$19.74	$82.88	$22.02	$17.35	$25.88	$34.99	$0.00	$0.00	$0.00	$0.00	$0.00		$5.68
	Calculation of Customer Service & Information														
5	Total Cost:	2016 M$s			$2,025	$49	$728	$473	$131	$124	$143	$106	$58		$41,552
3	Cost Per Customer:	2016 $s			3,654.60	195.31	11,551.84	14,319.86	130,781.85	123,834.41	143,287.23	105,771.08	57,682.49		7.26
4		2020 $s			4,013.28	214.47	12,685.60	15,725.27	143,617.39	135,988.10	157,350.11	116,151.95	63,343.72		

Calculation of Customer Service & Information

Calculation of Customer Service & Information

907 Cus Svc-Supervision + Payroll Taxes
908 Cus Svc-Cust Assist Exp (PBR Ex DAP, DSM
909 Cus Svc-Info & Instruction Exp
910 Cus Svc-Misc CSI Exp

CS&I O&M, 2016 $000's

		SDG&E	South West Gas	Vernon	Total Whole sale	DGN	UBS	Total Noncore	SYSTEM TOTAL	Sources
1	**Calculation of CSI Cost Allocator:**									
2	Energy Markets Costs:									
3	Mgmnt estimate - FTE	0.6	0.7	0.5	2.3	0.3	0.0	8.9	9.2	
4	Energy Markets	6.1%	7.1%	5.3%	25.0%	2.9%	0.0%	97.2%	100.0%	
5	**Energy Markets**	**$66**	**$76**	**$56**	**$268**	**$31**	**$0**	**$1,042**	**$1,072**	
6	Large C&I:									
7	# Large C&I Customers	0	0	0	0	0	0	554	3,143	2013 Customer Count
8	% Large C&I only	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.6%	100.0%	
9	**Large C&I**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,012**	**$5,739**	
10	**NGV**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2,040**	
11	**Residential**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$7,693**	
12	Small Business									
13	# G10, G-AC, G-GE Customers only	0	0	0	0	0	0	0	203,580	2013 Customer Count from SCG Cust Cost model "cust 2"
14	Small Business	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
15	**Small Business**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$364**	
16	Econ Development									
17	# Large C&I Customers	0	0	0	0	0	0	554	3,143	2013 Customer Count from SCG Cust Cost model "cust 2"
18	% Large C&I only	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.6%	100.0%	
19	**Econ Development**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**($12)**	**($70)**	
20	**Other Residential**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$5,279**	
21	Total	$66	$76	$56	$268	$31	$0	$2,041	$22,117	$22,117
22	**Allocator %**	**0.3%**	**0.3%**	**0.3%**	**1.2%**	**0.1%**	**0.0%**	**9.2%**	100.0%	
							101.2%			

SCG 2020 TCAP
LRMC Customer Cost
Weighted Average RECC and Replacement Factors

Weighted Average Meter and House Regulator RECC and Replacement Factors

Line			Excluded						
1.			AVERAGE	AVERAGE	AVERAGE	AVERAGE	WEIGHTED	WEIGHTED	WEIGHTED
2.	CUSTOMER CLASS	RATE	LABOR COST	METER COST	REGULATOR COST	TOTAL COST	REPLACEMENT	RECC	PVRR
				Dollars			Percent	Percent	
3.	SINGLE FAMILY	GR	**175.65**	**123.08**	**35.50**	334.23	1.79%	9.58%	129.06%
4.	MULTIPLE FAMILY	GR	**124.85**	**53.86**	**6.08**	184.79	1.27%	9.55%	129.13%
5.	MASTER METERED BAND 1	GM,GS	**888.76**	**474.04**	**232.05**	1594.85	1.63%	9.52%	129.12%
6.	MASTER METERED BAND 2	GM,GS	**12570.19**	**2766.76**	**1859.10**	17196.05	0.97%	9.44%	129.23%
7.	RESIDENTIAL WEIGHTED AVERAGE		170.67	146.45	32.51	349.62	1.96%	9.62%	129.03%
8.	SMALL CORE BAND 1	G-10	**297.60**	**171.27**	**67.01**	535.88	1.66%	9.54%	129.10%
9.	SMALL CORE BAND 2	G-10	**607.98**	**392.32**	**156.98**	1157.28	1.77%	9.55%	129.09%
10.	SMALL CORE BAND 3	G-10	**1376.17**	**754.27**	**364.53**	2494.97	1.65%	9.52%	129.11%
11.	SMALL CORE BAND 4	G-10	**3890.13**	**2307.21**	**1712.88**	7910.22	1.82%	9.49%	129.12%
12.	SMALL CORE BAND 5	G-10	**4518.19**	**3775.95**	**2816.36**	11110.51	2.13%	9.51%	129.08%
13.	G10 AVERAGE		430.93	901.17	194.53	1,526.63	2.75%	9.72%	128.89%
14.	GAS COOLING	GAC	**3784.48**	**2415.11**	**1742.11**	7941.70	1.88%	9.50%	129.11%
15.	Natural Gas Vehicles	NGV	**39237.41**	**3208.78**	**1548.77**	43994.96	0.40%	9.40%	129.30%
16.	GAS ENGINES	GENG	**3541.63**	**911.65**	**486.50**	4939.78	1.04%	9.46%	129.21%
17.	NONCORE COMM/IND TRANSMISSION	G-30	**313299.52**	**34933.26**	**1885.80**	350118.57	0.42%	9.43%	129.28%
18.	NONCORE COMM/IND DISTRIBUTION	G-30	**73994.04**	**5695.95**	**2670.97**	82360.96	0.37%	9.40%	129.30%
19.	NONCORE COMM/IND TOTAL	G-30	82,633.22	6,751.44	2,642.63	92027.30	0.38%	9.40%	129.30%
20.	COGENERATION	G-50	**57489.56**	**3642.11**	**1127.10**	62258.77	0.29%	9.40%	129.31%
21.	EOR	G-40	**228507.46**	**10450.85**	**2717.11**	241675.42	0.21%	9.39%	129.33%
22.	SYSTEM AVERAGE		191.96	174.27	38.68	404.91	2.01%	9.63%	129.02%
22.	INVERSE OF BOOK LIFE		0.00%	4.00%	3.03%				
23.	RECC		9.36%	10.05%	9.04%				
23.	PVRR		129.36%	128.58%	129.30%				

SCG 2020 TCAP
LRMC Customer Cost
Weighted Average RECC and Replacement Factors

Weighted Average RECC and Replacement Factor for Exclusive Use Facilities

Line	CUSTOMER CLASS	RATE			GEMs	AVERAGE TOTAL COST	WEIGHTED REPLACEMENT	WEIGHTED RECC
1.								
2.					Dollars	Dollars	Percent	
3.	NONCORE COMM/IND TRANSMISSION	G-30			903,048	903,048	4.00%	10.05%
4.	NONCORE COMM/IND DISTRIBUTION	G-30			6,405,886	6,405,886	4.00%	10.05%
5.	NONCORE COMM/IND TOTAL	G-30			7,308,935	7,308,935	4.00%	10.05%
6.	COGENERATION	G-50			61,859,044	61,859,044	4.00%	10.05%
7.	EOR	G-40			1,032,079	1,032,079	4.00%	10.05%
8.	LONG BEACH				4,656,773	4,656,773	4.00%	10.05%
9.	SAN DIEGO GAS & ELECTRIC				10,947,781	10,947,781	4.00%	10.05%
10.	SOUTHWEST GAS				3,096,236	3,096,236	4.00%	10.05%
11.	VERNON				2,321,310	2,321,310	4.00%	10.05%
12.	DGN				501,887	501,887	4.00%	10.05%
13.	SYSTEM TOTAL				99,032,979	99,032,979	4.00%	10.05%
14.	INVERSE OF BOOK LIFE				4.00%			
15.	RECC factors				10.05%			

Source:Meter cost detail

SOUTHERN CALIFORNIA GAS

2016 Economic Assumptions Update LEVELIZED ANNUAL CAPITAL COST AND RECC FACTORS

utility **socal**

Auth ROR ===> 8.02% **Fed Tax Rate =====> 35.00%** **State Tax Rate ===> 8.84%** **Ad Valorum Rate ===> 1.288%**

FERC Account	Account Name	Book Life	Fed Tax Life	State Tax Life	Percent Salvage	Normlzd Federal Taxes ?	Normlzd State Taxes ?	Depreciation Method				LACC Components (in percent)					RECC Factors	PVCC Factors	Sum of Rev Req
								Federal Tax		State Tax		Book Depr	Return on Capital	Income Taxes	Property Taxes	Total LACC			
GAS UNDERGROUND STORAGE		9	10	11	12	13	14	15		16		19	20	21	22	23	25	26	27
G-352	Wells	49	15	22	-70%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.47	4.22	1.80	0.74	10.22	7.83	124.47	220.59
G-353	Lines	54	15	22	-40%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.59	4.71	1.99	0.87	10.17	7.72	124.71	288.57
G-354	Compressor Station Equipment	41	15	22	-15%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.80	4.75	2.02	0.87	10.44	8.16	124.61	290.37
G-356	Purification Equipment	39	15	22	-30%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.33	4.49	1.90	0.80	10.52	8.27	124.59	262.18
GAS TRANSMISSION PLANT																			
G-365.1	Land	0	0	0	0%	FALSE	FALSE	none	0%	none	0%	0.00	8.03	3.75	1.29	13.06	n/a	162.69	1342.09
G-366	Structures & Improvements	47	39	45	-40%	TRUE	FALSE	sl	0%	db/sl	0%	2.98	5.38	2.53	0.82	11.70	9.01	141.94	319.79
G-367	Mains	64	15	22	-60%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.50	4.71	2.00	0.87	10.08	7.55	124.68	265.55
G-368	Compressor Station Equipment	50	15	22	-15%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.30	4.93	2.08	0.92	10.23	7.83	124.81	324.48
G-369	Measuring & Regulating Equipment	46	15	22	-50%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.26	4.39	1.86	0.78	10.29	7.94	124.57	250.31
G-371	Other Equipment	21	15	22	-10%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.24	4.48	1.96	0.73	12.40	10.55	123.98	217.44
GAS DISTRIBUTION PLANT																			
G-374.1	Land	0	0	0	0%	FALSE	FALSE	none	0%	db/sl	0%	0.00	8.03	3.75	1.29	13.06	n/a	162.69	1342.09
G-374.2	Land Rights	40	40	40	0%	FALSE	FALSE	sl	0%	db/sl	0%	2.50	5.81	2.71	0.92	11.94	9.35	141.94	359.86
G-375	Structures & Improvements	40	39	45	-10%	TRUE	FALSE	sl	0%	db/sl	0%	2.75	5.65	2.66	0.88	11.93	9.35	141.88	343.62
G-376	Mains	68	20	35	-80%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.65	4.82	2.16	0.84	10.46	7.81	129.67	228.89
G-378	Measuring & Regulating Equipment	47	20	35	-95%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.15	4.05	1.84	0.64	10.68	8.22	129.47	184.20
G-380	Services	67	20	35	-115%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.21	4.45	2.03	0.75	10.44	7.80	129.33	136.21
G-381	Meters	25	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.80	5.05	2.39	0.84	12.07	10.05	128.58	254.29
G-382	Meter & Regulator Installations	30	20	35	-10%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.67	4.84	2.20	0.81	11.52	9.36	129.36	263.10
G-383	House Regulators	33	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.88	5.14	2.35	0.89	11.26	9.04	129.30	291.74
G-387	Other Equipment	21	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.52	5.04	2.43	0.81	12.81	10.90	128.02	235.56
GAS GENERAL PLANT																			
G-390	Structures & Improvements	33	39	45	-15%	TRUE	FALSE	sl	0%	db/sl	0%	3.48	5.44	2.58	0.81	12.32	9.89	141.51	307.79
G-391.1	Office Furniture & Equipment	14	7	10	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	7.14	3.93	1.69	0.71	13.48	12.02	110.96	174.60
G-391.2	Computer Equipment	5	5	6	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	20.00	4.12	1.92	0.55	26.59	25.56	106.11	130.85
G-393	Stores Equipment	20	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.00	4.95	2.36	0.77	13.08	11.20	128.14	228.15
G-394.1	Shop & Garage Equipment	29	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.45	5.00	2.31	0.84	11.60	9.47	129.10	268.37
G-394.3	Large Portable Tools	24	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.17	4.95	2.32	0.80	12.25	10.25	128.65	246.08
G-395	Laboratory Equipment	25	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.00	4.96	2.32	0.81	12.09	10.06	128.76	250.54
G-397	Communications Equipment	15	7	10	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	6.67	3.93	1.68	0.72	13.00	11.50	111.07	179.06
G-398	Miscellaneous Equipment	20	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.00	4.95	2.36	0.77	13.08	11.20	128.14	228.15
G-391.5	Software Programs - 10yr ASL	10	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	10.00	3.50	1.35	0.66	15.50	14.26	103.91	150.10
G-391.55	Software Programs - 15yr ASL	15	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	6.67	3.54	1.31	0.72	12.23	10.83	104.55	172.40
G-391.6	Software Programs - 20yr ASL	20	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	5.00	3.64	1.32	0.77	10.72	9.18	105.05	194.69
G-391.3	Software Programs - 3yr ASL	3	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	33.33	4.15	1.94	0.45	39.87	39.08	102.71	118.89
G-391.4	Software Programs - 6yr ASL	6	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	16.67	3.61	1.49	0.58	22.36	21.29	103.27	132.27

Calculation of Marginal Customer Costs
2020 $/Customer

Customer Class	CAPEX $/customer	RECC %	Annualized CAPEX ($/customer/year)	O&M and Loaders ($/customer/ year)	Marginal Unit Cost 2020 ($/customer/ year)
Residential	$2,296.91	8.08%	$185.65	$108.38	$294.03
Core C/I[14]	$13,269.27	8.01%	$1,063.42	$410.42	$1,473.84
Gas A/C[15]	$16,564.66	8.72%	$1,444.74	$5,437.92	$6,882.66
Gas Engine[16]	$215,383.82	7.84%	$16,893.23	$1,088.70	$17,981.93
NGV	$135,363.77	8.39%	$11,355.21	$34,234.98	$45,590.19
Noncore C/I[17]	$451,835.01	8.24%	$37,234.29	$17,905.45	$55,139.74
Small EG[18]	$172,741.89	8.45%	$14,598.37	$11,435.85	$26,034.22
Large EG[19]	$1,332,110.55	9.05%	$120,576.05	$33,959.11	$154,535.16
EOR[20]	$517,080.69	8.74%	$45,206.77	$39,249.98	$84,456.75
Long Beach[21]	$4,656,772.60	10.05%	$467,862.08	$315,310.40	$783,172.48
SDG&E[22]	$10,947,781.49	10.05%	$1,099,914.53	$297,570.68	$1,397,485.22
Southwest Gas[23]	$3,096,235.69	10.05%	$311,076.23	$376,146.69	$687,222.92
Vernon[24]	$2,321,309.97	10.05%	$233,220.09	$235,810.55	$469,030.64
Ecogas[25]	$501,886.62	10.05%	$50,424.13	$132,198.71	$182,622.84

[14] Core C&I are the Core Commercial & Industrial customers

[15] Gas A/C are the Gas Air Conditioning for Commercial & Industrial customers

[16] Gas Engine are Core Gas Engine Water Pumping Service for Commercial and Industrial

[17] Noncore C/I are Noncore Commercial & Industrial customers

[18] Small EG are Electric Generation customers with usage less than 3 million therms/year

[19] Large EG are Electric Generation customers with usage greater than 3 million therms/year

[20] EOR are Enhanced Oil Refinery customers

[21] Long Beach is the Wholesale - City of Long Beach customer

[22] SDG&E is the Wholesale – San Diego Gas & Electric customer

[23] SW Gas is the Wholesale – Southwest Gas Corporation's service territory in southern California

[24] Vernon is the Wholesale – City of Vernon customer

[25] Ecogas is the Wholesale – ECOGAS Mexico, S. de R.L. de C.V. customer

SoCalGas
2020 TCAP

Section 2
Long Run Marginal Distribution Cost Model

Workpapers to the Prepared Written Testimony of Marjorie Schmidt-Pines

General Information about the Distribution Model

This model estimates Demand-related Long Run Marginal Costs (LRMC) for SoCalGas' Distribution Systems, separately for High Pressure and Medium Pressure Distribution Systems.

This workbook contains multiples sheets. These sheets are categorized into:
a) Input/Calculations Sheets,
b) Output/Calculation Sheets, and

Below is a description of each of these sheets
Input/Calculation Sheets:

HPD_Peak_Month_Demand: Cost Driver for High Pressure Distribution Mains. It contains 3 Tables:
1: Peak Month Demand by Customer Class: Historical Data,
2: Peak Month Demand by Customer Class: Forecast Data,
3: Number of customers by class: Historical Data,
4: Number of customers by class: Forecasted Data, and
5: Level of usage of High Pressure Distribution Service by Customer Class.

MPD_Pe contains 3 Tables:
1: Peak Day Demand by Customer Class: Historical Data,
2: Peak Day Demand by Customer Class: Forecast Data, and
3: Level of Usage of Medium Pressure Distribution Services by Customer Class.

IN_Investment_History: It contains Historical inputs needed to estimate Annualized Investment-related LRMC. It includes 9 Tables:
1: High Pressure Distribution (HPD) Mains Footage Investment: New Business & Replacement Combined,
2: Total Plastic Distribution Mains Footage Investment: New Business & Replacement Combined,
(Note: no HP Plastic Distribution Mains)
3: Total Steel Distribution Mains (including HP) Footage Investment: New Business & Replacement Combined,
(Medium Pressure (MP) Steel Distribution Mains Footage is calculated as the residual)
4: Plastic New Business Vs. Replacement Distribution Mains Footage: Based on a Sample Survey,
5: Steel New Business Vs. Replacement Distribution Mains Footage: Based on a Sample Survey,
6: Plastic Mains Pressure Betterment Investment as a Fraction of Total Plastic Mains Investment,
7: Steel Mains Pressure Betterment Investment as a Fraction of Total Steel Mains Investment,
8: Contribution in Aid of Construction as a Fraction of Total Distribution Mains Cost,
9: Account 378 (Meters & Regulator Stations) Investment Info.
OUT_Investment_Forecast: It contains Forecasted inputs needed to estimate Annualized Investment-related LRMC. It includes 1 Table:
1: Forecasted Distribution-related Investment Costs:

Intermediate Output/Calculation Sheets:

HPD_Peak_Month_Demand: It calculates 4 Tables:
1: Peak Month Demand for Additional Customers Served by Customer Class,
2: Average Coincident Peak Month Demand per Customer,
3: Coincident Peak Month Demand for additional Customer served, and
4: High Pressure Distribution-Service-Usage-Weighted Coincident Peak Month Demand for Additional Customers Served.

Peak_Day_Demand: It calculates 5 Tables:
1: Number of Customers by Class,
2: Number of Additional Customers Served,
3: Average Peak Day Demand per Customer,
4: Peak Day Demand for Additional Customer served, and
5: Medium Pressure Distribution-Service-Usage-Weighted Peak Day Demand for Additional Customers Served.

OUT_Investment_History: It contains 4 Tables:
1: Plastic Distribution Mains: New Business, Pressure Betterment & Contribution in Aid of New Construction.
2: Steel Distribution Mains: New Business, Pressure Betterment & Contribution in Aid of New Construction.
3: High Pressure Distribution Mains: New Business, Pressure Betterment & Contribution in Aid of New Construction.
4: Load-Growth-related HP & MP Distribution Investments by Components & Total

OUT_Investment_Forecast: It contains 1 Table:
1: Allocation Factor, High & Medium Pressure Distribution Mains Forecasted Investments

OUT_MP_LRMC: It contains 4 Table:
1: System Demand Determinate, it estimates the distribution LRMC
2: Regression of Distribution Investment, it estimates Regression Coefficients for MP and HP Investment
3: Calculate Weighted Average RECC Factor, it estimates Regression Coefficients for HP Investment
4: % Share of investment between MPD and HPD

HPD Peak Month
2020 TCAP

Year	Residential	Core C&I G10	Gas AC	NGV	Gas Eng	Total Core	NonCore C&I G-30	EOR G-40	EG G-50	Total Noncore	Wholesale	Total System	Cumulative Total
Table 1: Coincident Peak Month Demand by Customer Class (Mcf): Analysis Period													
2007	0	0	0	0	0	**0**	0	0	0	**0**	0	0	
2008	39,241,280	12,151,400	6,027	712,390	68,184	**52,179,281**	11,578,320	2,678,949	28,081,864	**42,339,133**	0	94,518,414	
2009	40,031,343	11,931,580	5,564	770,923	80,495	**52,819,905**	10,909,986	1,261,164	19,759,387	**31,930,537**	0	84,750,442	
2010	39,184,472	11,741,393	6,228	817,970	60,432	**51,810,495**	12,624,707	1,197,599	26,180,912	**40,003,218**	0	91,813,713	
2011	39,567,025	11,665,959	4,780	821,302	61,959	**52,121,024**	12,462,498	1,100,192	18,800,168	**32,362,858**	0	84,483,881	
2012	40,332,246	12,391,426	4,488	887,719	80,223	**53,696,101**	12,336,990	574,786	23,602,690	**36,514,465**	0	90,210,566	
2013	41,192,798	12,369,818	4,643	914,448	119,725	**54,601,431**	12,035,985	2,017,821	23,384,401	**37,438,207**	0	92,039,638	
2014	41,256,590	12,535,237	5,216	961,365	88,873	**54,847,282**	13,118,963	1,770,415	21,835,259	**36,724,637**	0	91,571,918	
2015	39,008,996	12,271,206	4,371	919,641	73,833	**52,278,047**	12,018,388	1,709,949	19,658,518	**33,386,855**	0	85,664,902	
2016	37,927,257	11,867,535	5,105	1,100,279	98,288	**50,998,465**	14,272,532	1,978,620	18,744,194	**34,995,345**	0	85,993,809	
2017	39,677,479	11,950,890	5,593	1,148,585	111,479	**52,894,026**	13,886,351	1,715,775	15,410,723	**31,012,848**	0	83,906,874	
2018	39,406,781	11,818,781	2,524	1,211,464	94,091	**52,533,640**	13,732,363	1,715,775	18,472,527	**33,920,665**	0	86,454,305	
2019	38,986,741	11,728,335	2,524	1,277,828	94,091	**52,089,519**	13,629,692	1,715,775	17,325,594	**32,671,061**	0	84,760,580	
2020	38,497,291	11,591,299	2,524	1,347,875	94,091	**51,533,079**	13,604,716	1,715,775	21,049,075	**36,369,566**	0	87,902,645	
2021	38,025,045	11,389,091	2,524	1,421,813	94,091	**50,932,564**	13,508,140	1,715,775	21,036,709	**36,260,624**	0	87,193,189	
2022	37,443,996	11,139,089	2,524	1,499,865	94,091	**50,179,564**	13,567,321	1,715,775	20,833,079	**36,116,175**	0	86,295,740	

Source: Historical from Demand Forecast through 2016, William Guo, updated 9-15-2017; Demand Forecast Final TCAP xxx-xxxx, updated 6-12-2018

Table 1': Number of Customers by Class													
2007	5,179,346	210,784	17	216	878	5,391,241	731	42	242	1,015	0	5,392,256	
2008	5,248,551	211,449	15	293	843	5,461,151	674	41	222	937	0	5,462,088	
2009	5,257,766	209,301	15	341	819	5,468,242	649	40	213	902	0	5,469,144	
2010	5,282,743	207,368	12	397	734	5,491,254	637	34	205	876	0	5,492,130	
2011	5,355,438	205,300	12	198	699	5,561,647	615	33	189	837	0	5,562,484	
2012	5,380,407	204,351	10	199	695	5,585,662	607	38	199	844	0	5,586,506	
2013	5,422,975	206,292	9	205	709	5,630,190	577	32	220	829	0	5,631,019	
2014	5,446,579	204,616	9	218	712	5,652,134	571	32	228	831	0	5,652,965	
2015	5,475,689	203,977	10	226	714	5,680,616	565	34	247	846	0	5,681,462	
2016	5,516,213	203,580	9	245	718	5,720,765	554	33	313	900	0	5,721,665	
2017	5,537,971	203,975	8	318	714	**5,742,987**	581	34	382	**997**	0	5,743,983	
2018	5,568,693	203,686	4	333	712	**5,773,428**	584	34	380	**998**	0	5,774,426	
2019	5,614,540	203,683	4	348	712	**5,819,287**	588	34	383	**1,005**	0	5,820,293	
2020	5,663,352	203,651	4	363	712	**5,868,082**	591	34	388	**1,013**	0	5,869,095	
2021	5,714,082	203,522	4	378	712	**5,918,698**	593	34	389	**1,016**	0	5,919,714	
2022	5,766,159	203,370	4	393	712	**5,970,638**	595	34	391	**1,019**	0	5,971,658	

History from Ken Parris, December CIS Revenue Files Active Customer Counts by rate category

Table 2': Number of Additional Customers Served by Customer Class = change in # customers each year

2007	0	0	0	0	0	0	0	0	0	0	0
2008	69,205	665	0	77	0	69,947	0	0	0	0	0	69,947
2009	9,215	0	0	48	0	9,263	0	0	0	0	0	9,263
2010	24,977	0	0	56	0	25,033	0	0	0	0	0	25,033
2011	72,695	0	0	0	0	72,695	0	0	0	0	0	72,695
2012	24,969	0	0	1	0	24,970	0	5	10	15	0	24,985
2013	42,568	1,941	0	6	14	44,529	0	0	21	21	0	44,550
2014	23,604	0	0	13	3	23,620	0	0	8	8	0	23,628
2015	29,110	0	1	8	2	29,121	0	2	19	21	0	29,142
2016	40,524	0	0	19	4	40,547	0	0	66	66	0	40,613
2017	21,758	395	0	73	0	22,226	27	1	69	97	0	22,323
2018	30,722	0	0	15	0	30,737	3	0	0	3	0	30,740
2019	45,847	0	0	15	0	45,862	4	0	3	7	0	45,869
2020	48,812	0	0	15	0	48,827	3	0	4	8	0	48,835
2021	50,730	0	0	15	0	50,745	2	0	1	3	0	50,748
2022	52,077	0	0	15	0	52,092	1	0	2	3	0	52,095

Table 2: Average Coincident Peak Month Demand Per Customer (Mcf) = Total Demand by class / total # customers in class

2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	7.5	57.5	401.8	2,431.4	80.9	9.6	17,178.5	65,340.2	126,494.9	45,185.8	0.0	17.3
2009	7.6	57.0	370.9	2,260.8	98.3	9.7	16,810.5	31,529.1	92,767.1	35,399.7	0.0	15.5
2010	7.4	56.6	519.0	2,060.4	82.3	9.4	19,819.0	35,223.5	127,711.8	45,665.8	0.0	16.7
2011	7.4	56.8	398.3	4,148.0	88.6	9.4	20,264.2	33,339.2	99,471.8	38,665.3	0.0	15.2
2012	7.5	60.6	448.8	4,460.9	115.4	9.6	20,324.5	15,125.9	118,606.5	43,263.6	0.0	16.1
2013	7.6	60.0	515.9	4,460.7	168.9	9.7	20,859.6	63,056.9	106,292.7	45,160.7	0.0	16.3
2014	7.6	61.3	579.6	4,409.9	124.8	9.7	22,975.4	55,325.5	95,768.7	44,193.3	0.0	16.2
2015	7.1	60.2	437.1	4,069.2	103.4	9.2	21,271.5	50,292.6	79,589.1	39,464.4	0.0	15.1
2016	6.9	58.3	567.3	4,490.9	136.9	8.9	25,762.7	59,958.2	59,885.6	38,883.7	0.0	15.0
2017	7.2	58.6	678.0	3,611.9	156.1	9.2	23,900.8	50,464.0	40,359.8	31,111.4	0.0	14.6
2018	7.1	58.0	631.0	3,638.0	132.1	9.1	23,504.9	50,464.0	48,592.0	33,975.3	0.0	15.0
2019	6.9	57.6	631.0	3,671.9	132.1	9.0	23,177.7	50,464.0	45,188.0	32,493.5	0.0	14.6
2020	6.8	56.9	631.0	3,713.2	132.1	8.8	23,005.0	50,464.0	54,284.9	35,898.1	0.0	15.0
2021	6.7	56.0	631.0	3,761.4	132.1	8.6	22,773.3	50,464.0	54,077.5	35,683.7	0.0	14.7
2022	6.5	54.8	631.0	3,816.5	132.1	8.4	22,818.1	50,464.0	53,308.2	35,429.2	0.0	14.5

Table 3: Coincident Peak Month Demand For Additional Customers Served (Mcf) = # additional customers * average demand per customers

2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	517,418	38,225	0	187,215	0	668,319	0	0	0	0	0	1,210,397
2009	70,161	0	0	108,517	0	89,475	0	0	0	0	0	143,540
2010	185,266	0	0	115,381	0	236,189	0	0	0	0	0	418,485
2011	537,085	0	0	0	0	681,262	0	0	0	0	0	1,104,103
2012	187,171	0	0	4,461	0	240,042	0	75,630	1,186,065	648,954	0	403,456
2013	323,346	116,388	0	26,764	2,364	431,841	0	0	2,232,147	948,374	0	728,175
2014	178,795	0	0	57,329	374	229,204	0	0	766,149	353,546	0	382,748
2015	207,381	0	437	32,554	207	267,997	0	100,585	1,512,194	828,752	0	439,402
2016	278,627	0	0	85,328	548	361,461	0	0	3,952,450	2,566,325	0	610,393
2017	155,890	23,143	0	263,669	0	204,708	645,321	50,464	2,778,101	3,012,617	0	326,091
2018	217,403	0	0	54,570	0	279,682	76,034	0	0	109,904	0	460,239
2019	318,355	0	0	55,079	0	410,517	88,458	0	147,129	229,809	0	667,985
2020	331,808	0	0	55,697	0	428,798	76,617	0	235,616	275,368	0	731,412
2021	337,588	0	0	56,421	0	436,678	40,413	0	68,029	108,214	0	747,481
2022	338,173	0	0	57,247	0	437,799	32,611	0	95,661	114,212	0	752,817
2023	0	0	0	0	0	0	0	0	0	0	0	0

Table 1: Level of Usage of High Pressure Distribution Service by Customer Class

all years	99.99%	99.35%	100.00%	80.79%	94.68%	59.50%	72.63%	12.86%	

Table 4: High Pressure Distribution-Service-Usage-Weighted Coincident Peak Month Demand For Additional Customers Served (Mcf) = total demand for additional customers * % of customers that use HPD system.

2007	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2008	517,392	37,976	0	151,250	0	555,367	0	0	0	0	0	555,367	**555,367**
2009	70,157	0	0	87,670	0	70,157	0	0	0	0	0	70,157	**625,525**
2010	185,256	0	0	93,216	0	185,256	0	0	0	0	0	185,256	**810,781**
2011	537,058	0	0	0	0	537,058	0	0	0	0	0	537,058	**1,347,839**
2012	187,162	0	0	3,604	0	187,162	0	54,931	152,500	207,432	0	394,593	**1,742,432**
2013	323,329	115,627	0	21,623	2,238	441,195	0	0	287,002	287,002	0	728,197	**2,470,629**
2014	178,786	0	0	46,316	355	179,141	0	0	98,509	98,509	0	277,650	**2,748,278**
2015	207,370	0	437	26,300	196	208,003	0	73,057	194,433	267,490	0	475,493	**3,223,771**
2016	278,613	0	0	68,936	518	279,131	0	0	508,193	508,193	0	787,324	**4,011,096**
2017	155,882	22,992	0	213,017	0	178,874	383,956	36,653	357,199	777,808	0	956,681	**4,967,777**
2018	217,392	0	0	44,087	0	217,392	45,239	0	0	45,239	0	262,631	**5,230,408**
2019	318,339	0	0	44,498	0	318,339	52,631	0	18,917	71,548	0	389,887	**5,620,296**
2020	331,791	0	0	44,998	0	331,791	45,586	0	30,295	75,881	0	407,672	**6,027,968**
2021	337,571	0	0	45,582	0	337,571	24,045	0	8,747	32,792	0	370,364	**6,398,331**
2022	338,156	0	0	46,249	0	338,156	19,403	0	12,300	31,703	0	369,859	**6,768,190**
2023	0	0	0	0	0	0	0	0	0	0	0	0	**6,768,190**

MPD Peak Day Demand
2020 TCAP

Year	Residential	Core C&I G10	Gas AC	NGV	Gas Eng	Total Core	NonCore C&I G-30	EOR G-40	EG G-50	Total Noncore	Wholesale	Total System	Cummulative Total
Table 1: Peak Day Demand by Customer Class (Mcfd): Analysis Period													
2007	0	0	0	0	0	0	0	0	0	0	0	0	
2008	2,291,698	619,666	194	22,980	2,199	**2,936,738**	392,417	86,418	1,123,561	**1,602,396**	0	**4,539,134**	
2009	2,322,063	610,472	179	24,868	2,597	**2,960,180**	369,766	40,683	790,577	**1,201,026**	0	**4,161,206**	
2010	2,303,379	602,881	201	26,386	1,949	**2,934,796**	427,882	38,632	1,047,504	**1,514,018**	0	**4,448,814**	
2011	2,321,227	599,658	154	26,494	1,999	**2,949,531**	422,384	35,490	752,199	**1,210,073**	0	**4,159,604**	
2012	2,350,783	622,027	145	28,636	2,588	**3,004,179**	418,130	18,541	944,349	**1,381,020**	0	**4,385,200**	
2013	2,385,392	622,419	150	29,498	3,862	**3,041,321**	407,929	65,091	935,615	**1,408,634**	0	**4,449,956**	
2014	2,392,346	626,168	168	31,012	2,867	**3,052,561**	444,633	57,110	873,633	**1,375,377**	0	**4,427,938**	
2015	2,326,999	617,788	141	29,666	2,382	**2,976,975**	407,332	55,160	786,541	**1,249,033**	0	**4,226,009**	
2016	2,299,700	604,287	165	35,493	3,171	**2,942,815**	483,731	63,826	749,959	**1,297,516**	0	**4,240,331**	
2017	2,395,693	574,915	180	37,051	3,596	**3,011,436**	470,476	55,348	651,011	**1,176,835**	0	**4,188,271**	
2018	2,389,885	570,886	81	39,079	3,035	**3,002,967**	465,509	55,348	735,819	**1,256,675**	0	**4,259,643**	
2019	2,374,556	568,147	81	41,220	3,035	**2,987,040**	462,197	55,348	722,278	**1,239,823**	0	**4,226,862**	
2020	2,355,857	563,830	81	43,480	3,035	**2,966,283**	461,391	55,348	806,642	**1,323,381**	0	**4,289,664**	
2021	2,339,067	557,313	81	45,865	3,035	**2,945,362**	458,243	55,348	819,939	**1,333,530**	0	**4,278,891**	
2022	2,315,393	549,206	81	48,383	3,035	**2,916,098**	454,637	55,348	800,011	**1,309,996**	0	**4,226,094**	

Source: Historical from Demand Forecast through 2016, William Guo, updated 9-15-2017; Demand Forecast Final TCAP, updated 6-12-2018

Table 1': Number of Customers by Class												
2007	5,179,346	210,784	17	216	878	5,391,241	731	42	242	1,015	0	5,392,256
2008	5,248,551	211,449	15	293	843	5,461,151	674	41	222	937	0	5,462,088
2009	5,257,766	209,301	15	341	819	5,468,242	649	40	213	902	0	5,469,144
2010	5,282,743	207,368	12	397	734	5,491,254	637	34	205	876	0	5,492,130
2011	5,355,438	205,300	12	198	699	5,561,647	615	33	189	837	0	5,562,484
2012	5,380,407	204,351	10	199	695	5,585,662	607	38	199	844	0	5,586,506
2013	5,422,975	206,292	9	205	709	5,630,190	577	32	220	829	0	5,631,019
2014	5,446,579	204,616	9	218	712	5,652,134	571	32	228	831	0	5,652,965
2015	5,475,689	203,977	10	226	714	5,680,616	565	34	247	846	0	5,681,462
2016	5,516,213	203,580	9	245	718	5,720,765	554	33	313	900	0	5,721,665
2017	5,537,971	203,975	8	318	714	5,742,987	581	34	382	997	0	5,743,983
2018	5,568,693	203,686	4	333	712	5,773,428	584	34	380	998	0	5,774,426
2019	5,614,540	203,683	4	348	712	5,819,287	588	34	383	1,005	0	5,820,293
2020	5,663,352	203,651	4	363	712	5,868,082	591	34	388	1,013	0	5,869,095
2021	5,714,082	203,522	4	378	712	5,918,698	593	34	389	1,016	0	5,919,714
2022	5,766,159	203,370	4	393	712	5,970,638	595	34	391	1,019	0	5,971,658
2023	0	0	0	0	0	0	0	0	0	0	0	0

Table 2': Number of Additional Customers Served by Customer Class = change in # customers each year

2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	69,205	665	0	77	0	69,947	0	0	0	0	0	69,947
2009	9,215	0	0	48	0	9,263	0	0	0	0	0	9,263
2010	24,977	0	0	56	0	25,033	0	0	0	0	0	25,033
2011	72,695	0	0	0	0	72,695	0	0	0	0	0	72,695
2012	24,969	0	0	1	0	24,970	0	5	10	15	0	24,985
2013	42,568	1,941	0	6	14	44,529	0	0	21	21	0	44,550
2014	23,604	0	0	13	3	23,620	0	0	8	8	0	23,628
2015	29,110	0	1	8	2	29,121	0	2	19	21	0	29,142
2016	40,524	0	0	19	4	40,547	0	0	66	66	0	40,613
2017	21,758	395	0	73	0	22,226	27	1	69	97	0	22,323
2018	30,722	0	0	15	0	30,737	3	0	0	3	0	30,740
2019	45,847	0	0	15	0	45,862	4	0	3	7	0	45,869
2020	48,812	0	0	15	0	48,827	3	0	4	8	0	48,835
2021	50,730	0	0	15	0	50,745	2	0	1	3	0	50,748
2022	52,077	0	0	15	0	52,092	1	0	2	3	0	52,095

Table 2: Average Peak Day Demand Per Customer (Mcfd) = Total Demand by class / total # customers in class

2006	0	0	0	0	0	0	0	0	0	0	0	0
2008	0.44	2.93	12.96	78.43	2.61	0.54	582.22	2107.75	5061.09	1710.13	0.00	0.83
2009	0.44	2.92	11.97	72.93	3.17	0.54	569.75	1017.07	3711.63	1331.51	0.00	0.76
2010	0.44	2.91	16.74	66.46	2.66	0.53	671.71	1136.24	5109.77	1728.33	0.00	0.81
2011	0.43	2.92	12.85	133.81	2.86	0.53	686.80	1075.46	3979.89	1445.73	0.00	0.75
2012	0.44	3.04	14.48	143.90	3.72	0.54	688.85	487.93	4745.47	1636.28	0.00	0.78
2013	0.44	3.02	16.64	143.89	5.45	0.54	706.98	2034.09	4252.79	1699.20	0.00	0.79
2014	0.44	3.06	18.70	142.26	4.03	0.54	778.69	1784.69	3831.73	1655.09	0.00	0.78
2015	0.42	3.03	14.10	131.26	3.34	0.52	720.94	1622.34	3184.38	1476.40	0.00	0.74
2016	0.42	2.97	18.30	144.87	4.42	0.51	873.16	1934.13	2396.04	1441.68	0.00	0.74
2017	0.43	2.82	21.87	116.51	5.04	0.52	809.77	1627.87	1704.96	1180.57	0.00	0.73
2018	0.43	2.80	20.35	117.36	4.26	0.52	796.78	1627.87	1935.57	1258.70	0.00	0.74
2019	0.42	2.79	20.35	118.45	4.26	0.51	785.98	1627.87	1883.82	1233.09	0.00	0.73
2020	0.42	2.77	20.35	119.78	4.26	0.51	780.19	1627.87	2080.30	1306.23	0.00	0.73
2021	0.41	2.74	20.35	121.34	4.26	0.50	772.55	1627.87	2107.76	1312.31	0.00	0.72
2022	0.40	2.70	20.35	123.11	4.26	0.49	764.63	1627.87	2047.09	1285.08	0.00	0.71
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 3: Peak Day Demand For Additional Customers Served (Mcfd) = # additional customers * average demand per customers

2006	0	0	0	0	0	0	0	0	0	0	0	0
2008	30,217	1,949	0	6,039	0	38,206	0	0	0	0	0	38,206
2009	4,070	0	0	3,501	0	7,570	0	0	0	0	0	7,570
2010	10,890	0	0	3,722	0	14,612	0	0	0	0	0	14,612
2011	31,508	0	0	0	0	31,508	0	0	0	0	0	31,508
2012	10,909	0	0	144	0	11,053	0	2,440	47,455	49,894	0	60,948
2013	18,724	5,856	0	863	76	25,520	0	0	89,309	89,309	0	114,829
2014	10,368	0	0	1,849	12	12,229	0	0	30,654	30,654	0	42,883
2015	12,371	0	14	1,050	7	13,442	0	3,245	60,503	63,748	0	77,190
2016	16,894	0	0	2,753	18	19,665	0	0	158,138	158,138	0	177,803
2017	9,412	1,113	0	8,505	0	19,031	21,864	1,628	117,358	140,850	0	159,881
2018	13,185	0	0	1,760	0	14,945	2,577	0	0	2,577	0	17,523
2019	19,390	0	0	1,777	0	21,167	3,000	0	6,134	9,133	0	30,300
2020	20,305	0	0	1,797	0	22,102	2,598	0	9,029	11,628	0	33,729
2021	20,766	0	0	1,820	0	22,586	1,371	0	2,652	4,023	0	26,609
2022	20,911	0	0	1,847	0	22,758	1,093	0	3,673	4,766	0	27,524

Table 1: Level of Usage of Medium Pressure Distribution Service by Customer Class

all years	99.60%	94.76%	55.69%	41.47%	83.17%	19.70%	0.63%	4.93%	

Source: Demand Forecast TCAP, updated 6-12-2018

Table 4: Medium Pressure Distribution-Service-Usage-Weighted Peak Day Demand For Additional Customers Served (Mcfd) = total demand for additional customers * % of customers that use HPD system.

