Application of SOUTHERN CALIFORNIA GAS	
COMPANY for authority to update its gas revenue	)
requirement and base rates	)
effective January 1, 2016 (U 904-G)	)
	,
Application No. 14-11	
Exhibit No.: (SCG-35-WP)	

# WORKPAPERS TO PREPARED DIRECT TESTIMONY OF RONALD M. VAN DER LEEDEN ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

### BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

NOVEMBER 2014



#### PROPOSED POST-TEST YEAR RATEMAKING MECHANISM - SCG

#### A. REVENUE REQUIREMENT

This post-test year ("PTY") ratemaking mechanism proposes to adjust test-year ("TY") authorized revenue requirement in PTY's 2017, and 2018 for:

- 1. Labor and non-labor costs based on IHS Global Insight's forecast (Section B.1.),
- 2. Medical costs based on the Towers Watson forecast (Section B.2), and
- 3. Capital investments impact on rate base (Section C).

The base margin amounts adopted in SCG's 2016 TY are from the testimony of SCG witness Khai Nguyen (Exhibit SCG-34) and utilized throughout these workpapers. The table below summarizes the total revenue requirement with SCG's PTY ratemaking mechanism including Miscellaneous Revenues and Franchise Fees & Uncollectible ("FF&U").

Table 1

Line No.	Description (\$ in millions)	PTY - 2017	PTY - 2018
1	Total O&M Margin (excluding Medical and FFU)	\$1,198.7	\$1,227.8
2	Medical Expense	77.2	83.2
3	Capital Related Costs (Depreciation, Taxes, Return)	1,061.3	1,119.9
4	Total $(L1 + L2 + L3)$	2,337.2	2,430.9
5	FF&U (FF = 1.4336%, U = .312%)	39.7	40.3
6	Total Base Margin (L4 + L5)	2,376.9	2,471.2
7	Miscellaneous Revenues	101.1	101.1
8	Total Revenue Requirement (L6 + L7)	\$2,478.0	\$2,572.3
9	Revenue Requirement Increase \$	\$125.6	\$94.3
10	Revenue Requirement Increase %	5.3%	3.8%

#### B. OPERATION & MAINTENANCE ("O&M") EXPENSES

The starting base for O&M escalation is the 2016 Test Year revenue requirement excluding miscellaneous revenues, capital related margin, medical expense, franchise fees, and uncollectibles ("O&M Margin"). Medical costs are escalated separately, as described below in section B2. After the PTY O&M and medical expenses are escalated, these costs will be grossed up for FF&U using the factors authorized in the 2016 Test Year.

 Escalation of O&M (excluding medical): For simplicity in calculating PTY escalation, a single weighted gave average O&M utility input price index ("GOMPI") is used to adjust SCG/POST-TEST YEAR/Exh No: SCG-35-WP/Witness: R. van der Leeden

#### Southern California Gas Company 2016 GRC – APP

#### Non-Shared Service Workpapers

O&M expenses to reflect the expected cost inflation of goods and services that SCG will incur to serve its customers. The calculation of GOMPI is described in Mr. Scott Wilder's testimony (Ex. SCG-31). The PTY O&M revenue requirement is calculated below in Table-2:

Table 2

Line No.	O&M Expense Adjustment (\$ in millions)	TY-2016	2017	2018
1	Prior Year O&M Margin		\$1,169.3	\$1,198.7
2	O&M Escalation Rate <sup>1</sup>		2.52%	2.42%
3	Attrition Year O&M Escalation (L1* L2)		\$29.4	\$29.1
4	O&M Expense (L1+ L3)	\$1,169.3	\$1,198.7	\$1,227.8

2. Escalation of Medical Costs: Medical costs adopted in SCG's 2016 test year will be escalated annually using the Tower Watson's medical escalation projections as described in the direct testimony of SCG witness Ms. Debbie Robinson (Exhibit SCG-21). The associated revenue requirement prior to FF&U gross up is calculated below (differences due to rounding) in Table-3:

Table 3

Line No.	Medical Cost Adjustment (\$ in millions)	TY-2016	2017	2018
1	Prior Year Medical Expense (net)		\$71.6	\$77.2
2	Medical Escalation Rate		7.8%	7.8%
3	Attrition Year Medical Escalation (L1* L2)		\$5.6	\$6.0
4	Medical Expense (L1+L3)	\$71.6	\$77.2	\$83.2

#### C. CAPITAL-RELATED

This section describes the development of PTY plant additions and other PTY rate base changes to determine the capital-related revenue requirement (authorized return, depreciation expense, tax, and franchise fee and uncollectible gross ups). The recorded (2010-2012) plant additions are taken from historically recorded rate base. The recorded (2013) and forecasted (2014-2016) rate base components, plant additions and plant retirements are from the testimony of SCG witness Mr. Garry Yee (Exhibit SCG-26\_GYee\_Ratebase\_WP). Once each attrition year net plant additions are computed, incremental depreciation reserve, and deferred taxes are calculated in order to determine the rate base for each attrition year. The change in year over year rate base is then utilized to calculate the capital costs components of the revenue requirement.

<sup>&</sup>lt;sup>1</sup> The SCG forecast incorporates escalators from IHS Global Insight's 4<sup>th</sup> Quarter 2013 Power Planner forecast released in February 2014. IHS Global Insight is an internationally recognized econometric forecasting firm and their forecasts have been used in many regulatory proceedings.

Table 4

Line No.	Capital-Related Attrition (\$ in millions)	TY-2016	2017	2018
1	Prior Year Capital-Related Costs		\$971.3	\$1,061.2
2	Capital-Related Attrition		\$89.9	\$58.6
3	Capital-Related Costs (L1+ L2)	\$971.3	\$1,061.2	\$1,119.8

The development of the PTY rate base and the derivation of individual revenue requirement components are described in detail below.

- 1. Rate Base: The starting point in developing rate base for each attrition year is the prior year plant in service. Weighted average ("WAVG") net plant additions for the attrition year are added, and current year changes to the net depreciation and accumulated deferred tax reserve are made.
  - a) Weighted Net Plant Additions
    - 1) The starting point used for the plant additions for the PTY is a seven-year average of plant additions. The seven-year average is comprised of four years of recorded (2010-2013, refer to Table-12) and three years of forecasted (2014-2016 from the test year RO model, see Table-13, Line 13) capital additions. Each year is escalated to test year dollars and then averaged (Table-6, Line 7-9). The seven-year average is then escalated to 2017 and 2018 (Table-6, Line 10).
    - 2) Plant retirements for the PTY are calculated using a three-year period of forecasted (2014-2016) capital retirements from the Test Year RO model (Table-13, Line 14). Each year is escalated to test year dollars (Table-6, Lines 11-13) and then averaged. The resulting three-year average is then escalated to 2017 and 2018 (Table-6, Line 14).
    - 3) WAVG Net Plant Additions: Each PTY's WAVG net plant additions is calculated using the ratio of the prior year WAVG net plant additions balance to the prior year end of year ("EOY") net plant additions balance multiplied by the attrition-year's EOY net plant additions. (Table-6, Line 2)
      - a. e.g. (\$282,439 / \$875,443) \* \$618,966 = \$199,693
  - b) Change in Accumulated Depreciation Reserve: Each PTY's WAVG net depreciation reserve is calculated using the ratio of the attrition year WAVG plant in service balance to the prior year WAVG plant in service balance multiplied by the prior year's net depreciation reserve. Net depreciation reserve includes annual retirements, cost of removal and salvage. (Table-6, Line 5)
  - 1) e.g. (\$12,780,996 / \$11,988,298) \* \$270,290 = \$140,664 SCG/POST-TEST YEAR/Exh No: SCG-35-WP/Witness: R. van der Leeden