2006	0	0	0	0	0	0	0	0	0	0	0	0	
2008	30,096	1,847	0	2,505	0	34,448	0	0	0	0	0	34,448	**34,448**
2009	4,053	0	0	1,452	0	5,505	0	0	0	0	0	5,505	**39,953**
2010	10,847	0	0	1,544	0	12,390	0	0	0	0	0	12,390	**52,344**
2011	31,382	0	0	0	0	31,382	0	0	0	0	0	31,382	**83,726**
2012	10,866	0	0	60	0	10,925	0	15	2,338	2,353	0	13,278	**97,004**
2013	18,649	5,550	0	358	63	24,620	0	0	4,400	4,400	0	29,020	**126,025**
2014	10,326	0	0	767	10	11,103	0	0	1,510	1,510	0	12,613	**138,638**
2015	12,321	0	8	436	6	12,770	0	20	2,981	3,001	0	15,771	**154,409**
2016	16,827	0	0	1,142	15	17,983	0	0	7,790	7,790	0	25,773	**180,183**
2017	9,375	1,055	0	3,528	0	13,957	4,308	10	5,781	10,100	0	24,057	**204,239**
2018	13,132	0	0	730	0	13,862	508	0	0	508	0	14,370	**218,609**
2019	19,312	0	0	737	0	20,049	591	0	302	893	0	20,942	**239,552**
2020	20,224	0	0	745	0	20,969	512	0	445	957	0	21,926	**261,477**
2021	20,683	0	0	755	0	21,438	270	0	131	401	0	21,839	**283,316**
2022	20,827	0	0	766	0	21,593	215	0	181	396	0	21,990	**305,306**

2020 TCAP

Table 1: High Pressure Distribution Mains Footage Investment: New Business & Replacement Combined

Col. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Year	1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"	Total
2008	0	0	1	0	2,620	85	2,350	35,124	55,730	5,724	513	0	0	0	0	0	102,147
2009	0	0	4	0	353	1,194	7,848	30,932	26,534	95	61	422	0	0	0	0	67,443
2010	0	0	0	0	2,507	676	4,995	5,655	6,721	10,583	2,781	0	0	0	0	0	33,918
2011	0	0	55	0	1,361	2,385	6,065	13,131	15,731	8,276	365	2	1,426	0	0	0	48,797
2012	0	19	0	0	371	105	14,080	29,528	37,001	19,713	3,013	3,808	0	0	0	0	107,638
2013	0	0	195	0	517	2,514	13,519	3,911	5,746	11,493	1,802	0	0	0	0	0	39,697
2014	0	0	0	0	52	1,043	946	4,615	2,216	0	5,070	0	0	0	0	0	13,942
2015	0	0	0	0	58	0	72,877	5,787	4,553	1,662	2,538	399	0	0	0	0	87,874
2016	0	0	0	0	0	0	515	50	3,307	86	247	49	0	0	0	0	4,254

Table 2: Total Plastic Distribution Mains Footage Investment: New Business & Replacement Combined

Southern California Gas Company

Col. 1	2	3	4	5	6	7	8	SoCal
Year	1/2"	1"	2"	3"	4"	6"	8"	Total
2008	0	4,723	1,002,332	85,915	256,664	97,567	39,213	1,486,414
2009	0	2,956	553,274	43,539	131,875	48,693	58,183	838,520
2010	0	2,348	451,121	38,869	118,911	53,496	31,821	696,566
2011	0	2,101	682,633	50,570	93,241	20,597	8,638	857,780
2012	0	2,355	430,616	50,330	111,985	19,577	12,759	627,622
2013	0	1,829	549,059	51,136	97,404	23,010	14,218	736,656
2014	0	2,101	682,633	50,570	93,241	20,597	8,638	857,780
2015	872	1,695	711,372	97,364	148,506	28,774	25,620	1,014,203
2016	3,799	2,554	798,224	50,344	178,641	29,739	17,059	1,080,360

Table 3: Total Steel Distribution Mains (including HP) Footage Investment: New Business & Replacement Combined

Southern California Gas Company

Col. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	SoCal
Year	1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"	Total
2008	0	20	0	0	6,486	4,708	6,318	33,877	55,426	5,729	410	0	0	0	0	0	112,974
2009	0	0	0	0	9,184	2,412	12,817	34,678	34,501	2,028	967	2,203	1,768	0	0	0	100,558
2010	0	0	0	0	5,234	791	6,985	9,992	9,340	11,962	2,376	0	0	0	0	0	46,680
2011	0	0	50	0	1,925	3,496	4,347	15,451	12,124	3,947	1,523	643	1,426	0	0	0	44,932
2012	0	0	2	0	1,815	672	12,021	21,002	15,241	11,103	3,146	0	0	0	0	0	65,002
2013	0	68	195	0	2,157	562	14,031	4,798	5,104	1,403	5,332	331	0	0	0	0	33,981
2014	0	0	0	0	1,313	1,565	4,858	2,662	1,313	4	5,066	0	0	0	0	0	16,781
2015	643	0	274	0	73,358	6,303	16,353	2,965	1,980	0	0	0	0	0	0	0	101,876
2016	2,269	0	1,235	0	60,467	11,868	43,256	7,488	54	1,881	136	0	0	0	0	0	128,654

Table 4: Plastic New Business Vs. Replacement Distribution Mains Footage: Based on a Sample Survey

Year	Col. 1 Unique Row Identifier	2 Investment Type	3 1/2"	4 1"	5 2"	6 3"	7 4"	8 6"	9 8"	Total
2008	2008.1	New Business	0	3,308	739,710	38,466	144,960	29,107	8467	964,018
	2008.2	Replacement	0	1,413	262,622	47,449	111,704	66,322	30746	520,256
	2008.3	New Business %	0.00%	70.07%	73.80%	44.77%	56.48%	30.50%	21.59%	64.95%
2009	2009.1	New Business	0	600	313,948	9,304	77,995	9,030	29731	440,608
	2009.2	Replacement	0	2,356	239,324	34,235	53,880	39,663	28452	397,910
	2009.3	New Business %	0.00%	20.30%	56.74%	21.37%	59.14%	18.54%	51.10%	52.55%
2010	2010.1	New Business	0	810	242,438	14,007	42,301	13,723	8560	321,839
	2010.2	Replacement	0	1,538	208,683	24,862	76,610	39,773	23261	374,727
	2010.3	New Business %	0.00%	34.50%	53.74%	36.04%	35.57%	25.65%	26.90%	46.20%
2011	2011.1	New Business	0	369	375,921	7,921	38,565	4,392	7698	434,866
	2011.2	Replacement	0	1,732	306,712	42,649	54,676	16,205	940	422,914
	2011.3	New Business %	0.00%	17.56%	55.07%	15.66%	41.36%	21.32%	89.12%	50.70%
2012	2012.1	New Business	0	1,180	272,025	24,169	71,556	12,395	3147	384,472
	2012.2	Replacement	0	1,175	158,591	26,161	40,429	7,182	9612	243,150
	2012.3	New Business %	0.00%	50.11%	63.17%	48.02%	63.90%	63.31%	24.66%	61.26%
2013	2013.1	New Business	0	514	440,182	36,157	67,319	13,548	9260	566,980
	2013.2	Replacement	0	1,315	108,877	14,979	30,085	9,462	4958	169,676
	2013.3	New Business %	0.00%	28.10%	80.17%	70.71%	69.11%	58.88%	65.13%	76.97%
2014	2014.1	New Business	0	62	434,628	31,400	58,523	16,941	11706	553,260
	2014.2	Replacement	0	60	68,148	6,172	16,936	5,247	5017	101,580
	2014.3	New Business %	0.00%	50.82%	86.45%	83.57%	77.56%	76.35%	70.00%	84.49%
2015	2015.1	New Business	3	979	633,734	90,863	132,467	25,869	25620	909,535
	2015.2	Replacement	869	716	77,638	6,501	16,039	2,905	0	104,668
	2015.3	New Business %	0.34%	57.76%	89.09%	93.32%	89.20%	89.90%	100.00%	89.68%
2016	2016.1	New Business	1,530	1,262	728,030	38,618	128,162	25,200	17059	939,861
	2016.2	Replacement	2,269	1,292	70,194	11,726	50,479	4,539	0	140,499
	2016.3	New Business %	40.27%	49.41%	91.21%	76.71%	71.74%	84.74%	100.00%	87.00%
2017	2017.1	New Business								0
	2017.2	Replacement								0
	2017.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2018	2018.1	New Business								0
	2018.2	Replacement								0
	2018.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2019	2019.1	New Business								0
	2019.2	Replacement								0
	2019.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2020	2020.1	New Business								0
	2020.2	Replacement								0
	2020.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 5: Steel New Business Vs. Replacement Distribution Mains Footage: Based on a Sample Survey

Year	Col. 1 Unique Row Identifier	2 Investment Type	3 1/2"	4 3/4"	5 1"	6 1 1/4"	7 2"	8 3"	9 4"	10 6"	11 8"	12 10"	13 12"	14 16"	15 20"	16 24"	17 26"	18 30"	Total
2008	2008.1	New Business	0	0	0	0	1888	0	1491	2727	0	0	0	0	0	0	0	0	6,106
	2008.2	Replacement	0	20	0	0	4596	4710	4827	33288	55426	5729	410	0	0	0	0	0	109,006
	2008.3	New Business %	0.00%	0.00%	0.00%	0.00%	29.12%	0.00%	23.60%	7.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.30%
2009	2009.1	New Business	0	0	0	0	1433	1154	9534	4	30	0	0	0	0	0	0	0	12,155
	2009.2	Replacement	0	0	0	0	7751	1258	3283	34674	34471	2028	967	2203	1768	0	0	0	88,403
	2009.3	New Business %	0.00%	0.00%	0.00%	0.00%	15.60%	47.84%	74.39%	0.01%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.09%
2010	2010.1	New Business	0	0	0	0	743	0	37	5	0	0	0	0	0	0	0	0	785
	2010.2	Replacement	0	0	0	0	4491	791	6948	9987	9340	11962	2376	0	0	0	0	0	45,895
	2010.3	New Business %	0.00%	0.00%	0.00%	0.00%	14.20%	0.00%	0.53%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.68%
2011	2011.1	New Business	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
	2011.2	Replacement	0	0	50	0	1928	3494	597	5453	7590	761	1523	643	1426	0	0	0	23,465
	2011.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
2012	2012.1	New Business	0	0	0	0	293	43	353	88	0	0	0	0	0	0	0	0	777
	2012.2	Replacement	0	0	2	0	1522	629	542	250	4412	1334	3146	0	0	0	0	0	11,837
	2012.3	New Business %	0.00%	0.00%	0.00%	0.00%	16.14%	6.40%	39.44%	26.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.16%
2013	2013.1	New Business	0	0	0	0	47	0	1025	0	0	0	0	0	0	0	0	0	1,072
	2013.2	Replacement	0	68	195	0	2110	562	9047	4798	5104	1403	5332	331	0	0	0	0	28,950
	2013.3	New Business %	0.00%	0.00%	0.00%	0.00%	2.18%	0.00%	10.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.57%
2014	2014.1	New Business	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2014.2	Replacement	0	0	0	0	1313	1565	4858	2662	1313	4	5066	0	0	0	0	0	16,781
	2014.3	New Business %	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%
2015	2015.1	New Business	0	0	0	0	215	2	2873	0	0	0	0	0	0	0	0	0	3,090
	2015.2	Replacement	643	0	274	0	73143	6301	13480	2965	1980	0	0	0	0	0	0	0	98,786
	2015.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.29%	0.03%	17.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.03%
2016	2016.1	New Business	0	0	0	0	378	254	78	7	0	0	0	0	0	0	0	0	717
	2016.2	Replacement	2269	0	1235	0	60089	11614	43178	7481	54	1881	136	0	0	0	0	0	127,937
	2016.3	New Business %	0.00%	0.00%	0.00%	0.00%	0.63%	2.14%	0.18%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.56%
2017	2017.1	New Business																	0
	2017.2	Replacement																	0
	2017.3	New Business %	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%
2018	2018.1	New Business																	0
	2018.2	Replacement																	0
	2018.3	New Business %	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%
2019	2019.1	New Business																	0
	2019.2	Replacement																	0
	2019.3	New Business %	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%
2020	2020.1	New Business																	0
	2020.2	Replacement																	0
	2020.3	New Business %	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%

Table 6: Plastic Mains Pressure Betterment Investment as a Fraction of Total Plastic Mains Investment

Col. 1	2	3	4	5	6	7	8
Year	1/2"	1"	2"	3"	4"	6"	8"
2008	0.0000	0.0000	0.0087	0.0183	0.1731	0.2858	0.5753
2009	0.0000	0.0000	0.0041	0.0134	0.0781	0.4198	0.3594
2010	0.0000	0.0000	0.0047	0.0177	0.2192	0.5388	0.5579
2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2015	0.0000	0.0000	0.0075	0.0009	0.0818	0.3595	0.4006
2016	0.0000	0.0000	0.0067	0.0636	0.0597	0.0844	0.0716

Table 7: Steel Mains Pressure Betterment Investment as a Fraction of Total Steel Mains Investment

Col. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Year	1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"
2008	0.0000	0.0000	0.0000	0.0000	0.0293	0.0008	0.1839	0.2522	0.2611	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2009	0.0000	0.0000	0.0000	0.0000	0.0531	0.2384	0.0289	0.9024	0.5802	0.9467	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2010	0.0000	0.0000	0.0000	0.0000	0.3422	0.6839	0.6251	0.5794	0.4908	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.8627	0.6471	0.3740	0.8072	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9255	0.9839	0.7105	0.8799	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2015	0.0000	0.0000	0.0000	0.0000	0.0419	0.0242	0.2977	0.8798	0.8001	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2016	0.0000	0.0000	0.0000	0.0000	0.0409	0.2206	0.0491	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table 8: Contibution in Aid of Construction as F

Year	Plastic Mains SoCal	Steel Mains SoCal
2008	0.0027	0.0173
2009	0.0030	0.0168
2010	0.0063	0.0895
2011	0.0000	0.0000
2012	0.0000	0.0000
2013	(0.0001)	(0.0003)
2014	0.0000	0.0000
2015	0.0000	0.0000
2016	0.0000	0.0000

Table 9: Account 378 (Meters & Regulator Stations) Investment Info.

Year	Fraction Total I	Total Book Investment in Account 378 in Nominal $'s	High Pressure Book Investment in Act 378 as a Fraction of Total	Handy-Whittman Index
2008		5,416,963	0.1293	0.808264
2009		3,857,213	0.1282	0.800830
2010		5,066,094	0.1296	0.819752
2011		6,320,185	0.1284	0.927881
2012		7,845,106	0.1272	0.982351
2013		8,316,250	0.1318	0.969105
2014		6,967,124	0.1306	0.998503
2015		6,622,661	0.1310	0.991069
2016		5,314,881	0.1308	1.000000

Table 1: Plastic Distribution Mains: New Business (NB), Pressure Betterment (PB) & Contribution in Aid of New Construction (CANC)
Distribution Main Unit costs for New Business vs. Replacement Investments:

Plastic		1/2"	1"	2"	3"	4"	6"	8"
New Business 2016$'s		$5.21	$5.21	$26.90	$27.15	$39.46	$40.71	$46.48
Replacement 2016$'s		$154.81	$154.81	$351.37	$379.08	$406.76	$467.03	$687.37
escalate to 2020$'s	**2020 $s**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**
New Business 2020$'s		$5.72	$5.72	$29.54	$29.82	$43.34	$44.70	$51.04
Replacement 2020$'s		$170.00	$170.00	$385.85	$416.28	$446.69	$512.87	$754.83

Source: Planning & Gas Engineering Gas Operations

Year	Unique Row Identifier	Investment Type	1/2"	1"	2"	3"	4"	6"	8"	Total
2008	2008.1	NB	0	18,924	21,854,028	1,147,044	6,281,857	1,330,248	432,166	31,064,267
	2008.2	PB	0	0	3,383,147	655,641	19,841,372	14,299,694	17,029,689	55,209,543
	2008.3	CANC	0	(72)	(79,204)	(6,852)	(29,749)	(11,665)	(5,353)	(132,895)
2009	2009.1	NB	0	3,431	9,275,329	277,442	3,379,921	403,646	1,517,506	14,857,275
	2009.2	PB	0	0	877,041	242,275	4,597,745	10,482,962	15,784,222	31,984,244
	2009.3	CANC	0	(51)	(49,335)	(3,919)	(17,248)	(6,569)	(8,963)	(86,085)
2010	2010.1	NB	0	4,632	7,162,600	417,684	1,833,118	613,425	436,913	10,468,372
	2010.2	PB	0	0	809,903	285,984	11,643,333	14,783,848	13,400,473	40,923,541
	2010.3	CANC	0	(85)	(83,965)	(7,302)	(32,463)	(15,065)	(10,232)	(149,112)
2011	2011.1	NB	0	2,110	11,106,228	236,202	1,671,218	196,325	392,915	13,604,998
	2011.2	PB	0	0	0	0	0	0	0	0
	2011.3	CANC	0	0	0	0	0	0	0	0
2012	2012.1	NB	0	6,747	8,036,720	720,712	3,100,887	554,063	160,627	12,579,756
	2012.2	PB	0	0	0	0	0	0	0	0
	2012.3	CANC	0	0	0	0	0	0	0	0
2013	2013.1	NB	0	2,939	13,004,758	1,078,190	2,917,276	605,603	472,641	18,081,408
	2013.2	PB	0	0	0	0	0	0	0	0
	2013.3	CANC	0	1	1,189	112	309	75	53	1,739
2014	2014.1	NB	0	6,105	17,434,137	1,260,263	3,133,735	702,971	308,623	22,845,835
	2014.2	PB	0	0	0	0	0	0	0	0
	2014.3	CANC	0	0	0	0	0	0	0	0
2015	2015.1	NB	17	5,598	18,723,068	2,709,506	5,740,471	1,156,358	1,307,675	29,642,694
	2015.2	PB	0	0	2,071,702	38,262	5,426,253	5,305,778	7,747,157	20,589,152
	2015.3	CANC	0	0	0	0	0	0	0	0
2016	2016.1	NB	8,749	7,216	21,508,954	1,151,577	5,553,914	1,126,453	870,712	30,227,574
	2016.2	PB	0	0	2,069,217	1,332,386	4,764,255	1,287,990	922,211	10,376,059
	2016.3	CANC	0	0	0	0	0	0	0	0
2017	2017.1	NB	0	0	0	0	0	0	0	0
	2017.2	PB	0	0	0	0	0	0	0	0
	2017.3	CANC	0	0	0	0	0	0	0	0

Table 1: Plastic Distribution Mains: New Business (NB), Pressure Betterment (PB) & Contribution in Aid of New Construction (CANC)

NB
- Table 2 Plastic Feet NB & R
- * Table 4 Plastic feet NB as % total plastic
- * NB cost $/foot
- = Plastic NB $'s

PB
- Table 2 Plastic Feet NB & R
- * Table 4 Plastic feet PB as % total plastic
- * Replace cost $/foot
- = Plastic PB $'s

CANC
- Table 2 Plastic Feet NB & R
- * Table 8 CANC as % total Mains
- * NB cost $/foot
- = Plastic CANC $'s

Table 2: Steel Distribution Mains: New Business (NB), Pressure Betterment (PB) & Contribution in Aid of New Construction (CANC)
Distribution Main Unit costs for New Business vs. Replacement Investments:

Steel		1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"
New Business 2016$'s		$79.68	$79.68	$90.31	$111.10	$218.67	$223.87	$257.89	$259.83	$324.93	$484.47	$547.78	$717.23	$785.49	$923.91	$1,062.32	$1,200.74
Replacement 2016$'s		$159.77	$159.77	$162.57	$174.92	$474.17	$523.99	$574.10	$666.94	$772.70	$900.76	$968.09	$1,352.53	$1,501.69	$1,788.46	$1,788.46	$1,089.62
escalate to 2020$'s	**2020 $s**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**
New Business 2020$'s		$87.50	$87.50	$99.17	$122.00	$240.13	$245.84	$283.20	$285.33	$356.82	$532.01	$601.54	$787.62	$862.58	$1,014.58	$1,166.58	$1,318.59
Replacement 2020$'s		$175.45	$175.45	$178.52	$192.09	$520.71	$575.42	$630.45	$732.39	$848.54	$989.16	$1,063.10	$1,485.27	$1,649.07	$1,963.99	$1,963.99	$1,196.56

	Col. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Unique Row	Investment																	
Year	Identifier	Type	1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"	Total
2008	2008.1	NB	0	0	0	0	453,507	0	422,254	731,896	0	0	0	0	0	0	0	0	1,607,657
	2008.2	PB	0	0	0	0	98,965	2,301	732,583	6,258,103	12,278,306	0	0	0	0	0	0	0	19,370,259
	2008.3	CANC	0	(30)	0	0	(26,946)	(20,025)	(30,956)	(167,230)	(342,156)	(52,731)	(4,267)	0	0	0	0	0	(644,341)
2009	2009.1	NB	0	0	0	0	344,108	283,705	2,700,046	1,141	10,704	0	0	0	0	0	0	0	3,339,704
	2009.2	PB	0	0	0	0	254,107	330,866	233,267	22,920,234	16,985,981	1,899,187	0	0	0	0	0	0	42,623,639
	2009.3	CANC	0	0	0	0	(37,039)	(9,959)	(60,962)	(166,177)	(206,752)	(18,120)	(9,769)	(29,141)	(25,613)	0	0	0	(563,532)
2010	2010.1	NB	0	0	0	0	178,417	0	10,478	1,427	0	0	0	0	0	0	0	0	190,322
	2010.2	PB	0	0	0	0	932,592	311,301	2,752,545	4,239,822	3,889,686	0	0	0	0	0	0	0	12,125,946
	2010.3	CANC	0	0	0	0	(112,467)	(17,401)	(177,014)	(255,117)	(298,219)	(569,470)	(127,895)	0	0	0	0	0	(1,557,583)
2011	2011.1	NB	0	0	0	0	718	0	0	0	0	0	0	0	0	0	0	0	718
	2011.2	PB	0	0	0	0	0	1,151	2,364,188	7,322,463	3,847,259	3,151,463	0	0	0	0	0	0	16,686,524
	2011.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	2012.1	NB	0	0	0	0	70,358	10,571	1,342,729	1,560,160	0	0	0	0	0	0	0	0	2,983,819
	2012.2	PB	0	0	0	0	0	0	7,014,387	15,134,165	9,188,789	9,663,101	0	0	0	0	0	0	41,000,443
	2012.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	2013.1	NB	0	0	0	0	11,286	0	404,383	0	0	0	0	0	0	0	0	0	415,669
	2013.2	PB	0	0	0	0	0	0	2,495,952	0	0	0	0	0	0	0	0	0	2,495,952
	2013.3	CANC	0	2	6	0	159	43	1,224	422	561	230	988	80	0	0	0	0	3,713
2014	2014.1	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2014.2	PB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2014.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	2015.1	NB	0	0	0	0	51,628	492	813,639	0	0	0	0	0	0	0	0	0	865,759
	2015.2	PB	0	0	0	0	1,600,927	87,597	3,069,548	1,910,459	1,344,182	0	0	0	0	0	0	0	8,012,714
	2015.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	2016.1	NB	0	0	0	0	90,770	62,445	22,090	1,997	0	0	0	0	0	0	0	0	177,301
	2016.2	PB	0	0	0	0	1,287,020	1,506,457	1,338,688	0	0	0	0	0	0	0	0	0	4,132,165
	2016.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	2017.1	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017.2	PB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2: Steel Distribution Mains: New Business (NB), Pressure Betterment (PB) & Contribution in Aid of New Construction (CANC)

NB
- Table 3 Steel Feet NB & R
- * Table 5 Steel feet NB as % total plastic
- * NB cost $/foot
- = Steel NB $'s

PB
- Table 3 Steel Feet NB & R
- * Table 7 Steel feet PB as % total plastic
- * Replace cost $/foot
- = Steel PB $'s

CANC
- Table 3 Steel Feet NB & R
- * Table 8 CANC as % total Mains
- * NB cost $/foot
- = Steel CANC $'s

Table 3: High Pressure Distribution Mains: New Business (NB), Pressure Betterment (PB) & Contribution in Aid of New Construction (CANC)
Distribution Main Unit costs for New Business vs. Replacement Investments:

Steel		1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"
New Business 2016$'s		$79.68	$79.68	$90.31	$111.10	$218.67	$223.87	$257.89	$259.83	$324.93	$484.47	$547.78	$717.23	$785.49	$923.91	$1,062.32	$1,200.74
Replacement 2016$'s		$159.77	$159.77	$162.57	$174.92	$474.17	$523.99	$574.10	$666.94	$772.70	$900.76	$968.09	$1,352.53	$1,501.69	$1,788.46	$1,788.46	$1,089.62
escalate to 2020$'s	**2020 $s**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**	**1.09814**
New Business 2020$'s		$87.50	$87.50	$99.17	$122.00	$240.13	$245.84	$283.20	$285.33	$356.82	$532.01	$601.54	$787.62	$862.58	$1,014.58	$1,166.58	$1,318.59
Replacement 2020$'s		$175.45	$175.45	$178.52	$192.09	$520.71	$575.42	$630.45	$732.39	$848.54	$989.16	$1,063.10	$1,485.27	$1,649.07	$1,963.99	$1,963.99	$1,196.56

2020 $s

Year	Unique Row Identifier	Investment Type	1/2"	3/4"	1"	1 1/4"	2"	3"	4"	6"	8"	10"	12"	16"	20"	24"	26"	30"	Total
2008	2008.1	NB	0	0	0	0	183,193	0	157,059	758,837	0	0	0	0	0	0	0	0	1,099,088
	2008.2	PB	0	0	0	0	39,977	42	272,487	6,488,462	12,345,650	0	0	0	0	0	0	0	19,146,617
	2008.3	CANC	0	0	0	0	(10,885)	(362)	(11,514)	(173,386)	(344,033)	(52,685)	(5,339)	0	0	0	0	0	(598,203)
2009	2009.1	NB	0	0	0	0	13,226	140,441	1,653,270	1,018	8,233	0	0	0	0	0	0	0	1,816,188
	2009.2	PB	0	0	0	0	9,767	163,787	142,832	20,444,335	13,063,564	88,966	0	0	0	0	0	0	33,913,250
	2009.3	CANC	0	0	0	0	(1,424)	(4,930)	(37,328)	(148,226)	(159,009)	(849)	(616)	(5,582)	0	0	0	0	(357,964)
2010	2010.1	NB	0	0	0	0	85,459	0	7,493	807	0	0	0	0	0	0	0	0	93,760
	2010.2	PB	0	0	0	0	446,696	266,043	1,968,355	2,399,539	2,798,991	0	0	0	0	0	0	0	7,879,625
	2010.3	CANC	0	0	0	0	(53,870)	(14,871)	(126,583)	(144,384)	(214,596)	(503,820)	(149,696)	0	0	0	0	0	(1,207,821)
2011	2011.1	NB	0	0	0	0	508	0	0	0	0	0	0	0	0	0	0	0	508
	2011.2	PB	0	0	0	0	0	785	3,298,550	6,222,980	4,991,854	6,607,931	0	0	0	0	0	0	21,122,101
	2011.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	2012.1	NB	0	0	0	0	14,382	1,652	1,572,716	2,193,525	0	0	0	0	0	0	0	0	3,782,275
	2012.2	PB	0	0	0	0	0	0	8,215,837	21,278,051	22,307,880	17,156,507	0	0	0	0	0	0	68,958,275
	2012.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	2013.1	NB	0	0	0	0	2,705	0	389,627	0	0	0	0	0	0	0	0	0	392,332
	2013.2	PB	0	0	0	0	0	0	2,404,873	0	0	0	0	0	0	0	0	0	2,404,873
	2013.3	CANC	0	0	6	0	38	190	1,179	344	631	1,883	334	0	0	0	0	0	4,605
2014	2014.1	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2014.2	PB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2014.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	2015.1	NB	0	0	0	0	41	0	3,625,974	0	0	0	0	0	0	0	0	0	3,626,014
	2015.2	PB	0	0	0	0	1,266	0	13,679,414	3,728,778	3,090,939	1,643,983	0	0	0	0	0	0	22,144,380
	2015.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	2016.1	NB	0	0	0	0	0	0	263	13	0	0	0	0	0	0	0	0	276
	2016.2	PB	0	0	0	0	0	0	15,938	0	0	0	0	0	0	0	0	0	15,938
	2016.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	2017.1	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017.2	PB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017.3	CANC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3: High Pressure Distribution Mains: New Business (NB), Pressure Betterment (PB) & Contribution in Aid of New Construction (CANC)

NB
- Table 1 HPD Feet NB & R
- * Table 5 Steel feet NB as % total plastic
- * NB cost $/foot
- = HPD NB $'s

PB
- Table 1 HPD Feet NB & R
- * Table 7 Steel feet PB as % total steel
- * Replace cost $/foot
- = HPD PB $'s

CANC
- Table 2 (out-invest-history) Steel CANC $'s
- * Table 1 (in-invest-history) HPD feet NB & R
- * 1/table 3 (in-invest-history) steel feet NB & R
- = HPD CANC $'s

Table 4: Load-Growth-Related Total, High & Medium Pressure Distribution Mains Historical Investments
2020 $s

	Total Distribution Mains						High Pressure Distribution Mains						Medium Pressure Distribution Mains					
	New	Pressure	Contrib.	ACT 378	Annual	**Cumulative**	New	Pressure	Contrib.	ACT 378	Annual	**Cumulative**	New	Pressure	Contrib.	ACT 378	Annual	**Cumulative**
Year	Business	Betterment	New Constr	Mtr. Reg Stn	Total	**Total**	Business	Betterment	New Constr	Mtr. Reg Stn	Total	**Total**	Business	Betterment	New Constr	Mtr. Reg Stn	Total	**Total**
2008	32,671,923	74,579,802	(777,236)	6,701,977	113,176,466	113,176,466	1,099,088	19,146,617	(357,964)	866,288	20,754,029	**20,754,029**	31,572,835	55,433,185	(419,273)	5,835,689	92,422,437	**92,422,437**
2009	18,196,979	74,607,884	(649,617)	4,816,522	96,971,767	210,148,233	1,816,188	33,913,250	(1,207,821)	617,503	35,139,120	**55,893,149**	16,380,791	40,694,633	558,204	4,199,019	61,832,647	**154,255,084**
2010	10,658,695	53,049,487	(1,706,695)	6,180,031	68,181,518	278,329,751	93,760	7,879,625	0	800,652	8,774,036	**64,667,185**	10,564,935	45,169,863	(1,706,695)	5,379,379	59,407,482	**213,662,566**
2011	13,605,716	16,686,524	0	6,811,416	37,103,656	315,433,407	508	21,122,101	0	874,322	21,996,930	**86,664,115**	13,605,209	(4,435,577)	0	5,937,094	15,106,726	**228,769,292**
2012	15,563,574	41,000,443	0	7,986,051	64,550,068	379,983,475	3,782,275	68,958,275	4,605	1,015,965	73,761,120	**160,425,235**	11,781,300	(27,957,833)	(4,605)	6,970,086	(9,211,052)	**219,558,240**
2013	18,497,077	2,495,952	5,452	8,581,369	29,579,850	409,563,326	392,332	2,404,873	0	1,131,081	3,928,286	**164,353,521**	18,104,745	91,079	5,452	7,450,288	25,651,564	**245,209,805**
2014	22,845,835	0	0	6,977,571	29,823,406	439,386,732	0	0	0	911,201	911,201	**165,264,722**	22,845,835	0	0	6,066,370	28,912,205	**274,122,010**
2015	30,508,452	28,601,866	0	6,682,342	65,792,660	505,179,391	3,626,014	22,144,380	0	875,119	26,645,514	**191,910,236**	26,882,438	6,457,486	0	5,807,222	39,147,146	**313,269,155**
2016	30,404,875	14,508,224	0	5,314,881	50,227,980	555,407,371	276	15,938	0	695,240	711,454	**192,621,690**	30,404,599	14,492,286	0	4,619,641	49,516,526	**362,785,681**
Total	192,953,127	305,530,181	(3,128,096)	60,052,159	555,407,371		10,810,441	175,585,059	(1,561,180)	7,787,370	192,621,690		182,142,686	129,945,122	(1,566,916)	52,264,789	362,785,681	2,104,054,270

2020 TCAP

Year	New Business	Pressure Betterment	Contribution in Aid of New Constr.	Acct 378 (Meter & Reg. Stns.)	Total	Cumulative Total	Source
Table 1: Forecasted Distribution-related Investment Costs: 2016 $s							
2016	$0	$0	$0	$0	$0	$0	
2017	$37,362,425	$37,154,803	$0	$5,505,836	$80,023,065	$80,023,065	
2018	$47,600,920	$38,151,893	$0	$5,651,660	$91,404,474	$171,427,538	
2019	$51,013,703	$37,002,473	$0	$5,803,767	$93,819,943	$265,247,481	
2020	$52,799,183	$38,297,560	$0	$5,945,125	$97,041,867	$362,289,349	
2021	$54,647,154	$39,637,974	$0	$6,071,954	$100,357,082	$462,646,431	
2022	$56,559,805	$41,025,303	$0	$6,220,666	$103,805,773	$566,452,205	
Source: Sandra Funderberg and Fidal Galvin , Table 1, GRC, New Business and Pressure Betterment, escalated Acct. 378							
Table 1: Forecasted Distribution-related Investment Costs escalated to 2020 $'s:							
Esclation 2016$'s to 2020$'s	1.0981	1.09814	1.09814	1.09814			
2016	$0	$0	$0	$0	$0	$555,407,371	
2017	$41,029,348	$40,801,349	$0	$6,046,205	$87,876,902	$643,284,274	
2018	$52,272,697	$41,896,298	$0	$6,206,340	$100,375,336	$743,659,609	
2019	$56,020,426	$40,634,069	$0	$6,373,375	$103,027,870	$846,687,480	
2020	$57,981,141	$42,056,261	$0	$6,528,608	$106,566,010	$953,253,489	
2021	$60,010,481	$43,528,230	$0	$6,667,884	$110,206,595	$1,063,460,084	
2022	$62,110,848	$45,051,718	$0	$6,831,191	$113,993,757	$1,177,453,841	
Allocation Factor = total historical HPD Invested as % total Distribution Investment							
HPD $	$10,810,441	$175,585,059	($1,561,180)	$7,787,370	$192,621,690		
Total Dist $'s	$192,953,127	$305,530,181	($3,128,096)	$60,052,159	$555,407,371		
HPD $ as % Distribution	6%	57%	50%	13%	35%		
High Pressure Distribution Mains = Total Distribution * allocation factor							
2016	$0	$0	$0	$0	$0	**$192,621,690**	
2017	$2,298,721	$23,448,117	$0	$784,052	$26,530,890	**$219,152,580**	
2018	$2,928,643	$24,077,373	$0	$804,818	$27,810,834	**$246,963,414**	
2019	$3,138,615	$23,351,982	$0	$826,479	$27,317,075	**$274,280,489**	
2020	$3,248,466	$24,169,302	$0	$846,609	$28,264,376	**$302,544,866**	
2021	$3,362,162	$25,015,227	$0	$864,670	$29,242,059	**$331,786,925**	
2022	$3,479,838	$25,890,760	$0	$885,847	$30,256,445	**$362,043,370**	
Medium Pressure Distribution Mains = Total Distribution - HPD							
2016	$0	$0	$0	$0	$0	**$362,785,681**	
2017	$38,730,628	$17,353,233	$0	$5,262,152	$61,346,013	**$424,131,694**	
2018	$49,344,054	$17,818,926	$0	$5,401,522	$72,564,502	**$496,696,196**	
2019	$52,881,812	$17,282,086	$0	$5,546,897	$75,710,795	**$572,406,990**	
2020	$54,732,675	$17,886,959	$0	$5,681,999	$78,301,633	**$650,708,624**	
2021	$56,648,319	$18,513,003	$0	$5,803,214	$80,964,536	**$731,673,160**	
2022	$58,631,010	$19,160,958	$0	$5,945,344	$83,737,312	**$815,410,472**	

TABLE 8
Distribution Long Run Marginal Cost Estimate (2020$s)
SOUTHERN CALIFORNIA GAS COMPANY
2020 TCAP

System	**MPD**	**HPD**
Demand Determinate	**mcfd**	**mcf/month**
Capital-related LRMC:		
Medium Pressure Regression Coefficient =	$2,392	$45.42
Weighted RECC Factor =	7.61%	7.57%
Annualized Capital-related LRMC	$182.00	$3.44
O&M-related LRMC:		
Total Distribution O&M costs (2016 $000's) =	$49,692	$49,692
escalation 2016 to 2020	1.0981	1.0981
Total Distribution O&M costs (2020 $000's) =	$54,569	$54,569
% Share of Investment	65%	35%
Peak Day Demand	4,279	87,903
O&M-related LRMC	$8.33	$0.21530
A&G-related LRMC:		
A&G Factor, as a Percent of O&M-related LRMC	43.64%	43.64%
A&G-related LRMC	$3.63	$0.09395
General Plant (GP)-related LRMC:		
GP Factor, as a Percent of O&M-related LRMC	44.94%	44.94%
GP-related LRMC	$3.74	$0.09675
Material & Supply (M&S)-related LRMC:		
Total Distribution M&S costs (2020 $000's) =	$3,294	$3,294
% Share of Investment	65%	35%
Demand Determinantes	5,920	5,920
M&S-related LRMC	$0.36	$0.19300
Distribution LRMC =	**$198.08 $/Mcfd**	**$4.04 $Mcf/mo**

TABLE 7
Regression of Distribution Investment
SOUTHERN CALIFORNIA GAS COMPANY
2020 TCAP

System	MPD	MPD	HPD	HPD
Year	Cumulative Investment $000	Peak Day Cumulative Demand MMcfd	Cumulative Investment $000	Peak Month Cumulative Demand MMcf/ Month
2008	$92,422	34	$20,754	555
2009	$154,255	40	$55,893	626
2010	$213,663	52	$64,667	811
2011	$228,769	84	$86,664	1,348
2012	$219,558	97	$160,425	1,742
2013	$245,210	126	$164,354	2,471
2014	$274,122	139	$165,265	2,748
2015	$313,269	154	$191,910	3,224
2016	$362,786	180	$219,153	4,011
2017	$424,132	204	$219,153	4,968
2018	$496,696	219	$246,963	5,230
2019	$572,407	240	$274,280	5,620
2020	$650,709	261	$302,545	6,028
2021	$731,673	283	$331,787	6,398
2022	$815,410	305	$362,043	6,768
Regression Coefficient	**$2,392.05**		**$45.42**	

Calculate Weighted Average RECC Factor: 219

System	MPD	MPD	MPD	MPD	HPD	HPD	HPD	HPD
Historical Investment	New Business $000's	Pressure Betterment $000	Contribute in aid of Construction $000	Account #378 Meter & Reg Stations $000	New Business $000's	Pressure Betterment $000	Contribute in aid of Construction $000	Account #378 Meter & Reg Stations $000
2008	$31,573	$55,433	($419)	$5,836	$1,099	$19,147	($358)	$866
2009	$16,381	$40,695	$558	$4,199	$1,816	$33,913	($1,208)	$618
2010	$10,565	$45,170	($1,707)	$5,379	$94	$7,880	$0	$801
2011	$13,605	($4,436)	$0	$5,937	$1	$21,122	$0	$874
2012	$11,781	($27,958)	($5)	$6,970	$3,782	$68,958	$5	$1,016
2013	$18,105	$91	$5	$7,450	$392	$2,405	$0	$1,131
2014	$22,846	$0	$0	$6,066	$0	$0	$0	$911
2015	$26,882	$6,457	$0	$5,807	$3,626	$22,144	$0	$875
2016	$30,405	$14,492	$0	$4,620	$0	$16	$0	$695
Total Invest $000	$182,143	$129,945	($1,567)	$52,265	$10,810	$175,585	($1,561)	$7,787

	Total Invest $000's	% of Total	RECC %	Weghted RECC%	Total Invest $000's	% of Total	RECC %	Weghted RECC%
New Business $000's	$182,143	50%	7.55%	3.79%	$10,810	6%	7.55%	0.42%
Pressure Betterment	$129,945	36%	7.55%	2.71%	$175,585	91%	7.55%	6.88%
CIAC	($1,567)	0%	7.55%	-0.03%	($1,561)	-1%	7.55%	-0.06%
subtotal	$310,521	86%		6.46%	$184,834	96%		7.25%
Meter & Reg Stations #378	$52,265	14%	7.94%	1.14%	$7,787	4%	7.94%	0.32%
Total	$362,786	100%		**7.61%**	$192,622	100%		**7.57%**

% Share of Investment between MPD and HPD:

	Investment $000's	% Share
MPD Investment	$362,786	65%
HPD Investment	$192,622	35%
	$555,407	100%

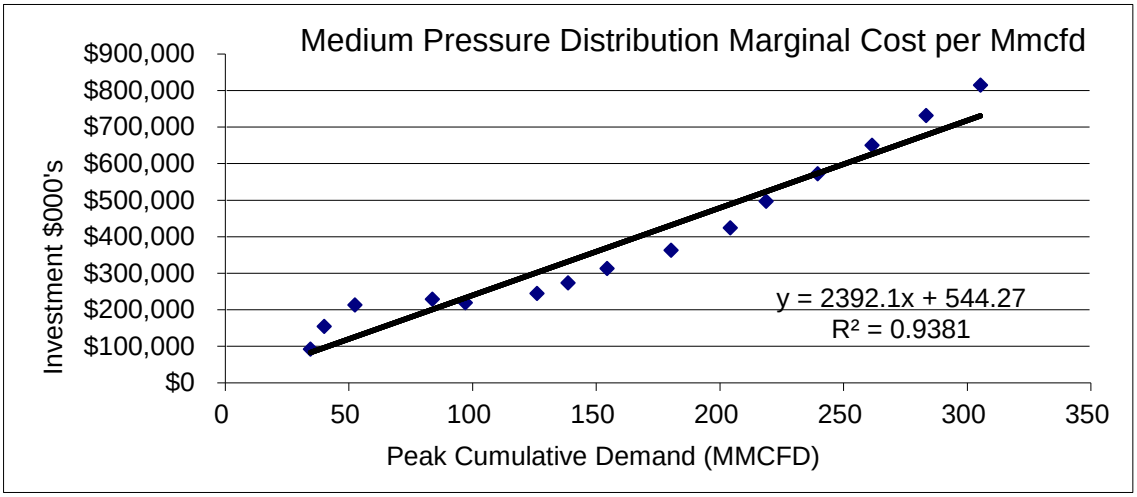
Marginal MPD Costs

Year	Cumulative MMcfd	Cumulative CAPEX $000's
2008	34	$92,422
2009	40	$154,255
2010	52	$213,663
2011	84	$228,769
2012	97	$219,558
2013	126	$245,210
2014	139	$274,122
2015	154	$313,269
2016	180	$362,786
2017	204	$424,132
2018	219	$496,696
2019	240	$572,407
2020	261	$650,709
2021	283	$731,673
2022	305	$815,410

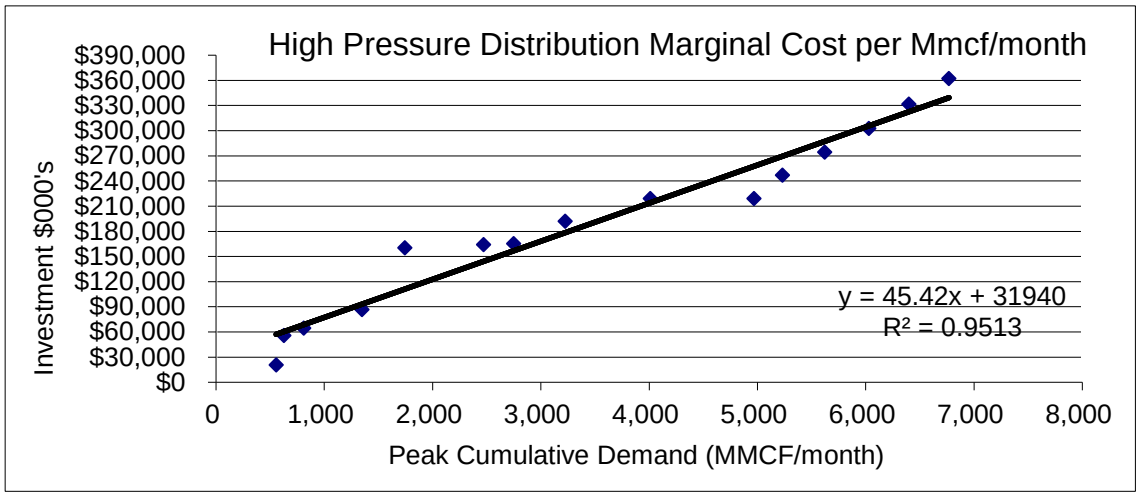
Marginal HPD Costs

Year	Cumulative Mmcf/ month	Cumulative CAPEX $000's
2008	555	$20,754
2009	626	$55,893
2010	811	$64,667
2011	1,348	$86,664
2012	1,742	$160,425
2013	2,471	$164,354
2014	2,748	$165,265
2015	3,224	$191,910
2016	4,011	$219,153
2017	4,968	$219,153
2018	5,230	$246,963
2019	5,620	$274,280
2020	6,028	$302,545
2021	6,398	$331,787
2022	6,768	$362,043

Marginal MPD Investment per MMCFD



Marginal HPD Investment per MMCF/month



Marginal MP Distribution Cost

Marginal Cost for Medium Pressure Distribution (MPD) (2020 $/Mcfd peak day)	
Capital-related Charge:	
MPD Regression Coefficient $/Mcfd	$2,392.05
x RECC Factor	7.61%
= Annualized Capital-related Charge ($/Mcfd)	$182.00
+ Direct O&M	$8.33
+ A&G	$3.63
+ GP	$3.74
+ M&S	$0.36
= Marginal Unit Cost ($/Mcfd)	**$198.08**

Marginal HP Distribution Cost

Marginal Cost for High Pressure Distribution (2020 $/MCF/month)

Capital-related Charge:	
HPD Regression Coefficient $/Mcf/month	$45.42
x RECC Factor	7.57%
= Annualized Capital-related Charge ($/Mcf/month)	$3.44
+ Direct O&M	$0.22
+ A&G	$0.09
+ GP	$0.10
+ M&S	$0.19
= Marginal HP Distribution Cost($/MCF/month)	**$4.04**

SoCalGas
2020 TCAP

Section 3
O&M Loaders Model for LRMC Studies

SCG 2020 TCAP
LRMC O&M Loader Model

Output	Output	Source
Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses	43.64%	A&G
General Plant Loading Factor as a % or O&M expenses	44.94%	Gen Plant
Customer Related Distribution M&S Costs 2020 $000/yr	$2,930,464	M&S
Demand Related Distribution M&S Costs 2020 $000/yr	$3,294,278	M&S
2013-17 Factor: Capital	1.1319	Escalation Factors
2013-17 Factor: O&M	1.0981	Escalation Factors
Input from EC Model:		
Transmission A&G	$18.739	EC Study of Ms. Fung
Storage A&G	$18.761	EC Study of Ms. Fung
Total A&G	$448.452	EC Study of Ms. Fung
Transmission General Plant Return	$0.896	EC Study of Ms. Fung
Transmission Gen Plant Dep	$5.503	EC Study of Ms. Fung
Transmission Gen Plant Taxes	$0.393	EC Study of Ms. Fung
Storage General Plant Return	$0.897	EC Study of Ms. Fung
Storage Gen Plant Dep	$5.510	EC Study of Ms. Fung
Storage Gen Plant Taxes	$0.393	EC Study of Ms. Fung
Total Gen Plant Return	$21.449	EC Study of Ms. Fung
Total Gen Plant Dep	$131.697	EC Study of Ms. Fung
Total Gen Plant Taxes	$9.400	EC Study of Ms. Fung
Input from EC Model:		
PBR Exclusion Items		
880 Dist Op-Other Expenses (PBR Ex Haz Waste)	$0.977	Net O&M worksheet
901 Cus Acct-Supervision (PBR Ex CARE) + Payroll Taxes	$6.663	Net O&M worksheet
PSEP	$21.880	Net O&M worksheet
904 Cus Acct-Uncollectible Accounts	$7.818	Net O&M worksheet
908 Cus Svc-Cust Assist Exp (PBR Ex DAP, DSM &Self-Gen)	$151.765	Net O&M worksheet

2020 TCAP A&G LOADER ANALYSIS
O&M Costs Used in A&G Loader

		2016 Recorded Costs ($)		source:
1. Total O&M			2,320,587,000	FERC Form 2 line no 271, page 325
2. Total Production Expenses (incl Purchased Gas cost)		972,706,000		FERC Form 2 line no 97, page 320
3. Total Transmission Expenses	1/	101,963,000		FERC Form 2 line no 201, page 323
4. Total Storage Expenses	1/	47,315,000		FERC Form 2 line no 125, page 321
5. Total A&G Expenses		458,076,000		FERC Form 2 line no 270, page 325
6. Exclusions	2/	$ 220,593,448		From Regulatory Accounting
7. Gas Used for Transmission Compressor Stations (this is part of Trans. Expenses)	3/			FERC Form 2 Acct 854, line no 184, page 323
8. Subtotal of Costs removed from O&M		1,800,653,448		
9. Net O&M			519,933,552	

Notes:
1/ Transmission and Storage expenses removed from A&G loader, because SoCalGas proposes to separately scale transmission and storage costs to embedded transmission and storage cost.
2/ Exclusions EE, LIEE, CARE admin, Self Generation, Hazardous Substance, AMI & Uncollectible costs and all costs below that are not part of authorized base margin.
3/ Exclude Part of Transmission expenses

Rows (1) through (7) contain data from FERC Form 2 for 2010, pages 320-325
Row (8) = Sum [Row (2) : Row (7)]
Row (9) = Row (1) - Row (8)

Exclusions	2016
Hazardous Substance costs (dist acct 880)	977,061
Uncollectible Acct (acct 904)	7,818,322
Self Generation (acct 908)	10,380,031
Energy Efficiency (acct 908)	82,565,008
Low Income Energy Efficiency (acct 908)	58,819,473
CARE (acct 901)	6,662,774
AMOPBA	2,521,217
AB802MA (acct 908)	1,608
EDRMA (acct 903)	132,372
MMBA	607,041
CSITPMA	14,014,345
GHGMA	891,461
IAMA	723,441
LCFSBA	47,018
RDMA (acct 903100)	1,316
MEOMA (acct 908)	10,787,248
WDRMA (acct 908 and 907001)	1,764,125
PSEP	21,879,587
	220,593,448

From Reg Accounts Group

PSEP Detail
PSRMA = -$669,961
SEEBA = $22,266,270
PSEP-P2MA = $283,278

TABLE 2
A&G and Payroll Taxes Loading Factor

SOUTHERN CALIFORNIA GAS COMPANY

	DESCRIPTION	2020 TCAP ($)	source
1.	Total Marginal A&G Costs	$176,787,661	A&G 1 tab
2.	Total Payroll Taxes	50,092,209	(SS + Fed&CA
3.	Marginal A&G and Payroll Taxes	226,879,869	Row 1 + Row 2
4.	Net O&M Costs	519,933,552	O&M Costs tab
5.	Marginal A&G/Payroll Taxes Loading Factor	**43.64%**	Row 3 / Row 4
6.	Transmission and Storage adjustment	8.36%	EC study

Notes:
Data Source: FERC Form 2

Fed. Unemployment Insurance Tax	378,145	FERC Form 2, p. 263a (SS + Fed&CA U
Social Security Tax	58,054,402	FERC Form 2, p. 263a (SS + Fed&CA U
State Unemployment Insurance Tax	2,015,319	FERC Form 2, p. 263a (SS + Fed&CA U
Total	60,447,866	

2020 TCAP Phase II A&G LOADER ANALYSIS
Marginal vs Non-marginal Summary

	(1) Account Title	(2) PUC Account	(3) Marginal Cost ($)	(4) Marginal Portion of Total (%)	(5) Non-Marginal Cost ($)	(6) Non-Marginal Portion of Total (%)	(7) Total Cost ($)	(8) 2016 Recorded Total Cost Per FERC Form 2 ($)	Source
1.	A&G Salaries	920	$15,608	0.00%	$42,434,360	10.24%	$42,449,968	$42,450,000	FERC Form 2 line no 254, page 325
2.	Office Supplies and Exp	921	1,144,233	0.28%	13,906,582	3.36%	15,050,815	$15,051,000	FERC Form 2 line no 255, page 325
3.	Admin Expenses Transferred	922	0	0.00%	(6,444,405)	-1.56%	(6,444,405)	($6,444,000)	FERC Form 2 line no 256, page 325
4.	Outside Services Employed	923	0	0.00%	114,477,733	27.64%	114,477,733	$114,478,000	FERC Form 2 line no 257, page 325
5.	Property Insurance	924	4,766,593	1.15%	0	0.00%	4,766,593	$4,767,000	FERC Form 2 line no 258, page 325
6.	Injuries and Damages	925	37,627,240	9.08%	0	0.00%	37,627,240	$37,627,000	FERC Form 2 line no 259, page 325
7.	Employee Pensions & Benefits	926	144,269,644	34.83%	0	0.00%	144,269,644	$144,270,000	FERC Form 2 line no 260, page 325
8.	Regulatory Commission Expenses	928	0	0.00%	5,993,134	1.45%	5,993,134	$5,993,000	FERC Form 2 line no 262, page 325
9.	Misc General Expenses	930	44,745	0.01%	12,024,773	2.90%	12,069,517	$12,070,000	FERC Form 2 line no 265, page 325
10.	Rents	931	3,396,621	0.82%	20,673,051	4.99%	24,069,672	$24,070,000	FERC Form 2 line no 266, page 325
11.	Maintenance of Gen Plant	932	19,890,045	4.80%	0	0.00%	19,890,045	$19,890,000	FERC Form 2 line no 269, page 325
12.	Total		211,154,728	50.98%	203,065,227	49.02%	414,219,955	414,222,000	

Franchise Requirements	927				$43,856,000
Pensions and benefits on non-marginal A&G labor		(11,669,449)	11,669,449	<== The Pension & Benefits OH Planning Rate for 2016 is 27.5% (Average of 2	
Pensions and benefits on exclusions		(6,565,427)	6,565,427	<== 27.5% on the labr poriton of exclusions, requested from Jenny and Joe, 11/29/2017	
		192,919,852	221,300,103		
Payroll Taxes on non-marginal A&G labor		(3,203,794) <= Tax loader on non-marginal labor	3,203,794	The SCG Payroll Tax OH rate for 2016 is 7.55% (Average for 2016).	
Payroll taxes on exclusions		(2,097,139) <= Tax loader on exclusions	2,097,139	<== can be calculated as is or7.55% on the labr poriton of exclusions, requested from Jenny and	

	Payroll Tax	P&B			
	7.55%	27.50%			
	1,724,399	6,280,922	22,839,716	Non-PSEP labor Exclusion	From Reg Accounting.
Color Key: Input Data, Source Data from other tab, calculation	716	2,608	9,484	PSEP P2	
Col (1) & Col (2) account description	1,725,115	6,283,530	22,849,200	Total	
Col (3) contains data from 'Marginal - Nonmarginal' tab					
Col (4) = Col (3) / Col (7)	372,025	281,897	653,921	SEEBA	
Col (5) contains data from 'Marginal - Nonmarginal' tab	2,097,139	6,565,427	23,503,121		
Col (6) = Col (5) / Col (7)					
Col (7) = Col (3) + Col (5)					
Col (8) data from FERC Form 2 for 2016					

2020 TCAP A&G LOADER ANALYSIS
2016 RECORDED COSTS

	(1)	(2)	(3)	(4)	(5)	(6)	(7) (5) + (6)	(8)	(9)
	FERC Cost Center Description	PUC Account Number	FERC Account No.	Marginal Y/N	2016 Recorded Costs Direct	Reassigned	Total	Marginal	Non-Marginal
					($)	($)	($)	($)	($)
1.	BLDG OPER OTH THAN CLEANING SV	920	920.601	Y	$ 13,234	$ 2,342	$ 15,575	$ 15,575	$ -
2.	PROCUREMENT & LOGISTICS CONSULT	920	920.630	Y	-	-	-	-	-
3.	REAL ESTATE	920	920.604	Y	-	-	-	-	-
4.	BUILDING CLEANING SERVICES	920	920.600	Y	-	33	33	33	-
5.	RETURN TO WORK EXAMINATIONS	920	920.212	Y	-	-	-	-	-
6.	SUPPLIER MANAGEMENT	920	920.632	Y	-	-	-	-	-
	ACCOUNT 920 MARGINAL TOTAL				13,234	2,374	15,608	15,608	-
7.	ADMINISTRATIVE & GENERAL SALARIES	920	920.000	N	31,787,968	484,834	32,272,802	-	32,272,802
8.	HUMAN RESOURCES OPER SALARIES	920	920.200	N	5,826,594	1,126,705	6,953,299	-	6,953,299
9.	REGIONAL AFFAIRS	920	920.570	N	2,402,511	490,287	2,892,798	-	2,892,798
10.	END USER SUPPORT COMM	920	920.372	N	-	-	-	-	-
11.	COMPUTER END USER SUPPORT	920	920.371	N	-	-	-	-	-
12.	REGION MANAGER SALARIES	920	920.047	N	-	-	-	-	-
13.	PUBLIC AFFAIRS ADMINISTRATION	920	920.570	N	4,461	(4,461)	-	-	-
14.	OPERATE MAINFRAME COMPUTERS GEN	920	920.360	N	-	-	-	-	-
15.	STANDARD & CODES	920	920.561	N	140,244	45,841	186,084	-	186,084
16.	INFORMATION SYS GENL SUPERVISION	920	920.301	N	-	(893)	(893)	-	(893)
17.	INFORMATION SYS ADMIN SUPPORT	920	920.302	N	-	-	-	-	-
18.	INFORMATION SYSTEMS	920	920.300	N	-	-	-	-	-
19.	GOVERNMENTAL AFFAIRS SALARIES	920	920.560	N	4,461	1,437	5,897	-	5,897
20.	PSEP - A&G SALARIES	920	920.850	N	124,693	(321)	124,372	-	124,372
21.	Reassignment Only	920	920.010	N	-	-	-	-	-
	ACCOUNT 920 NON-MARGINAL TOTAL				40,290,932	2,143,429	42,434,360	-	42,434,360
22.	BLDG OPER OTH THAN CLEANING SV	921	921.601	Y	1,104,877	(37,182)	1,067,694	1,067,694	-
23.	BUILDING CLEANING SERVICES	921	921.600	Y	64,686	(2,147)	62,539	62,539	-
24.	PROCUREMENT & LOGISTICS CONSULT	921	921.630	Y	-	-	-	-	-
25.	REAL ESTATE	921	921.604	Y	14,480	(481)	14,000	14,000	-
	ACCOUNT 921 MARGINAL TOTAL				1,184,043	(39,810)	1,144,233	1,144,233	-
27.	ADMINISTRATIVE & GENERAL SALARIES	921	921.000	N	19,041,063	(1,701,506)	17,339,557	-	17,339,557
28.	HUMAN RESOURCES OPER SALARIES	921	921.200	N	133,539	9,658	143,198	-	143,198
29.	COMPUTER END USER SUPPORT	921	921.371	N	111,137	(11,824)	99,313	-	99,313
30.	REGIONAL AFFAIRS	921	921.571	N	637,451	(22,752)	614,699	-	614,699
31.	PUBLIC AFFAIRS ADMINISTRATION	921	921.563	N	834	(31)	803	-	803
32.	REGION MANAGER SALARIES	921	921.047	N	-	-	-	-	-
33.	STANDARD & CODES	921	921.561	N	42,206	(1,461)	40,745	-	40,745
34.	INFORMATION SYS GENL SUPERVISION	921	921.301	N	206,698	(281,881)	(75,183)	-	(75,183)
35.	PSEP-A&G OFFICE SUPL	921	921.850	N	(4,321,968)	37,619	(4,284,349)	-	(4,284,349)
36.	FERC B/S ERRORS	921	921.999	N	-	27,799	27,799		27,799
	ACCOUNT 921 NON-MARGINAL TOTAL				15,850,961	(1,944,379)	13,906,582	-	13,906,582
37.	ADMINISTRATIVE EXPENSES TRANSFERRED-CRED	922	922.000	N	-	(4,036,406)	(4,036,406)	-	(4,036,406)
38.	HR-CAP A&G TRANS CR	922	922.200	N	-	(1,433,681)	(1,433,681)	-	(1,433,681)
39.	IS GEN SUP-CAP AG CR	922	922.301	N	-	(50)	(50)		(50)
40.	PA ADM-CAP A&G TR CR	922	922.563	N	-	(417)	(417)		(417)
41.	REG AF-CAP A&G TR CR	922	922.570	N	-	(965,003)	(965,003)		(965,003)
42.	BLD CLNG-CP AG TR CR	922	922.600	N	-	(5,098)	(5,098)		(5,098)
43.	RE - CAP A&G TRN CR	922	922.604	N	-	(3,750)	(3,750)		(3,750)
	ACCOUNT 922 NON-MARGINAL TOTAL				-	(6,444,405)	(6,444,405)	-	(6,444,405)
44.	OUTSIDE SERVICES EMPLOYED	923	923.000	N	878,206	113,579,788	114,457,994	-	114,457,994
45.	PSEP -OUTSIDE SERVICES	923	923.850	N	-	19,738	19,738	-	19,738
	ACCOUNT 923 NON-MARGINAL TOTAL				878,206	113,599,527	114,477,733	-	114,477,733

2020 TCAP A&G LOADER ANALYSIS
2016 RECORDED COSTS

	(1)	(2)	(3)	(4)	(5)	(6)	(7) (5) + (6)	(8)	(9)
	FERC Cost Center Description	PUC Account Number	FERC Account No.	Marginal Y/N	2016 Recorded Costs Direct	Reassigned	Total	Marginal	Non-Marginal
46.	INSURANCE EXPENSE	924	924.000	Y	2,178,681	2,587,911	4,766,593	4,766,593	-
	ACCOUNT 924 MARGINAL TOTAL				2,178,681	2,587,911	4,766,593	4,766,593	-
47.	INJURIES AND DAMAGES	925	925.000	Y	9,113,243	(809,850)	8,303,392	8,303,392	-
48.	ACCIDENT PREV & SAFE	925	925.160	Y	3,240,055	788,093	4,028,148	4,028,148	-
49.	A&G EMERGENCY PREP	925	925.180	Y	1,119,457	207,442	1,326,899	1,326,899	-
50.	COLL WORKERS COMP	925	925.300	Y	13,291,364	(6,144,951)	7,146,413	7,146,413	-
51.	COLL PLPD	925	925.310	Y	26,126,078	(11,287,461)	14,838,617	14,838,617	-
52.	PSEP - INJUR & DAMAG	925	925.850	Y	4,452,459	(2,468,688)	1,983,771	1,983,771	-
	ACCOUNT 925 MARGINAL TOTAL				57,342,655	(19,715,415)	37,627,240	37,627,240	-
53.	EMPLOYEE PENSIONS AND BENEFITS	926	926.000	Y	24,496,850	(962,447)	23,534,402	23,534,402	-
54.	TRANSPORTATION PROGRAM	926	926.239	Y	183,115,387	(183,115,387)	-	-	-
55.	EMPLOYEE RECOGNITION PROGRAM	926	926.200	Y	8,405,728	(8,290,962)	114,766	114,766	-
56.		926	926.207	Y	252,488	(252,488)	-	-	-
57.	DISABILITY BENEFIT EXPENSE	926	926.300	Y	43,856,278	76,764,198	120,620,476	120,620,476	-
	ACCOUNT 926 MARGINAL TOTAL				260,126,731	(115,857,087)	144,269,644	144,269,644	-
58.	BLDG SUPPORT CANTEEN GASCO TWR	926	926.202	N	838	(838)	-	-	-
	ACCOUNT 926 NON-MARGINAL TOTAL				838	(838)	-	-	-
59.	INTERVENOR COMPENSATION	928	928.500	N	723,441	-	723,441	-	723,441
60.	REGULATORY COMMISSION EXPENSES	928	928.000	N	2,800,156	2,469,537	5,269,693	-	5,269,693
	ACCOUNT 928 NON-MARGINAL TOTAL				3,523,597	2,469,537	5,993,134	-	5,993,134
61.	DIVISION STATIONERY EXPENSE	930	930.625	Y	7,619	42	7,661	7,661	-
62.	DUPLICATING EQUIP DIST & TRANS	930	930.600	Y	36,877	207	37,084	37,084	-
	ACCOUNT 930 MARGINAL TOTAL				44,496	249	44,745	44,745	-
63.	MISCELLANEOUS GENERAL EXPENSES	930	930.200	N	825,287	11,198,356	12,023,642	-	12,023,642
64.	MISC DIV OFFICE EXPENSES	930	930.046	N	1,127	3	1,131	-	1,131
	ACCOUNT 930 NON-MARGINAL TOTAL				826,414	11,198,359	12,024,773	-	12,024,773
65.	RENTS DISTRIB AND TRANSM REGIONS	931	931.602	Y	3,537,181	(140,560)	3,396,621	3,396,621	-
	ACCOUNT 931 MARGINAL TOTAL				3,537,181	(140,560)	3,396,621	3,396,621	-
66.	GAS COMPANY TOWER RENTS	931	931.600	N	20,630,564	(1,395,305)	19,235,259	-	19,235,259
67.	RENTS GENERAL	931	931.000	N	-	1,437,792	1,437,792	-	1,437,792
	ACCOUNT 931 NON-MARGINAL TOTAL				20,630,564	42,487	20,673,051	-	20,673,051
68.	BLDG YARD & EQUIP MAINTENANCE	935	935.600	Y	15,615,930	(162,961)	15,452,969	15,452,969	-
69.	MAINTENANCE FURN OFFICE EQUIP	935	935.601	Y	5,097	(1,245)	3,852	3,852	-
70.	MEAS SHOP EQUIP	935	935.675	Y	502,642	(7,237)	495,405	495,405	-
71.	GARAGE/FUEL ISLAND MAINTENANCE	935	935.606	Y	1,534,741	266,133	1,800,874	1,800,874	-
72.	COMPR MTC CNG VEHICLES	935	935.605	Y	47,508	(123,565)	(76,057)	(76,057)	-
73.	TESTRACK MAINTENANCE	935	935.680	Y	-	-	-	-	-
74.	MAINTENANCE OF GENERAL PLANT	935	935.000	Y	1,492,824	720,178	2,213,003	2,213,003	-
	ACCOUNT 935 MARGINAL TOTAL				19,198,742	691,303	19,890,045	19,890,045	-
	TOTAL A&G				**425,627,272**	**(11,407,317)**	**414,219,955**	**211,154,728**	**203,065,227**

2020 TCAP A&G LOADER ANALYSIS
2016 RECORDED COSTS

FERC Account	LABOR	NON_LABOR	TOTAL DIRECT	REASSIGNMENTS	TOTAL COSTS
920.000 Total	$31,787,968		$31,787,968	$ 484,834	$32,272,802
920.010 Total			$0	$ 0	$0
920.047 Total			$0	$ 0	$0
920.200 Total	$5,826,594		$5,826,594	$ 1,126,705	$6,953,299
920.212 Total			$0	$ 0	$0
920.300 Total			$0	$ 0	$0
920.301 Total			$0	-$ 893	-$ 893
920.302 Total			$0	$ 0	$0
920.360 Total			$0	$ 0	$0
920.371 Total			$0	$ 0	$0
920.372 Total			$0	$ 0	$0
920.563 Total	$4,461		$4,461	$ 1,437	$5,897
920.561 Total	$140,244		$140,244	$ 45,841	$186,084
920.563 Total	$4,461		$4,461	-$ 4,461	$0
920.570 Total	$2,402,511		$2,402,511	$ 490,287	$2,892,798
920.600 Total	$0		$0	$ 33	$33
920.601 Total	$13,234		$13,234	$ 2,342	$15,575
920.604 Total			$0	$ 0	$0
920.630 Total			$0	$ 0	$0
920.632 Total			$0	$ 0	$0
920.850 Total	$124,693		$124,693	-$ 321	$ 124,372
	$ 40,304,165	$ 0	$ 40,304,165	$ 2,145,803	$ 42,449,968
921.000 Total		$19,041,063	$19,041,063	-$ 1,701,506	$17,339,557
921.047 Total			$0	$ 0	$ 0
921.200 Total		$ 133,539	$133,539	$ 9,658	$143,198
921.301 Total		$ 206,698	$206,698	-$ 281,881	($75,183)
921.371 Total		$ 111,137	$111,137	-$ 11,824	$99,313
921.561 Total		$ 42,206	$42,206	-$ 1,461	$40,745
921.563 Total		$ 834	$834	-$ 31	$803
921.570 Total		$ 637,451	$637,451	-$ 22,752	$614,699
921.600 Total		$ 64,686	$64,686	-$ 2,147	$62,539
921.601 Total		$ 1,104,877	$1,104,877	-$ 37,182	$1,067,694
921.604 Total		$ 14,480	$14,480	-$ 481	$14,000
921.630 Total			$0	$ 0	$0
921.850 Total		-$ 4,321,968	-$4,321,968	$ 37,619	($4,284,349)
921.999 Total			$0	$ 27,799	$27,799
	$ 0	$ 17,035,004	$ 17,035,004	-$ 1,984,189	$ 15,050,815

2020 TCAP A&G LOADER ANALYSIS
2016 RECORDED COSTS

FERC Account	LABOR	NON_LABOR	TOTAL DIRECT	REASSIGNMENTS	TOTAL COSTS
922.000 Total			$0	-$ 4,036,406	($4,036,406)
922.200 Total			$0	-$ 1,433,681	($1,433,681)
922.301 Total			$0	-$ 50	($50)
922.563 Total			$0	-$ 417	($417)
922.570 Total			$0	-$ 965,003	($965,003)
922.600 Total			$0	-$ 5,098	($5,098)
922.604 Total			$0	-$ 3,750	($3,750)
	$ 0	$ 0	$ 0	-$ 6,444,405	($6,444,405)
923.000 Total	-$1,037,654	$1,915,860	$878,206	$ 113,579,788	$114,457,994
923.850 Total	$0	$0	$0	$ 19,738	$19,738
	-$ 1,037,654	$1,915,860	$ 878,206	$ 113,599,527	$114,477,733
924.000 Total	$0	$2,178,681	$2,178,681	$ 2,587,911	$4,766,593
925.000 Total	$1,258,311	$7,854,932	$9,113,243	($809,850)	$8,303,392
925.160 Total	$2,396,817	$843,238	$3,240,055	$788,093	$4,028,148
925.180 Total	$536,348	$583,108	$1,119,457	$207,442	$1,326,899
925.300 Total	$0	$13,291,364	$13,291,364	($6,144,951)	$7,146,413
925.310 Total	$0	$26,126,078	$26,126,078	($11,287,461)	$14,838,617
925.850 Total	$0	$4,452,459	$4,452,459	($2,468,688)	$1,983,771
	$4,191,476	$53,151,179	$57,342,655	($19,715,415)	$37,627,240
926.000 Total	$940,786	$23,556,063	$24,496,850	($962,447)	$23,534,402
926.200 Total	$0	$8,405,728	$8,405,728	($8,290,962)	$114,766
926.202 Total	$0	$838	$838	($838)	$0
926.207 Total	$0	$252,488	$252,488	($252,488)	$0
926.239 Total	$7,557	$183,107,829	$183,115,387	($183,115,387)	$0
926.300 Total	$0	$43,856,278	$43,856,278	$76,764,198	$120,620,476
	$948,344	$259,179,225	$260,127,568	($115,857,924)	$144,269,644
928.000 Total	$2,344,598	$455,558	$2,800,156	$2,469,537	$5,269,693
928.500 Total	$0	$723,441	$723,441	$0	$723,441
	$2,344,598	$1,178,999	$3,523,597	$2,469,537	$5,993,134
930.046 Total	$0	$1,127	$1,127	$3	$1,131
930.200 Total	$1,016,652	($191,366)	$825,287	$11,198,356	$12,023,642
930.600 Total	$0	$36,877	$36,877	$207	$37,084
930.625 Total	$0	$7,619	$7,619	$42	$7,661
	$1,016,652	($145,743)	$870,909	$11,198,608	$12,069,517
931.000 Total	$0	$0	$0	$1,437,792	$1,437,792
931.600 Total	$0	$20,630,564	$20,630,564	($1,395,305)	$19,235,259
931.602 Total	$0	$3,537,181	$3,537,181	($140,560)	$3,396,621
	$0	$24,167,745	$24,167,745	($98,073)	$24,069,672
935.000 Total	$444	$1,492,381	$1,492,824	$720,178	$2,213,003
935.600 Total	$3,988,833	$11,627,097	$15,615,930	($162,961)	$15,452,969
935.601 Total	$0	$5,097	$5,097	($1,245)	$3,852
935.605 Total	$48,013	($505)	$47,508	($123,565)	($76,057)
935.606 Total	$795,049	$739,692	$1,534,741	$266,133	$1,800,874
935.675 Total	$351,191	$151,451	$502,642	($7,237)	$495,405
935.680 Total			$0	$0	

2020 TCAP A&G LOADER ANALYSIS
2016 RECORDED COSTS

FERC Account	LABOR	NON_LABOR	TOTAL DIRECT	REASSIGNMENTS	TOTAL COSTS
	$5,183,530	$14,015,213	$19,198,742	$691,303	$19,890,045
		$372,676,162	$425,627,272	($11,407,317)	$414,219,955

Weighted Average RECC Calculation

	Account No.	General Plant Accounts	Gas Plant In Service Year End 2016 Balance ($)	Percent	RECC	Weighted Average RECC	Source
1.	390	Structures and Improvements	201,400,951	13.02%	9.890%	1.288%	FERC Form 2 line no 112, page 209
2.	391	Office Furniture and Equipment					
3.	391.1	Office Furn & Equip-ME & FF	13,402,291	0.87%	12.017%	0.104%	
4.	391.2	Computer Equip	151,452,258	9.79%	25.565%	2.504%	
	391.25	Computer Hardware AMI	22,466,237	1.45%	25.565%	0.371%	
5.	391.3	Computer Software 2-4years	43,987,597	2.84%	39.076%	1.112%	
	391.35	Computer Software AMI	87,077,685	5.63%	21.294%	1.199%	
6.	391.4	Computer Software 5-8years	279,424,937	18.07%	21.294%	3.848%	
7.	391.5	Computer Software 9-12years	373,608,465	24.16%	14.260%	3.446%	
8.	391.55	Computer Software 15years	78,684,467	5.09%	10.828%	0.551%	
9.	391.6	Computer Software 20years	65,396,512	4.23%	9.179%	0.388%	
10.	392	Transportation Equipment	461,222	0.03%	11.196%	0.003%	FERC Form 2 line no 114, page 209
11.	393	Stores Equipment	99,135	0.01%	11.196%	0.001%	FERC Form 2 line no 115, page 209
12.	394	Tools, Shop, and Garage Equipment	62,019,642	4.01%	10.246%	0.411%	FERC Form 2 line no 116, page 209
13.	395	Laboratory Equipment	4,731,501	0.31%	10.061%	0.031%	FERC Form 2 line no 117, page 209
14.	396	Power Operated Equipment	11,957	0.00%	11.196%	0.000%	FERC Form 2 line no 118, page 209
15.	397	Communication Equipment	158,925,931	10.28%	11.504%	1.182%	FERC Form 2 line no 119, page 209
16.	398	Miscellaneous Equipment	3,144,658	0.20%	11.196%	0.023%	FERC Form 2 line no 120, page 209
17.			1,546,295,446	100.00%		16.462%	

Reflects 2016 FERC Form 2 data. RECC factors updated.

Gas Plant updated to 2016 FERC Form 2 data

RECC factors updated to 2016 values

General Plant Loading Factor

		2020 TCAP		Sources
1.	Total General Plant	$1,548,865,287		FERC Form 2, page 209, line 121
	Transmission and Storage adjustment	**8.36%**		
	Net Total General Plant after Storage adj.	$1,419,347,300	ck	
1.	Weighted Average RECC for General Plant	16.46%		RECC tab
2.	Annualized General Plant Costs	$233,653,851	1 x 2	
3.	Net Recorded O&M Costs	$519,933,552		O&M Expenses tab
4.	General Plant Loading Factor	**44.94%**	3 / 4	
6.	Transmission and Storage adjustment	8.36%		EC study

Notes:

1/ Total General Plant on Line 1 reflects removal of GP allocated to Transmission and Storage functions in EC study.

Reflects 2016 FERC Form 2 data for total General Plant.

2016 FERC Form 2 data
M&S Annual Costs By Function

I. Direct Plant Investment (To Allocate M&S Cost to Functions)

Line #	Function	Plant	Percent		
1	Storage	$1,033,155,000	8.08%	**FERC form 2, p. 207, line 57**	
2	Transmission - Total	$2,297,536,000	17.97%	**FERC form 2, p. 209, line 92**	
3	Distribution - Total	$9,452,969,572	73.95%	**from Allocation of Investment tab**	
4	Customer Related	$4,378,913,107	34.25%	**from Allocation of Investment tab**	
5	Load Related	$5,074,056,465	39.69%	**from Allocation of Investment tab**	
6	General Plant	$0	0.00%	**Marjorie says this is ok**	
7	Total	$12,783,660,572	100.00%		

II. Total M&S To Be Functionalized

8	Total Material and Supplies	$64,390,000		**2016 FERC Year end M&S value from Selected Financial Data (from Net Plant Investment Page 1 of 2, Line 13)**

III. Functional Allocation of M&S

9	Storage	$5,203,897	8.08%
10	Transmission - Total	$11,572,455	17.97%
11	Distribution - Total	$47,613,648	73.95%
12	Customer Related	$22,056,141	34.25%
13	Load Related	$25,557,507	39.69%
14	General Plant	$0	0.00%
15	Total	$64,390,000	100.00%

16	**IV. M&S Annual Cost factor**	11.74%	**from Annual Cost Factor tab, check with one correct**

V. M&S Annual Costs

		2016 $		2020 $			
17	Storage	$610,817	8.08%	**$691,410**			
18	Transmission - Total	$1,358,338	17.97%	**$1,537,561**			
19	Distribution - Total	$5,588,737	73.95%	**$6,326,133**			
20	Customer Related	$2,588,879	34.25%	**$2,930,464**	**@ O&M Esclation 2016 to 2020**		
21	Load Related	$2,999,858	39.69%	**$3,395,669**		**1.098**	**$3,294,278**
22	General Plant	$0	0.00%	**$0**			
23	Total	$7,557,891	100.00%	**$8,555,104**			

***escalated by capital factor: 2016$ to 2020$** **1.132**
Updated to FERC Form 2 data for 2016

Updated to FERC Form 2 data for 2016

2020 TCAP Phase M&S Annual Costs By Function
Allocation of 2016 Distribution Plant Investment

Customer Related

		$	Percent
1.	380 Services	2,497,395,348	
2.	381 Meters	904,926,980	
3.	382 Meter Installations	538,686,489	
4.	383 House Regulators	163,265,420	
5.	386 Other Property on Customer Premise	0	
6.	Sub-Total	4,104,274,237	46.32%
	388 ARO - Customer Related	274,638,870	
	Customer Related Total	4,378,913,107	

Load Related

		$	Percent
7.	374 Land & Land Rights	31,861,675	
8.	375 Structures & Improvements	270,254,331	
9.	376 Mains	4,302,731,517	
10.	378 Measurement & Reg Stations	106,270,290	
11.	387 Other Equipment	44,701,431	
12.	Sub-Total	4,755,819,244	53.68%
	388 ARO - Load Related	318,237,221	
	Load Related Total	5,074,056,465	

13.	**Total Distribution Plant**	9,452,969,572	100.000%

FERC Form 2, p. 208-9

9,452,970,000 p. 209, line 109

(428) <== Difference from Rounding

2020 TCAP M&S Annual Costs By Function

Development of Material & Supplies Annual Cost Factor

		Capital Structure	Cost	Weighted Cost	Tax Factor	Pre-Tax Wt. Cost
1.	Long Term Debt	45.60%	5.77%	2.63%	1.00000	2.63%
2.	Preferred Stock	2.40%	6.00%	0.14%	1.68765	0.24%
3.	Common Equity	52.00%	10.10%	5.25%	1.68765	8.86%
4.				8.027%		11.74%

sources:

Cost of Capital Decision, AL 4442

Cost of Capital from Economic Assumptions model.

SOUTHERN CALIFORNIA

2013 Economic Assumptions Update LEVELIZED ANNUAL CAP

utility socal **Auth ROR ===> 8.03%** **Fed Tax Rate ====> 35.00%**

FERC Account	Account Name	Book Life	Fed Tax Life	State Tax Life	Percent Salvage	Normlzd Federal Taxes ?	Normlzd State Taxes ?	Depreciation Method			
								Federal Tax		State Tax	
GAS GENERAL PLANT											
G-391.5	Software Programs - 10yr ASL	10	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%
G-391.55	Software Programs - 15yr ASL	15	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%
G-391.6	Software Programs - 20yr ASL	20	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%
G-391.3	Software Programs - 3yr ASL	3	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%
G-391.4	Software Programs - 6yr ASL	6	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%

GAS

ITAL COST AND RECC FACTORS

State Tax Rate ===> **8.84%** **d Valorum Rate ===>** **1.236%**

LACC Components (in percent)					RECC Factors	PVCC Factors	Sum of Rev Req
Book Depr	Return on Capital	Income Taxes	Property Taxes	Total LACC			
10.00	3.50	1.35	0.66	15.50	14.26	103.91	150.10
6.67	3.54	1.31	0.72	12.23	10.83	104.55	172.40
5.00	3.64	1.32	0.77	10.72	9.18	105.05	194.69
33.33	4.15	1.94	0.45	39.87	39.08	102.71	118.89
16.67	3.61	1.49	0.58	22.36	21.29	103.27	132.27

SOUTHERN CALIFORNIA GAS

2016 Economic Assumptions Update LEVELIZED ANNUAL CAPITAL COST AND RECC FACTORS

utility socal | **Auth ROR ===>** 8.03% | **Fed Tax Rate ====>** 35.00% | **State Tax Rate ===>** 8.84% | **Valorum Rate ===>** 1.236%

FERC Account	Account Name	Book Life	Fed Tax Life	State Tax Life	Percent Salvage	Normlzd Federal Taxes ?	Normlzd State Taxes ?	Depreciation Method				LACC Components (in percent)					RECC Factors	PVCC Factors	Sum of Rev Req
								Federal Tax		State Tax		Book Depr	Return on Capital	Income Taxes	Property Taxes	Total LACC			
GAS UNDERGROUND STORAGE		9	10	11	12	13	14	15		16		19	20	21	22	23	25	26	27
G-352	Wells	49	15	22	-70%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.47	4.22	1.80	0.74	10.22	7.83	124.47	220.59
G-353	Lines	54	15	22	-40%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.59	4.71	1.99	0.87	10.17	7.72	124.71	288.57
G-354	Compressor Station Equipment	41	15	22	-15%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.80	4.75	2.02	0.87	10.44	8.16	124.61	290.37
G-356	Purification Equipment	39	15	22	-30%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.33	4.49	1.90	0.80	10.52	8.27	124.59	262.18
GAS TRANSMISSION PLANT																			
G-365.1	Land	0	0	0	0%	FALSE	FALSE	none	0%	none	0%	0.00	8.03	3.75	1.29	13.06	n/a	162.69	1342.09
G-366	Structures & Improvements	47	39	45	-40%	TRUE	FALSE	sl	0%	db/sl	0%	2.98	5.38	2.53	0.82	11.70	9.01	141.94	319.79
G-367	Mains	64	15	22	-60%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.50	4.71	2.00	0.87	10.08	7.55	124.68	265.55
G-368	Compressor Station Equipment	50	15	22	-15%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.30	4.93	2.08	0.92	10.23	7.83	124.81	324.48
G-369	Measuring & Regulating Equipment	46	15	22	-50%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.26	4.39	1.86	0.78	10.29	7.94	124.57	250.31
G-371	Other Equipment	21	15	22	-10%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.24	4.48	1.96	0.73	12.40	10.55	123.98	217.44
GAS DISTRIBUTION PLANT																			
G-374.1	Land	0	0	0	0%	FALSE	FALSE	none	0%	db/sl	0%	0.00	8.03	3.75	1.29	13.06	n/a	162.69	1342.09
G-374.2	Land Rights	40	40	40	0%	FALSE	FALSE	sl	0%	db/sl	0%	2.50	5.81	2.71	0.92	11.94	9.35	141.94	359.86
G-375	Structures & Improvements	40	39	45	-10%	TRUE	FALSE	sl	0%	db/sl	0%	2.75	5.65	2.66	0.88	11.93	9.35	141.88	343.62
G-376	Mains	68	20	35	-80%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.65	4.82	2.16	0.84	10.46	7.81	129.67	228.89
G-378	Measuring & Regulating Equipment	47	20	35	-95%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.15	4.05	1.84	0.64	10.68	8.22	129.47	184.20
G-380	Services	67	20	35	-115%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.21	4.45	2.03	0.75	10.44	7.80	129.33	136.21
G-381	Meters	25	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.80	5.05	2.39	0.84	12.07	10.05	128.58	254.29
G-382	Meter & Regulator Installations	30	20	35	-10%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.67	4.84	2.20	0.81	11.52	9.36	129.36	263.10
G-383	House Regulators	33	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.88	5.14	2.35	0.89	11.26	9.04	129.30	291.74
G-387	Other Equipment	21	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.52	5.04	2.43	0.81	12.81	10.90	128.02	235.56
GAS GENERAL PLANT																			
G-390	Structures & Improvements	33	39	45	-15%	TRUE	FALSE	sl	0%	db/sl	0%	3.48	5.44	2.58	0.81	12.32	9.89	141.51	307.79
G-391.1	Office Furniture & Equipment	14	7	10	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	7.14	3.93	1.69	0.71	13.48	12.02	110.96	174.60
G-391.2	Computer Equipment	5	5	6	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	20.00	4.12	1.92	0.55	26.59	25.56	106.11	130.85
G-393	Stores Equipment	20	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.00	4.95	2.36	0.77	13.08	11.20	128.14	228.15
G-394.1	Shop & Garage Equipment	29	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.45	5.00	2.31	0.84	11.60	9.47	129.10	268.37
G-394.3	Large Portable Tools	24	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.17	4.95	2.32	0.80	12.25	10.25	128.65	246.08
G-395	Laboratory Equipment	25	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.00	4.96	2.32	0.81	12.09	10.06	128.76	250.54
G-397	Communications Equipment	15	7	10	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	6.67	3.93	1.68	0.72	13.00	11.50	111.07	179.06
G-398	Miscellaneous Equipment	20	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.00	4.95	2.36	0.77	13.08	11.20	128.14	228.15
G-391.5	Software Programs - 10yr ASL	10	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	10.00	3.50	1.35	0.66	15.50	14.26	103.91	150.10
G-391.55	Software Programs - 15yr ASL	15	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	6.67	3.54	1.31	0.72	12.23	10.83	104.55	172.40
G-391.6	Software Programs - 20yr ASL	20	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	5.00	3.64	1.32	0.77	10.72	9.18	105.05	194.69
G-391.3	Software Programs - 3yr ASL	3	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	33.33	4.15	1.94	0.45	39.87	39.08	102.71	118.89
G-391.4	Software Programs - 6yr ASL	6	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	16.67	3.61	1.49	0.58	22.36	21.29	103.27	132.27

Capital and O&M Escalators

2016 $s	to	2020 $s	2016-20Factor: Capital	1.1319
2016 $s	to	2020 $s	2016-20Factor: O&M	1.0981

factor used to escalate most capital forecasts (e.g., dist capital)
factor used to escalate M&S$
factor used to escalate transmission and storage capital costs

factor used to escalate 2016 FERC Form 2 data to 2020 $

	Labor	Nonlabor
Split Factors		
2016	37.64%	62.36%

	$millions 2016	
Total Salaries & Wages	873	**Source: December 31, 2016 FERC Form 2, page 355, line 77**
Total Gas O&M Exp.	2,321	**Source: December 31, 2016 FERC Form 2, page 325, line 271**

Cost Escalators, for use in SoCalGas 2020 TCAP Phase II calculations

	Non-L O&M **JGTOTALMS**	Labor O&M **JAHE49NS**	Gas Plant **JUG@PCF**
1997	0.583294	0.622560	0.467787
1998	0.608384	0.633587	0.473651
1999	0.623914	0.647497	0.484726
2000	0.644425	0.670582	0.502317
2001	0.667910	0.689282	0.509158
2002	0.678578	0.702828	0.519582
2003	0.701520	0.724723	0.536848
2004	0.725382	0.751872	0.618287
2005	0.756146	0.785725	0.725461
2006	0.776114	0.815756	0.755105
2007	0.789284	0.844149	0.740771
2008	0.816758	0.887285	0.834329
2009	0.834970	0.884009	0.825208
2010	0.850774	0.906942	0.860650
2011	0.872980	0.940249	0.942089
2012	0.895180	0.960998	1.016753
2013	0.914157	0.975873	1.010824
2014	0.930726	0.991231	1.021900
2015	0.963439	0.993681	1.007566
2016	1.000000	1.000000	1.000000
2017	1.021295	1.021733	1.036223
2018	1.048227	1.039870	1.069683
2019	1.083641	1.061168	1.101474
2020	1.118063	1.086124	1.131943
2021	1.151351	1.110289	1.158755
2022	1.183887	1.135004	1.187752
2023	1.217224	1.159611	1.219156
2024	1.251346	1.183956	1.252200
2025	1.287002	1.208204	1.287796
2026	1.323897	1.232567	1.324667
2027	1.361363	1.257464	1.359463

Values from EC study

Transmission and Storage

EC study allocation of A&G and Gen Plant to transmission and storage function

A&G

Transmission	Storage	Total	
18.7	18.8	448.5	
4.18%	4.18%		% A&G allocated to Tran/Storage

Gen Plant

Transmission	Storage	Total	
0.896	0.897	21.449	Gen Plant Return
5.503	5.510	131.697	Gen Plant Depreciation
0.393	0.393	9.400	Gen Plant Taxes
6.792	6.800	162.546	
4.18%	4.18%		% Gen Plant allocated to Tran/Storage

Real Economic Carry Charge (RECC) Factors		
FERC Account	Account Name	RECC Factors
G-376	Mains	7.8%
G-378	Measuring & Regulating Equipment	8.2%
G-380	Services	7.8%
G-381	Meters	10.0%
G-382	Meter Installations	9.4%
G-383	House Regulators	9.0%

A&G Loading Factor

Total Marginal A&G Costs $000's	$176,788
+ Total Payroll Taxes $000	$50,092
= Marginal A&G and Payroll Taxes $000	$226,880
/ Net O&M Costs $000	$519,934
= Marginal A&G Loading Factor as a % of O&M	**43.64%**

General Plant Loading Factor

Total General Plant $000	$1,419,347
* Weighted Average RECC for General Plant	16.46%
= Annualized General Plant Costs	$233,654
/ Net Recorded O&M Costs $000	$519,934
= General Plant Loading Factor as a % of O&M	**44.94%**

M&S Annual Costs

Function	
Customer Related $000	$2,930
Load Related $000	$3,294
Total	**$6,225**

Base Year	2016
Test Year	2020

SoCalGas
2020 TCAP

Section 4
Cost Allocation Model

Workpapers to the Prepared Written Testimony of Marjorie Schmidt-Pines

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

			Residential
1	Customer Costs Rental Method		
2	Per Unit LRMC, $/Cust/Year		$294.03
3	Number of Customers		5,714,531
4	**Customer Costs Rental Method $000**	**$2,068,033**	**$1,680,240**
5			
6	Medium Pressure Distribution costs		
7	Medium Pressure Distribution costs (MPD)		
8	Per Unit LRMC, $/mcfd		$198.08
9	MPD Peak Day Demand (mmcfd)		2,327
10	**Medium Pressure Distribution Costs $000**	**$595,705**	**$461,001**
11			
12	High Pressure Distribution costs		
13	High Pressure Distribution costs (HPD)		
14	Per Unit LRMC, $/mcf		$4.04
15	HPD Peak Month Demand (mmcf)		37,987
16	**High Presure Distribution Costs $000**	**$250,856**	**$153,339**
17			
18	Unscaled LRMC Based Costs $000	**$2,914,594**	$2,294,580
19	Scalar Allocator	100.0%	78.7%
20	Calculation of Scalar:		
	Authorized Revenue Requirement in Rates Base Margin $000	$2,213,066	
	Adjustment to Storage for Honor Rancho $000	$0	
	Adjustment to Storage for Aliso Canyon$000	$33,426	
21	Target Base Margin $000	$2,246,492	
22	Less items not allocated per LRMC method:		
23	Transmission Cost per EC $000	$248,543	
24	Storage Costs per EC $000	$164,411	
25	Uncollectibles	$6,695	
26	NGV Compression Adder Costs per EC $000	$2,964	
27	Target Scaled Costs $000	$1,823,879	
28	Unscaled LRMC Based Costs $000	$2,914,594	
29	amount to scale $000	($1,090,715)	
30	Scalar (as a % of unscaled)	63%	63%
31			
32	Scaled Customer Costs $000 LRMC/Rental Method		$1,051,452
33	Scaled Medium Pressure Distribution Costs $000 LRMC		$288,483
34	Scaled High Presure Distribution Costs $000 LRMC		$95,956
35	**Scaled LRMC Based Costs $000**	**$1,823,879**	**$1,435,890**
36			79%
37	NGV Compression Costs:		
38	**Compression Adder Costs $000**	**$2,964**	
39			
40	Uncollectibles:		
41	Target Base Margin $000	$2,246,492.326	
42	System Average Uncollectible Rate	0.29800%	
43	Uncollectibles	$6,695	
44			
45	Allocation of Uncollectibles:		
46	All Costs excl. NGV Adder, EOR, Int, WS, and UBS	$2,161,450	$1,595,017
47	% All Costs excl. NGV Adder, EOR, Int, WS, and UBS		73.8%
48	**Uncollectibles**	**$6,695**	**$4,940**
49			
50			
51			
52	Transmisison Costs per Embedded Cost Method:		
53	Embedded Transmission Costs $000	$244,299	
54	FF&U	101.7370%	
55	Embedded Transmission Costs w/ FF&U $000	$248,543	
56	Calculate BBT/Local-T Transmission Split:		
57	BBT $	$176,587	

2020TCAP SCG COST ALLOCATION
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				Residential
58		LT $	$71,956	
59				
60	Allocation of BBT Costs:			
61	CYTP Mth		9,691,163	2,584,453
62	% CYTP			26.7%
63	**BBT Costs per EC method**		**$176,587**	**$47,092**
64				
65	Allocation of LT Costs:			
66	CYPM Mth		1,063,341	392,906
67	% CYPM			36.95%
68	**LT Costs per EC method**		**$71,956**	**$26,588**
69	**Total Transmission Costs per EC method**		**$248,543**	**$73,680**
70				
71	Storage Costs per EC Method (this includes HR RRQ)			
72	Embedded Storage Costs $000		$130,985	
73	Honor Rancho Revenue Requirement (HRSMA)		$0	
74	Aliso Canyon Revenue Requirement		$33,426	
75			$164,411	
76				
77				
78	Core Storage		$93,797	$67,728
79	Load Balancing		$70,614	$17,719
80	Unbundled Storage		$0	$0
81	**Total Storage Costs $000**		**$164,411**	**$85,446**
82				
83				
84				
85				
86	**ALLOCATED BASE MARGIN (net of misc revenue & broker fee)**		**$2,246,492**	**$1,599,957**
87	Percentage		100.0%	71.2%
88	Average Year Throughput Mth		9,350,960	2,346,353
89	average rate $/therm		$0.240	$0.682
90				
91				
92				
93	**Model Results RD Format for RD Models**			
94	Customer Related Costs			$1,051,452
95	Medium Pressure Distribution Costs			$288,483
96	High Pressure Distribution Costs			$95,956
97	Backbone Transmission Costs			$47,092
98	Local Transmission Costs			$26,588
99	Storage - Seasonal			$67,728
100	Storage - Load Balancing			$17,719
101	Storage - TBS			$0
102	Uncollectibles			$4,940
103	NGV Compression Costs:			$0
104	**Total Margin Allocation pre-SI & Unbundle FAR**		**$2,246,492**	**$1,599,957**
105	**% Allocation**			**71.2%**
106				

107		
108		
109	**Transmission**	
110	Average Year Throughput (MTh)	117
111	Cold Year Throughput (1-in-35) (MTh)	129
112	Cold Year Peak Month (December) (MTh)	20
113	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	1
114	Number of Customers	25
115	**High Pressure**	
116	Average Year Throughput (MTh)	9,291
117	Cold Year Throughput (1-in-35) (MTh)	10,233
118	Cold Year Peak Month (December) (MTh)	1,556

				Residential
119		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		96
120		Number of Customers		7,000
121		**Medium Pressure**		
122		Average Year Throughput (MTh)		2,336,945
123		Cold Year Throughput (1-in-35) (MTh)		2,574,091
124		Cold Year Peak Month (December) (MTh)		391,330
125		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		24,072
126		Number of Customers		5,707,506
127		**CUMULATIVE (Calc'd from DIRECT %'s)**		
128		**Transmission**		
129		Average Year Throughput (MTh)		2,346,353
130		Cold Year Throughput (1-in-35) (MTh)		2,584,453
131		Cold Year Peak Month (December) (MTh)		392,906
132		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		24,168
133		Number of Customers		5,714,531
134		**High Pressure**		
135		Average Year Throughput (MTh)		2,346,235
136		Cold Year Throughput (1-in-35) (MTh)		2,584,324
137		Cold Year Peak Month (December) (MTh)		392,886
138		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		24,167
139		Number of Customers		5,714,506
140		**Medium Pressure**		
141		Average Year Throughput (MTh)		2,336,945
142		Cold Year Throughput (1-in-35) (MTh)		2,574,091
143		Cold Year Peak Month (December) (MTh)		391,330
144		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		24,072
145		Number of Customers		5,707,506
146				

	2017TCAP Phase 1 Storage Allocation Proposal			
1	Core Storage Capacities:	*Allocation Method*		
2	Number of Injection Days		214	72.9%
3	Injection MMcfd	*Inv per Inj Day*	445	325
4				
5	% Demand			83.3%
6	Inventory MMCF	*% Excess Winter Demand*	82,500	60,176
7				
8	MPD Peak Day (1-in-35 Core) Core Only MTh			1,569
9	% Core MPD Peak Day			79.4%
10	Withdrawal MMcfd	*% Core MPD Peak Day*	2,000	1,399
11				69.9%
12	Injection $000	33559	$33,559	$24,478
13	Inventory $000	37314	$37,314	$27,217
14	Withdrawal $000	22924	$22,924	$16,032
15			$93,797	$67,728
16	Load Balancing Storage Capacities:			
17	Injection MMcfd	*%AYTP (incl EOR)*	100%	25%
18	Inventory MMCF	*%AYTP (incl EOR)*	100%	25%
19	Withdrawal MMcfd	*%AYTP (incl EOR)*	100%	25%
20	Injection $000		$39,634	$9,945
21	Inventory $000		$10,966	$2,752
22	Withdrawal $000		$20,014	$5,022
23			$70,614	$17,719
24	Unbundled Storage Capacities:			
25	Injection MMcfd	*100% UBS*	1	0%
26	Inventory MMCF	*100% UBS*	1	0%
27	Withdrawal MMcfd	*100% UBS*	1	0%
28	Injection $000		$0	$0
29	Inventory $000		$0	$0
30	Withdrawal $000		$0	$0
31			$0	$0
32	Total Storage:			

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

				Residential
33	Injection MMcfd		447	325
34	Inventory MMCF		82,502	60,176
35	Withdrawal MMcfd		2,002	1,399
36	Injection $000		$73,193	$34,423
37	Inventory $000		$48,280	$29,969
38	Withdrawal $000		$42,938	$21,054
39	**Total Storage Costs per EC Method w/HR RRQ**		**$164,411**	**$85,446**

Summary of Storage Costs for RATE TABLES under new method:

Core $000	$93,797
Load Balancing $000	$70,614
Unbundled Storage $000	$0
total storage $000	$164,411

Storage Core Allocation, per Bruce Wetzel's testimony

Present

Injection mmcfd		385	
Inventory %			83.4%
Inventory MMCF	*% Excess Winter Demand*	82,427	60,942
Peak Day (1-in-35 Core) Core Only MTh			
% Core MPD Peak Day			79.4%
Withdrawal MMcfd	*% Core MPD Peak Day*	2,211	1,569

Proposed

Injection mmcfd		445	
% Demand			83.3%
Inventory MMCF	*% Excess Winter Demand*	82,500	60,176
MPD Peak Day (1-in-35 Core) Core Only MTh			
% Core MPD Peak Day			79.4%
Withdrawal MMcfd	*% Core Peak Day*	2,000	1,573

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		CCI	G-AC	G-GEN	NGV	Total Core	NCCI	EG Tier 1
1	Customer Costs Rental Method							
2	Per Unit LRMC, $/Cust/Year	$1,473.84	$6,882.66	$17,981.93	$45,590.19	$339.62	$55,139.74	$26,034.22
3	Number of Customers	203,514	4	712	378	5,919,139	593	323
4	**Customer Costs Rental Method $000**	**$299,948**	**$28**	**$12,803**	**$17,233**	**$2,010,251**	**$32,700**	**$8,398**
5								
6	Medium Pressure Distribution costs							
7	Medium Pressure Distribution costs (MPD)							
8	Per Unit LRMC, $/mcfd	$198.08	$198.08	$198.08	$198.08	$198.08	$198.08	$198.08
9	MPD Peak Day Demand (mmcfd)	528	0	3	19	2,877	96	19
10	**Medium Pressure Distribution Costs $000**	**$104,510**	**$9**	**$500**	**$3,772**	**$569,791**	**$19,067**	**$3,765**
11								
12	High Pressure Distribution costs							
13	High Pressure Distribution costs (HPD)							
14	Per Unit LRMC, $/mcf	$4.04	$4.04	$4.04	$4.04	$4.04	$4.04	$4.04
15	HPD Peak Month Demand (mmcf)	11,299	3	89	1,150	50,527	7,677	727
16	**High Presure Distribution Costs $000**	**$45,609**	**$10**	**$360**	**$4,641**	**$203,959**	**$30,989**	**$2,933**
17								
18	Unscaled LRMC Based Costs $000	$450,066	$47	$13,663	$25,646	$2,784,001	$82,756	$15,096
19	Scalar Allocator	15.4%	0.0%	0.5%	0.9%	95.5%	2.8%	0.5%
20	Calculation of Scalar:							
	Authorized Revenue Requirement in Rates Base Margin $000							
	Adjustment to Storage for Honor Rancho $000							
	Adjustment to Storage for Aliso Canyon$000							
21	Target Base Margin $000							
22	Less items not allocated per LRMC method:							
23	Transmission Cost per EC $000							
24	Storage Costs per EC $000							
25	Uncollectibles							
26	NGV Compression Adder Costs per EC $000							
27	Target Scaled Costs $000							
28	Unscaled LRMC Based Costs $000							
29	amount to scale $000							
30	Scalar (as a % of unscaled)	63%	63%	63%	63%	63%	63%	63%
31								
32	Scaled Customer Costs $000 LRMC/Rental Method	$187,700	$17	$8,012	$10,784	$1,257,964	$20,463	$5,255
33	Scaled Medium Pressure Distribution Costs $000 LRMC	$65,399	$6	$313	$2,360	$356,561	$11,931	$2,356
34	Scaled High Presure Distribution Costs $000 LRMC	$28,541	$6	$225	$2,904	$127,633	$19,392	$1,835
35	**Scaled LRMC Based Costs $000**	**$281,640**	**$29**	**$8,550**	**$16,049**	**$1,742,158**	**$51,786**	**$9,447**
36								
37	NGV Compression Costs:							
38	**Compression Adder Costs $000**				**$2,964**	**$2,964**		
39								
40	Uncollectibles:							
41	Target Base Margin $000							
42	System Average Uncollectible Rate							
43	Uncollectibles							
44								
45	Allocation of Uncollectibles:							
46	All Costs excl. NGV Adder, EOR, Int, WS, and UBS	$329,279	$49	$9,588	$22,465	$1,956,398	$101,192	$12,491
47	% All Costs excl. NGV Adder, EOR, Int, WS, and UBS	15.2%	0.0%	0.4%	1.0%	90.5%	4.7%	0.6%
48	**Uncollectibles**	**$1,020**	**$0**	**$30**	**$70**	**$6,059**	**$313**	**$39**
49								
50								
51								
52	Transmisison Costs per Embedded Cost Method:							
53	Embedded Transmission Costs $000							
54	FF&U							
55	Embedded Transmission Costs w/ FF&U $000							
56	Calculate BBT/Local-T Transmission Split:							
57	BBT $							

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		CCI	G-AC	G-GEN	NGV	Total Core	NCCI	EG Tier 1
LT $								
Allocation of BBT Costs:								
CYTP Mth		1,034,674	416	22,302	178,769	3,820,615	1,549,897	97,615
% CYTP		10.7%	0.0%	0.2%	1.8%	39.4%	16.0%	1.0%
BBT Costs per EC method		**$18,853**	**$8**	**$406**	**$3,257**	**$69,617**	**$28,241**	**$1,779**
Allocation of LT Costs:								
CYPM Mth		117,629	26	973	14,720	526,253	140,247	7,806
% CYPM		11.06%	0.00%	0.09%	1.38%	49.49%	13.19%	0.73%
LT Costs per EC method		**$7,960**	**$2**	**$66**	**$996**	**$35,611**	**$9,491**	**$528**
Total Transmission Costs per EC method		**$26,813**	**$9**	**$472**	**$4,254**	**$105,229**	**$37,732**	**$2,307**
Storage Costs per EC Method (this includes HR RRQ)								
Embedded Storage Costs $000								
Honor Rancho Revenue Requirement (HRSMA)								
Aliso Canyon Revenue Requirement								
Core Storage		$13,330	$7	$398	$813	$82,275	$0	$0
Load Balancing		$7,496	$3	$168	$1,350	$26,737	$11,673	$737
Unbundled Storage		$0	$0	$0	$0	$0	$0	$0
Total Storage Costs $000		**$20,826**	**$10**	**$566**	**$2,163**	**$109,011**	**$11,673**	**$737**
ALLOCATED BASE MARGIN (net of misc revenue & broker fee)		**$330,299**	**$49**	**$9,618**	**$25,499**	**$1,965,422**	**$101,505**	**$12,530**
Percentage		14.7%	0.0%	0.4%	1.1%	87.5%	4.5%	0.6%
Average Year Throughput Mth		992,706	416	22,302	178,769	3,540,545	1,545,814	97,615
average rate $/therm		$0.333	$0.118	$0.431	$0.143	$0.555	$0.066	$0.128
Model Results RD Format for RD Models								
Customer Related Costs		$187,700	$17	$8,012	$10,784	$1,257,964	$20,463	$5,255
Medium Pressure Distribution Costs		$65,399	$6	$313	$2,360	$356,561	$11,931	$2,356
High Pressure Distribution Costs		$28,541	$6	$225	$2,904	$127,633	$19,392	$1,835
Backbone Transmission Costs		$18,853	$8	$406	$3,257	$69,617	$28,241	$1,779
Local Transmission Costs		$7,960	$2	$66	$996	$35,611	$9,491	$528
Storage - Seasonal		$13,330	$7	$398	$813	$82,275	$0	$0
Storage - Load Balancing		$7,496	$3	$168	$1,350	$26,737	$11,673	$737
Storage - TBS		$0	$0	$0	$0	$0	$0	$0
Uncollectibles		$1,020	$0	$30	$70	$6,059	$313	$39
NGV Compression Costs:		$0	$0	$0	$2,964	$2,964	$0	$0
Total Margin Allocation pre-SI & Unbundle FAR		**$330,299**	**$49**	**$9,618**	**$25,499**	**$1,965,422**	**$101,505**	**$12,530**
% Allocation		**14.7%**	**0.0%**	**0.4%**	**1.1%**	**87.5%**	**4.5%**	**0.6%**
	Transmission							
	Average Year Throughput (MTh)	6,487	0	1,186	34,342	**42,134**	626,080	9,166
	Cold Year Throughput (1-in-35) (MTh)	6,762	0	1,186	34,342	**42,420**	626,181	9,166
	Cold Year Peak Month (December) (MTh)	769	0	52	2,828	**3,668**	60,847	291
	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	38	0	2	91	**132**	2,005	9
	Number of Customers	69	0	16	17	**127**	30	14
	High Pressure							
	Average Year Throughput (MTh)	45,498	184	2,566	70,282	**127,822**	615,166	18,556
	Cold Year Throughput (1-in-35) (MTh)	47,421	184	2,566	70,282	**130,688**	616,507	18,556
	Cold Year Peak Month (December) (MTh)	5,391	12	112	5,787	**12,857**	52,062	1,526

			CCI	G-AC	G-GEN	NGV	Total Core	NCCI	EG Tier 1
119		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	264	0	4	187	**550**	1,737	49
120		Number of Customers	981	2	128	73	**8,183**	216	35
121		**Medium Pressure**							
122		Average Year Throughput (MTh)	940,720	232	18,549	74,144	**3,370,590**	304,569	69,893
123		Cold Year Throughput (1-in-35) (MTh)	980,491	232	18,549	74,144	**3,647,507**	307,209	69,893
124		Cold Year Peak Month (December) (MTh)	111,469	15	809	6,105	**509,728**	27,338	5,989
125		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	5,457	0	26	197	**29,752**	996	197
126		Number of Customers	202,465	3	568	289	**5,910,830**	347	273
127		**CUMULATIVE (Calc'd from DIRECT %'s)**							
128		**Transmission**							
129		Average Year Throughput (MTh)	992,706	416	22,302	178,769	**3,540,545**	1,545,814	97,615
130		Cold Year Throughput (1-in-35) (MTh)	1,034,674	416	22,302	178,769	**3,820,615**	1,549,897	97,615
131		Cold Year Peak Month (December) (MTh)	117,629	26	973	14,720	**526,253**	140,247	7,806
132		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	5,759	1	31	475	**30,434**	4,738	255
133		Number of Customers	203,514	4	712	378	**5,919,139**	593	323
134		**High Pressure**							
135		Average Year Throughput (MTh)	986,218	416	21,115	144,427	**3,498,412**	919,735	88,449
136		Cold Year Throughput (1-in-35) (MTh)	1,027,913	416	21,115	144,427	**3,778,195**	923,717	88,449
137		Cold Year Peak Month (December) (MTh)	116,860	26	921	11,892	**522,586**	79,400	7,515
138		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	5,721	1	30	384	**30,302**	2,733	246
139		Number of Customers	203,446	4	696	361	**5,919,013**	563	308
140		**Medium Pressure**							
141		Average Year Throughput (MTh)	940,720	232	18,549	74,144	**3,370,590**	304,569	69,893
142		Cold Year Throughput (1-in-35) (MTh)	980,491	232	18,549	74,144	**3,647,507**	307,209	69,893
143		Cold Year Peak Month (December) (MTh)	111,469	15	809	6,105	**509,728**	27,338	5,989
144		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	5,457	0	26	197	**29,752**	996	197
145		Number of Customers	202,465	3	568	289	**5,910,830**	347	273
146									
	2017TCAP Phase 1 Storage Allocation Proposal								
1	Core Storage Capacities:	*Allocation Method*							
2	Number of Injection Days		13.4%	0.0%	0.5%	0.7%	87.6%	0.0%	0.0%
3	Injection MMcfd	*Inv per Inj Day*	60	0	2	3	389.8	0	0
4									
5	% Demand		15.3%	0.0%	0.6%	0.8%	100%		
6	Inventory MMCF	*% Excess Winter Demand*	11,070	8	439	579	72,271	0	0
7									
8	MPD Peak Day (1-in-35 Core) Core Only MTh		377	0	3	27			
9	% Core MPD Peak Day		18.9%	0.0%	0.1%	1.6%	100%		
10	Withdrawal MMcfd	*% Core MPD Peak Day*	333	0	2	27	1,761	0	0
11			16.7%	0.0%	0.1%	1.4%	88.1%	0%	0%
12	Injection $000	33559	$4,503	$3	$178	$236	$29,398	$0	$0
13	Inventory $000	37314	$5,007	$3	$198	$262	$32,688	$0	$0
14	Withdrawal $000	22924	$3,820	$1	$21	$315	$20,189	$0	$0
15			$13,330	$7	$398	$813	$82,275	$0	$0
16	Load Balancing Storage Capacities:						20%		
17	Injection MMcfd	*%AYTP (incl EOR)*	11%	0%	0%	2%	38%	17%	1%
18	Inventory MMCF	*%AYTP (incl EOR)*	11%	0%	0%	2%	38%	17%	1%
19	Withdrawal MMcfd	*%AYTP (incl EOR)*	11%	0%	0%	2%	38%	17%	1%
20	Injection $000		$4,208	$2	$95	$758	$15,006	$6,552	$414
21	Inventory $000		$1,164	$0	$26	$210	$4,152	$1,813	$114
22	Withdrawal $000		$2,125	$1	$48	$383	$7,578	$3,309	$209
23			$7,496	$3	$168	$1,350	$26,737	$11,673	$737
24	Unbundled Storage Capacities:								
25	Injection MMcfd	*100% UBS*	0%	0%	0%	0%	0%	0%	0%
26	Inventory MMCF	*100% UBS*	0%	0%	0%	0%	0%	0%	0%
27	Withdrawal MMcfd	*100% UBS*	0%	0%	0%	0%	0%	0%	0%
28	Injection $000		$0	$0	$0	$0	$0	$0	$0
29	Inventory $000		$0	$0	$0	$0	$0	$0	$0
30	Withdrawal $000		$0	$0	$0	$0	$0	$0	$0
31			$0	$0	$0	$0	$0	$0	$0
32	Total Storage:								

2020TCAP SCG COST ALLOCATION
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			CCI	G-AC	G-GEN	NGV	Total Core	NCCI	EG Tier 1
33	Injection MMcfd		60	0	2	3	390	0	0
34	Inventory MMCF		11,070	8	439	579	72,272	0	0
35	Withdrawal MMcfd		333	0	2	27	1,762	0	0
36	Injection $000		$8,710	$5	$273	$993	$44,405	$6,552	$414
37	Inventory $000		$6,171	$4	$225	$472	$36,840	$1,813	$114
38	Withdrawal $000		$5,945	$1	$69	$698	$27,767	$3,309	$209
39	**Total Storage Costs per EC Method w/HR RRQ**		**$20,826**	**$10**	**$566**	**$2,163**	**$109,011**	**$11,673**	**$737**
							66.3%		

Summary of Storage Costs for RATE TABLES under new method:

Core $000	
Load Balancing $000	
Unbundled Storage $000	
total storage $000	

Storage Core Allocation, per Bruce Wetzel's testimony

Present

Injection mmcfd

Inventory %		15.1%	0.0%	0.4%	1.2%	100%		
Inventory MMCF	*% Excess Winter Demand*	11,011	12	269	860	73,093	0	0
Peak Day (1-in-35 Core) Core Only MTh								
% Core MPD Peak Day		19.1%	0.0%	0.2%	1.4%	100%		
Withdrawal MMcfd	*% Core MPD Peak Day*	377	0	3	27	1,976	0	0

Proposed

Injection mmcfd

% Demand		15.3%	0.0%	0.6%	0.8%	100%		
Inventory MMCF	*% Excess Winter Demand*	11,070	8	439	579	72,271	0	0
MPD Peak Day (1-in-35 Core) Core Only MTh								
% Core MPD Peak Day		18.9%	0.0%	0.1%	1.6%	100%		
Withdrawal MMcfd	*% Core Peak Day*	374	0	3	27	1,761	0	0

2020TCAP SCG COST ALLOCATION
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		EG Tier 2	EOR	Total Retail NonCore	Long Beach	SDG&E	South West Gas	Vernon	Total Whole sale	Ecogas
1	Customer Costs Rental Method									
2	Per Unit LRMC, $/Cust/Year	$154,535.16	$84,456.75	$53,395.93	$783,172.48	$1,397,485.22	$687,222.92	$469,030.64	$834,227.81	$182,622.84
3	Number of Customers	67	34	1,016	1	1	1	1	4	1
4	**Customer Costs Rental Method $000**	**$10,293**	**$2,872**	**$54,263**	**$783**	**$1,397**	**$687**	**$469**	**$3,337**	**$183**
5										
6	Medium Pressure Distribution costs									
7	Medium Pressure Distribution costs (MPD)									
8	Per Unit LRMC, $/mcfd	$198.08	$198.08	$198.08	$198.08	$198.08	$198.08	$198.08	$198.08	$198.08
9	MPD Peak Day Demand (mmcfd)	15	0	131	0	0	0	0	0	0
10	**Medium Pressure Distribution Costs $000**	**$3,013**	**$69**	**$25,913**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
11										
12	High Pressure Distribution costs									
13	High Pressure Distribution costs (HPD)									
14	Per Unit LRMC, $/mcf	$4.04	$4.04	$4.04	$4.04	$4.04	$4.04	$4.04	$4.04	$4.04
15	HPD Peak Month Demand (mmcf)	1,968	1,246	11,618	0	0	0	0	0	0
16	**High Presure Distribution Costs $000**	**$7,945**	**$5,030**	**$46,897**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
17										
18	Unscaled LRMC Based Costs $000	$21,250	$7,971	$127,073	$783	$1,397	$687	$469	$3,337	$183
19	Scalar Allocator	0.7%	0.3%	4.4%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
20	Calculation of Scalar:									
	Authorized Revenue Requirement in Rates Base Margin $000									
	Adjustment to Storage for Honor Rancho $000									
	Adjustment to Storage for Aliso Canyon$000									
21	Target Base Margin $000									
22	Less items not allocated per LRMC method:									
23	Transmission Cost per EC $000									
24	Storage Costs per EC $000									
25	Uncollectibles									
26	NGV Compression Adder Costs per EC $000									
27	Target Scaled Costs $000									
28	Unscaled LRMC Based Costs $000									
29	amount to scale $000									
30	Scalar (as a % of unscaled)	63%	63%	63%	63%	63%	63%	63%	63%	63%
31										
32	Scaled Customer Costs $000 LRMC/Rental Method	$6,441	$1,797	$33,956	$490	$875	$430	$294	$2,088	$114
33	Scaled Medium Pressure Distribution Costs $000 LRMC	$1,885	$43	$16,216	$0	$0	$0	$0	$0	$0
34	Scaled High Presure Distribution Costs $000 LRMC	$4,972	$3,148	$29,347	$0	$0	$0	$0	$0	$0
35	**Scaled LRMC Based Costs $000**	**$13,298**	**$4,988**	**$79,519**	**$490**	**$875**	**$430**	**$294**	**$2,088**	**$114**
36										
37	NGV Compression Costs:									
38	**Compression Adder Costs $000**									
39										
40	Uncollectibles:									
41	Target Base Margin $000									
42	System Average Uncollectible Rate									
43	Uncollectibles									
44										
45	Allocation of Uncollectibles:									
46	All Costs excl. NGV Adder, EOR, Int, WS, and UBS	$91,369	$0	$205,052	$0	$0	$0	$0	$0	$0
47	% All Costs excl. NGV Adder, EOR, Int, WS, and UBS	4.2%	0.0%	9.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
48	**Uncollectibles**	**$283**	**$0**	**$635**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
49										
50										
51										
52	Transmisison Costs per Embedded Cost Method:									
53	Embedded Transmission Costs $000									
54	FF&U									
55	Embedded Transmission Costs w/ FF&U $000									
56	Calculate BBT/Local-T Transmission Split:									
57	BBT $									

2020TCAP SCG COST ALLOCATION
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		EG Tier 2	EOR	Total Retail NonCore	Long Beach	SDG&E	South West Gas	Vernon	Total Whole sale	Ecogas
LT $										
Allocation of BBT Costs:										
CYTP Mth		2,480,164	208,941	4,336,617	86,356	1,157,571	71,786	101,919	1,417,632	116,299
% CYTP		25.6%	2.2%	44.7%	0.9%	11.9%	0.7%	1.1%	14.6%	1.2%
BBT Costs per EC method		**$45,192**	**$3,807**	**$79,019**	**$1,574**	**$21,093**	**$1,308**	**$1,857**	**$25,831**	**$2,119**
Allocation of LT Costs:										
CYPM Mth		209,111	17,746	374,910	10,565	121,858	11,583	8,300	152,307	9,871
% CYPM		19.67%	1.67%	35.26%	0.99%	11.46%	1.09%	0.78%	14.32%	0.93%
LT Costs per EC method		**$14,150**	**$1,201**	**$25,370**	**$715**	**$8,246**	**$784**	**$562**	**$10,307**	**$668**
Total Transmission Costs per EC method		**$59,343**	**$5,008**	**$104,389**	**$2,288**	**$29,339**	**$2,092**	**$2,419**	**$36,138**	**$2,787**
Storage Costs per EC Method (this includes HR RRQ)										
Embedded Storage Costs $000										
Honor Rancho Revenue Requirement (HRSMA)										
Aliso Canyon Revenue Requirement										
Core Storage		$0	$0	$0	$0	$11,522	$0	$0	$11,522	$0
Load Balancing		$18,729	$1,578	$32,717	$601	$8,447	$502	$732	$10,282	$878
Unbundled Storage		$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Storage Costs $000		**$18,729**	**$1,578**	**$32,717**	**$601**	**$19,969**	**$502**	**$732**	**$21,804**	**$878**
ALLOCATED BASE MARGIN (net of misc revenue & broker fee)		**$91,652**	**$11,574**	**$217,261**	**$3,380**	**$50,183**	**$3,024**	**$3,444**	**$60,030**	**$3,780**
Percentage		4.1%	0.5%	9.7%	0.2%	2.2%	0.1%	0.2%	2.7%	0.2%
Average Year Throughput Mth		2,480,164	208,941	4,332,534	79,646	1,118,614	66,431	96,890	1,361,582	116,299
average rate $/therm		$0.037	$0.055	$0.050	$0.042	$0.045	$0.046	$0.036	$0.044	$0.032
Model Results RD Format for RD Models										
Customer Related Costs		$6,441	$1,797	$33,956	$490	$875	$430	$294	$2,088	$114
Medium Pressure Distribution Costs		$1,885	$43	$16,216	$0	$0	$0	$0	$0	$0
High Pressure Distribution Costs		$4,972	$3,148	$29,347	$0	$0	$0	$0	$0	$0
Backbone Transmission Costs		$45,192	$3,807	$79,019	$1,574	$21,093	$1,308	$1,857	$25,831	$2,119
Local Transmission Costs		$14,150	$1,201	$25,370	$715	$8,246	$784	$562	$10,307	$668
Storage - Seasonal		$0	$0	$0	$0	$11,522	$0	$0	$11,522	$0
Storage - Load Balancing		$18,729	$1,578	$32,717	$601	$8,447	$502	$732	$10,282	$878
Storage - TBS		$0	$0	$0	$0	$0	$0	$0	$0	$0
Uncollectibles		$283	$0	$635	$0	$0	$0	$0	$0	$0
NGV Compression Costs:		$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Margin Allocation pre-SI & Unbundle FAR		**$91,652**	**$11,574**	**$217,261**	**$3,380**	**$50,183**	**$3,024**	**$3,444**	**$60,030**	**$3,780**
% Allocation		**4.1%**	**0.5%**	**9.7%**	**0.2%**	**2.2%**	**0.1%**	**0.2%**	**2.7%**	**0.2%**
	Transmission									
	Average Year Throughput (MTh)	2,237,170	57,184	**2,929,599**	79,646	1,118,614	66,431	96,890	**1,361,582**	116,299
	Cold Year Throughput (1-in-35) (MTh)	2,237,170	57,184	**2,929,700**	86,356	1,157,571	71,786	101,919	**1,417,632**	116,299
	Cold Year Peak Month (December) (MTh)	188,755	4,857	**254,750**	10,565	121,858	11,583	8,300	**152,307**	9,871
	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	7,454	157	**9,625**	561	6,177	528	267	**7,533**	318
	Number of Customers	36	11	**91**	1	1	1	1	**4**	1
	High Pressure									
	Average Year Throughput (MTh)	185,896	150,438	**970,056**	0	0	0	0	**0**	0
	Cold Year Throughput (1-in-35) (MTh)	185,896	150,438	**971,397**	0	0	0	0	**0**	0
	Cold Year Peak Month (December) (MTh)	15,479	12,777	**81,845**	0	0	0	0	**0**	0

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			EG Tier 2	EOR	Total Retail NonCore	Long Beach	SDG&E	South West Gas	Vernon	Total Whole sale	Ecogas
119		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	500	412	**2,698**	0	0	0	0	**0**	0
120		Number of Customers	22	20	**293**	0	0	0	0	**0**	0
121		**Medium Pressure**									
122		Average Year Throughput (MTh)	57,097	1,320	**432,879**	0	0	0	0	**0**	0
123		Cold Year Throughput (1-in-35) (MTh)	57,097	1,320	**435,520**	0	0	0	0	**0**	0
124		Cold Year Peak Month (December) (MTh)	4,876	112	**38,315**	0	0	0	0	**0**	0
125		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	157	4	**1,353**	0	0	0	0	**0**	0
126		Number of Customers	8	3	**632**	0	0	0	0	**0**	0
127		**CUMULATIVE (Calc'd from DIRECT %'s)**									
128		**Transmission**									
129		Average Year Throughput (MTh)	2,480,164	208,941	**4,332,534**	79,646	1,118,614	66,431	96,890	**1,361,582**	116,299
130		Cold Year Throughput (1-in-35) (MTh)	2,480,164	208,941	**4,336,617**	86,356	1,157,571	71,786	101,919	**1,417,632**	116,299
131		Cold Year Peak Month (December) (MTh)	209,111	17,746	**374,910**	10,565	121,858	11,583	8,300	**152,307**	9,871
132		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	8,111	572	**13,676**	561	6,177	528	267	**7,533**	318
133		Number of Customers	67	34	**1,016**	1	1	1	1	**4**	1
134		**High Pressure**									
135		Average Year Throughput (MTh)	242,993	151,758	**1,402,935**	0	0	0	0	**0**	0
136		Cold Year Throughput (1-in-35) (MTh)	242,993	151,758	**1,406,917**	0	0	0	0	**0**	0
137		Cold Year Peak Month (December) (MTh)	20,356	12,889	**120,160**	0	0	0	0	**0**	0
138		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	657	416	**4,051**	0	0	0	0	**0**	0
139		Number of Customers	30	23	**925**	0	0	0	0	**0**	0
140		**Medium Pressure**									
141		Average Year Throughput (MTh)	57,097	1,320	**432,879**	0	0	0	0	**0**	0
142		Cold Year Throughput (1-in-35) (MTh)	57,097	1,320	**435,520**	0	0	0	0	**0**	0
143		Cold Year Peak Month (December) (MTh)	4,876	112	**38,315**	0	0	0	0	**0**	0
144		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	157	4	**1,353**	0	0	0	0	**0**	0
145		Number of Customers	8	3	**632**	0	0	0	0	**0**	0
146											

2017TCAP Phase 1 Storage Allocation Proposal

1	Core Storage Capacities:	*Allocation Method*									
2	Number of Injection Days		0.0%	0.0%	0.0%	0.0%	12.4%	0.0%	0.0%	12.4%	0.0%
3	Injection MMcfd	*Inv per Inj Day*	0	0	0	0	55.2	0	0	55.2	0
4											
5	% Demand										
6	Inventory MMCF	*% Excess Winter Demand*	0	0	0	0	10,229	0	0	10,229	0
7											
8	MPD Peak Day (1-in-35 Core) Core Only MTh										
9	% Core MPD Peak Day										
10	Withdrawal MMcfd	*% Core MPD Peak Day*	0	0	0	0	239	0	0	239	0
11			0%	0%	0%	0%	11.9%	0%	0%	11.9%	0%
12	Injection $000	33559	$0	$0	$0	$0	$4,161	$0	$0	$4,161	$0
13	Inventory $000	37314	$0	$0	$0	$0	$4,626	$0	$0	$4,626	$0
14	Withdrawal $000	22924	$0	$0	$0	$0	$2,735	$0	$0	$2,735	$0
15			$0	$0	$0	$0	$11,522	$0	$0	$11,522	$0
16	Load Balancing Storage Capacities:										
17	Injection MMcfd	*%AYTP (incl EOR)*	27%	2%	46%	1%	12%	1%	1%	15%	1%
18	Inventory MMCF	*%AYTP (incl EOR)*	27%	2%	46%	1%	12%	1%	1%	15%	1%
19	Withdrawal MMcfd	*%AYTP (incl EOR)*	27%	2%	46%	1%	12%	1%	1%	15%	1%
20	Injection $000		$10,512	$886	$18,363	$338	$4,741	$282	$411	$5,771	$493
21	Inventory $000		$2,909	$245	$5,081	$93	$1,312	$78	$114	$1,597	$136
22	Withdrawal $000		$5,308	$447	$9,273	$170	$2,394	$142	$207	$2,914	$249
23			$18,729	$1,578	$32,717	$601	$8,447	$502	$732	$10,282	$878
24	Unbundled Storage Capacities:										
25	Injection MMcfd	*100% UBS*	0%	0%	0%	0%	0%	0%	0%	0%	0%
26	Inventory MMCF	*100% UBS*	0%	0%	0%	0%	0%	0%	0%	0%	0%
27	Withdrawal MMcfd	*100% UBS*	0%	0%	0%	0%	0%	0%	0%	0%	0%
28	Injection $000		$0	$0	$0	$0	$0	$0	$0	$0	$0
29	Inventory $000		$0	$0	$0	$0	$0	$0	$0	$0	$0
30	Withdrawal $000		$0	$0	$0	$0	$0	$0	$0	$0	$0
31			$0	$0	$0	$0	$0	$0	$0	$0	$0
32	Total Storage:										

2020TCAP SCG COST ALLOCATION
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			EG Tier 2	EOR	Total Retail NonCore	Long Beach	SDG&E	South West Gas	Vernon	Total Whole sale	Ecogas
33	Injection MMcfd		0	0	0	0	55	0	0	55	0
34	Inventory MMCF		0	0	0	0	10,229	0	0	10,229	0
35	Withdrawal MMcfd		0	0	0	0	239	0	0	239	0
36	Injection $000		$10,512	$886	$18,363	$338	$8,902	$282	$411	$9,932	$493
37	Inventory $000		$2,909	$245	$5,081	$93	$5,938	$78	$114	$6,223	$136
38	Withdrawal $000		$5,308	$447	$9,273	$170	$5,129	$142	$207	$5,649	$249
39	**Total Storage Costs per EC Method w/HR RRQ**		**$18,729**	**$1,578**	**$32,717**	**$601**	**$19,969**	**$502**	**$732**	**$21,804**	**$878**

Summary of Storage Costs for RATE TABLES under new method:

Core $000	
Load Balancing $000	
Unbundled Storage $000	
total storage $000	

Storage Core Allocation, per Bruce Wetzel's testimony

Present

Injection mmcfd										
Inventory %										
Inventory MMCF	*% Excess Winter Demand*	0	0	0	0	9,334	0	0	9,334	0
Peak Day (1-in-35 Core) Core Only MTh										
% Core MPD Peak Day										
Withdrawal MMcfd	*% Core MPD Peak Day*	0	0	0	0	235	0	0	235	0

Proposed

Injection mmcfd										
% Demand										
Inventory MMCF	*% Excess Winter Demand*	0	0	0	0	10,229	0	0	10,229	0
MPD Peak Day (1-in-35 Core) Core Only MTh										
% Core MPD Peak Day										
Withdrawal MMcfd	*% Core Peak Day*	0	0	0	0	239	0	0	239	0

2020TCAP SCG COST ALLOCATION
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		UBS	Total Noncore	SYSTEM TOTAL	Sources	NCCI-Total	NCCI-D	NCCI-T	EOR-Total
1	Customer Costs Rental Method								
2	Per Unit LRMC, $/Cust/Year	$0.00	$56,580.86	$349.32	SCG LRMC Customer Cost				
3	Number of Customers	0	1,021	5,920,161	New Allocation Factors	593	563	30	34
4	**Customer Costs Rental Method $000**	**$0**	**$57,782**	**$2,068,033**		$32,700	$31,069	$1,631	$2,871.53
5									
6	Medium Pressure Distribution costs								
7	Medium Pressure Distribution costs (MPD)								
8	Per Unit LRMC, $/mcfd	$198.08	$198.08	$198.08	SCG LRMC Distribution Cost				
9	MPD Peak Day Demand (mmcfd)	0	131	3,007	New Allocation Factors				
10	**Medium Pressure Distribution Costs $000**	**$0**	**$25,913**	**$595,705**		**$19,067**	**$19,067**	**0**	**$69**
11									
12	High Pressure Distribution costs								
13	High Pressure Distribution costs (HPD)								
14	Per Unit LRMC, $/mcf	$4.04	$4.04	$4.04	SCG LRMC Distribution Cost				
15	HPD Peak Month Demand (mmcf)	0	11,618	62,145	New Allocation Factors				
16	**High Presure Distribution Costs $000**	**$0**	**$46,897**	**$250,856**		**$30,989**	**$30,989**	**0**	**$5,030**
17									
18	Unscaled LRMC Based Costs $000	$0	$130,592	$2,914,594		$82,756	$81,124	$1,631	$7,971
19	Scalar Allocator	0.0%	4.5%	100.0%		100.0%	98.0%	2.0%	100.0%
20	Calculation of Scalar:								
	Authorized Revenue Requirement in Rates Base Margin $000								
	Adjustment to Storage for Honor Rancho $000								
	Adjustment to Storage for Aliso Canyon$000								
21	Target Base Margin $000								
22	Less items not allocated per LRMC method:								
23	Transmission Cost per EC $000								
24	Storage Costs per EC $000								
25	Uncollectibles								
26	NGV Compression Adder Costs per EC $000								
27	Target Scaled Costs $000								
28	Unscaled LRMC Based Costs $000								
29	amount to scale $000								
30	Scalar (as a % of unscaled)	63%	63%	63%		63%	63%	63%	63%
31									
32	Scaled Customer Costs $000 LRMC/Rental Method	$0	$36,159	$1,294,123		$20,463	$19,442	$1,021	$1,797
33	Scaled Medium Pressure Distribution Costs $000 LRMC	$0	$16,216	$372,777		$11,931	$11,931	$0	$43
34	Scaled High Presure Distribution Costs $000 LRMC	$0	$29,347	$156,980		$19,392	$19,392	$0	$3,148
35	**Scaled LRMC Based Costs $000**	**$0**	**$81,721**	**$1,823,879**		**$51,786**	**$50,766**	**$1,021**	**$4,988**
36									
37	NGV Compression Costs:								
38	**Compression Adder Costs $000**			**$2,964**					
39									
40	Uncollectibles:								
41	Target Base Margin $000								
42	System Average Uncollectible Rate								
43	Uncollectibles								
44									
45	Allocation of Uncollectibles:								
46	All Costs excl. NGV Adder, EOR, Int, WS, and UBS	$0	$205,052	$2,161,450		$101,192	$79,916	$21,276	$0
47	% All Costs excl. NGV Adder, EOR, Int, WS, and UBS	0.0%	9.5%	100.0%		4.7%	3.7%	1.0%	0.0%
48	**Uncollectibles**	**$0**	**$635**	**$6,695**		**$313**	**$248**	**$66**	**$0**
49									
50									
51									
52	Transmisison Costs per Embedded Cost Method:								
53	Embedded Transmission Costs $000								
54	FF&U								
55	Embedded Transmission Costs w/ FF&U $000								
56	Calculate BBT/Local-T Transmission Split:								
57	BBT $								

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		UBS	Total Noncore	SYSTEM TOTAL	Sources	NCCI-Total	NCCI-D	NCCI-T	EOR-Total
58	LT $								
59									
60	Allocation of BBT Costs:								
61	CYTP Mth	0	5,870,548	9,691,163		1,549,897	923,717	626,181	208,941
62	% CYTP	0.0%	60.6%	100.0%		16.0%	9.5%	6.5%	2.2%
63	**BBT Costs per EC method**	**$0**	**$106,970**	**$176,587**		**$28,241**	**$16,831**	**$11,410**	**$3,807**
64									
65	Allocation of LT Costs:								
66	CYPM Mth	0	537,087	1,063,341		140,247	79,400	60,847	17,746
67	% CYPM	0.00%	50.51%	100.00%		13.19%	7.47%	5.72%	1.67%
68	**LT Costs per EC method**	**$0**	**$36,345**	**$71,956**		**$9,491**	**$5,373**	**$4,118**	**$1,201**
69	**Total Transmission Costs per EC method**	**$0**	**$143,314**	**$248,543**		**$37,732**	**$22,204**	**$15,527**	**$5,008**
70									
71	Storage Costs per EC Method (this includes HR RRQ)								
72	Embedded Storage Costs $000								
73	Honor Rancho Revenue Requirement (HRSMA)								
74	Aliso Canyon Revenue Requirement								
75									
76									
77									
78	Core Storage	$0	$11,522	$93,797		$0	$0	$0	$0
79	Load Balancing	$0	$43,878	$70,614		$11,673	$6,945	$4,728	$1,578
80	Unbundled Storage	$0	$0	$0		$0	$0	$0	$0
81	**Total Storage Costs $000**	**$0**	**$55,400**	**$164,411**		**$11,673**	**$6,945**	**$4,728**	**$1,578**
82									
83									
84									
85									
86	**ALLOCATED BASE MARGIN (net of misc revenue & broker fee)**	**$0**	**$281,071**	**$2,246,492**		**$101,505**	**$80,163**	**$21,342**	**$11,574**
87	Percentage	0.0%	12.5%	100.0%		4.5%	3.6%	1.0%	0.5%
88	Average Year Throughput Mth	0	5,810,415	9,350,960	New Allocation Factors				
89	average rate $/therm		$0.048	$0.240					
90									
91									
92									
93	**Model Results RD Format for RD Models**								
94	Customer Related Costs	$0	$36,159	$1,294,123		$20,463	$19,442	$1,021	$1,797
95	Medium Pressure Distribution Costs	$0	$16,216	$372,777		$11,931	$11,931	$0	$43
96	High Pressure Distribution Costs	$0	$29,347	$156,980		$19,392	$19,392	$0	$3,148
97	Backbone Transmission Costs	$0	$106,970	$176,587		$28,241	$16,831	$11,410	$3,807
98	Local Transmission Costs	$0	$36,345	$71,956		$9,491	$5,373	$4,118	$1,201
99	Storage - Seasonal	$0	$11,522	$93,797		$0	$0	$0	$0
100	Storage - Load Balancing	$0	$43,878	$70,614		$11,673	$6,945	$4,728	$1,578
101	Storage - TBS	$0	$0	$0		$0	$0	$0	$0
102	Uncollectibles	$0	$635	$6,695		$313	$248	$66	$0
103	NGV Compression Costs:	$0	$0	$2,964		$0	$0	$0	$0
104	**Total Margin Allocation pre-SI & Unbundle FAR**	**$0**	**$281,071**	**$2,246,492.326**		**$101,505**	**$80,163**	**$21,342**	**$11,574**
105	**% Allocation**	**0.0%**	**12.5%**	**100.0%**		**4.5%**	**3.6%**	**1.0%**	**0.5%**
106									

107			
108			
109	**Transmission**		
110	Average Year Throughput (MTh)	**4,407,480**	**4,449,614**
111	Cold Year Throughput (1-in-35) (MTh)	**4,463,632**	**4,506,051**
112	Cold Year Peak Month (December) (MTh)	**416,928**	**420,596**
113	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	**17,476**	**17,608**
114	Number of Customers	**96**	**223**
115	**High Pressure**		
116	Average Year Throughput (MTh)	**970,056**	**1,097,877**
117	Cold Year Throughput (1-in-35) (MTh)	**971,397**	**1,102,085**
118	Cold Year Peak Month (December) (MTh)	**81,845**	**94,702**

							NCCI-Total	NCCI-D	NCCI-T	EOR-Total
			UBS	Total Noncore	SYSTEM TOTAL	Sources				
119		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		**2,698**	**3,249**					
120		Number of Customers		**293**	**8,476**					
121		**Medium Pressure**								
122		Average Year Throughput (MTh)		**432,879**	**3,803,469**					
123		Cold Year Throughput (1-in-35) (MTh)		**435,520**	**4,083,027**					
124		Cold Year Peak Month (December) (MTh)		**38,315**	**548,043**					
125		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		**1,353**	**31,105**					
126		Number of Customers		**632**	**5,911,462**					
127		**CUMULATIVE (Calc'd from DIRECT %'s)**								
128		**Transmission**								
129		Average Year Throughput (MTh)		**5,810,415**	**9,350,960**					
130		Cold Year Throughput (1-in-35) (MTh)		**5,870,548**	**9,691,163**					
131		Cold Year Peak Month (December) (MTh)		**537,087**	**1,063,341**					
132		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		**21,527**	**51,962**					
133		Number of Customers		**1,021**	**5,920,161**					
134		**High Pressure**								
135		Average Year Throughput (MTh)		**1,402,935**	**4,901,347**					
136		Cold Year Throughput (1-in-35) (MTh)		**1,406,917**	**5,185,112**					
137		Cold Year Peak Month (December) (MTh)		**120,160**	**642,745**					
138		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		**4,051**	**34,354**					
139		Number of Customers		**925**	**5,919,938**					
140		**Medium Pressure**								
141		Average Year Throughput (MTh)		**432,879**	**3,803,469**					
142		Cold Year Throughput (1-in-35) (MTh)		**435,520**	**4,083,027**					
143		Cold Year Peak Month (December) (MTh)		**38,315**	**548,043**					
144		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		**1,353**	**31,105**					
145		Number of Customers		**632**	**5,911,462**					
146										
	2017TCAP Phase 1 Storage Allocation Proposal									
1	Core Storage Capacities:	*Allocation Method*								
2	Number of Injection Days		0.0%	12.4%	100.0%					
3	Injection MMcfd	*Inv per Inj Day*	0	55	445					
4										
5	% Demand					Demand Forecast Testimony				
6	Inventory MMCF	*% Excess Winter Demand*	0	10,229	82,500	Demand Forecast Testimony				
7										
8	MPD Peak Day (1-in-35 Core) Core Only MTh									
9	% Core MPD Peak Day									
10	Withdrawal MMcfd	*% Core MPD Peak Day*	0	239	2,000	Demand Forecast Testimony				
11			0%	11.9%	100%					
12	Injection $000	33559	$0	$4,161	$33,559					
13	Inventory $000	37314	$0	$4,626	$37,314					
14	Withdrawal $000	22924	$0	$2,735	$22,924					
15			$0	$11,522	$93,797		$0	$0	$0	$0
16	Load Balancing Storage Capacities:									
17	Injection MMcfd	*%AYTP (incl EOR)*	0%	62%	100%	TCAP D.16-10-004				
18	Inventory MMCF	*%AYTP (incl EOR)*	0%	62%	100%	TCAP D.16-10-004				
19	Withdrawal MMcfd	*%AYTP (incl EOR)*	0%	62%	100%	TCAP D.16-10-004				
20	Injection $000		$0	$24,627	$39,634					
21	Inventory $000		$0	$6,814	$10,966		1,545,814	919,735	626,080	208,941
22	Withdrawal $000		$0	$12,436	$20,014		100.0%	59.5%	40.5%	100.0%
23			$0	$43,878	$70,614		$11,673	$6,945	$4,728	$1,578
24	Unbundled Storage Capacities:									
25	Injection MMcfd	*100% UBS*	100%	100%	100%					
26	Inventory MMCF	*100% UBS*	100%	100%	100%					
27	Withdrawal MMcfd	*100% UBS*	100%	100%	100%					
28	Injection $000		$0	$0	$0					
29	Inventory $000		$0	$0	$0					
30	Withdrawal $000		$0	$0	$0					
31			$0	$0	$0		$0	$0	$0	$0
32	Total Storage:									

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

			UBS	Total Noncore	SYSTEM TOTAL	Sources	NCCI-Total	NCCI-D	NCCI-T	EOR-Total
33	Injection MMcfd		1	57	447					
34	Inventory MMCF		1	10,230	82,502					
35	Withdrawal MMcfd		1	240	2,002					
36	Injection $000		$0	$28,788	$73,193					
37	Inventory $000		$0	$11,441	$48,280					
38	Withdrawal $000		$0	$15,171	$42,938					
39	**Total Storage Costs per EC Method w/HR RRQ**		**$0**	**$55,400**	**$164,411**		**$11,673**	**$6,945**	**$4,728**	**$1,578**

Summary of Storage Costs for RATE TABLES under new method:

Core $000	
Load Balancing $000	
Unbundled Storage $000	
total storage $000	

Storage Core Allocation, per Bruce Wetzel's testimony

Present

Injection mmcfd					
Inventory %					
Inventory MMCF	*% Excess Winter Demand*	0	9,334	82,427	
Peak Day (1-in-35 Core) Core Only MTh					
% Core MPD Peak Day					
Withdrawal MMcfd	*% Core MPD Peak Day*	0	235	2,211	

Proposed

Injection mmcfd					
% Demand					Demand Forecast
Inventory MMCF	*% Excess Winter Demand*	0	9,824	83,000	Demand Forecast
MPD Peak Day (1-in-35 Core) Core Only MTh					
% Core MPD Peak Day					
Withdrawal MMcfd	*% Core Peak Day*	0	248	2,225	Demand Forecast

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		EOR-D	EOR-T	Total EG	EG Tier 1	EG Tier 1 Dist	EG Tier 1 Trans	EG Tier 2	EG Tier 2 Dist	EG Tier 2 Trans
1	Customer Costs Rental Method									
2	Per Unit LRMC, $/Cust/Year									
3	Number of Customers	23	11	389	322.5850853	308	14	67	30	36
4	**Customer Costs Rental Method $000**	$1,942.51	$929.02	18690.88225	8398.251411	$8,028.48	$369.77	10292.63084	$4,654.29	$5,638.34
5										
6	Medium Pressure Distribution costs									
7	Medium Pressure Distribution costs (MPD)									
8	Per Unit LRMC, $/mcfd									
9	MPD Peak Day Demand (mmcfd)									
10	**Medium Pressure Distribution Costs $000**	**$69**	**0**	**$6,778**	**$3,765**	**$3,765**	**0**	**$3,013**	**$3,013**	**0**
11										
12	High Pressure Distribution costs									
13	High Pressure Distribution costs (HPD)									
14	Per Unit LRMC, $/mcf									
15	HPD Peak Month Demand (mmcf)									
16	**High Presure Distribution Costs $000**	**$5,030**	**0**	**$10,878**	**$2,933**	**$2,933**	**0**	**$7,945**	**$7,945**	**0**
17										
18	Unscaled LRMC Based Costs $000	$7,042	$929	$36,346	$15,096	$14,726	$370	$21,250	$15,611	$5,638
19	Scalar Allocator	88.3%	11.7%		41.5%	40.5%	1.0%	58.5%	43.0%	15.5%
20	Calculation of Scalar:									
	Authorized Revenue Requirement in Rates Base Margin $000									
	Adjustment to Storage for Honor Rancho $000									
	Adjustment to Storage for Aliso Canyon$000									
21	Target Base Margin $000									
22	Less items not allocated per LRMC method:									
23	Transmission Cost per EC $000									
24	Storage Costs per EC $000									
25	Uncollectibles									
26	NGV Compression Adder Costs per EC $000									
27	Target Scaled Costs $000									
28	Unscaled LRMC Based Costs $000									
29	amount to scale $000									
30	Scalar (as a % of unscaled)	63%	63%	63%	63%	63%	63%	63%	63%	63%
31										
32	Scaled Customer Costs $000 LRMC/Rental Method	$1,216	$581	$11,696	$5,255	$5,024	$231	$6,441	$2,913	$3,528
33	Scaled Medium Pressure Distribution Costs $000 LRMC	$43	$0	$4,241	$2,356	$2,356	$0	$1,885	$1,885	$0
34	Scaled High Presure Distribution Costs $000 LRMC	$3,148	$0	$6,807	$1,835	$1,835	$0	$4,972	$4,972	$0
35	**Scaled LRMC Based Costs $000**	**$4,407**	**$581**	**$22,744**	**$9,447**	**$9,215**	**$231**	**$13,298**	**$9,769**	**$3,528**
36										
37	NGV Compression Costs:									
38	**Compression Adder Costs $000**									
39										
40	Uncollectibles:									
41	Target Base Margin $000									
42	System Average Uncollectible Rate									
43	Uncollectibles									
44										
45	Allocation of Uncollectibles:									
46	All Costs excl. NGV Adder, EOR, Int, WS, and UBS	$0	$0	$103,860	$12,491	$12,004	$487	$91,369	$17,409	$73,960
47	% All Costs excl. NGV Adder, EOR, Int, WS, and UBS	0.0%	0.0%	4.8%	0.6%	0.6%	0.0%	4.2%	0.8%	3.4%
48	**Uncollectibles**	**$0**	**$0**	**$322**	**$39**	**$37**	**$2**	**$283**	**$54**	**$229**
49										
50										
51										
52	Transmisison Costs per Embedded Cost Method:									
53	Embedded Transmission Costs $000									
54	FF&U									
55	Embedded Transmission Costs w/ FF&U $000									
56	Calculate BBT/Local-T Transmission Split:									
57	BBT $									

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		EOR-D	EOR-T		Total EG	EG Tier 1	EG Tier 1 Dist	EG Tier 1 Trans	EG Tier 2	EG Tier 2 Dist	EG Tier 2 Trans
58	LT $										
59											
60	Allocation of BBT Costs:										
61	CYTP Mth	151,758	57,184		2,577,778	97,615	88,449	9,166	2,480,164	242,993	2,237,170
62	% CYTP	1.6%	0.6%		26.6%	1.0%	0.9%	0.1%	25.6%	2.5%	23.1%
63	**BBT Costs per EC method**	**$2,765**	**$1,042**		**$46,971**	**$1,779**	**$1,612**	**$167**	**$45,192**	**$4,428**	**$40,764**
64											
65	Allocation of LT Costs:										
66	CYPM Mth	12,889	4,857		216,917	7,806	7,515	291	209,111	20,356	188,755
67	% CYPM	1.21%	0.46%		20.40%	0.73%	0.71%	0.03%	19.67%	1.91%	17.75%
68	**LT Costs per EC method**	**$872**	**$329**		**$14,679**	**$528**	**$509**	**$20**	**$14,150**	**$1,377**	**$12,773**
69	**Total Transmission Costs per EC method**	**$3,637**	**$1,371**		**$61,650**	**$2,307**	**$2,120**	**$187**	**$59,343**	**$5,805**	**$53,537**
70											
71	Storage Costs per EC Method (this includes HR RRQ)										
72	Embedded Storage Costs $000										
73	Honor Rancho Revenue Requirement (HRSMA)										
74	Aliso Canyon Revenue Requirement										
75											
76											
77											
78	Core Storage	$0	$0		$0	$0	$0	$0	$0	$0	$0
79	Load Balancing	$1,146	$432		$19,466	$737	$668	$69	$18,729	$1,835	$16,894
80	Unbundled Storage	$0	$0		$0	$0	$0	$0	$0	$0	$0
81	**Total Storage Costs $000**	**$1,146**	**$432**		**$19,466**	**$737**	**$668**	**$69**	**$18,729**	**$1,835**	**$16,894**
82											
83											
84											
85											
86	**ALLOCATED BASE MARGIN (net of misc revenue & broker fee)**	**$9,190**	**$2,384**		**$104,182**	**$12,530**	**$12,041**	**$489**	**$91,652**	**$17,463**	**$74,189**
87	Percentage	0.4%	0.1%		4.6%	0.6%	0.5%	0.0%	4.1%	0.8%	3.3%
88	Average Year Throughput Mth										
89	average rate $/therm										
90											
91											
92											
93	**Model Results RD Format for RD Models**										
94	Customer Related Costs	$1,216	$581		$11,696	$5,255	$5,024	$231	$6,441	$2,913	$3,528
95	Medium Pressure Distribution Costs	$43	$0		$4,241	$2,356	$2,356	$0	$1,885	$1,885	$0
96	High Pressure Distribution Costs	$3,148	$0		$6,807	$1,835	$1,835	$0	$4,972	$4,972	$0
97	Backbone Transmission Costs	$2,765	$1,042		$46,971	$1,779	$1,612	$167	$45,192	$4,428	$40,764
98	Local Transmission Costs	$872	$329		$14,679	$528	$509	$20	$14,150	$1,377	$12,773
99	Storage - Seasonal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
100	Storage - Load Balancing	$1,146	$432	$0	$19,466	$737	$668	$69	$18,729	$1,835	$16,894
101	Storage - TBS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
102	Uncollectibles	$0	$0		$322	$39	$37	$2	$283	$54	$229
103	NGV Compression Costs:	$0	$0		$0	$0	$0	$0	$0	$0	$0
104	**Total Margin Allocation pre-SI & Unbundle FAR**	**$9,190**	**$2,384**		**$104,182**	**$12,530**	**$12,041**	**$489**	**$91,652**	**$17,463**	**$74,189**
105	**% Allocation**	**0.4%**	**0.1%**		**4.6%**	**0.6%**	**0.5%**	**0.0%**	**4.1%**	**0.8%**	**3.3%**
106											

107		
108		
109	**Transmission**	
110	Average Year Throughput (MTh)	
111	Cold Year Throughput (1-in-35) (MTh)	
112	Cold Year Peak Month (December) (MTh)	
113	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
114	Number of Customers	
115	**High Pressure**	
116	Average Year Throughput (MTh)	
117	Cold Year Throughput (1-in-35) (MTh)	
118	Cold Year Peak Month (December) (MTh)	

			EOR-D	EOR-T	Total EG	EG Tier 1	EG Tier 1 Dist	EG Tier 1 Trans	EG Tier 2	EG Tier 2 Dist	EG Tier 2 Trans
119		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)									
120		Number of Customers									
121		**Medium Pressure**									
122		Average Year Throughput (MTh)									
123		Cold Year Throughput (1-in-35) (MTh)									
124		Cold Year Peak Month (December) (MTh)									
125		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)									
126		Number of Customers									
127		**CUMULATIVE (Calc'd from DIRECT %'s)**									
128		**Transmission**									
129		Average Year Throughput (MTh)									
130		Cold Year Throughput (1-in-35) (MTh)									
131		Cold Year Peak Month (December) (MTh)									
132		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)									
133		Number of Customers									
134		**High Pressure**									
135		Average Year Throughput (MTh)									
136		Cold Year Throughput (1-in-35) (MTh)									
137		Cold Year Peak Month (December) (MTh)									
138		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)									
139		Number of Customers									
140		**Medium Pressure**									
141		Average Year Throughput (MTh)									
142		Cold Year Throughput (1-in-35) (MTh)									
143		Cold Year Peak Month (December) (MTh)									
144		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)									
145		Number of Customers									
146											
	2017TCAP Phase 1 Storage Allocation Proposal										
1	Core Storage Capacities:	*Allocation Method*									
2	Number of Injection Days										
3	Injection MMcfd	*Inv per Inj Day*									
4											
5	% Demand										
6	Inventory MMCF	*% Excess Winter Demand*									
7											
8	MPD Peak Day (1-in-35 Core) Core Only MTh										
9	% Core MPD Peak Day										
10	Withdrawal MMcfd	*% Core MPD Peak Day*									
11											
12	Injection $000	33559									
13	Inventory $000	37314									
14	Withdrawal $000	22924									
15			$0	$0	$0	$0	$0	$0	$0	$0	$0
16	Load Balancing Storage Capacities:										
17	Injection MMcfd	*%AYTP (incl EOR)*									
18	Inventory MMCF	*%AYTP (incl EOR)*									
19	Withdrawal MMcfd	*%AYTP (incl EOR)*									
20	Injection $000										
21	Inventory $000		151,758	57,184	2,577,778	97,615	88,449	9,166	2,480,164	242,993	2,237,170
22	Withdrawal $000		72.6%	27.4%		100.0%	90.6%	9.4%	100.0%	9.8%	90.2%
23			$1,146	$432	$19,466	$737	$668	$69	$18,729	$1,835	$16,894
24	Unbundled Storage Capacities:										
25	Injection MMcfd	*100% UBS*									
26	Inventory MMCF	*100% UBS*									
27	Withdrawal MMcfd	*100% UBS*									
28	Injection $000										
29	Inventory $000										
30	Withdrawal $000										
31			$0	$0	$0	$0	$0	$0	$0	$0	$0
32	Total Storage:										

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		EOR-D	EOR-T	Total EG	EG Tier 1	EG Tier 1 Dist	EG Tier 1 Trans	EG Tier 2	EG Tier 2 Dist	EG Tier 2 Trans
33	Injection MMcfd									
34	Inventory MMCF									
35	Withdrawal MMcfd									
36	Injection $000									
37	Inventory $000									
38	Withdrawal $000									
39	**Total Storage Costs per EC Method w/HR RRQ**	**$1,146**	**$432**	**$19,466**	**$737**	**$668**	**$69**	**$18,729**	**$1,835**	**$16,894**

Summary of Storage Costs for RATE TABLES under new method:

Core $000	
Load Balancing $000	
Unbundled Storage $000	
total storage $000	

Storage Core Allocation, per Bruce Wetzel's testimony

Present

Injection mmcfd

Inventory %

Inventory MMCF *% Excess Winter Demand*

Peak Day (1-in-35 Core) Core Only MTh

% Core MPD Peak Day

Withdrawal MMcfd *% Core MPD Peak Day*

Proposed

Injection mmcfd

% Demand

Inventory MMCF *% Excess Winter Demand*

MPD Peak Day (1-in-35 Core) Core Only MTh

% Core MPD Peak Day

Withdrawal MMcfd *% Core Peak Day*

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

			D/T Split Allocator
1	Customer Costs Rental Method		
2	Per Unit LRMC, $/Cust/Year		
3	Number of Customers		
4	**Customer Costs Rental Method $000**		*# of customers*
5			
6	Medium Pressure Distribution costs		
7	Medium Pressure Distribution costs (MPD)		
8	Per Unit LRMC, $/mcfd		
9	MPD Peak Day Demand (mmcfd)		
10	**Medium Pressure Distribution Costs $000**		*100% D*
11			
12	High Pressure Distribution costs		
13	High Pressure Distribution costs (HPD)		
14	Per Unit LRMC, $/mcf		
15	HPD Peak Month Demand (mmcf)		
16	**High Presure Distribution Costs $000**		*100% D*
17			
18	Unscaled LRMC Based Costs $000		
19	Scalar Allocator		
20	Calculation of Scalar:		
	Authorized Revenue Requirement in Rates Base Margin $000		
	Adjustment to Storage for Honor Rancho $000		
	Adjustment to Storage for Aliso Canyon$000		
21	Target Base Margin $000		
22	Less items not allocated per LRMC method:		
23	Transmission Cost per EC $000		
24	Storage Costs per EC $000		
25	Uncollectibles		
26	NGV Compression Adder Costs per EC $000		
27	Target Scaled Costs $000		
28	Unscaled LRMC Based Costs $000		
29	amount to scale $000		
30	Scalar (as a % of unscaled)		
31			
32	Scaled Customer Costs $000 LRMC/Rental Method		
33	Scaled Medium Pressure Distribution Costs $000 LRMC		
34	Scaled High Presure Distribution Costs $000 LRMC		
35	**Scaled LRMC Based Costs $000**		
36			
37	NGV Compression Costs:		
38	**Compression Adder Costs $000**		2013TCAP Settlement Agreement
39			
40	Uncollectibles:		
41	Target Base Margin $000		
42	System Average Uncollectible Rate		
43	Uncollectibles		
44			
45	Allocation of Uncollectibles:		
46	All Costs excl. NGV Adder, EOR, Int, WS, and UBS		
47	% All Costs excl. NGV Adder, EOR, Int, WS, and UBS		
48	**Uncollectibles**		
49			
50			
51			
52	Transmisison Costs per Embedded Cost Method:		
53	Embedded Transmission Costs $000		
54	FF&U		
55	Embedded Transmission Costs w/ FF&U $000		
56	Calculate BBT/Local-T Transmission Split:		
57		BBT $	2013TCAP Ms.Fung

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

			D/T Split Allocator
58		LT $	
59			
60	Allocation of BBT Costs:		
61	CYTP Mth		
62	% CYTP		
63	**BBT Costs per EC method**		*CYTP*
64			
65	Allocation of LT Costs:		
66	CYPM Mth		
67	% CYPM		
68	**LT Costs per EC method**		
69	**Total Transmission Costs per EC method**		
70			
71	Storage Costs per EC Method (this includes HR RRQ)		
72	Embedded Storage Costs $000		
73	Honor Rancho Revenue Requirement (HRSMA)		
74	Aliso Canyon Revenue Requirement		
75			
76			
77			
78	Core Storage		
79	Load Balancing		
80	Unbundled Storage		
81	**Total Storage Costs $000**		
82			
83			
84			
85			
86	**ALLOCATED BASE MARGIN (net of misc revenue & broker fee)**		
87	Percentage		
88	Average Year Throughput Mth		
89	average rate $/therm		
90			
91			
92			
93	**Model Results RD Format for RD Models**		
94	Customer Related Costs		
95	Medium Pressure Distribution Costs		
96	High Pressure Distribution Costs		
97	Backbone Transmission Costs		
98	Local Transmission Costs		
99	Storage - Seasonal		
100	Storage - Load Balancing		
101	Storage - TBS		
102	Uncollectibles		
103	NGV Compression Costs:		
104	**Total Margin Allocation pre-SI & Unbundle FAR**		
105	**% Allocation**		
106			
107			
108			
109		**Transmission**	
110		Average Year Throughput (MTh)	
111		Cold Year Throughput (1-in-35) (MTh)	
112		Cold Year Peak Month (December) (MTh)	
113		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
114		Number of Customers	
115		**High Pressure**	
116		Average Year Throughput (MTh)	
117		Cold Year Throughput (1-in-35) (MTh)	
118		Cold Year Peak Month (December) (MTh)	

			D/T Split Allocator
119		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
120		Number of Customers	
121		**Medium Pressure**	
122		Average Year Throughput (MTh)	
123		Cold Year Throughput (1-in-35) (MTh)	
124		Cold Year Peak Month (December) (MTh)	
125		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
126		Number of Customers	
127		**CUMULATIVE (Calc'd from DIRECT %'s)**	
128		**Transmission**	
129		Average Year Throughput (MTh)	
130		Cold Year Throughput (1-in-35) (MTh)	
131		Cold Year Peak Month (December) (MTh)	
132		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
133		Number of Customers	
134		**High Pressure**	
135		Average Year Throughput (MTh)	
136		Cold Year Throughput (1-in-35) (MTh)	
137		Cold Year Peak Month (December) (MTh)	
138		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
139		Number of Customers	
140		**Medium Pressure**	
141		Average Year Throughput (MTh)	
142		Cold Year Throughput (1-in-35) (MTh)	
143		Cold Year Peak Month (December) (MTh)	
144		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	
145		Number of Customers	
146			

2017TCAP Phase 1 Storage Allocation Proposal

1	Core Storage Capacities:	*Allocation Method*		
2	Number of Injection Days			
3	Injection MMcfd	*Inv per Inj Day*		
4				
5	% Demand			
6	Inventory MMCF	*% Excess Winter Demand*		
7				
8	MPD Peak Day (1-in-35 Core) Core Only MTh			
9	% Core MPD Peak Day			
10	Withdrawal MMcfd	*% Core MPD Peak Day*		
11				
12	Injection $000	33559		
13	Inventory $000	37314		
14	Withdrawal $000	22924		
15				
16	Load Balancing Storage Capacities:			
17	Injection MMcfd	*%AYTP (incl EOR)*		
18	Inventory MMCF	*%AYTP (incl EOR)*		
19	Withdrawal MMcfd	*%AYTP (incl EOR)*		
20	Injection $000			
21	Inventory $000		*AYTP*	
22	Withdrawal $000		*AYTP per class*	
23				
24	Unbundled Storage Capacities:			
25	Injection MMcfd	*100% UBS*		
26	Inventory MMCF	*100% UBS*		
27	Withdrawal MMcfd	*100% UBS*		
28	Injection $000			
29	Inventory $000			
30	Withdrawal $000			
31				
32	Total Storage:			

2020TCAP SCG COST ALLOCATION
2020 TCAP Application

		D/T Split Allocator
33	Injection MMcfd	
34	Inventory MMCF	
35	Withdrawal MMcfd	
36	Injection $000	
37	Inventory $000	
38	Withdrawal $000	
39	**Total Storage Costs per EC Method w/HR RRQ**	

Summary of Storage Costs for RATE TABLES under new method:

Core $000	
Load Balancing $000	
Unbundled Storage $000	
total storage $000	

Storage Core Allocation, per Bruce Wetzel's testimony

Present

Injection mmcfd

Inventory %

Inventory MMCF	*% Excess Winter Demand*

Peak Day (1-in-35 Core) Core Only MTh

% Core MPD Peak Day	
Withdrawal MMcfd	*% Core MPD Peak Day*

Proposed

Injection mmcfd

% Demand

Inventory MMCF	*% Excess Winter Demand*

MPD Peak Day (1-in-35 Core) Core Only MTh

% Core MPD Peak Day	
Withdrawal MMcfd	*% Core Peak Day*

TABLE 1
UNSCALED LONG RUN MARGINAL COST REVENUES
CUSTOMER COST

Customer Class	Customer LRMC $/customer A	Customer Count B	Customer Cost $000 C
Residential	$294	5,714,531	$1,680,240
Core C/I	$1,474	203,514	$299,948
Gas A/C	$6,883	4	$28
Gas Engine	$17,982	712	$12,803
NGV	$45,590	378	$17,233
Total Core			$2,010,251
Noncore C/I	$55,140	593	$32,700
Small EG	$26,034	323	$8,398
Large EG	$154,535	67	$10,293
EOR	$84,457	34	$2,872
Total Retail Noncore			$54,263
Long Beach	$783,172	1	$783
SDG&E	$1,397,485	1	$1,397
Southwest Gas	$687,223	1	$687
Vernon	$469,031	1	$469
Ecogas	$182,623	1	$183
Total Wholesale			$3,520
UBS	$0	0	$0
BTS	$0	0	$0
Total Noncore			$57,782
Total SoCalGas			**$2,068,033**

30Ecogas is the Wholesale – ECOGAS Mexico, S. de R.L. de C.V.

31UBS is the Unbundled Storage Program

32 BTS is Backbone Transportation Service

TABLE 2
UNSCALED LRMC COST REVENUES
DISTRIBUTION COSTS

Customer Class	Medium Pressure Distribution LRMC $/mcfd	Medium Pressure Distribution Peak Day (mcfd)	Medium Pressure Distribution Costs $000	High Pressure Distribution LRMC $/mcfd	High Pressure Distribution Peak Month Demand (mcf)	High Pressure Distribution Costs $000
	A	B	C	D	E	F
Residential	$198.08	2,327,403	$461,001	$4.04	37,986,877	$153,339
Core C/I	$198.08	527,626	$104,510	$4.04	11,298,836	$45,609
Gas A/C	$198.08	45	$9	$4.04	2,524	$10
Gas Engine	$198.08	2,524	$500	$4.04	89,085	$360
NGV	$198.08	19,041	$3,772	$4.04	1,149,783	$4,641
Total Core			$569,791			$203,959
Noncore C/I	$198.08	96,259	$19,067	$4.04	7,676,934	$30,989
Small EG	$198.08	19,008	$3,765	$4.04	726,597	$2,933
Large EG	$198.08	15,209	$3,013	$4.04	1,968,123	$7,945
EOR	$198.08	350	$69	$4.04	1,246,196	$5,030
Total Retail Noncore			$25,913			$46,897
Long Beach	$198.08	0	$0	$4.04	0	$0
SDG&E	$198.08	0	$0	$4.04	0	$0
Southwest Gas	$198.08	0	$0	$4.04	0	$0
Vernon	$198.08	0	$0	$4.04	0	$0
Ecogas	$198.08	0	$0	$4.04	0	$0
Total Wholesale			$0			$0
UBS	$198.08	0	$0	$4.04	0	$0
BTS	$0.00	0	$0	$0.00	0	$0
Total Noncore			$25,913			$46,897
Total SoCalGas			**$595,705**			**$250,856**

TABLE 3
LRMC COST SCALED REVENUES
SCALED CUSTOMER & DISTRIBUTION COSTS
($000)

Customer Class	Customer Cost	Medium Pressure Distribution	High Pressure Distribution	Unscaled LRMC Revenues	Scalar	Scaled LRMC Revenues
	A	B	C	D=A+B+C	E	F=D*E
Residential	$1,680,240	$461,001	$153,339	$2,294,580	63%	$1,435,890
Core C/I	$299,948	$104,510	$45,609	$450,066	63%	$281,640
Gas A/C	$28	$9	$10	$47	63%	$29
Gas Engine	$12,803	$500	$360	$13,663	63%	$8,550
NGV	$17,233	$3,772	$4,641	$25,646	63%	$16,049
Total Core	$2,010,251	$569,791	$203,959	$2,784,001	63%	$1,742,158
Noncore C/I	$32,700	$19,067	$30,989	$82,756	63%	$51,786
Small EG	$8,398	$3,765	$2,933	$15,096	63%	$9,447
Large EG	$10,293	$3,013	$7,945	$21,250	63%	$13,298
EOR	$2,872	$69	$5,030	$7,971	63%	$4,988
Total Retail Noncore	$54,263	$25,913	$46,897	$127,073	63%	$79,519
Long Beach	$783	$0	$0	$783	63%	$490
SDG&E	$1,397	$0	$0	$1,397	63%	$875
Southwest Gas	$687	$0	$0	$687	63%	$430
Vernon	$469	$0	$0	$469	63%	$294
Ecogas	$183	$0	$0	$183	63%	$114
Total Wholesale	$3,520	$0	$0	$3,520	63%	$2,202
UBS	$0	$0	$0	$0	63%	$0
BTS	$0	$0	$0	$0	63%	$0
Total Noncore	$57,782	$25,913	$46,897	$130,592	63%	$81,721
Total SoCalGas	**$2,068,033**	**$595,705**	**$250,856**	**$2,914,594**	**63%**	**$1,823,879**

Calculation of Scalar:

Scalar = [Base Margin - Transmision – Storage -Uncollectibles-NGV Compression Adder] / [Unscaled Customer + Distribution]

Scalar = $1,823,879 divided by $2,914,594

TABLE 4

ALLOCATION OF BASE MARGIN

($000)

Customer Class	Scaled LRMC Revenues	Uncollect	BTS	Local Transmission	NGV Public Access	Storage	Allocated Base Margin
	A	B	C	D	E	F	G
Residential	$1,435,890	$4,940	$0	$26,588	$0	$85,446	$1,552,864
Core C/I	$281,640	$1,020	$0	$7,960	$0	$20,826	$311,446
Gas A/C	$29	$0	$0	$2	$0	$10	$41
Gas Engine	$8,550	$30	$0	$66	$0	$566	$9,211
NGV	$16,049	$70	$0	$996	$2,964	$2,163	$22,241
Total Core	$1,742,158	$6,059	$0	$35,611	$2,964	$109,011	$1,895,804
Noncore C/I	$51,786	$313	$0	$9,491	$0	$11,673	$73,264
Small EG	$9,447	$39	$0	$528	$0	$737	$10,751
Large EG	$13,298	$283	$0	$14,150	$0	$18,729	$46,460
EOR	$4,988	$0	$0	$1,201	$0	$1,578	$7,767
Retail Noncore	$79,519	$635	$0	$25,370	$0	$32,717	$138,242
Long Beach	$490	$0	$0	$715	$0	$601	$1,806
SDG&E	$875	$0	$0	$8,246	$0	$19,969	$29,090
Southwest Gas	$430	$0	$0	$784	$0	$502	$1,716
Vernon	$294	$0	$0	$562	$0	$732	$1,587
Ecogas	$114	$0	$0	$668	$0	$878	$1,660
Total Wholesale	$2,202	$0	$0	$10,975	$0	$22,682	$35,859
UBS	$0	$0	$0	$0	$0	$0	$0
BTS			$176,587				$176,587
Total Noncore	$81,721	$635	$176,587	$36,345	$0	$55,400	$350,688
Total SoCalGas	**$1,823,879**	**$6,695**	**$176,587**	**$71,956**	**$2,964**	**$164,411**	**$2,246,492**
NCCI-D	$50,766	$248	$0	$5,373	$0	$6,945	$63,332
EOR-D	$4,407	$0		$872		$1,146	$6,425
EG-D T1	$9,215	$37	$0	$509	$0	$668	$10,429
EG-D T2	$9,769	$54	$0	$1,377	$0	$1,835	$13,036
TLS	$7,564	$296	$0	$28,213	$0	$44,805	$80,880
Total	$81,721	$635	$0	$36,345	$0	$55,400	$174,101
	$0	$0		$0		$0	$0

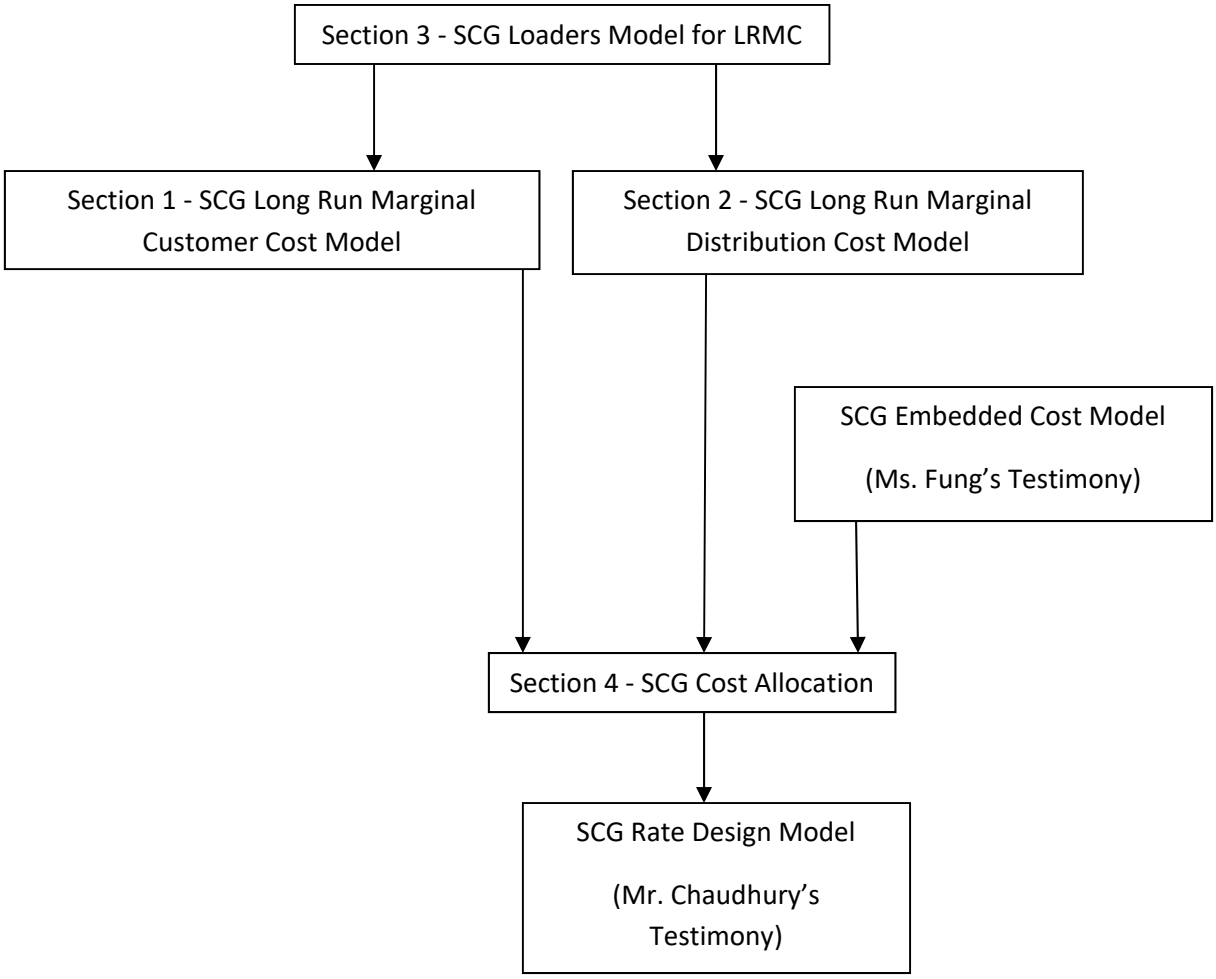
TABLE 5
COST ALLOCATION COMPARISON
($000)

Customer Class	Proposed Allocation of Base Margin A	% Total B	Current Allocation of Base Margin C	% Total D
Residential	$1,552,864	69.1%	$1,626,188	72.6%
Core C/I	$311,446	13.9%	$264,112	11.8%
Gas A/C	$41	0.0%	$74	0.0%
Gas Engine	$9,211	0.4%	$4,276	0.2%
NGV	$22,241	1.0%	$16,094	0.7%
Total Core	$1,895,804	84.4%	$1,910,743	85.3%
Noncore C/I	$73,264	3.3%	$58,183	2.6%
Small EG	$10,751	0.5%	$10,733	0.5%
Large EG	$46,460	2.1%	$34,214	1.5%
EOR	$7,767	0.3%	$6,006	0.3%
Total Retail Noncore	$138,242	6.2%	$109,136	4.9%
Long Beach	$1,806	0.1%	$1,477	0.1%
SDG&E	$29,090	1.3%	$20,598	0.9%
Southwest Gas	$1,716	0.1%	$1,501	0.1%
Vernon	$1,587	0.1%	$1,211	0.1%
Ecogas	$1,660	0.1%	$961	0.0%
Total Wholesale	$35,859	1.6%	$25,748	1.1%
UBS	$0	0.0%	$23,290	1.0%
BTS	$176,587	7.9%	$171,727	7.7%
Total Noncore	$350,688	15.6%	$329,902	14.7%
Total SoCalGas	**$2,246,492**	**100.0%**	**$2,240,645**	**100.0%**

SoCalGas

2020 TCAP

Cost Allocation Flowchart



Workpapers to the Prepared Written Testimony of Marjorie Schmidt-Pines

SOUTHERN CALIFORNIA GAS COMPANY
2020 TCAP

Section 5
Long Run Marginal Customer Cost Model
Minimum observed costs - 20th percentile

Workpapers to the Prepared Written Testimony of Marjorie Schmidt-Pines

SoCalGas Residential Customer Cost for Rate Design Customer Charge for 20th min
v.7-3-2018

	Residential
Marginal Customer Unit Cost @ various LRMC Allocation Methods	
Customer Cust $/Cust/Year Rental Method	$266.54
Customer Cost $/Cust/Year NCO Method	$123.27
Customer Cost $/Cust/Year NCO Method w/Replacement Cost	$188.93
Customer Cust $/Cust/Year Rental Method ARM1	$121.37
Customer Cust $/Cust/Year Rental Method ARM2	$243.78
ARM1 Factor	8%
ARM2 Factor	86%

Table X1

SoCalGas' Residential Marginal Customer Unit Cost @ various LRMC Allocation Methods	
Customer Cust $/Cust/Month Rental Method	$22.21
Customer Cost $/Cust/Month NCO Method	$10.27
Customer Cost $/Cust/Year NCO Method w/Replacement Cost	$15.74
Customer Cust $/Cust/Month Rental Method ARM1	$10.11
Customer Cust $/Cust/Month Rental Method ARM2	$20.32

Note: Average cost for the bottom 10%

Table 3: SoCalGas' Residential Minimum Connection Cost Per Month

	Rental method	NCO Method	ARM 1	ARM2
	$22.21	$15.74	$10.11	$20.32

Note: Average cost for the bottom 20%

NCO is with Replacement Adder

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
RD Format

		Residential	CCI	G-AC	G-GEN	NGV	Total Core
	Marginal Customer Unit Cost @ various LRMC Allocation Methods						
1	Customer Cust $/Cust/Year Rental Method	$281.90	$1,473.84	$6,882.72	$17,981.95	$45,590.55	
2	Customer Cost $/Cust/Year NCO Method	$124.80	$531.35	$5,437.97	$6,132.07	$40,665.79	
3	Customer Cost $/Cust/Year NCO Method w/Replacement Cost	$196.51	$933.78	$5,877.27	$12,233.91	$43,094.63	

1			
2	**Input from O&M Loader Model:**		
3	Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses	43.64%	SCG LRMC O&M Loaders
4	General Plant Loading Factor as a % or O&M expenses	44.94%	SCG LRMC O&M Loaders
5	Annualized Distribution Customer Related Costs $000/yr	$2,930,464	SCG LRMC O&M Loaders
6			
7	2017-20 Factor: Capital	1.1319	SCG LRMC O&M Loaders
8	2017-20 Factor: O&M	1.0981	SCG LRMC O&M Loaders

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
RD Format

		NCCI	EG Tier 1	EG Tier 2	EOR	Total Retail NonCore	Long Beach	SDG&E	South West Gas	Vernon
	Marginal Customer Unit Cost @ various LRMC Allocation Methods									
1	Customer Cust $/Cust/Year Rental Method	$55,139.92	$26,034.34	$154,535.51	$84,457.16		$783,175.75	$1,397,488.30	$687,226.82	$469,033.08
2	Customer Cost $/Cust/Year NCO Method	$18,929.58	$20,371.78	$33,959.47	$39,250.39		$315,313.66	$297,573.76	$376,150.58	$235,812.99
3	Customer Cost $/Cust/Year NCO Method w/Replacement Cost	$27,140.71	$22,729.78	$53,762.28	$47,610.81		$554,814.03	$860,624.16	$535,391.68	$355,199.23

1

2 **Input from O&M Loader Model:**

3 Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses

4 General Plant Loading Factor as a % or O&M expenses

5 Annualized Distribution Customer Related Costs $000/yr

6

7 2017-20 Factor: Capital

8 2017-20 Factor: O&M

SCG 2020 TCAP

LRMC Customer Cost/Rental Method

RD Format

		Total Whole sale	Ecogas	UBS	Total Noncore	SYSTEM TOTAL	Sources
	Marginal Customer Unit Cost @ various LRMC Allocation Methods						
1	Customer Cust $/Cust/Year Rental Method		$182,624.21	$0.00			Cust MC
2	Customer Cost $/Cust/Year NCO Method		$132,200.08	$0.00			Cust MC
3	Customer Cost $/Cust/Year NCO Method w/Replacement Cost		$158,012.38	$0.00	$2,677,621.15		Cust MC
1							
2	**Input from O&M Loader Model:**						
3	Marginal A&G/Payroll Taxes Loading Factor as a % of O&M expenses						
4	General Plant Loading Factor as a % or O&M expenses						
5	Annualized Distribution Customer Related Costs $000/yr						
6							
7	2017-20 Factor: Capital						
8	2017-20 Factor: O&M						

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Core											Core			Noncore Retail				
	Residential					Non-Residential						Non-Residential							
	Single Family (Detached homes)	Multi Family	Master Meter (up to 100,000 therms/year)	(100,001 therms per year and greater)	Residential Total or Avg.	Commercial/Industrial Very Small - up to 300 therms/year	Small - 301 to 3,000 therms/year	3,001 to 50,000 therms/year	50,001 to 250,000 therms/year	Very Large - Over 250,000 therms/year	Average	Air Conditioning	Natural Gas Vehicle	Gas Engine	G-30 - Noncore C&I Distribution	Transmission	Total	Small EG < 3million	Large EG > 3million
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Marginal Investment: 2013 $/Customer																			
Meter & House Reg	$195.45	$195.45	$1,805.27	$19,464.95	$230.71	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11
Service Lines	$1,773.76	$1,773.65	$9,356.02	$130,050.51	$1,940.10	$9,046.73	$11,048.15	$15,681.51	$45,448.16	$80,180.63	$11,794.90	$7,575.11	$85,563.97	$209,792.28	$313,478.61	$851,964.79	$332,918.54	$102,268.50	$367,802.70
Exclusive Use Facilities	$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	$11,753.92	$28,220.26	$13,193.02	$0.00	$197,632.73
Total	$1,969.21	$1,969.10	$11,161.30	$149,515.46	$2,170.81	$9,653.32	$12,358.13	$18,505.68	$54,402.08	$92,757.09	$13,269.27	$16,564.66	$135,363.77	$215,383.82	$418,460.46	##########	$451,835.01	$172,741.89	$1,332,110.55
Weighted RECC factors used to annualize SRM capital costs																			
Meter & House Reg	9.58%	9.55%	9.52%	9.44%	9.62%	9.54%	9.55%	9.52%	9.49%	9.51%	9.72%	9.50%	9.40%	9.46%	9.43%	9.40%	9.40%	9.40%	9.40%
Service Lines	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%
Exclusive Use															10.05%	10.05%	10.05%	10.05%	10.05%
Annualized Marginal Investment: $/Cust.																			
Meter & House Reg	$18.72	$18.67	$171.82	$1,836.75	$22.19	$57.87	$125.10	$268.89	$849.79	$1,196.25	$143.37	$853.86	$4,680.93	$528.71	$8,789.14	$37,244.84	$9,940.00	$6,621.07	$72,030.18
Service Lines	$138.36	$138.35	$729.80	$10,144.39	$151.33	$705.68	$861.79	$1,223.21	$3,545.11	$6,254.36	$920.04	$590.88	$6,674.28	$16,364.52	$24,452.41	$66,456.18	$25,968.79	$7,977.29	$28,689.88
Exclusive Use Facilities	$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	$1,180.91	$2,835.27	$1,325.49	$0.00	$19,856.00
Total Annualized Marginal Investment: 2013 $/Cust.	**$157.08**	**$157.02**	**$901.62**	**$11,981.14**	**$173.52**	**$763.54**	**$986.89**	**$1,492.10**	**$4,394.91**	**$7,450.62**	**$1,063.42**	**$1,444.74**	**$11,355.21**	**$16,893.23**	**$34,422.45**	**$106,536.29**	**$37,234.29**	**$14,598.37**	**$120,576.05**
O&M: $/Customer																			
Customer Services O&M Cost 2016$'s $000/year	$79,783.59	$37,381.03	$2,610.33	$1.06	$119,776.01	$3,911.12	$4,238.61	$11,867.83	$1,305.03	$188.90	$21,511.49	$4.43	$84.48	$132.33	$0.00	$0.00	$361.16	$49.05	$12.36
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services O&M $/Customer 2016$	$21.71	$21.71	$21.71	$21.71	$21.71	$44.41	$66.45	$241.48	$577.96	$570.68	$105.67	$492.10	$344.83	$184.30	$0.00	$0.00	$651.92	$196.19	$196.19
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Customer Services O&M $/Customer 2020$	$23.84	$23.84	$23.84	$23.84	$23.84	$48.77	$72.97	$265.18	$634.68	$626.69	$116.04	$540.39	$378.67	$202.39	$715.90	$715.90	$715.90	$215.44	$215.44
Customer Accounts O&M 2013$'s $000/yr	$72,561.86	$33,997.43	$2,374.05	$0.97	$108,934.30	$1,741.48	$1,160.97	$1,646.96	$446.13	$319.36	$5,314.89	$19.08	$111.65	$186.66	$0.00	$0.00	$1,286.42	$612.05	$154.24
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services O&M $/Customer 2016$	$19.75	$19.75	$19.75	$19.75	$19.75	$19.78	$18.20	$33.51	$197.58	$964.82	$26.11	$2,120.46	$455.71	$259.97	$0.00	$0.00	$2,322.06	$2,448.20	$2,448.20
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Customer Accounts O&M $/Customer 2020$	$21.69	$21.69	$21.69	$21.69	$21.69	$21.72	$19.99	$36.80	$216.97	$1,059.52	$28.67	$2,328.57	$500.44	$285.49	$2,549.96	$2,549.96	$2,549.96	$2,688.48	$2,688.48
Meter & House Reg O&M Total Cost	$4,122.35	$1,931.45	$1,245.73	$5.47	$7,305.00	$250.40	$391.69	$650.63	$94.77	$19.51	$1,407.00	$0.00	$0.00	$0.00			$1,087.00	$661.00	$133.00
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services O&M $/Customer 2016$	$1.12	$1.12	$10.36	$111.73	$1.32	$2.84	$6.14	$13.24	$41.97	$58.95	$6.91	$0.00	$0.00	$0.00	$0.00	$0.00	$1,962.09	$2,644.00	$2,111.11
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Meter & House Reg O&M $/Customer 2020$	$1.23	$1.23	$11.38	$122.70	$1.45	$3.12	$6.74	$14.54	$46.09	$64.74	$7.59	$0.00	$0.00	$0.00	$2,154.66	$2,154.66	$2,154.66	$2,903.49	$2,318.31
Total Service Line Footage	226,964,693	58,515,142	11,541,382	13,966	297,035,183	12,666,284	6,872,167	6,485,228	548,173	114,472	26,686,324	250	54,516	623,741	105,177	16,542	121,720	43,277	16,273
Percent of Total Footage	69.93%	18.03%	3.56%	0.00%	91.52%	3.90%	2.12%	2.00%	0.17%	0.04%	8.22%	0.00%	0.02%	0.19%	0.03%	0.01%	0.04%	0.01%	0.01%
Allocated SL O&M Costs $000	$20,713	$5,340	$1,053	$1	$27,108	$1,156	$627	$592	$50	$10	$2,435	$0	$5	$57	$10	$2	$11	$4	$1
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Allocated SL O&M Costs 2020$'s	$22,746	$5,864	$1,157	$1	$29,768	$1,269	$689	$650	$55	$11	$2,674	$0	$5	$63	$11	$2	$12	$4	$2
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Service Lines O&M $/Customer 2020$	$6.19	$3.41	$9.62	$28.57	$5.40	$14.42	$10.80	$13.22	$24.33	$34.66	$13.14	$2.78	$22.30	$87.06	$19.74	$82.89	$22.02	$17.35	$25.89
Customer Service & Information Cost (CSI) Costs Accounts (FERC Accounts 907 to 910):																			
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Customer Services & Information O&M $/Customer 2016$	$4.42	$4.42	$4.42	$4.42	$4.42	$46.72	$46.72	$46.72	$46.72	$46.72	$46.72	$0.00	$15,642.74	$0.00	$0.00	$0.00	$3,654.60	$195.31	$11,551.84
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981
Customer Accounts O&M $/Customer 2020$	$4.85	$4.85	$4.85	$4.85	$4.85	$51.31	$51.31	$51.31	$51.31	$51.31	$51.31	$0.00	$17,177.99	$0.00	$0.00	$0.00	$4,013.28	$214.47	$12,685.60
Total Direct O&M $/customer/yr	**$57.81**	**$55.02**	**$71.38**	**$201.64**	**$57.23**	**$139.34**	**$161.81**	**$381.05**	**$973.38**	**$1,836.92**	**$216.74**	**$2,871.75**	**$18,079.40**	**$574.94**	**$5,440.26**	**$5,503.41**	**$9,455.82**	**$6,039.24**	**$17,933.71**
O&M Loaders: $/Customer																			
Administrative & General as % of O&M	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%
Administrative & General $/customer/yr 2020$'s	$25.22	$24.01	$31.15	$87.99	$24.97	$60.80	$70.61	$166.28	$424.75	$801.56	$94.58	$1,253.13	$7,889.18	$250.88	$2,373.93	$2,401.49	$4,126.17	$2,635.30	$7,825.61
General Plant as % of O&M	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%
General Plant $/customer/yr 2020$'s	$25.98	$24.73	$32.08	$90.62	$25.72	$62.62	$72.72	$171.25	$437.45	$825.53	$97.41	$1,290.60	$8,125.09	$258.39	$2,444.91	$2,473.29	$4,249.55	$2,714.10	$8,059.61
Materials & Supplies Loader:																			
Per Customer Direct+A&G+GP O&M $/customer/yr	$109.01	$103.76	$134.61	$380.25	$107.93	$262.76	$305.14	$718.58	$1,835.57	$3,464.02	$408.73	$5,415.47	$34,093.67	$1,084.21	$10,259.10	$10,378.19	$17,831.54	$11,388.65	$33,818.94
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
Total Direct+A&G+GP O&M $000/yr	$400,536	$178,625	$16,183	$19	$595,362	$23,139	$19,463	$35,315	$4,145	$1,147	$83,209	$49	$8,353	$778	$5,478	$208	$9,879	$2,847	$2,131
Percent of Total	56.79%	25.33%	2.29%	0.00%	84.42%	3.28%	2.76%	5.01%	0.59%	0.16%	11.80%	0.01%	1.18%	0.11%	0.78%	0.03%	1.40%	0.40%	0.30%
Allocated M&S $2,930,464.06	$1,664,315	$742,225	$67,243	$77	$2,473,860	$96,146	$80,875	$146,744	$17,222	$4,764	$345,751	$203	$34,708	$3,235	$22,764	$862	$41,048	$11,831	$8,853
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
M&S Loader $/customer/yr 2020$s	$0.45	$0.43	$0.56	$1.58	$0.45	$1.09	$1.27	$2.99	$7.63	$14.39	$1.70	$22.50	$141.67	$4.51	$42.63	$43.12	$74.09	$47.32	$140.53
Total O&M Loaders $/customer/yr	**$51.66**	**$49.17**	**$63.79**	**$180.19**	**$51.14**	**$124.51**	**$144.60**	**$340.51**	**$869.82**	**$1,641.49**	**$193.68**	**$2,566.22**	**$16,155.94**	**$513.77**	**$4,861.47**	**$4,917.90**	**$8,449.82**	**$5,396.73**	**$16,025.75**
LRMC Rental Customer Cost $/customer/year	**$266.54**	**$261.21**	**$1,036.79**	**$12,362.97**	**$281.90**	**$1,027.39**	**$1,293.30**	**$2,213.67**	**$6,238.11**	**$10,929.03**	**$1,473.84**	**$6,882.72**	**$45,590.55**	**$17,981.95**	**$44,724.18**	**$116,957.61**	**$55,139.92**	**$26,034.34**	**$154,535.51**

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Noncore Wholesale						Total O&M Cost for All	
	EOR	Wholesale				International		
	G-40	LB	SDG&E	SWG	Vernon	Ecogas	Customers	
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Marginal Investment: 2013 $/Customer								
Meter & House Reg	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Service Lines	$222,966.35	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Exclusive Use Facilities	$31,275.11	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		cust 6
Total	$517,080.69	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		
Weighted RECC factors used to annualize SRM capital costs								
Meter & House Reg	9.39%	0	0	0	0	0		cust 10
Service Lines	7.80%	7.80%	7.80%	7.80%	7.80%	7.80%		cust 10
Exclusive Use	10.05%	10.05%	10.05%	10.05%	10.05%	10.05%		cust 10
Annualized Marginal Investment: $/Cust.								
Meter & House Reg	$24,672.44	$0.00	$0.00	$0.00	$0.00	$0.00		
Service Lines	$17,392.14	$0.00	$0.00	$0.00	$0.00	$0.00		
Exclusive Use Facilities	$3,142.18	$467,862.08	$1,099,914.53	$311,076.23	$233,220.09	$50,424.13		
Total Annualized Marginal Investment: 2013 $/Cust.	**$45,206.77**	**$467,862.08**	**$1,099,914.53**	**$311,076.23**	**$233,220.09**	**$50,424.13**		
O&M: $/Customer								
Customer Services O&M Cost 2016$'s $000/year	$1.50	$0.00	$0.00	$0.00	$0.00	$0.00	$141,932.81	cust 8
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Customer Services O&M $/Customer 2016$	$45.48	$0.00	$0.00	$0.00	$0.00	$0.00	$24.81	
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Customer Services O&M $/Customer 2020$	$49.95	$0.00	$0.00	$0.00	$0.00	$0.00	$27.24	
Customer Accounts O&M 2013$'s $000/yr	$77.78	$7.85	$6.27	$12.60	$5.63	$3.89	$116,733.31	cust 8
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Customer Services O&M $/Customer 2016$	$2,356.87	$7,850.76	$6,267.17	$12,601.52	$5,630.09	$3,891.80	$20.40	
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Customer Accounts O&M $/Customer 2020$	$2,588.19	$8,621.27	$6,882.26	$13,838.29	$6,182.65	$4,273.76	$22.40	
Meter & House Reg O&M Total Cost	$70.00	$13.00	$13.00	$25.00	$2.00	$2.00	$10,718.00	cust 8
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Customer Services O&M $/Customer 2016$	$2,121.21	$13,000.00	$13,000.00	$25,000.00	$2,000.00	$2,000.00	$1.87	
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Meter & House Reg O&M $/Customer 2020$	$2,329.40	$14,275.88	$14,275.88	$27,453.62	$2,196.29	$2,196.29	$2.06	
Total Service Line Footage	11,524	0	0	0	0	0	324,549,532	cust 8
Percent of Total Footage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
Allocated SL O&M Costs $000	$1	$0	$0	$0	$0	$0	$29,619	cust 8
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Allocated SL O&M Costs 2020$'s	$1	$0	$0	$0	$0	$0	$32.526	$0 $0
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Service Lines O&M $/Customer 2020$	$35.00	$0.00	$0.00	$0.00	$0.00	$0.00	$5.68	
Customer Service & Information Cost (CSI) Costs Accounts (FERC A								
2016 Number of Customers	33	1	1	1	1	1	5,721,670	
Customer Services & Information O&M $/Customer 2016$	$14,319.86	$130,781.85	$123,834.41	$143,287.23	$105,771.08	$57,682.49	$7.26	$0.00 $0.00
escalator 2016$'s to 2020$'s	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	1.0981	Loader Model
Customer Accounts O&M $/Customer 2020$	$15,725.27	$143,617.39	$135,988.10	$157,350.11	$116,151.95	$63,343.72	$7.98	
Total Direct O&M $/customer/yr	**$20,727.80**	**$166,514.54**	**$157,146.25**	**$198,642.02**	**$124,530.89**	**$69,813.77**	**$65.36**	
O&M Loaders: $/Customer								
Administrative & General as % of O&M	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	43.64%	cust 4, a&g
Administrative & General $/customer/yr 2020$'s	$9,044.85	$72,660.82	$68,572.84	$86,680.07	$54,340.70	$30,464.16	$28.52	
General Plant as % of O&M	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	44.94%	cust 4, gen plant
General Plant $/customer/yr 2020$'s	$9,315.31	$74,833.53	$70,623.31	$89,271.98	$55,965.60	$31,375.10	$29.37	
Materials & Supplies Loader:								
Per Customer Direct+A&G+GP O&M $/customer/yr	$39,087.97	$314,008.89	$296,342.39	$374,594.06	$234,837.19	$131,653.03		
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
Total Direct+A&G+GP O&M $000/yr	$1,290	$314	$296	$375	$235	$132	$705,248.54	
Percent of Total	0.18%	0.04%	0.04%	0.05%	0.03%	0.02%	100.00%	
Allocated M&S $2,930,464.06	$5,360	$1,305	$1,231	$1,557	$976	$547	$2,930,464.06	Loader Model
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
M&S Loader $/customer/yr 2020$s	$162.42	$1,304.78	$1,231.37	$1,556.52	$975.80	$547.05	$0.51	
Total O&M Loaders $/customer/yr	**$18,522.58**	**$148,799.12**	**$140,427.52**	**$177,508.57**	**$111,282.10**	**$62,386.31**	**$58.41**	
LRMC Rental Customer Cost $/customer/year	**$84,457.16**	**$783,175.75**	**$1,397,488.30**	**$687,226.82**	**$469,033.08**	**$182,624.21**	**$123.77**	

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Core					Non-Residential						Non-Residential			Noncore Retail				
	Residential					Commercial/Industrial						Air	Natural Gas	Gas	G-30 - Noncore C&I			Small EG	Large EG
	Single Family (Detached homes)	Multi Family	Master Meter (up to 100,000 therms/year)	(100,001 therms per year and greater)	Residential Total or Avg.	Very Small - up to 300 therms/year	Small - 301 to 3,000 therms/year	3,001 to 50,000 therms/year	50,001 to 250,000 therms/year	Very Large - Over 250,000 therms/year	Average	Conditioning	Vehicle	Engine	Distribution	Transmission	Total	< 3million	> 3million
NCO Method:																			
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718	534	20	554	250	63
New Hookups Rate	0.54%	0.70%	0.19%	0.00%	0.59%	0.77%	0.72%	0.59%	0.35%	0.30%	0.70%	0.00%	3.67%	1.81%	0.19%	0.00%	0.18%	19.20%	0.00%
No of New Customer Hookups /year	19,921	12,121	234	0	32,276	679	457	290	8	1	1,435	0	9	13	1	0	1	10	0
Marginal Investment: $/Customer																			
Meter & House Reg	$195.45	$195.45	$1,805.27	$19,464.95	$230.71	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11
Service Lines	$1,773.76	$1,773.65	$9,356.02	$130,050.51	$1,940.10	$9,046.73	$11,048.15	$15,681.51	$45,448.16	$80,180.63	$11,794.90	$7,575.11	$85,563.97	$209,792.28	$313,478.61	$851,964.79	$332,918.54	$102,268.50	$367,802.70
Exclusive Use Facilities	$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	$11,753.92	$28,220.26	$13,193.02	$0.00	$197,632.73
Total Marginal Investment $/customer	$1,969.21	$1,969.10	$11,161.30	$149,515.46	$2,170.81	$9,653.32	$12,358.13	$18,505.68	$54,402.08	$92,757.09	$13,269.27	$16,564.66	$135,363.77	$215,383.82	$418,460.46	##########	$0.00	$172,741.89	$1,332,110.55
Weighted PVRR for Meter & House Reg	129.06%	129.13%	129.12%	129.23%	129.03%	129.10%	129.09%	129.11%	129.12%	129.08%	128.89%	129.11%	129.30%	129.21%	129.28%	129.30%	129.30%	129.31%	129.31%
PVCC for Service Lines	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%
PVRR:																			
Meter & House Reg $/customer	$252.26	$252.39	$2,330.94	$25,154.06	$297.67	$783.12	$1,691.00	$3,646.40	$11,561.12	$16,233.41	$1,900.30	$11,606.23	$64,391.70	$7,224.81	$120,526.94	$512,451.44	$136,701.70	$91,131.66	$991,414.87
Service Lines $/customer	$2,293.99	$2,293.85	$12,100.12	$168,193.98	$2,509.13	$11,700.12	$14,288.54	$20,280.85	$58,777.98	$103,697.40	$15,254.32	$9,796.87	$110,659.66	$271,323.80	$405,421.06	$1,101,843.84	$430,562.68	$132,263.58	$475,678.27
PVRR of Hookup Cost $/customer	$2,546.26	$2,546.24	$14,431.06	$193,348.05	$2,806.81	$12,483.24	$15,979.54	$23,927.25	$70,339.10	$119,930.81	$17,154.62	$21,403.10	$175,051.36	$278,548.61	$525,948.01	##########	$567,264.38	$223,395.24	$1,467,093.15
Total PVRR of Hookup Cost for Class $'s	$50,723,965	$30,863,014	$3,376,867	$0	$90,592,489	$8,476,117	$7,302,651	$6,938,904	$562,713	$119,931	$24,616,875	$0	$1,575,462	$3,621,132	$525,948	$0	$567,264	$2,233,952	$0
PVRR of Hookup Cost $/customer	**$13.80**	**$17.93**	**$28.09**	**$0.00**	**$16.42**	**$96.25**	**$114.49**	**$141.19**	**$249.21**	**$362.33**	**$120.92**	**$0.00**	**$6,430.46**	**$5,043.36**	**$984.92**	**$0.00**	**$1,023.94**	**$8,935.81**	**$0.00**
O&M Cost w/Loaders $/Cust.																			
Total Direct O&M	$57.81	$55.02	$71.38	$201.64	$57.23	$139.34	$161.81	$381.05	$973.38	$1,836.92	$216.74	$2,871.75	$18,079.40	$574.94	$5,440.26	$5,503.41	$9,455.82	$6,039.24	$17,933.71
Total O&M Loaders $/customer/yr	$51.66	$49.17	$63.79	$180.19	$51.14	$124.51	$144.60	$340.51	$869.82	$1,641.49	$193.68	$2,566.22	$16,155.94	$513.77	$4,861.47	$4,917.90	$8,449.82	$5,396.73	$16,025.75
LRMC NCO Customer Cost $/customer/year	**$123.27**	**$122.12**	**$163.26**	**$381.83**	**$124.80**	**$360.11**	**$420.90**	**$862.76**	**$2,092.41**	**$3,840.74**	**$531.35**	**$5,437.97**	**$40,665.79**	**$6,132.07**	**$11,286.65**	**$10,421.31**	**$18,929.58**	**$20,371.78**	**$33,959.47**
NCO w/ Replacement Cost Adder																			
Marginal Investment: Meter & House Reg $/Customer	$195.45	$195.45	$1,805.27	$19,464.95	$230.71	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11
Service Lines Replacement Cost	$3,167.23	$3,167.23	$14,373.42	$160,276.57	$3,412.85	$14,393.15	$17,029.09	$22,772.18	$71,036.90	$182,652.55	$18,143.64	$11,447.04	$112,536.62	$312,229.22	$342,511.43	$917,974.12	$363,286.25	$108,519.95	$350,966.12
Exclusive Use Facilities	$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	$11,753.92	$28,220.26	$13,193.02	$0.00	$197,632.73
Total	$1,969.21	$1,969.10	$11,161.30	$149,515.46	$2,170.81	$9,653.32	$12,358.13	$18,505.68	$54,402.08	$92,757.09	$13,269.27	$16,564.66	$135,363.77	$215,383.82	$418,460.46	##########	$0.00	$172,741.89	$1,332,110.55
Weighted PVRR for Meter & House Reg	129.06%	129.13%	129.12%	129.23%	129.03%	129.10%	129.09%	129.11%	129.12%	129.08%	128.89%	129.11%	129.30%	129.21%	129.28%	129.30%	129.30%	129.31%	129.31%
PVCC for Service Lines	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%	129%
PVCC for Exclusive Use Facilities (Meters)															129%	129%	129%	129%	129%
Weighted Replacement Factor for Meter & House Reg	1.79%	1.27%	1.63%	0.97%	1.96%	1.66%	1.77%	1.65%	1.82%	2.13%	2.75%	1.88%	0.40%	1.04%	0.37%	0.42%	0.38%	0.29%	0.29%
Replacement Factor for Service Lines	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Replacement Factor for Exclusive Use Facilities															4.00%	4.00%	4.00%	4.00%	4.00%
Meter & House Reg, Replacement	$4.53	$3.19	$37.99	$244.29	$5.83	$12.98	$29.88	$60.24	$210.75	$345.38	$52.21	$218.33	$256.55	$74.90	$451.86	$2,128.85	$520.11	$263.24	$2,863.77
Service Lines, Replacement	$61.14	$61.14	$277.45	$3,093.81	$65.88	$277.83	$328.71	$439.57	$1,371.22	$3,525.73	$350.23	$220.96	$2,172.29	$6,026.94	$6,611.48	$17,719.60	$7,012.49	$2,094.75	$6,774.68
Exclusive Use Facilities, Replace															$604.51	$1,451.38	$678.52	$0.00	$10,164.36
Replacement Adder $/Customer	$65.66	$64.33	$315.44	$3,338.10	$71.70	$290.81	$358.59	$499.81	$1,581.97	$3,871.11	$402.43	$439.29	$2,428.84	$6,101.84	$7,667.85	$21,299.83	$8,211.13	$2,358.00	$19,802.81
NCO w/o Repl Cost $/Cust/yr	$123.27	$122.12	$163.26	$381.83	$124.80	$360.11	$420.90	$862.76	$2,092.41	$3,840.74	$531.35	$5,437.97	$40,665.79	$6,132.07	$11,286.65	$10,421.31	$18,929.58	$20,371.78	$33,959.47
NCO w/ Repl Cost: $/Cust/yr.	**$188.93**	**$186.45**	**$478.70**	**$3,719.94**	**$196.51**	**$650.91**	**$779.49**	**$1,362.57**	**$3,674.38**	**$7,711.85**	**$933.78**	**$5,877.27**	**$43,094.63**	**$12,233.91**	**$18,954.50**	**$31,721.15**	**$27,140.71**	**$22,729.78**	**$53,762.28**

SCG 2020 TCAP
LRMC Customer Cost/Rental Method
Marginal Unit Costs

	Noncore Wholesale						Total O&M Cost for All	
	EOR	Wholesale				International		
	G-40	LB	SDG&E	SWG	Vernon	Ecogas	Customers	
NCO Method:								
2016 Number of Customers	33	1	1	1	1	1	5,721,670	cust 2
New Hookups Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
No of New Customer Hookups /year	0	0	0	0	0	0	33,744	
Marginal Investment: $/Customer								
Meter & House Reg	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Service Lines	$222,966.35	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Exclusive Use Facilities	$31,275.11	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		cust 6, cust 7
Total Marginal Investment $/customer	$517,080.69	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		
Weighted PVRR for Meter & House Reg	129.33%							cust 10
PVCC for Service Lines	129.33%	129.33%	129.33%	129.33%	129.33%	129.33%		2013 RECC
PVRR:								
Meter & House Reg $/customer	$339,919.37	$0.00	$0.00	$0.00	$0.00	$0.00		
Service Lines $/customer	$288,361.79	$0.00	$0.00	$0.00	$0.00	$0.00		
PVRR of Hookup Cost $/customer	$628,281.17	$0.00	$0.00	$0.00	$0.00	$0.00		
Total PVRR of Hookup Cost for Class $'s	$0	$0	$0	$0	$0	$0		
PVRR of Hookup Cost $/customer	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**		
O&M Cost w/Loaders $/Cust.								
Total Direct O&M	$20,727.80	$166,514.54	$157,146.25	$198,642.02	$124,530.89	$69,813.77		
Total O&M Loaders $/customer/yr	$18,522.58	$148,799.12	$140,427.52	$177,508.57	$111,282.10	$62,386.31		
LRMC NCO Customer Cost $/customer/year	**$39,250.39**	**$315,313.66**	**$297,573.76**	**$376,150.58**	**$235,812.99**	**$132,200.08**		
NCO w/ Replacement Cost Adder								
Marginal Investment: Meter & House Reg $/Customer	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Service Lines Replacement Cost	$313,328.03	$0.00	$0.00	$0.00	$0.00	$0.00		cust 5
Exclusive Use Facilities	$31,275.11	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		cust 6, cust 7
Total	$517,080.69	$4,656,772.60	$10,947,781.49	$3,096,235.69	$2,321,309.97	$501,886.62		
Weighted PVRR for Meter & House Reg	129.33%							cust 10
PVCC for Service Lines	129%							2013 RECC
PVCC for Exclusive Use Facilities (Meters)	129%	129%	129%	129%	129%	129%		
Weighted Replacement Factor for Meter & House Reg	0.21%							cust 10
Replacement Factor for Service Lines	1.5%							
Replacement Factor for Exclusive Use Facilities	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%		cust 10
Meter & House Reg, Replacement	$703.78							
Service Lines, Replacement	$6,048.15							
Exclusive Use Facilities, Replace	$1,608.50	$239,500.36	$563,050.40	$159,241.10	$119,386.24	$25,812.30		
Replacement Adder $/Customer	$8,360.43	$239,500.36	$563,050.40	$159,241.10	$119,386.24	$25,812.30		
NCO w/o Repl Cost $/Cust/yr	$39,250.39	$315,313.66	$297,573.76	$376,150.58	$235,812.99	$132,200.08		
NCO w/ Repl Cost: $/Cust/yr.	**$47,610.81**	**$554,814.03**	**$860,624.16**	**$535,391.68**	**$355,199.23**	**$158,012.38**		

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

	Core														
	Residential					Non-Residential									
	Single Family	Multi Family	Master Meter Small	Master Meter Large	Residential Total	G-10 Very Small	G-10 Small	G-10 Medium	G-10 Large	G-10 Very Large	G-10 Total	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Custom

	Noncore												Total
	Non-Residential												Over All
	G-30			Small	Large	EOR	Wholesale				International		
	Distribution	Transmission	Total	EG	EG	G-40	LB	SDG&E	SWG	Vernon	Mexacali	Rosarito	Customers
2016 Number of Customers	534	20	554	250	63	33	1	1	1	1	1	0	5,721,670

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

1) Residential Segmentation

1a) Segmentation of Residential Total Customer Counts into Bands

	Residential				
	Single Family	Multi Family	Master Meter Small	Master Meter Large	Total
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213
Percent of Total	67%	31%	2%	0%	100%

values from 'Number of Customers', cust 2 tab

1b) Segmentation of Residential Meter, Regulator & MSA Investment Costs into Bands

	Residential				
	Single Family	Multi Family	Master Meter Small	Master Meter Large	Total
Per Cust. Meter, Reg. & MSA Investment	$195.45	$195.45	$1,805.27	$19,464.95	
2016 Number of Customers	3,674,386	1,721,561	120,217	49	5,516,213
Total Meter, Reg. & MSA Investment	$718,174,622	$336,486,537	$217,024,674	$953,783	$1,272,639,615
Percent of Total Meter, Reg. & MSA Investment	56%	26%	17%	0%	100%

note: used to segment Meters, Regulators & MSAs O&M Costs
values from 'Investment Meters, REGs', cust 5 tab

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

2) G10 Segmentation

2a) Segmentation of G-10 Total Customer Counts into Bands

	G-10					
	Very Small	Small	Medium	Large	Very Large	Total
2016 Number of Customers	88,060	63,785	49,146	2,258	331	203,580
Percent of Total	43%	31%	24%	1%	0%	100%

values from 'Number of Customers', cust 2 tab

2b) Segmentation of G-10 Meter, Regulator & MSA Investment Costs into Bands

	G-10					
	Very Small	Small	Medium	Large	Very Large	Total
Per Cust. Meter, Reg & MSA Investment	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	
2016 Number of Customers	88,060	63,785	49,146	2,258	331	203,580
Total Meter, Reg & MSA Investment	$53,416,216	$83,557,068	$138,796,556	$20,217,962	$4,162,809	$300,150,611
Percent of Total Meter, Reg & MSA Investment	18%	28%	46%	7%	1%	100%

note: used to segment Meters, Regulators & MSAs O&M Costs
values from 'Investment Meters, REGs', cust 5 tab

SCG 2020 TCAP
LRMC Customer Cost
Number of Customers by Customer Class

3) G 30 Segmentation

3a) Segmentation of G-30 total customer counts by Service Level

	G-30		
	Distribution	Transmission	Total
2016 Number of Customers	534	20	554
Percent of Total	96%	4%	100%

values from 'cust 2' tab

3b) Allocation of G-30 Total Big GEMS Costs by Service Level

		G-30		
		Distribution	Transmission	Total
Meter/Reg Investment Cost Per Customer	2013 $s	$93,227.93	$396,314.38	
2016 Number of Customers		534	20	554
Total Cost	2013 $s	$49,783,716	$7,926,288	$57,710,004
Percent of Total Cost		86%	14%	100%

note: used to segment Meters, Regulators & MSAs O&M Costs
values from 'Investment Meters, REGs', cust 5 tab

SCG 2020 TCAP
LRMC Customer Cost
Average Per Customer Investment in Meters & Regulators by Customer Class

		Core													
		Residential					Non-Residential								
				Master Meter			G-10								
Investment Per Customer:		Single Family	Multi Family	Small	Large	Residential Average	Very Small	Small	Medium	Large	Very Large	Average	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
Meter, Reg.	2016 $s	$172.67	$172.67	$1,594.85	$17,196.05	$203.82	$535.88	$1,157.28	$2,494.97	$7,910.22	$11,110.51	$1,302.51	$7,941.70	$43,994.96	$4,939.78
Meter, Reg.	2020 $s	$195.45	$195.45	$1,805.27	$19,464.95	$230.71	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55
Total		$195.45	$195.45	$1,805.27	$19,464.95	$230.71	$606.59	$1,309.98	$2,824.17	$8,953.92	$12,576.46	$1,474.36	$8,989.56	$49,799.80	$5,591.55

For Res and Non-Residential G10 customers we multiply 5 yr average meter size and pressure type combination for new customers per class times unit cost for each associated combination.
For other classes we multiply average meter size and pressure type combination for all customers per class times unit cost for each associated combination.

Average Per Customer Investment in
Service Lines by Customer Class

		Core													
		Residential					Non-Residential								
				Master Meter			G-10								
Investment Per Customer:		Single Family	Multi Family	Small	Large	Residential Average	Very Small	Small	Medium	Large	Very Large	Average	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
Service Lines	2016 $s	$1,567.00	$1,566.90	$8,265.45	$114,891.36	$1,713.96	$7,992.22	$9,760.34	$13,853.62	$40,150.56	$70,834.49	$10,420.05	$6,692.13	$75,590.33	$185,338.15
Service Lines	2020 $s	1,773.76	1,773.65	9,356.02	130,050.51	1,940.10	9,046.73	11,048.15	15,681.51	45,448.16	80,180.63	11,794.90	7,575.11	85,563.97	209,792.28
Total		1,773.76	1,773.65	9,356.02	130,050.51	1,940.10	9,046.73	11,048.15	15,681.51	45,448.16	80,180.63	11,794.90	7,575.11	85,563.97	209,792.28

formerly tabs: 'Investment Meter, Reg' and 'Investment Service Lines'
For residential and non-residential G10 customers we multiply Ken's 5 yr average footage, pipe type, pipe size configuration per class times Distribution Managers' cost per foot each associated configuration.
For other classes we multiply average footage, pipe type and pipe size combination for all customers per class times unit cost for each associated combination.

Service Lines Replacement Costs

		Core													
		Residential					Non-Residential								
				Master Meter			G-10								
Investment Per Customer:		Single Family	Multi Family	Small	Large	Residential Average	Very Small	Small	Medium	Large	Very Large	Average	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
Service Lines Replaceme	2016 $s	2,798.05	2,798.05	12,698.01	141,594.17	3,015.03	12,715.43	15,044.12	20,117.78	62,756.59	161,361.92	16,028.75	10,112.73	99,418.96	275,834.68
Service Lines	2020 $s	3,167.23	3,167.23	14,373.42	160,276.57	3,412.85	14,393.15	17,029.09	22,772.18	71,036.90	182,652.55	18,143.64	11,447.04	112,536.62	312,229.22
Total		3,167.23	3,167.23	14,373.42	160,276.57	3,412.85	14,393.15	17,029.09	22,772.18	71,036.90	182,652.55	18,143.64	11,447.04	112,536.62	312,229.22

SCG 2020 TCAP
LRMC Customer Cost
Average Per Customer Investment in

		Noncore												Total
		Non-Residential												
		G-30			<3 Million SM. COGEN	>3 Million EG	EOR	Wholesale				International		Over All
Investment Per Customer:		Distribution	Transmission	Average	G-50	G-50	G-40	LB	SDG&E	SWG	Vernon	DGN	Rosarito	Customers
Meter, Reg.	2016 $s	$82,360.96	$350,118.57	$97,210.60	$62,258.77	$677,308.75	$241,675.42	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Meter, Reg.	2020 $s	$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Total		$93,227.93	$396,314.38	$105,723.45	$70,473.40	$766,675.11	$262,839.23	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	

For Res and Non-Residential G10 custo
For other classes we multiply average n

Average Per Customer Investment in
Service Lines by Customer Class

		Noncore												Total
		Non-Residential												
		G-30			SM. COGEN	EG	EOR	Wholesale				International		Over All
Investment Per Customer:		Distribution	Transmission	Average	G-50	G-50	G-40	LB	SDG&E	SWG	Vernon	DGN	Rosarito	Customers
Service Lines	2016 $s	$276,938.43	$752,656.77	$294,112.38	$90,347.72	$324,930.32	$196,976.60	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Service Lines	2020 $s	313,478.61	851,964.79	332,918.54	102,268.50	367,802.70	222,966.35	0.00	0.00	0.00	0.00	0.00	0.00	
Total		313,478.61	851,964.79	332,918.54	102,268.50	367,802.70	222,966.35	0.00	0.00	0.00	0.00	0.00	0.00	

formerly tabs: 'Investment Meter, Reg' a
For residential and non-residential G10
For other classes we multiply average fo

Service Lines Replacement Costs

		Noncore												Total
		Non-Residential												
		G-30			SM. COGEN	EG	EOR	Wholesale				International		Over All
Investment Per Customer:		Distribution	Transmission	Average	G-50	G-50	G-40	LB	SDG&E	SWG	Vernon	DGN	Rosarito	Customers
Service Lines Replaceme	2016 $s	302,587.08	810,971.81	320,940.32	95,870.48	310,056.27	276,805.41	0.00	0.00	0.00	0.00	0.00	0.00	
Service Lines	2020 $s	342,511.43	917,974.12	363,286.25	108,519.95	350,966.12	313,328.03	0.00	0.00	0.00	0.00	0.00	0.00	
Total		342,511.43	917,974.12	363,286.25	108,519.95	350,966.12	313,328.03	0.00	0.00	0.00	0.00	0.00	0.00	

Meter Cost Detail

Code	Element	Meter Size	Above Std	avg labor and nonlabor $/meter	avg $/meter	avg $/regulator	Total
S10	SGL	1	0	$144	$47	$18	$209
M10	MULT	1	0	$121	$47	$5	$173
30	AG	3	0	$166	$124	$18	$308
	CMB	3		$363	$427	$112	$902
31	LBS	3	1	$161	$427	$279	$867
S40	SZ	4	0	$171	$577	$219	$967
S50	SZ	5	0	$171	$577	$219	$967
	CMB	4		$309	$713	$258	$1,280
	CMB	5		$309	$713	$258	$1,280
41	@LBS	4	1	$2,120	$463	$278	$2,861
51	@LBS	5	1	$2,120	$463	$278	$2,861
S60	STD	6	0	$1,437	$730	$219	$2,386
S70	STD	7	0	$1,437	$730	$219	$2,386
61	LBS	6	1	$3,386	$730	$279	$4,395
71	LBS	7	1	$3,386	$730	$279	$4,395
S80	STD	8	0	$1,437	$818	$280	$2,535
S90	STD	9	0	$1,437	$818	$280	$2,535
81	LBS	8	1	$3,386	$818	$640	$4,844
91	LBS	9	1	$3,386	$818	$640	$4,844
99	TURBINE METERS	10		$422,967	$17,118	$3,300	$443,385
100	ROTARY METERS	10		$4,770	$4,433	$3,300	$12,503
110	ULTRASONIC METERS	12		$906,081	$119,284	$0	$1,025,365

Calculation of Weighted Average Meter & Regulator CAPEX/ Customer

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
S10	SF	1	0	44,606	$143.91	$47.02	$18.07	$6,419,106	$2,097,153	$806,036	$9,322,294	**$208.99**
30	SF	3	0	30,792	$166.35	$123.97	$18.07	$5,122,146	$3,817,174	$556,415	$9,495,735	**$308.38**
31	SF	3	1	19	$161.18	$427.15	$279.00	$3,062	$8,116	$5,301	$16,479	**$867.33**
S40	SF	4	0	5,457	$171.25	$576.52	$219.00	$934,503	$3,146,047	$1,195,083	$5,275,633	**$966.76**
41	SF	4	1	34	$2,120.25	$462.92	$278.00	$72,088	$15,739	$9,452	$97,280	**$2,861.17**
S50	SF	5	0	282	$171.25	$576.52	$219.00	$48,292	$162,577	$61,758	$272,628	**$966.76**
S60	SF	6	0	985	$1,437.05	$729.76	$219.00	$1,415,492	$718,818	$215,715	$2,350,024	**$2,385.81**
61	SF	6	1	41	$3,386.05	$729.76	$279.00	$138,828	$29,920	$11,439	$180,187	**$4,394.81**
S70	SF	7	0	3	$1,437.05	$729.76	$219.00	$4,311	$2,189	$657	$7,157	**$2,385.81**
S80	SF	8	0	128	$1,437.05	$818.36	$280.00	$183,942	$104,750	$35,840	$324,532	**$2,535.40**
81	SF	8	1	30	$3,386.05	$818.36	$640.00	$101,581	$24,551	$19,200	$145,332	**$4,844.40**
S90	SF	9	0	7	$1,437.05	$818.36	$280.00	$10,059	$5,728	$1,960	$17,748	**$2,535.40**
91	SF	9	1	4	$3,386.05	$818.36	$640.00	$13,544	$3,273	$2,560	$19,378	**$4,844.40**
100	SF	10	1	1	$4,769.78	$4,433.19	$3,300.00	$4,770	$4,433	$3,300	$12,503	**$12,502.97**
	tot SF			82,389				$14,471,725	$10,140,469	$2,924,716	$27,536,910	**$172.67**
M10	MF	1	0	55,746	$121.14	$47.02	$4.52	$6,753,010	$2,620,900	$251,834	$9,625,744	**$172.67**
30	MF	3	0	4,148	$166.35	$123.97	$18.07	$690,006	$514,213	$74,955	$1,279,173	**$308.38**
31	MF	3	1	1	$161.18	$427.15	$279.00	$161	$427	$279	$867	**$867.33**
S40	MF	4	0	157	$171.25	$576.52	$219.00	$26,886	$90,513	$34,383	$151,782	**$966.76**
S60	MF	6	0	6	$1,437.05	$729.76	$219.00	$8,622	$4,379	$1,314	$14,315	**$2,385.81**
61	MF	6	1	4	$3,386.05	$729.76	$279.00	$13,544	$2,919	$1,116	$17,579	**$4,394.81**
81	MF	8	1	2	$3,386.05	$818.36	$640.00	$6,772	$1,637	$1,280	$9,689	**$4,844.40**
	tot MF			60,064				$7,499,001	$3,234,987	$365,161	$11,099,150	**$172.67**
M10	MM Band 1	1	0	473	$121.14	$47.02	$4.52	$57,299	$22,238	$2,137	$81,674	**$172.67**
30	MM Band 1	3	0	141	$166.35	$123.97	$18.07	$23,455	$17,479	$2,548	$43,482	**$308.38**
31	MM Band 1	3	1	13	$161.18	$427.15	$279.00	$2,095	$5,553	$3,627	$11,275	**$867.33**
S40	MM Band 1	4	0	204	$171.25	$576.52	$219.00	$34,935	$117,609	$44,676	$197,220	**$966.76**
41	MM Band 1	4	1	37	$2,120.25	$462.92	$278.00	$78,449	$17,128	$10,286	$105,863	**$2,861.17**
S50	MM Band 1	5	0	14	$171.25	$576.52	$219.00	$2,397	$8,071	$3,066	$13,535	**$966.76**
S60	MM Band 1	6	0	151	$1,437.05	$729.76	$219.00	$216,994	$110,194	$33,069	$360,258	**$2,385.81**
61	MM Band 1	6	1	39	$3,386.05	$729.76	$279.00	$132,056	$28,461	$10,881	$171,398	**$4,394.81**
S70	MM Band 1	7	0	2	$1,437.05	$729.76	$219.00	$2,874	$1,460	$438	$4,772	**$2,385.81**
S80	MM Band 1	8	0	60	$1,437.05	$818.36	$280.00	$86,223	$49,101	$16,800	$152,124	**$2,535.40**
81	MM Band 1	8	1	63	$3,386.05	$818.36	$640.00	$213,321	$51,556	$40,320	$305,197	**$4,844.40**
S90	MM Band 1	9	0	11	$1,437.05	$818.36	$280.00	$15,808	$9,002	$3,080	$27,889	**$2,535.40**
91	MM Band 1	9	1	35	$3,386.05	$818.36	$640.00	$118,512	$28,642	$22,400	$169,554	**$4,844.40**
100	MM Band 1	10	1	31	$4,769.78	$4,433.19	$3,300.00	$147,863	$137,429	$102,300	$387,592	**$12,502.97**
	tot MM 1			1,274				$1,132,280	$603,925	$295,628	$2,031,833	**$1,594.85**
61	MM Band 2	6	1	3	$3,386.05	$729.76	$279.00	$10,158	$2,189	$837	$13,184	**$4,394.81**
71	MM Band 2	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
81	MM Band 2	8	1	5	$3,386.05	$818.36	$640.00	$16,930	$4,092	$3,200	$24,222	**$4,844.40**
91	MM Band 2	9	1	17	$3,386.05	$818.36	$640.00	$57,563	$13,912	$10,880	$82,355	**$4,844.40**
99	MM Band 2	10	1	1	$422,966.95	$17,118.00	$3,300.00	$422,967	$17,118	$3,300	$443,385	**$443,384.95**
100	MM Band 2	10	1	22	$4,769.78	$4,433.19	$3,300.00	$104,935	$97,530	$72,600	$275,065	**$12,502.97**
	tot MM 2			49				$615,939	$135,571	$91,096	$842,606	**$17,196.05**

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
S10	G10 Band 1	1	0	2,133	$143.91	$47.02	$18.07	$306,953	$100,283	$38,544	$445,780	**$208.99**
30	G10 Band 1	3	0	447	$166.35	$123.97	$18.07	$74,357	$55,413	$8,077	$137,847	**$308.38**
31	G10 Band 1	3	1	27	$161.18	$427.15	$279.00	$4,352	$11,533	$7,533	$23,418	**$867.33**
S40	G10 Band 1	4	0	309	$171.25	$576.52	$219.00	$52,916	$178,143	$67,671	$298,730	**$966.76**
41	G10 Band 1	4	1	24	$2,120.25	$462.92	$278.00	$50,886	$11,110	$6,672	$68,668	**$2,861.17**
S50	G10 Band 1	5	0	37	$171.25	$576.52	$219.00	$6,336	$21,331	$8,103	$35,770	**$966.76**
51	G10 Band 1	5	1	3	$2,120.25	$462.92	$278.00	$6,361	$1,389	$834	$8,584	**$2,861.17**
S60	G10 Band 1	6	0	88	$1,437.05	$729.76	$219.00	$126,460	$64,219	$19,272	$209,951	**$2,385.81**
61	G10 Band 1	6	1	43	$3,386.05	$729.76	$279.00	$145,600	$31,380	$11,997	$188,977	**$4,394.81**
S70	G10 Band 1	7	0	1	$1,437.05	$729.76	$219.00	$1,437	$730	$219	$2,386	**$2,385.81**
71	G10 Band 1	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
S80	G10 Band 1	8	0	23	$1,437.05	$818.36	$280.00	$33,052	$18,822	$6,440	$58,314	**$2,535.40**
81	G10 Band 1	8	1	26	$3,386.05	$818.36	$640.00	$88,037	$21,277	$16,640	$125,954	**$4,844.40**
91	G10 Band 1	9	1	6	$3,386.05	$818.36	$640.00	$20,316	$4,910	$3,840	$29,066	**$4,844.40**
100	G10 Band 1	10	1	5	$4,769.78	$4,433.19	$3,300.00	$23,849	$22,166	$16,500	$62,515	**$12,502.97**
	tot Band 1			3,173				$944,298	$543,437	$212,621	$1,700,356	**$535.88**
S10	G10 Band 2	1	0	551	$143.91	$47.02	$18.07	$79,293	$25,905	$9,957	$115,155	**$208.99**
30	G10 Band 2	3	0	517	$166.35	$123.97	$18.07	$86,001	$64,091	$9,342	$159,434	**$308.38**
31	G10 Band 2	3	1	22	$161.18	$427.15	$279.00	$3,546	$9,397	$6,138	$19,081	**$867.33**
S40	G10 Band 2	4	0	615	$171.25	$576.52	$219.00	$105,318	$354,557	$134,685	$594,560	**$966.76**
41	G10 Band 2	4	1	49	$2,120.25	$462.92	$278.00	$103,892	$22,683	$13,622	$140,197	**$2,861.17**
S50	G10 Band 2	5	0	66	$171.25	$576.52	$219.00	$11,302	$38,050	$14,454	$63,806	**$966.76**
51	G10 Band 2	5	1	4	$2,120.25	$462.92	$278.00	$8,481	$1,852	$1,112	$11,445	**$2,861.17**
S60	G10 Band 2	6	0	259	$1,437.05	$729.76	$219.00	$372,195	$189,009	$56,721	$617,925	**$2,385.81**
61	G10 Band 2	6	1	50	$3,386.05	$729.76	$279.00	$169,302	$36,488	$13,950	$219,741	**$4,394.81**
S70	G10 Band 2	7	0	1	$1,437.05	$729.76	$219.00	$1,437	$730	$219	$2,386	**$2,385.81**
71	G10 Band 2	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
S80	G10 Band 2	8	0	62	$1,437.05	$818.36	$280.00	$89,097	$50,738	$17,360	$157,195	**$2,535.40**
81	G10 Band 2	8	1	76	$3,386.05	$818.36	$640.00	$257,340	$62,195	$48,640	$368,175	**$4,844.40**
S90	G10 Band 2	9	0	3	$1,437.05	$818.36	$280.00	$4,311	$2,455	$840	$7,606	**$2,535.40**
91	G10 Band 2	9	1	23	$3,386.05	$818.36	$640.00	$77,879	$18,822	$14,720	$111,421	**$4,844.40**
100	G10 Band 2	10	1	6	$4,769.78	$4,433.19	$3,300.00	$28,619	$26,599	$19,800	$75,018	**$12,502.97**
	tot Band 2			2,305				$1,401,399	$904,302	$361,839	$2,667,540	**$1,157.28**
S10	G10 Band 3	1	0	31	$143.91	$47.02	$18.07	$4,461	$1,457	$560	$6,479	**$208.99**
30	G10 Band 3	3	0	180	$166.35	$123.97	$18.07	$29,942	$22,314	$3,253	$55,509	**$308.38**
31	G10 Band 3	3	1	48	$161.18	$427.15	$279.00	$7,736	$20,503	$13,392	$41,632	**$867.33**
S40	G10 Band 3	4	0	695	$171.25	$576.52	$219.00	$119,018	$400,679	$152,205	$671,901	**$966.76**
41	G10 Band 3	4	1	58	$2,120.25	$462.92	$278.00	$122,974	$26,849	$16,124	$165,948	**$2,861.17**
S50	G10 Band 3	5	0	101	$171.25	$576.52	$219.00	$17,296	$58,228	$22,119	$97,643	**$966.76**
51	G10 Band 3	5	1	4	$2,120.25	$462.92	$278.00	$8,481	$1,852	$1,112	$11,445	**$2,861.17**
S60	G10 Band 3	6	0	625	$1,437.05	$729.76	$219.00	$898,155	$456,103	$136,875	$1,491,132	**$2,385.81**
61	G10 Band 3	6	1	117	$3,386.05	$729.76	$279.00	$396,168	$85,382	$32,643	$514,193	**$4,394.81**
S70	G10 Band 3	7	0	6	$1,437.05	$729.76	$219.00	$8,622	$4,379	$1,314	$14,315	**$2,385.81**
71	G10 Band 3	7	1	2	$3,386.05	$729.76	$279.00	$6,772	$1,460	$558	$8,790	**$4,394.81**
S80	G10 Band 3	8	0	234	$1,437.05	$818.36	$280.00	$336,269	$191,495	$65,520	$593,284	**$2,535.40**
81	G10 Band 3	8	1	212	$3,386.05	$818.36	$640.00	$717,842	$173,491	$135,680	$1,027,013	**$4,844.40**
S90	G10 Band 3	9	0	34	$1,437.05	$818.36	$280.00	$48,860	$27,824	$9,520	$86,204	**$2,535.40**
91	G10 Band 3	9	1	119	$3,386.05	$818.36	$640.00	$402,940	$97,384	$76,160	$576,484	**$4,844.40**
100	G10 Band 3	10	1	79	$4,769.78	$4,433.19	$3,300.00	$376,813	$350,222	$260,700	$987,735	**$12,502.97**
	tot Band 3			2,545				$3,502,349	$1,919,623	$927,735	$6,349,706	**$2,494.97**
41	G10 Band 4	4	1	1	$2,120.25	$462.92	$278.00	$2,120	$463	$278	$2,861	**$2,861.17**
61	G10 Band 4	6	1	5	$3,386.05	$729.76	$279.00	$16,930	$3,649	$1,395	$21,974	**$4,394.81**
S80	G10 Band 4	8	0	2	$1,437.05	$818.36	$280.00	$2,874	$1,637	$560	$5,071	**$2,535.40**
81	G10 Band 4	8	1	31	$3,386.05	$818.36	$640.00	$104,967	$25,369	$19,840	$150,176	**$4,844.40**
S90	G10 Band 4	9	0	2	$1,437.05	$818.36	$280.00	$2,874	$1,637	$560	$5,071	**$2,535.40**
91	G10 Band 4	9	1	37	$3,386.05	$818.36	$640.00	$125,284	$30,279	$23,680	$179,243	**$4,844.40**
100	G10 Band 4	10	0	5	$4,769.78	$4,433.19	$3,300.00	$23,849	$22,166	$16,500	$62,515	**$12,502.97**
100	G10 Band 4	10	1	50	$4,769.78	$4,433.19	$3,300.00	$238,489	$221,660	$165,000	$625,149	**$12,502.97**
	tot Band 4			133				$517,388	$306,859	$227,813	$1,052,060	**$7,910.22**

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
91	G10 Band 5	9	1	4	$3,386.05	$818.36	$640.00	$13,544	$3,273	$2,560	$19,378	**$4,844.40**
100	G10 Band 5	10	1	18	$4,769.78	$4,433.19	$3,300.00	$85,856	$79,797	$59,400	$225,054	**$12,502.97**
	tot Band 5			22				$99,400	$83,071	$61,960	$244,431	**$11,110.51**
61	GAC	6	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
S80	GAC	8	0	1	$1,437.05	$818.36	$280.00	$1,437	$818	$280	$2,535	**$2,535.40**
81	GAC	8	1	2	$3,386.05	$818.36	$640.00	$6,772	$1,637	$1,280	$9,689	**$4,844.40**
91	GAC	9	1	1	$3,386.05	$818.36	$640.00	$3,386	$818	$640	$4,844	**$4,844.40**
100	GAC	10	1	4	$4,769.78	$4,433.19	$3,300.00	$19,079	$17,733	$13,200	$50,012	**$12,502.97**
	tot GAC			9				$34,060	$21,736	$15,679	$71,475	**$7,941.70**
S10	NGV	1	0	14	$143.91	$47.02	$18.07	$2,015	$658	$253	$2,926	**$208.99**
30	NGV	3	0	2	$166.35	$123.97	$18.07	$333	$248	$36	$617	**$308.38**
31	NGV	3	1	18	$161.18	$427.15	$279.00	$2,901	$7,689	$5,022	$15,612	**$867.33**
41	NGV	4	1	12	$2,120.25	$462.92	$278.00	$25,443	$5,555	$3,336	$34,334	**$2,861.17**
51	NGV	5	1	5	$2,120.25	$462.92	$278.00	$10,601	$2,315	$1,390	$14,306	**$2,861.17**
61	NGV	6	1	23	$3,386.05	$729.76	$279.00	$77,879	$16,785	$6,417	$101,081	**$4,394.81**
71	NGV	7	1	5	$3,386.05	$729.76	$279.00	$16,930	$3,649	$1,395	$21,974	**$4,394.81**
81	NGV	8	1	40	$3,386.05	$818.36	$640.00	$135,442	$32,734	$25,600	$193,776	**$4,844.40**
91	NGV	9	1	30	$3,386.05	$818.36	$640.00	$101,581	$24,551	$19,200	$145,332	**$4,844.40**
99	NGV	10	1	21	$422,966.95	$17,118.00	$3,300.00	$8,882,306	$359,478	$69,300	$9,311,084	**$443,384.95**
100	NGV	10	1	75	$4,769.78	$4,433.19	$3,300.00	$357,733	$332,489	$247,500	$937,723	**$12,502.97**
	tot NGV			245				$9,613,165	$786,150	$379,449	$10,778,764	**$43,994.96**
S10	GEN	1	0	2	$143.91	$47.02	$18.07	$288	$94	$36	$418	**$208.99**
30	GEN	3	0	12	$166.35	$123.97	$18.07	$1,996	$1,488	$217	$3,701	**$308.38**
31	GEN	3	1	8	$161.18	$427.15	$279.00	$1,289	$3,417	$2,232	$6,939	**$867.33**
S40	GEN	4	0	45	$171.25	$576.52	$219.00	$7,706	$25,943	$9,855	$43,504	**$966.76**
41	GEN	4	1	19	$2,120.25	$462.92	$278.00	$40,285	$8,796	$5,282	$54,362	**$2,861.17**
S50	GEN	5	0	11	$171.25	$576.52	$219.00	$1,884	$6,342	$2,409	$10,634	**$966.76**
51	GEN	5	1	6	$2,120.25	$462.92	$278.00	$12,721	$2,778	$1,668	$17,167	**$2,861.17**
S60	GEN	6	0	109	$1,437.05	$729.76	$219.00	$156,638	$79,544	$23,871	$260,053	**$2,385.81**
61	GEN	6	1	113	$3,386.05	$729.76	$279.00	$382,623	$82,463	$31,527	$496,614	**$4,394.81**
S70	GEN	7	0	6	$1,437.05	$729.76	$219.00	$8,622	$4,379	$1,314	$14,315	**$2,385.81**
71	GEN	7	1	4	$3,386.05	$729.76	$279.00	$13,544	$2,919	$1,116	$17,579	**$4,394.81**
S80	GEN	8	0	114	$1,437.05	$818.36	$280.00	$163,823	$93,293	$31,920	$289,036	**$2,535.40**
81	GEN	8	1	161	$3,386.05	$818.36	$640.00	$545,154	$131,755	$103,040	$779,949	**$4,844.40**
S90	GEN	9	0	17	$1,437.05	$818.36	$280.00	$24,430	$13,912	$4,760	$43,102	**$2,535.40**
91	GEN	9	1	64	$3,386.05	$818.36	$640.00	$216,707	$52,375	$40,960	$310,042	**$4,844.40**
99	GEN	10	1	2	$422,966.95	$17,118.00	$3,300.00	$845,934	$34,236	$6,600	$886,770	**$443,384.95**
100	GEN	10	1	25	$4,769.78	$4,433.19	$3,300.00	$119,244	$110,830	$82,500	$312,574	**$12,502.97**
	tot GEN			718				$2,542,890	$654,562	$349,307	$3,546,759	**$4,939.78**
51	G30 Tran	5	1	1	$2,120.25	$462.92	$278.00	$2,120	$463	$278	$2,861	**$2,861.17**
S60	G30 Tran	6	0	1	$1,437.05	$729.76	$219.00	$1,437	$730	$219	$2,386	**$2,385.81**
71	G30 Tran	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
91	G30 Tran	9	1	1	$3,386.05	$818.36	$640.00	$3,386	$818	$640	$4,844	**$4,844.40**
99	G30 Tran	10	1	4	$422,966.95	$17,118.00	$3,300.00	$1,691,868	$68,472	$13,200	$1,773,540	**$443,384.95**
100	G30 Tran	10	1	7	$4,769.78	$4,433.19	$3,300.00	$33,388	$31,032	$23,100	$87,521	**$12,502.97**
110	G30 Tran	10	1	5	$906,080.94	$119,284.00	$0.00	$4,530,405	$596,420	$0	$5,126,825	**$1,025,364.94**
	tot G30 Tran			20				$6,265,990	$698,665	$37,716	$7,002,371	**$350,118.57**
31	G30 Dist	3	1	1	$161.18	$427.15	$279.00	$161	$427	$279	$867	**$867.33**
S40	G30 Dist	4	0	1	$171.25	$576.52	$219.00	$171	$577	$219	$967	**$966.76**
51	G30 Dist	5	1	1	$2,120.25	$462.92	$278.00	$2,120	$463	$278	$2,861	**$2,861.17**
61	G30 Dist	6	1	6	$3,386.05	$729.76	$279.00	$20,316	$4,379	$1,674	$26,369	**$4,394.81**
81	G30 Dist	8	1	38	$3,386.05	$818.36	$640.00	$128,670	$31,098	$24,320	$184,087	**$4,844.40**
S90	G30 Dist	9	0	2	$1,437.05	$818.36	$280.00	$2,874	$1,637	$560	$5,071	**$2,535.40**
91	G30 Dist	9	1	76	$3,386.05	$818.36	$640.00	$257,340	$62,195	$48,640	$368,175	**$4,844.40**
99	G30 Dist	10	1	89	$422,966.95	$17,118.00	$3,300.00	$37,644,058	$1,523,502	$293,700	$39,461,260	**$443,384.95**
100	G30 Dist	10	1	321	$4,769.78	$4,433.19	$3,300.00	$1,531,099	$1,423,055	$1,059,300	$4,013,454	**$12,502.97**
	tot G30 Dist			535				$39,586,810	$3,047,331	$1,428,970	$44,063,111	**$82,360.96**

Code	Rate	Meter Size (1)	Above Std (2)	Number of customers (3)	avg labor $/meter	avg $/meter	avg $/regulator	tot lab	tot met	tot reg	tot cost	Average Meter & Regulator CAPEX/ Customer
31	Sml G50	3	1	1	$161.18	$427.15	$279.00	$161	$427	$279	$867	**$867.33**
51	Sml G50	5	1	2	$2,120.25	$462.92	$278.00	$4,240	$926	$556	$5,722	**$2,861.17**
61	Sml G50	6	1	99	$3,386.05	$729.76	$279.00	$335,219	$72,247	$27,621	$435,086	**$4,394.81**
71	Sml G50	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
81	Sml G50	8	1	49	$3,386.05	$818.36	$640.00	$165,916	$40,099	$31,360	$237,376	**$4,844.40**
91	Sml G50	9	1	37	$3,386.05	$818.36	$640.00	$125,284	$30,279	$23,680	$179,243	**$4,844.40**
99	Sml G50	10	1	30	$422,966.95	$17,118.00	$3,300.00	$12,689,008	$513,540	$99,000	$13,301,548	**$443,384.95**
100	Sml G50	10	1	30	$4,769.78	$4,433.19	$3,300.00	$143,093	$132,996	$99,000	$375,089	**$12,502.97**
110	Sml G50	10	1	1	$906,080.94	$119,284.00	$0.00	$906,081	$119,284	$0	$1,025,365	**$1,025,364.94**
	tot G50			250				$14,372,389	$910,528	$281,775	$15,564,692	**$62,258.77**
81	G50 EG	8	1	3	$3,386.05	$818.36	$640.00	$10,158	$2,455	$1,920	$14,533	**$4,844.40**
91	G50 EG	9	1	1	$3,386.05	$818.36	$640.00	$3,386	$818	$640	$4,844	**$4,844.40**
99	G50 EG	10	1	15	$422,966.95	$17,118.00	$3,300.00	$6,344,504	$256,770	$49,500	$6,650,774	**$443,384.95**
100	G50 EG	10	1	9	$4,769.78	$4,433.19	$3,300.00	$42,928	$39,899	$29,700	$112,527	**$12,502.97**
110	G50 EG	12	1	35	$906,080.94	$119,284.00	$0.00	$31,712,833	$4,174,940	$0	$35,887,773	**$1,025,364.94**
	tot G50 EG			63				$38,113,809	$4,474,882	$81,760	$42,670,451	**$677,308.75**
71	G40	7	1	1	$3,386.05	$729.76	$279.00	$3,386	$730	$279	$4,395	**$4,394.81**
81	G40	8	1	2	$3,386.05	$818.36	$640.00	$6,772	$1,637	$1,280	$9,689	**$4,844.40**
91	G40	9	1	3	$3,386.05	$818.36	$640.00	$10,158	$2,455	$1,920	$14,533	**$4,844.40**
99	G40	10	1	15	$422,966.95	$17,118.00	$3,300.00	$6,344,504	$256,770	$49,500	$6,650,774	**$443,384.95**
100	G40	10	1	7	$4,769.78	$4,433.19	$3,300.00	$33,388	$31,032	$23,100	$87,521	**$12,502.97**
	tot G40			28				$6,398,209	$292,624	$76,079	$6,766,912	**$241,675.42**

Service Cost Detail
Sources: Table 11

Code	Pipe Diameter Inches	Pipe Type	New Business $/ft	Replacement $/ft
0.5P	0.5	P	$91.55	$133.24
1P	1	P	$92.90	$164.92
2P	2	P	$223.00	$291.44
3P	3	P	$279.28	$357.77
4P	4	P	$288.94	$835.13
6P	6	P	$1,224.04	$1,057.43
3P	8	P	$1,769.02	$1,629.24
0.5	0.5	S	$293.61	$404.07
0.75	0.75	S	$293.61	$404.07
1S	1	S	$305.21	$515.37
1.25	1.25	S	$349.59	$569.65
2S	2	S	$512.81	$629.92
3S	3	S	$543.96	$645.55
4S	4	S	$601.81	$659.11
6S	6	S	$1,312.90	$1,223.19
8S	8	S	$1,932.47	$1,683.38
10S	10	S	$2,510.02	$2,475.18
12S	12	S	$3,207.66	$2,791.03
16S	16	S	$8,106.28	$7,077.29
20S	20	S	$8,106.28	$7,077.29

Calculation of Weighted Average Service Line and Service Line Replacement Cost $/customer

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.5P	SF	0	12	P	61,397	21.0	$91.55	$133.24	**$1,567**	**$2,798**	$96,209,099	$171,791,611
0.75	SF	0	34	S	96	30.0	$293.61	$404.07	**$1,567**	**$12,122**	$150,432	$1,163,711
1P	SF	1	0	P	9,975	57.4	$92.90	$164.92	**$1,567**	**$9,469**	$15,630,825	$94,451,450
1S	SF	1	0	S	44	8.5	$305.21	$515.37	**$1,567**	**$4,369**	$68,948	$192,225
2P	SF	2	0	P	44	274.6	$223.00	$291.44	**$1,567**	**$80,034**	$68,948	$3,521,486
	Tot SF				71,556				**$1,567**	**$2,798**	$112,128,252	$271,120,483
0.5P	MF	0	12	P	2,466	34.9	$91.55	$133.24	**$1,567**	**$4,656**	$3,864,222	$11,480,911
0.75	MF	0	34	S	100	7.6	$293.61	$404.07	**$1,567**	**$3,087**	$156,700	$308,707
1P	MF	1	0	P	4,061	37.6	$92.90	$164.92	**$1,567**	**$6,204**	$6,363,587	$25,193,673
1S	MF	1	0	S	107	27.6	$305.21	$515.37	**$1,567**	**$14,204**	$167,669	$1,519,827
1.25	MF	1	25	S	2	3.5	$349.59	$569.65	**$1,224**	**$1,994**	$2,447	$3,988
2P	MF	2	0	P	269	78.0	$223.00	$291.44	**$1,567**	**$22,742**	$421,523	$6,117,601
2S	MF	2	0	S	193	45.3	$512.81	$629.92	**$1,567**	**$28,512**	$302,431	$5,502,909
3P	MF	3	0	P	1	20.0	$279.28	$357.77	**$1,567**	**$7,155**	$1,567	$7,155
3S	MF	3	0	S	1	352.0	$543.96	$645.55	**$1,567**	**$227,235**	$1,567	$227,235
	Tot MF				7,200				**$1,567**	**$2,798.05**	$11,281,713	$50,362,004
0.5P	MM Band 1	0	12	P	76	40.2	$91.55	$133.24	**$3,684**	**$5,361**	$279,971	$407,450
0.75	MM Band 1	0	34	S	21	5.8	$293.61	$404.07	**$1,706**	**$2,348**	$35,823	$49,300
1P	MM Band 1	1	0	P	470	68.4	$92.90	$164.92	**$6,351**	**$11,275**	$2,985,056	$5,299,239
1S	MM Band 1	1	0	S	61	14.6	$305.21	$515.37	**$4,468**	**$7,544**	$272,549	$460,211
1.25	MM Band 1	1	25	S	7	1.3	$349.59	$569.65	**$450**	**$733**	$3,147	$5,128
2P	MM Band 1	2	0	P	89	90.0	$223.00	$291.44	**$20,065**	**$26,223**	$1,785,829	$2,333,871
2S	MM Band 1	2	0	S	49	36.7	$512.81	$629.92	**$18,806**	**$23,101**	$921,516	$1,131,943
3P	MM Band 1	3	0	P	2	230.0	$279.28	$357.77	**$64,233**	**$82,287**	$128,467	$164,574
3S	MM Band 1	3	0	S	1	3.0	$543.96	$645.55	**$1,632**	**$1,937**	$1,632	$1,937
	Tot MM 1				776				**$8,265**	**$12,698**	$6,413,991	$9,853,653
0.5P	MM Band 2	0	12	P	1	222.0	$91.55	$133.24	**$20,325**	**$29,579**	$20,325	$29,579
0.75	MM Band 2	0	34	S	2	332.0	$293.61	$404.07	**$97,479**	**$134,150**	$194,958	$268,300
1S	MM Band 2	1	0	S	1	198.0	$305.21	$515.37	**$60,432**	**$102,042**	$60,432	$102,042
1.25	MM Band 2	1	25	S	3	96.3	$349.59	$569.65	**$33,676**	**$54,874**	$101,028	$164,623
2P	MM Band 2	2	0	P	4	736.8	$223.00	$291.44	**$164,299**	**$214,719**	$657,194	$858,876
2S	MM Band 2	2	0	S	9	151.0	$512.81	$629.92	**$77,435**	**$95,117**	$696,915	$856,055
3P	MM Band 2	3	0	P	1	96.0	$279.28	$357.77	**$26,810**	**$34,346**	$26,810	$34,346
3S	MM Band 2	3	0	S	7	287.0	$543.96	$645.55	**$156,117**	**$185,274**	$1,092,817	$1,296,915
4P	MM Band 2	4	0	P	1	52.0	$288.94	$835.13	**$15,025**	**$43,427**	$15,025	$43,427
4S	MM Band 2	4	0	S	2	616.0	$601.81	$659.11	**$370,718**	**$406,010**	$741,436	$812,020
6S	MM Band 2	6	0	S	1	53.0	$1,312.90	$1,223.19	**$69,584**	**$64,829**	$69,584	$64,829
	Tot MM 2				32				**$114,891**	**$141,594**	$3,676,524	$4,531,013
0.5P	G10 Band 1	0	12	P	111	55.0	$91.55	$133.24	**$5,037**	**$7,331**	$559,117	$813,698
0.75	G10 Band 1	0	34	S	140	8.2	$293.61	$404.07	**$2,397**	**$3,299**	$335,586	$461,832
1P	G10 Band 1	1	0	P	489	96.8	$92.90	$164.92	**$8,995**	**$15,969**	$4,398,752	$7,808,912
1S	G10 Band 1	1	0	S	184	4.0	$305.21	$515.37	**$1,228**	**$2,073**	$225,872	$381,395
1.25	G10 Band 1	1	25	S	1	2.0	$349.59	$569.65	**$699**	**$1,139**	$699	$1,139
2P	G10 Band 1	2	0	P	48	221.5	$223.00	$291.44	**$49,386**	**$64,542**	$2,370,534	$3,098,013
2S	G10 Band 1	2	0	S	23	2.1	$512.81	$629.92	**$1,092**	**$1,342**	$25,123	$30,860
3P	G10 Band 1	3	0	P	2	101.5	$279.28	$357.77	**$28,346**	**$36,314**	$56,693	$72,627
4P	G10 Band 1	4	0	P	1	41.0	$288.94	$835.13	**$11,847**	**$34,240**	$11,847	$34,240
	tot Band 1				999				**$7,992**	**$12,715**	$7,984,223	$12,702,716

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.5P	G10 Band 2	0	12	P	78	60.4	$91.55	$133.24	**$5,532**	**$8,051**	$431,491	$627,961
0.75	G10 Band 2	0	34	S	207	7.1	$293.61	$404.07	**$2,085**	**$2,869**	$431,581	$593,940
1P	G10 Band 2	1	0	P	629	104.3	$92.90	$164.92	**$9,686**	**$17,194**	$6,092,202	$10,815,219
1S	G10 Band 2	1	0	S	252	2.7	$305.21	$515.37	**$836**	**$1,411**	$210,590	$355,590
1.25	G10 Band 2	1	25	S	4	11.8	$349.59	$569.65	**$4,108**	**$6,693**	$16,431	$26,773
2P	G10 Band 2	2	0	P	101	206.1	$223.00	$291.44	**$45,950**	**$60,051**	$4,640,958	$6,065,192
2S	G10 Band 2	2	0	S	33	20.1	$512.81	$629.92	**$10,288**	**$12,637**	$339,490	$417,012
3P	G10 Band 2	3	0	P	3	709.0	$279.28	$357.77	**$198,006**	**$253,658**	$594,019	$760,975
	tot Band 2				1,307				**$9,760**	**$15,044**	$12,756,761	$19,662,662
0.5P	G10 Band 3	0	12	P	33	55.4	$91.55	$133.24	**$5,072**	**$7,381**	$167,360	$243,563
0.75	G10 Band 3	0	34	S	266	6.2	$293.61	$404.07	**$1,824**	**$2,511**	$485,317	$667,891
1P	G10 Band 3	1	0	P	694	95.2	$92.90	$164.92	**$8,841**	**$15,694**	$6,135,402	$10,891,911
1S	G10 Band 3	1	0	S	417	3.6	$305.21	$515.37	**$1,105**	**$1,865**	$460,604	$777,750
1.25	G10 Band 3	1	25	S	13	2.2	$349.59	$569.65	**$753**	**$1,227**	$9,789	$15,951
2P	G10 Band 3	2	0	P	276	219.7	$223.00	$291.44	**$48,986**	**$64,019**	$13,520,091	$17,669,187
2S	G10 Band 3	2	0	S	62	43.8	$512.81	$629.92	**$22,440**	**$27,564**	$1,391,264	$1,708,957
3P	G10 Band 3	3	0	P	7	801.9	$279.28	$357.77	**$223,939**	**$286,880**	$1,567,573	$2,008,157
4P	G10 Band 3	4	0	P	6	283.8	$288.94	$835.13	**$82,011**	**$237,038**	$492,067	$1,422,227
6P	G10 Band 3	6	0	P	2	153.0	$1,224.04	$1,057.43	**$187,279**	**$161,788**	$374,557	$323,575
	tot Band 3				1,776				**$13,854**	**$20,118**	$24,604,024	$35,729,169
0.75	G10 Band 4	0	34	S	1	1.0	$293.61	$404.07	**$294**	**$404**	$294	$404
1P	G10 Band 4	1	0	P	20	83.4	$92.90	$164.92	**$7,743**	**$13,746**	$154,859	$274,915
1S	G10 Band 4	1	0	S	4	19.5	$305.21	$515.37	**$5,952**	**$10,050**	$23,807	$40,199
2P	G10 Band 4	2	0	P	65	149.4	$223.00	$291.44	**$33,327**	**$43,555**	$2,166,263	$2,831,054
2S	G10 Band 4	2	0	S	8	38.4	$512.81	$629.92	**$19,679**	**$24,173**	$157,434	$193,384
3P	G10 Band 4	3	0	P	6	196.3	$279.28	$357.77	**$54,831**	**$70,242**	$328,986	$421,451
3S	G10 Band 4	3	0	S	3	556.0	$543.96	$645.55	**$302,442**	**$358,927**	$907,326	$1,076,782
4P	G10 Band 4	4	0	P	5	524.6	$288.94	$835.13	**$151,579**	**$438,110**	$757,893	$2,190,549
	tot Band 4				112				**$40,151**	**$62,757**	$4,496,863	$7,028,738
2P	G10 Band 5	2	0	P	4	217.3	$223.00	$291.44	**$48,448**	**$63,316**	$193,791	$253,262
2S	G10 Band 5	2	0	S	1	5.0	$512.81	$629.92	**$2,564**	**$3,150**	$2,564	$3,150
3P	G10 Band 5	3	0	P	2	305.0	$279.28	$357.77	**$85,179**	**$109,120**	$170,358	$218,239
4P	G10 Band 5	3	0	P	6	408.7	$288.94	$835.13	**$118,081**	**$341,291**	$708,485	$2,047,743
4S	G10 Band 5	4	0	S	2	26.5	$601.81	$659.11	**$15,948**	**$17,466**	$31,896	$34,933
6S	G10 Band 5	6	0	S	1	20.0	$1,312.90	$1,223.19	**$26,258**	**$24,464**	$26,258	$24,464
	tot Band 5				16				**$70,834**	**$161,362**	$1,133,352	$2,581,791
1P	GAC	1	0	P	2	27.5	$92.90	$164.92	**$2,555**	**$4,535**	$5,109	$9,070
1S	GAC	1	0	S	1	34.0	$305.21	$515.37	**$10,377**	**$17,522**	$10,377	$17,522
2S	GAC	2	0	S	1	22.0	$512.81	$629.92	**$11,282**	**$13,858**	$11,282	$13,858
	tot GAC				4				**$6,692**	**$10,113**	$26,769	$40,451

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.5P	NGV	0	12	P	3	43.7	$91.55	$133.24	**$3,998**	**$5,819**	$11,994	$17,456
0.75	NGV	0	34	S	4	81.0	$293.61	$404.07	**$23,783**	**$32,729**	$95,130	$130,918
1P	NGV	1	0	P	9	134.8	$92.90	$164.92	**$12,521**	**$22,227**	$112,686	$200,046
1S	NGV	1	0	S	7	89.3	$305.21	$515.37	**$27,252**	**$46,017**	$190,767	$322,119
1.25	NGV	1	25	S	1	330.0	$349.59	$569.65	**$115,364**	**$187,984**	$115,364	$187,984
2P	NGV	2	0	P	51	159.9	$223.00	$291.44	**$35,649**	**$46,590**	$1,818,124	$2,376,077
2S	NGV	2	0	S	10	107.6	$512.81	$629.92	**$55,179**	**$67,779**	$551,789	$677,789
3P	NGV	3	0	P	11	314.3	$279.28	$357.77	**$87,768**	**$112,436**	$965,447	$1,236,797
3S	NGV	3	0	S	13	210.3	$543.96	$645.55	**$114,400**	**$135,766**	$1,487,205	$1,764,960
4P	NGV	4	0	P	17	233.3	$288.94	$835.13	**$67,407**	**$194,828**	$1,145,921	$3,312,072
4S	NGV	4	0	S	15	182.3	$601.81	$659.11	**$109,729**	**$120,175**	$1,645,933	$1,802,626
6P	NGV	6	0	P	2	576.5	$1,224.04	$1,057.43	**$705,661**	**$609,611**	$1,411,321	$1,219,222
6S	NGV	6	0	S	7	194.4	$1,312.90	$1,223.19	**$255,267**	**$237,825**	$1,786,867	$1,664,778
	tot NGV				150				**$75,590**	**$99,419**	$11,338,550	$14,912,843
0.5P	GEN	0	12	P	23	141.3	$91.55	$133.24	**$12,936**	**$18,827**	$297,539	$433,018
0.75	GEN	0	34	S	184	214.2	$293.61	$404.07	**$62,883**	**$86,539**	$11,570,417	$15,923,161
1P	GEN	1	0	P	211	312.3	$92.90	$164.92	**$29,013**	**$51,505**	$6,121,673	$10,867,537
1S	GEN	1	0	S	23	730.6	$305.21	$515.37	**$222,992**	**$376,531**	$5,128,810	$8,660,216
1S	GEN	1	25	S	6	1,314.5	$305.21	$515.37	**$401,203**	**$677,448**	$2,407,215	$4,064,687
2P	GEN	2	0	P	174	1,714.9	$223.00	$291.44	**$382,433**	**$499,795**	$66,543,279	$86,964,328
2S	GEN	2	0	S	32	405.3	$512.81	$629.92	**$207,864**	**$255,330**	$6,651,657	$8,170,555
3P	GEN	3	0	P	21	2,917.6	$279.28	$357.77	**$814,820**	**$1,043,834**	$17,111,215	$21,920,512
3S	GEN	3	0	S	4	259.5	$543.96	$645.55	**$141,158**	**$167,521**	$564,631	$670,084
4P	GEN	4	0	P	9	4,268.4	$288.94	$835.13	**$1,233,329**	**$3,564,707**	$11,099,959	$32,082,366
4S	GEN	4	0	S	1	27.0	$601.81	$659.11	**$16,249**	**$17,796**	$16,249	$17,796
	tot GEN				688				**$185,338**	**$275,835**	$127,512,645	$189,774,259
0.5P	G30 Dist	0	12	P	6	163.5	$91.55	$133.24	**$14,969**	**$21,785**	$89,814	$130,709
0.75	G30 Dist	0	34	S	18	95.3	$293.61	$404.07	**$27,990**	**$38,520**	$503,819	$693,354
1P	G30 Dist	1	0	P	6	376.3	$92.90	$164.92	**$34,960**	**$62,063**	$209,760	$372,377
1S	G30 Dist	1	0	S	11	56.5	$305.21	$515.37	**$17,229**	**$29,092**	$189,522	$320,016
1.25	G30 Dist	1	25	S	16	111.8	$349.59	$569.65	**$39,067**	**$63,658**	$625,064	$1,018,531
2P	G30 Dist	2	0	P	51	261.7	$223.00	$291.44	**$58,367**	**$76,279**	$2,976,715	$3,890,221
2S	G30 Dist	2	0	S	104	213.1	$512.81	$629.92	**$109,291**	**$134,248**	$11,366,270	$13,961,743
3P	G30 Dist	3	0	P	48	342.4	$279.28	$357.77	**$95,624**	**$122,500**	$4,589,949	$5,880,004
3S	G30 Dist	3	0	S	64	375.8	$543.96	$645.55	**$204,410**	**$242,586**	$13,082,212	$15,525,490
4P	G30 Dist	4	0	P	13	670.4	$288.94	$835.13	**$193,700**	**$559,855**	$2,518,106	$7,278,118
4S	G30 Dist	4	0	S	76	788.9	$601.81	$659.11	**$474,790**	**$519,990**	$36,084,019	$39,519,210
6P	G30 Dist	6	0	P	2	2,339.5	$1,224.04	$1,057.43	**$2,863,648**	**$2,473,868**	$5,727,297	$4,947,737
6S	G30 Dist	6	0	S	24	866.3	$1,312.90	$1,223.19	**$1,137,403**	**$1,059,689**	$27,297,669	$25,432,534
8S	G30 Dist	8	0	S	5	1,841.6	$1,932.47	$1,683.38	**$3,558,831**	**$3,100,104**	$17,794,155	$15,500,519
10S	G30 Dist	10	0	S	1	73.0	$2,510.02	$2,475.18	**$183,232**	**$180,688**	$183,232	$180,688
	tot G30 Dist				445				**$276,938**	**$302,587**	$123,237,602	$134,651,252
2P	G30 Tran	2	0	P	3	1,363.0	$223.00	$291.44	**$303,955**	**$397,234**	$911,865	$1,191,702
2S	G30 Tran	2	0	S	5	1,484.6	$512.81	$629.92	**$761,325**	**$935,172**	$3,806,623	$4,675,861
4S	G30 Tran	4	0	S	1	53.0	$601.81	$659.11	**$31,896**	**$34,933**	$31,896	$34,933
6S	G30 Tran	6	0	S	2	1,593.0	$1,312.90	$1,223.19	**$2,091,446**	**$1,948,547**	$4,182,893	$3,897,093
8S	G30 Tran	8	0	S	1	42.0	$1,932.47	$1,683.38	**$81,164**	**$70,702**	$81,164	$70,702
16S	G30 Tran	16	0	S	1	95.0	$8,106.28	$7,077.29	**$770,097**	**$672,343**	$770,097	$672,343
	tot G30 Tran				13				**$752,657**	**$810,972**	$9,784,538	$10,542,634

Code (1)	Rate	Pipe Diameter Inches	Pipe frac (2)	Pipe Type (3)	# New Customers last 5 years (4)	Avg Length feet (5)	New Business $/ft (6)	Replacement $/ft (6)	Service Line CAPEX $/customer	Replacement Service Line CAPEX $/customer	Service Line CAPEX $'s	Replacement Service Line CAPEX $'s
0.75	Sml G50	0	34	S	9	4.1	$293.61	$404.07	**$1,207**	**$1,661**	$10,861	$14,946
1P	Sml G50	1	0	P	44	88.3	$92.90	$164.92	**$8,205**	**$14,565**	$361,005	$640,877
1S	Sml G50	1	0	S	19	28.2	$305.21	$515.37	**$8,595**	**$14,513**	$163,301	$275,741
1.25	Sml G50	1	25	S	3	142.7	$349.59	$569.65	**$49,876**	**$81,272**	$149,627	$243,815
2P	Sml G50	2	0	P	61	113.5	$223.00	$291.44	**$25,307**	**$33,073**	$1,543,700	$2,017,436
2S	Sml G50	2	0	S	21	52.2	$512.81	$629.92	**$26,764**	**$32,875**	$562,040	$690,381
3P	Sml G50	3	0	P	3	530.7	$279.28	$357.77	**$148,203**	**$189,857**	$444,609	$569,572
3S	Sml G50	3	0	S	3	28.0	$543.96	$645.55	**$15,231**	**$18,075**	$45,693	$54,226
4P	Sml G50	4	0	P	3	284.3	$288.94	$835.13	**$82,155**	**$237,453**	$246,464	$712,359
4S	Sml G50	4	0	S	7	525.9	$601.81	$659.11	**$316,470**	**$346,598**	$2,215,292	$2,426,188
6P	Sml G50	6	0	P	2	131.5	$1,224.04	$1,057.43	**$160,962**	**$139,053**	$321,923	$278,105
6S	Sml G50	6	0	S	7	750.3	$1,312.90	$1,223.19	**$985,054**	**$917,750**	$6,895,379	$6,424,247
8S	Sml G50	8	0	S	3	461.0	$1,932.47	$1,683.38	**$890,867**	**$776,036**	$2,672,602	$2,328,108
10S	Sml G50	10	0	S	1	467.0	$2,510.02	$2,475.18	**$1,172,180**	**$1,155,909**	$1,172,180	$1,155,909
	tot Sml G50				186				**$90,348**	**$95,870**	$16,804,676	$17,831,910
1.25	G50 EG	1	25	S	2	84.5	$349.59	$569.65	**$29,540**	**$48,135**	$59,080	$96,271
2S	G50 EG	2	0	S	2	27.0	$512.81	$629.92	**$13,846**	**$17,008**	$27,692	$34,015
3S	G50 EG	3	0	S	1	520.0	$543.96	$645.55	**$282,860**	**$335,687**	$282,860	$335,687
4S	G50 EG	4	0	S	5	402.2	$601.81	$659.11	**$242,050**	**$265,093**	$1,210,250	$1,325,465
6S	G50 EG	6	0	S	6	199.7	$1,312.90	$1,223.19	**$262,146**	**$244,235**	$1,572,878	$1,465,410
8S	G50 EG	8	0	S	5	338.2	$1,932.47	$1,683.38	**$653,560**	**$569,317**	$3,267,802	$2,846,587
10S	G50 EG	10	0	S	1	290.0	$2,510.02	$2,475.18	**$727,906**	**$717,802**	$727,906	$717,802
	tot G50 EG				22				**$324,930**	**$310,056**	$7,148,467	$6,821,238
2S	G40	2	0	S	8	83.3	$512.81	$629.92	**$42,692**	**$52,440**	$341,535	$419,524
3S	G40	3	0	S	6	448.5	$543.96	$645.55	**$243,966**	**$289,530**	$1,463,798	$1,737,182
4P	G40	4	0	P	2	1,747.5	$288.94	$835.13	**$504,925**	**$1,459,392**	$1,009,850	$2,918,783
4S	G40	4	0	S	8	394.0	$601.81	$659.11	**$237,115**	**$259,688**	$1,896,920	$2,077,507
6S	G40	6	0	S	2	8.5	$1,312.90	$1,223.19	**$11,160**	**$10,397**	$22,319	$20,794
8S	G40	8	0	S	2	26.5	$1,932.47	$1,683.38	**$51,210**	**$44,609**	$102,421	$89,219
16S	G40	16	0	S	1	108.0	$8,106.28	$7,077.29	**$875,479**	**$764,348**	$875,479	$764,348
	tot G40				29				**$196,977**	**$276,805**	$5,712,321	$8,027,357

SCG 2020 TCAP
LRMC Customer Cost
Big GEMS Investment by Customer Class for Retail Noncore (exclusive use on Cust MC)

		NonCore C&I Distribution G30	NonCore C&I Transmission G30	Total NonCore C&I G30	EG G-50	EOR G-40	LB	SDG&E	SWG	Vernon	Mexicali	Source
# of Meters												
ROTARY 11M & LARGER: (*)				0	0	2	1	0	6	0	0	
TURBINE MSA'S (*)				3	40	2	0	1	6	0	1	
ORIFICE METERS (ultra sonic)				5	36	0	4	9	0	2	0	
Total # meters				8	76	4	5	10	12	2	1	
Investment in Meters:	Exclusive Use Meter Cost $/meter											
ROTARY 11M & LARGER: (*)	$12,503	$0	$0	$0	$0	$25,006	$12,503	$0	$75,018	$0	$0	
TURBINE MSA'S (*)	$443,385	$1,165,809	$164,346	$1,330,155	$17,735,398	$886,770	$0	$443,385	$2,660,310	$0	$443,385	
ORIFICE METERS (ultra sonic)	$1,025,365	$4,493,385	$633,440	$5,126,825	$36,913,138	$0	$4,101,460	$9,228,284	$0	$2,050,730	$0	
Total Investment $'s	2016 $s	$5,659,194	$797,786	$6,456,980	$54,648,536	$911,776	$4,113,963	$9,671,669	$2,735,328	$2,050,730	$443,385	
allocation of Total NonCore C&I to Distribution & Transmission		88%	12%									
Total Investment $'s	**2020 $s**	**$6,405,886**	**$903,048**	**$7,308,935**	**$61,859,044**	**$1,032,079**	**$4,656,773**	**$10,947,781**	**$3,096,236**	**$2,321,310**	**$501,887**	
2016 Number of Customers		545	32	554	313	33	1	1	1	1	1	Tab 'cust 2"
Exclusive Use Cost Per Customer	2020 $s	**$11,753.92**	**$28,220.26**	**$13,193.02**	**$197,632.73**	**$31,275.11**	**$4,656,772.60**	**$10,947,781.49**	**$3,096,235.69**	**$2,321,309.97**	**$501,886.62**	

Note : This is part of Exclusive Use Facilities Costs

Exclusive Use Meter Cost $/meter	2016 $s	**TURBINE METERS 4"-12"**	**ROTARY METERS 4" - 6"**	**ULTRASONIC METERS 4" - 16"**
Avg. Labor Cost		$60,092	$1,690	$123,995
Avg. Contract Cost		$170,500	$0	$247,500
Avg. Materials Cost		$212,793	$10,813	$653,870
TOTAL		**$443,385**	**$12,503**	**$1,025,365**

SCG 2020 TCAP
LRMC Customer Cost
Allocation of Customer-Related Distribution O&M

			Core													
			Residential					Non-Residential								
					Master Meter			G-10								
			Single Family	Multi Family	Small	Large	Residential Total	Very Small	Small	Medium	Large	Very Large	Total	Gas Air Conditioning	Natrual Gas Vehicle	Gas Engine
1	**2016 Number of Customers**		3,674,386	1,721,561	120,217	49	5,516,213	88,060	63,785	49,146	2,258	331	203,580	9	245	718
	Customer Services O&M Costs															
2	Total Cost	2016 M$s	$79,784	$37,381	$2,610	$1	$119,776	$3,911	$4,239	$11,868	$1,305	$189	$21,511	$4	$84	$132
3	Cost Per Customer:	2016 $s	21.71	21.71	21.71	21.71	21.71	44.41	66.45	241.48	577.96	570.68	105.67	492.10	344.83	184.30
4		2020 $s	23.84	23.84	23.84	23.84	23.84	48.77	72.97	265.18	634.68	626.69	116.04	540.39	378.67	202.39
	Customer Accounts O&M Costs															
5	Total Cost:	2016 M$s	$72,562	$33,997	$2,374	$1	$108,934	$1,741	$1,161	$1,647	$446	$319	$5,315	$19	$112	$187
6	Cost Per Customer:	2016 $s	19.75	19.75	19.75	19.75	19.75	19.78	18.20	33.51	197.58	964.82	26.11	2,120.46	455.71	259.97
7		2020 $s	21.69	21.69	21.69	21.69	21.69	21.72	19.99	36.80	216.97	1,059.52	28.67	2,328.57	500.44	285.49
8																
9	segmentation by number of customers		66.61%	31.21%	2.18%	0.001%										
	Meters, Reg & MSAs O&M Costs															
10	Total Cost	2016 M$s	$4,122	$1,931	$1,246	$5	$7,305	$250	$392	$651	$95	$20	$1,407	$0	$0	$0
11	Cost Per Customer:	2016 $s	1.12	1.12	10.36	111.73	1.32	2.84	6.14	13.24	41.97	58.95	6.91			
12		2020 $s	1.23	1.23	11.38	122.70	1.45	3.12	6.74	14.54	46.09	64.74	7.59	64.74	64.74	64.74
	Service Lines O&M Costs															
13	Total Costs	2016M $s	$29,619													
14		2020 $s	$32,525,947													
15	Total Service Line Footage		226,964,693	58,515,142	11,541,382	13,966	297,035,183	12,666,284	6,872,167	6,485,228	548,173	114,472	26,686,324	250	54,516	623,741
16	Percent of Total Footage		69.92%	18.03%	3.56%	0.00%	91.51%	3.90%	2.12%	2.00%	0.17%	0.04%	8.22%	0.00%	0.02%	0.19%
17	Allocated SL O&M Costs	2020 $s	$22,743,084	$5,863,532	$1,156,509	$1,400	$29,764,525	$1,269,230	$688,628	$649,855	$54,930	$11,471	$2,674,113	$25	$5,463	$62,502
18	Cost Per Customer	2020 $s	$6.19	$3.41	$9.62	$28.56	$5.40	$14.41	$10.80	$13.22	$24.33	$34.65	$13.14	$2.78	$22.30	$87.05
	Calculation of Customer Service & Information Cost (CSI) Costs Accounts (FERC Accounts 907 to 910):															
5	Total Cost:	2016 M$s	$16,235	$7,606	$531	$0	$24,373	$4,115	$2,980	$2,296	$106	$15	$9,512	$0	$3,832	$0
3	Cost Per Customer:	2016 $s	4.42	4.42	4.42	4.42	4.42	46.72	46.72	46.72	46.72	46.72	46.72	0.00	15,642.74	0.00
4		2020 $s	4.85	4.85	4.85	4.85	4.85	51.31	51.31	51.31	51.31	51.31	51.31	0.00	17,177.99	0.00

Calculation of Customer Service & Information Cost (CSI) Costs Accounts (FERC Accounts 907 to 910):

139	**Calculation of Customer Service & Information Costs (CSI Costs):**		2016 Costs M$	PBR Exclusion Items	Other Adjustments	2016 Costs in Transport Rates			
140	907 Cus Svc-Supervision + Payroll Taxes	NON-DSM CUST. INFO	$706	$0	$0	$706	FERC Form 2		
141	908 Cus Svc-Cust Assist Exp (PBR Ex DAP, DSM &Self-Gen)	NON-DSM CUST. INFO	$202,027	($164,317)	$0	$37,709	FERC Form 2		
142	909 Cus Svc-Info & Instruction Exp	NON-DSM CUST. INFO	$630	$0	$0	$630	FERC Form 2		
143	910 Cus Svc-Misc CSI Exp	NON-DSM CUST. INFO	$2,507	$0	$0	$2,507	FERC Form 2		
144			$205,870	($164,317)	$0	$41,552			
147									
148	**CS&I O&M, 2016 $000's**					**$41,552**			
149									

Exclusions	2016 $
Self Generation (acct 908)	$10,380,031
Energy Efficiency (acct 908)	$82,565,008
Low Income Energy Efficiency (a	$58,819,473
AB802MA (acct 908)	$1,608
MEOMA (acct 908)	$10,787,248
WDRMA (acct 908 and 907001)	$1,764,125
	$164,317,493

			Residential	CCI	G-AC	G-GEN	NGV	Total Core	NCCI	EG Tier 1	EG Tier 2	EOR	Total Retail NonCore	Long Beach
1	**Calculation of CSI Cost Allocator:**													
2	Energy Markets Costs:													
3	Mgmnt estimate - FTE			0.3	0.0	0.0	0.0	0	0.7	0.2	3.3	2.2	6.4	0.6
4	Energy Markets		0.0%	2.8%	0.0%	0.0%	0.0%	2.8%	7.3%	2.4%	36.1%	23.5%	69.3%	6.5%
5	**Energy Markets**	$1,072	**$0**	**$30**	**$0**	**$0**	**$0**	**$30**	**$78**	**$26**	**$387**	**$252**	**$743**	**$70**
6	Large C&I:													
7	# Large C&I Customers		0	2,589	0	0	0	2,589	554	0	0	0	554	0
8	% Large C&I only		0.0%	82.4%	0.0%	0.0%	0.0%	82.4%	17.6%	0.0%	0.0%	0.0%	17.6%	0.0%
9	**Large C&I**	$5,739	**$0**	**$4,727**	**$0**	**$0**	**$0**	**$4,727**	**$1,012**	**$0**	**$0**	**$0**	**$1,012**	**$0**
10	**NGV**	$2,040	**$0**	**$0**	**$0**	**$0**	**$2,040**	**$2,040**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
11	**Residential**	$7,693	**$7,693**	**$0**	**$0**	**$0**	**$0**	**$7,693**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
12	Small Business													
13	# G10, G-AC, G-GE Customers only		0	203,580	0	0	0	203,580	0	0	0	0	0	0
14	Small Business		0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15	**Small Business**	$364	**$0**	**$364**	**$0**	**$0**	**$0**	**$364**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
16	Econ Development													
17	# Large C&I Customers		0	2,589	0	0	0	2,589	554	0	0	0	554	0
18	% Large C&I only		0.0%	82.4%	0.0%	0.0%	0.0%	82.4%	17.6%	0.0%	0.0%	0.0%	17.6%	0.0%
19	**Econ Development**	($70)	**$0**	**($58)**	**$0**	**$0**	**$0**	**($58)**	**($12)**	**$0**	**$0**	**$0**	**($12)**	**$0**
20	**Other Residential**	$5,279	**$5,279**	**$0**	**$0**	**$0**	**$0**	**$5,279**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
21	Total	$22,117	$12,973	$5,063	$0	$0	$2,040	$20,075	$1,078	$26	$387	$252	$1,743	$70
22	**Allocator %**		**58.7%**	**22.9%**	**0.0%**	**0.0%**	**9.2%**	**90.8%**	**4.9%**	**0.1%**	**1.8%**	**1.1%**	**7.9%**	**0.3%**

SCG 2020 TCAP
LRMC Customer Cost
Allocation of Customer-Related Distribution O&M

			Noncore												Total
			Non-Residential												
			G-30			Small EG	EG	EOR	Wholesale				Intl		Over All
			Distribution	Transmission	Total		G-50	G-40	LB	SDG&E	SWG	Vernon	ECOGAS		Customers
1	**2016 Number of Customers**		534	20	554	250	63	33	1	1	1	1	1		5,721,670
	Customer Services O&M Costs														
2	Total Cost	2016 M$s			$361	$49	$12	$2	$0	$0	$0	$0	$0		$141,933
3	Cost Per Customer:	2016 $s			651.92	196.19	196.19	45.48	0.00	0.00	0.00	0.00	0.00		
4		2020 $s			715.90	215.44	215.44	49.95	0.00	0.00	0.00	0.00	0.00		
						Total EG	$61								
	Customer Accounts O&M Costs														
5	Total Cost:	2016 M$s			$1,286	$612	$154	$78	$8	$6	$13	$6	$4		$116,733
6	Cost Per Customer:	2016 $s			2,322.06	2,448.20	2,448.20	2,356.87	7,850.76	6,267.17	12,601.52	5,630.09	3,891.80		
7		2020 $s			2,549.96	2,688.48	2,688.48	2,588.19	8,621.27	6,882.26	13,838.29	6,182.65	4,273.76		
8															
9	segmentation by number of customers					EG O&M cost	$766								
						80%	20%	note: split EG costs by # of customers							
	Meters, Reg & MSAs O&M Costs														
10	Total Cost	2016 M$s			$1,087	$661	$133	$70	$13	$13	$25	$2	$2		$10,718
11	Cost Per Customer:	2016 $s			1,962.09	2,644.00	2,111.11	2,121.21	13,000.00	13,000.00	25,000.00	2,000.00	2,000.00		
12		2020 $s	2,154.66	2,154.66	2,154.66	2,903.49	2,318.31	2,329.40	14,275.88	14,275.88	27,453.62	2,196.29	2,196.29		
	Service Lines O&M Costs														
13	Total Costs	2016M $s													
14		2020 $s													
15	Total Service Line Footage		105,177	16,542	121,720	43,277	16,273	11,524	0	0	0	0	0		324,592,809
16	Percent of Total Footage		0.03%	0.01%	0.04%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		100.00%
17	Allocated SL O&M Costs	2020 $s	$10,539	$1,658	$12,197	$4,337	$1,631	$1,155	$0	$0	$0	$0	$0		$32,525,947
18	Cost Per Customer	2020 $s	$19.74	$82.88	$22.02	$17.35	$25.88	$34.99	$0.00	$0.00	$0.00	$0.00	$0.00		$5.68
	Calculation of Customer Service & Information														
5	Total Cost:	2016 M$s			$2,025	$49	$728	$473	$131	$124	$143	$106	$58		$41,552
3	Cost Per Customer:	2016 $s			3,654.60	195.31	11,551.84	14,319.86	130,781.85	123,834.41	143,287.23	105,771.08	57,682.49		7.26
4		2020 $s			4,013.28	214.47	12,685.60	15,725.27	143,617.39	135,988.10	157,350.11	116,151.95	63,343.72		

Calculation of Customer Service & Information

Calculation of Customer Service & Information

907 Cus Svc-Supervision + Payroll Taxes
908 Cus Svc-Cust Assist Exp (PBR Ex DAP, DSM
909 Cus Svc-Info & Instruction Exp
910 Cus Svc-Misc CSI Exp

CS&I O&M, 2016 $000's

		SDG&E	South West Gas	Vernon	Total Whole sale	DGN	UBS	Total Noncore	SYSTEM TOTAL	Sources
1	**Calculation of CSI Cost Allocator:**									
2	Energy Markets Costs:									
3	Mgmnt estimate - FTE	0.6	0.7	0.5	2.3	0.3	0.0	8.9	9.2	
4	Energy Markets	6.1%	7.1%	5.3%	25.0%	2.9%	0.0%	97.2%	100.0%	
5	**Energy Markets**	**$66**	**$76**	**$56**	**$268**	**$31**	**$0**	**$1,042**	**$1,072**	
6	Large C&I:									
7	# Large C&I Customers	0	0	0	0	0	0	554	3,143	2013 Customer Count
8	% Large C&I only	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.6%	100.0%	
9	**Large C&I**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,012**	**$5,739**	
10	**NGV**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2,040**	
11	**Residential**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$7,693**	
12	Small Business									
13	# G10, G-AC, G-GE Customers only	0	0	0	0	0	0	0	203,580	2013 Customer Count from SCG Cust Cost model "cust 2"
14	Small Business	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
15	**Small Business**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$364**	
16	Econ Development									
17	# Large C&I Customers	0	0	0	0	0	0	554	3,143	2013 Customer Count from SCG Cust Cost model "cust 2"
18	% Large C&I only	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.6%	100.0%	
19	**Econ Development**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**($12)**	**($70)**	
20	**Other Residential**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$5,279**	
21	Total	$66	$76	$56	$268	$31	$0	$2,041	$22,117	$22,117
22	**Allocator %**	**0.3%**	**0.3%**	**0.3%**	**1.2%**	**0.1%**	**0.0%**	**9.2%**	100.0%	
							101.2%			

SCG 2020 TCAP
LRMC Customer Cost
Weighted Average RECC and Replacement Factors

Weighted Average Meter and House Regulator RECC and Replacement Factors

Line			Excluded						
1.			AVERAGE	AVERAGE	AVERAGE	AVERAGE	WEIGHTED	WEIGHTED	WEIGHTED
2.	CUSTOMER CLASS	RATE	LABOR COST	METER COST	REGULATOR COST	TOTAL COST	REPLACEMENT	RECC	PVRR
				Dollars			Percent	Percent	
3.	SINGLE FAMILY	GR	**175.65**	**123.08**	**35.50**	334.23	1.79%	9.58%	129.06%
4.	MULTIPLE FAMILY	GR	**124.85**	**53.86**	**6.08**	184.79	1.27%	9.55%	129.13%
5.	MASTER METERED BAND 1	GM,GS	**888.76**	**474.04**	**232.05**	1594.85	1.63%	9.52%	129.12%
6.	MASTER METERED BAND 2	GM,GS	**12570.19**	**2766.76**	**1859.10**	17196.05	0.97%	9.44%	129.23%
7.	RESIDENTIAL WEIGHTED AVERAGE		170.67	146.45	32.51	349.62	1.96%	9.62%	129.03%
8.	SMALL CORE BAND 1	G-10	**297.60**	**171.27**	**67.01**	535.88	1.66%	9.54%	129.10%
9.	SMALL CORE BAND 2	G-10	**607.98**	**392.32**	**156.98**	1157.28	1.77%	9.55%	129.09%
10.	SMALL CORE BAND 3	G-10	**1376.17**	**754.27**	**364.53**	2494.97	1.65%	9.52%	129.11%
11.	SMALL CORE BAND 4	G-10	**3890.13**	**2307.21**	**1712.88**	7910.22	1.82%	9.49%	129.12%
12.	SMALL CORE BAND 5	G-10	**4518.19**	**3775.95**	**2816.36**	11110.51	2.13%	9.51%	129.08%
13.	G10 AVERAGE		430.93	901.17	194.53	1,526.63	2.75%	9.72%	128.89%
14.	GAS COOLING	GAC	**3784.48**	**2415.11**	**1742.11**	7941.70	1.88%	9.50%	129.11%
15.	Natural Gas Vehicles	NGV	**39237.41**	**3208.78**	**1548.77**	43994.96	0.40%	9.40%	129.30%
16.	GAS ENGINES	GENG	**3541.63**	**911.65**	**486.50**	4939.78	1.04%	9.46%	129.21%
17.	NONCORE COMM/IND TRANSMISSION	G-30	**313299.52**	**34933.26**	**1885.80**	350118.57	0.42%	9.43%	129.28%
18.	NONCORE COMM/IND DISTRIBUTION	G-30	**73994.04**	**5695.95**	**2670.97**	82360.96	0.37%	9.40%	129.30%
19.	NONCORE COMM/IND TOTAL	G-30	82,633.22	6,751.44	2,642.63	92027.30	0.38%	9.40%	129.30%
20.	COGENERATION	G-50	**57489.56**	**3642.11**	**1127.10**	62258.77	0.29%	9.40%	129.31%
21.	EOR	G-40	**228507.46**	**10450.85**	**2717.11**	241675.42	0.21%	9.39%	129.33%
22.	SYSTEM AVERAGE		191.96	174.27	38.68	404.91	2.01%	9.63%	129.02%
22.	INVERSE OF BOOK LIFE		0.00%	4.00%	3.03%				
23.	RECC		9.36%	10.05%	9.04%				
23.	PVRR		129.36%	128.58%	129.30%				

SCG 2020 TCAP
LRMC Customer Cost
Weighted Average RECC and Replacement Factors

Weighted Average RECC and Replacement Factor for Exclusive Use Facilities

Line	CUSTOMER CLASS	RATE			GEMs	AVERAGE TOTAL COST	WEIGHTED REPLACEMENT	WEIGHTED RECC
1.								
2.					Dollars	Dollars	Percent	
3.	NONCORE COMM/IND TRANSMISSION	G-30			903,048	903,048	4.00%	10.05%
4.	NONCORE COMM/IND DISTRIBUTION	G-30			6,405,886	6,405,886	4.00%	10.05%
5.	NONCORE COMM/IND TOTAL	G-30			7,308,935	7,308,935	4.00%	10.05%
6.	COGENERATION	G-50			61,859,044	61,859,044	4.00%	10.05%
7.	EOR	G-40			1,032,079	1,032,079	4.00%	10.05%
8.	LONG BEACH				4,656,773	4,656,773	4.00%	10.05%
9.	SAN DIEGO GAS & ELECTRIC				10,947,781	10,947,781	4.00%	10.05%
10.	SOUTHWEST GAS				3,096,236	3,096,236	4.00%	10.05%
11.	VERNON				2,321,310	2,321,310	4.00%	10.05%
12.	DGN				501,887	501,887	4.00%	10.05%
13.	SYSTEM TOTAL				99,032,979	99,032,979	4.00%	10.05%
14.	INVERSE OF BOOK LIFE				4.00%			
15.	RECC factors				10.05%			

Source:Meter cost detail

SOUTHERN CALIFORNIA GAS

2016 Economic Assumptions Update LEVELIZED ANNUAL CAPITAL COST AND RECC FACTORS

utility **socal**

Auth ROR ===> 8.02% **Fed Tax Rate =====> 35.00%** **State Tax Rate ===> 8.84%** **Ad Valorum Rate ===> 1.288%**

FERC Account	Account Name	Book Life	Fed Tax Life	State Tax Life	Percent Salvage	Normlzd Federal Taxes ?	Normlzd State Taxes ?	Depreciation Method				LACC Components (in percent)					RECC Factors	PVCC Factors	Sum of Rev Req
								Federal Tax		State Tax		Book Depr	Return on Capital	Income Taxes	Property Taxes	Total LACC			
GAS UNDERGROUND STORAGE		9	10	11	12	13	14	15		16		19	20	21	22	23	25	26	27
G-352	Wells	49	15	22	-70%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.47	4.22	1.80	0.74	10.22	7.83	124.47	220.59
G-353	Lines	54	15	22	-40%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.59	4.71	1.99	0.87	10.17	7.72	124.71	288.57
G-354	Compressor Station Equipment	41	15	22	-15%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.80	4.75	2.02	0.87	10.44	8.16	124.61	290.37
G-356	Purification Equipment	39	15	22	-30%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.33	4.49	1.90	0.80	10.52	8.27	124.59	262.18
GAS TRANSMISSION PLANT																			
G-365.1	Land	0	0	0	0%	FALSE	FALSE	none	0%	none	0%	0.00	8.03	3.75	1.29	13.06	n/a	162.69	1342.09
G-366	Structures & Improvements	47	39	45	-40%	TRUE	FALSE	sl	0%	db/sl	0%	2.98	5.38	2.53	0.82	11.70	9.01	141.94	319.79
G-367	Mains	64	15	22	-60%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.50	4.71	2.00	0.87	10.08	7.55	124.68	265.55
G-368	Compressor Station Equipment	50	15	22	-15%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.30	4.93	2.08	0.92	10.23	7.83	124.81	324.48
G-369	Measuring & Regulating Equipment	46	15	22	-50%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.26	4.39	1.86	0.78	10.29	7.94	124.57	250.31
G-371	Other Equipment	21	15	22	-10%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.24	4.48	1.96	0.73	12.40	10.55	123.98	217.44
GAS DISTRIBUTION PLANT																			
G-374.1	Land	0	0	0	0%	FALSE	FALSE	none	0%	db/sl	0%	0.00	8.03	3.75	1.29	13.06	n/a	162.69	1342.09
G-374.2	Land Rights	40	40	40	0%	FALSE	FALSE	sl	0%	db/sl	0%	2.50	5.81	2.71	0.92	11.94	9.35	141.94	359.86
G-375	Structures & Improvements	40	39	45	-10%	TRUE	FALSE	sl	0%	db/sl	0%	2.75	5.65	2.66	0.88	11.93	9.35	141.88	343.62
G-376	Mains	68	20	35	-80%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.65	4.82	2.16	0.84	10.46	7.81	129.67	228.89
G-378	Measuring & Regulating Equipment	47	20	35	-95%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.15	4.05	1.84	0.64	10.68	8.22	129.47	184.20
G-380	Services	67	20	35	-115%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.21	4.45	2.03	0.75	10.44	7.80	129.33	136.21
G-381	Meters	25	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.80	5.05	2.39	0.84	12.07	10.05	128.58	254.29
G-382	Meter & Regulator Installations	30	20	35	-10%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.67	4.84	2.20	0.81	11.52	9.36	129.36	263.10
G-383	House Regulators	33	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	2.88	5.14	2.35	0.89	11.26	9.04	129.30	291.74
G-387	Other Equipment	21	20	35	5%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.52	5.04	2.43	0.81	12.81	10.90	128.02	235.56
GAS GENERAL PLANT																			
G-390	Structures & Improvements	33	39	45	-15%	TRUE	FALSE	sl	0%	db/sl	0%	3.48	5.44	2.58	0.81	12.32	9.89	141.51	307.79
G-391.1	Office Furniture & Equipment	14	7	10	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	7.14	3.93	1.69	0.71	13.48	12.02	110.96	174.60
G-391.2	Computer Equipment	5	5	6	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	20.00	4.12	1.92	0.55	26.59	25.56	106.11	130.85
G-393	Stores Equipment	20	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.00	4.95	2.36	0.77	13.08	11.20	128.14	228.15
G-394.1	Shop & Garage Equipment	29	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	3.45	5.00	2.31	0.84	11.60	9.47	129.10	268.37
G-394.3	Large Portable Tools	24	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.17	4.95	2.32	0.80	12.25	10.25	128.65	246.08
G-395	Laboratory Equipment	25	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	4.00	4.96	2.32	0.81	12.09	10.06	128.76	250.54
G-397	Communications Equipment	15	7	10	0%	TRUE	FALSE	db/sl	200%	db/sl	200%	6.67	3.93	1.68	0.72	13.00	11.50	111.07	179.06
G-398	Miscellaneous Equipment	20	20	35	0%	TRUE	FALSE	db/sl	150%	db/sl	200%	5.00	4.95	2.36	0.77	13.08	11.20	128.14	228.15
G-391.5	Software Programs - 10yr ASL	10	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	10.00	3.50	1.35	0.66	15.50	14.26	103.91	150.10
G-391.55	Software Programs - 15yr ASL	15	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	6.67	3.54	1.31	0.72	12.23	10.83	104.55	172.40
G-391.6	Software Programs - 20yr ASL	20	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	5.00	3.64	1.32	0.77	10.72	9.18	105.05	194.69
G-391.3	Software Programs - 3yr ASL	3	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	33.33	4.15	1.94	0.45	39.87	39.08	102.71	118.89
G-391.4	Software Programs - 6yr ASL	6	3	3	0%	TRUE	FALSE	sl	0%	db/sl	0%	16.67	3.61	1.49	0.58	22.36	21.29	103.27	132.27

Southern California Gas Company
WEIGHTED AVERAGE DEPRECIATED RATE BASE
Service Line, Regulator, & Meter (SRM) Assets
(Thousands of Dollars)
As of December 31, 2016

Line No.	Account Description	G-380	G-381	G-382	G-383	Total
	Fixed Capital					
1	Plant In Service	$ 2,422,564	$ 889,712	$ 513,017	$ 156,919	$ 3,982,212
2	Work-In-Progress (non-interest bearing)	$ -	$ -	$ -	$ -	$ -
3	Total Fixed Capital	$ 2,422,564	$ 889,712	$ 513,017	$ 156,919	$ 3,982,212
	Working Capital					
4	Materials & Supplies	-	-	-	-	-
5	Working Cash	-	-	-	-	-
6	Total Working Capital	$ -	$ -	$ -	$ -	$ -
	Other Deductions					
7	Customer Advances For Construction	$ (16,769)	$ (6,158)	$ (3,553)	$ (1,086)	$ (27,567)
8	Total Other	$ (16,769)	$ (6,158)	$ (3,553)	$ (1,086)	$ (27,567)
	Deductions For Reserves					
9	Accumulated Depreciation Reserve	$ (1,974,092)	$ (162,010)	$ (151,640)	$ (62,863)	$ (2,350,605)
10	Accumulated Amortization Reserve	-	-	-	-	-
11	Accumulated Deferred Taxes	(227,755)	(82,916)	(48,026)	(14,726)	(373,422)
12	Total Deductions For Reserves	$ (2,201,848)	$ (244,925)	$ (199,666)	$ (77,588)	$ (2,724,027)
13	Weighted Average Depreciated Rate Base	$ 203,947	$ 638,628	$ 309,798	$ 78,245	$ 1,230,618

ARM1 Factor = Rate Base Value/Rental Capital

Rate Base Value	1,230,618
Rental	16,224,553
%	8%

ARM2 Factor

Rental less depreciation	13,873,948
Rental	16,224,553
%	86%

Summary of Book Depreciation Expense

	G-380	G-381	G-382	G-383	Total
Jan-16	6,532,648	2,742,477	1,208,130	329,602	10,812,857
Feb-16	6,552,841	2,769,452	1,221,756	329,882	10,873,931
Mar-16	6,572,476	2,791,408	1,232,901	330,949	10,927,733
Apr-16	6,599,716	2,808,319	1,255,995	334,782	10,998,813
May-16	6,629,337	2,815,366	1,270,962	336,715	11,052,380
Jun-16	5,442,973	3,232,972	1,622,895	391,190	10,690,030
Jul-16	(530,786)	5,243,409	3,312,993	648,760	8,674,376
Aug-16	5,485,209	3,253,627	1,659,654	392,849	10,791,339
Sep-16	5,516,250	3,266,672	1,673,124	397,017	10,853,062
Oct-16	5,549,694	3,277,287	1,687,030	398,478	10,912,490
Nov-16	5,578,231	3,277,405	1,697,569	401,650	10,954,855
Dec-16	5,611,212	3,293,106	1,709,702	404,210	11,018,231
Total	65,539,802	38,771,500	19,552,711	4,696,084	128,560,097

REPORT 1

DETERMINATION OF WEIGHTED ADDITIONS
PLANT ADDITIONS - 101
December 31, 2016

	G-380	G-381	G-382	G-383	TOTAL
	A-D	E-I	J-M	N-O	P
December 2015	2,364,247,491	863,913,249	486,151,056	152,201,355	3,866,513,152
January 2016	2,371,555,414	870,828,506	489,786,015	152,333,001	3,884,502,936
February 2016	2,378,661,645	877,077,169	493,075,539	152,833,592	3,901,647,945
March 2016	2,388,520,290	882,213,133	499,814,252	154,632,525	3,925,180,199
April 2016	2,399,240,263	884,255,110	504,000,793	155,464,847	3,942,961,013
May 2016	2,408,750,291	888,470,610	508,708,929	156,446,237	3,962,376,067
June 2016	2,416,803,711	891,244,220	515,229,023	156,634,909	3,979,911,863
July 2016	2,427,441,850	893,960,684	519,305,654	157,109,597	3,997,817,785
August 2016	2,441,178,820	897,668,815	523,303,933	158,776,453	4,020,928,021
September 2016	2,455,979,232	900,605,282	527,080,935	159,360,957	4,043,026,406
October 2016	2,468,607,981	900,505,379	530,030,402	160,629,318	4,059,773,080
November 2016	2,483,203,409	904,715,472	533,447,773	161,653,328	4,083,019,982
December 2016	2,497,395,350	906,078,109	538,686,488	162,114,289	4,104,274,237
Total	31,501,585,747	11,561,535,737	6,668,620,793	2,040,190,408	51,771,932,685
Less 1/2 First & Last Month	2,430,821,421	884,995,679	512,418,772	157,157,822	3,985,393,694
Total 12 Mos Wtd Average	29,070,764,326	10,676,540,058	6,156,202,020	1,883,032,586	47,786,538,991
Monthly Weighted Average	2,422,563,694	889,711,672	513,016,835	156,919,382	3,982,211,583

REPORT 2

DETERMINATION OF WEIGHTED ADDITIONS
DEPRECIATION AND AMORTIZATION RESERVES
December 31, 2016

	G-380	G-381	G-382	G-383	TOTAL
	A-D	E-I	J-M	N-O	P
December 2015	(1,945,889,589)	(155,090,651)	(150,449,261)	(61,278,137)	(2,312,707,638)
January 2016	(1,950,777,802)	(155,605,969)	(150,045,701)	(61,607,824)	(2,318,037,297)
February 2016	(1,954,293,659)	(156,607,132)	(150,008,269)	(61,937,778)	(2,322,846,837)
March 2016	(1,959,669,580)	(157,370,173)	(150,096,322)	(61,873,061)	(2,329,009,136)
April 2016	(1,969,751,975)	(157,912,106)	(149,760,371)	(62,211,820)	(2,339,636,273)
May 2016	(1,977,091,754)	(158,772,011)	(149,690,103)	(62,548,587)	(2,348,102,455)
June 2016	(1,980,859,579)	(159,876,616)	(150,060,055)	(62,567,944)	(2,353,364,194)
July 2016	(1,978,466,717)	(163,194,757)	(152,067,731)	(63,216,782)	(2,356,945,987)
August 2016	(1,981,523,175)	(165,330,715)	(152,760,559)	(63,609,631)	(2,363,224,080)
September 2016	(1,984,621,456)	(166,528,378)	(153,168,659)	(63,552,942)	(2,367,871,434)
October 2016	(1,987,800,292)	(168,214,259)	(153,816,059)	(63,951,443)	(2,373,782,052)
November 2016	(1,992,842,906)	(170,672,224)	(154,953,260)	(64,353,144)	(2,382,821,534)
December 2016	(1,996,926,086)	(172,972,597)	(156,063,138)	(64,564,094)	(2,390,525,916)
Total	(25,660,514,570)	(2,108,147,589)	(1,972,939,488)	(817,273,188)	(30,558,874,835)
Less 1/2 First & Last Month	(1,971,407,838)	(164,031,624)	(153,256,200)	(62,921,116)	(2,351,616,777)
Total 12 Mos Wtd Average	(23,689,106,732)	(1,944,115,965)	(1,819,683,288)	(754,352,073)	(28,207,258,057)

Monthly Weighted Average	(1,974,092,228)	(162,009,664)	(151,640,274)	(62,862,673)	(2,350,604,838)

REPORT 3

DETERMINATION OF WEIGHTED ADDITIONS
CUSTOMER ADVANCES FOR CONSTRUCTION
December 31, 2016

	G-380	G-381	G-382	G-383	TOTAL
	A-D	E-I	J-M	N-O	P
December 2015	(15,539,984)	(5,678,423)	(3,195,427)	(1,000,406)	(25,414,240)
January 2016	(15,689,592)	(5,761,174)	(3,240,297)	(1,007,795)	(25,698,859)
February 2016	(15,805,357)	(5,827,864)	(3,276,311)	(1,015,525)	(25,925,057)
March 2016	(16,196,852)	(5,982,397)	(3,389,302)	(1,048,582)	(26,617,134)
April 2016	(16,251,518)	(5,989,599)	(3,413,905)	(1,053,058)	(26,708,081)
May 2016	(16,479,397)	(6,078,447)	(3,480,318)	(1,070,323)	(27,108,484)
June 2016	(16,958,829)	(6,253,904)	(3,615,387)	(1,099,115)	(27,927,235)
July 2016	(17,084,583)	(6,291,786)	(3,654,926)	(1,105,753)	(28,137,048)
August 2016	(17,437,620)	(6,412,151)	(3,738,020)	(1,134,158)	(28,721,950)
September 2016	(17,576,397)	(6,445,248)	(3,772,094)	(1,140,478)	(28,934,217)
October 2016	(17,466,576)	(6,371,504)	(3,750,217)	(1,136,529)	(28,724,825)
November 2016	(17,648,447)	(6,429,930)	(3,791,282)	(1,148,891)	(29,018,550)
December 2016	(17,733,116)	(6,433,738)	(3,825,021)	(1,151,116)	(29,142,991)
Total	(217,868,268)	(79,956,166)	(46,142,506)	(14,111,730)	(358,078,671)
Less 1/2 First & Last Month	(16,636,550)	(6,056,081)	(3,510,224)	(1,075,761)	(27,278,615)
Total 12 Mos Wtd Average	(201,231,718)	(73,900,086)	(42,632,283)	(13,035,969)	(330,800,055)
Monthly Weighted Average	(16,769,310)	(6,158,340)	(3,552,690)	(1,086,331)	(27,566,671)