- c) Change in Accumulated Deferred Tax Reserve: Each PTY's WAVG accumulated deferred tax is calculated using the ratio of the test year level of deferred taxes to the test year WAVG plant in service. (Table-5, Line 12-14)
  - 1) e.g. (\$1,035,458 / \$11,988,298) \* \$12,780,996 = \$1,103,925
- d) Working Capital and Other: SCG is not proposing to change the rate base elements of Materials and Supplies, Working Cash, Customer Advances for Construction, and deferred revenue from the Test Tear 2016 amounts. (Table 5, Line 4,5,7,8)

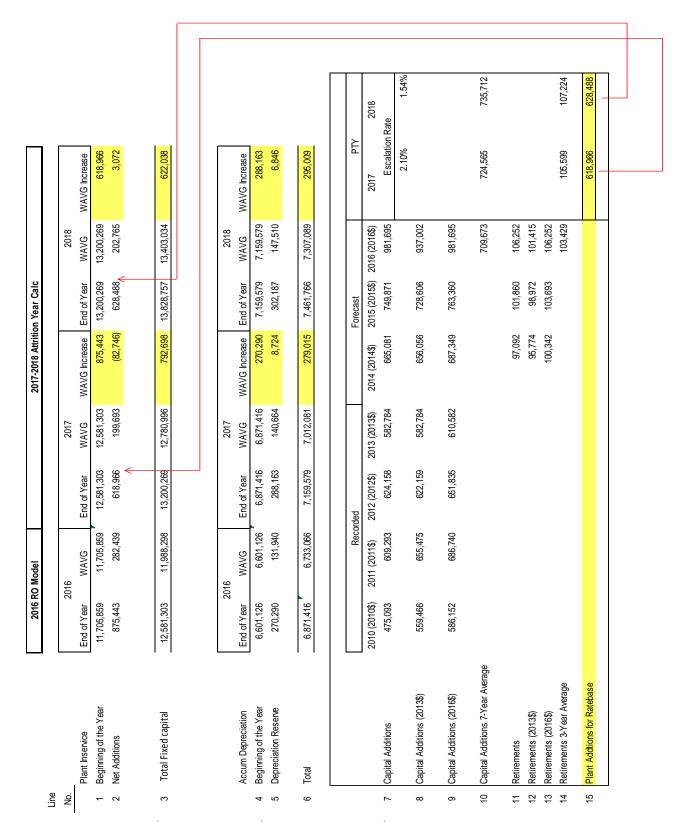
The resulting Weighted Average Depreciated Rate Base and supporting calculations are shown in the tables below:

#### Table 5

#### SOUTHERN CALIFORNIA GAS COMPANY Weighted Average Depreciated Rate Base (Thousands of Dollars)

	2016	RO Model				2017-2018 Attr	ition Year
		Recorded			Test	AY	AY
Line		Year	Estimate	d Year	Year	'''	***
No.		2013	2014	2015	2016	2017	2018
	Fixed Capital	10.201.400	10 505 501	11 204 501	11 000 200	12 700 000	12 102 021
1	Plant In Service	10,201,480	10,705,781	11,304,581	11,988,298	12,780,996	13,403,034
2	Work-In-Progress (non-interest bearing)	4,728	10,310	11,354	13,186	13,186	13,186
3	Total Fixed Capital	10,206,208	10,716,091	11,315,935	12,001,485	12,794,182	13,416,220
	Working Capital						
4	Materials & Supplies	25,585	25,717	24,731	25,141	25,141	25,141
5	Working Cash	0	0	0	87,267	87,267	87,267
6	Total Working Capital	25,585	25,717	24,731	112,408	112,408	112,408
		· ·	,		<u> </u>		
	Other						
7	Customer Advances For Construction	(101,316)	(101,593)	(101,911)	(102,345)	(102,345)	(102,345)
8	Deferred Revenue - ITCC	(33,179)	(34,470)	(36,392)	(37,417)	(37,417)	(37,417)
9	Aliso Gas Rights					0	0
10	Gain On Sale of El Monte and Pasadena Bases					0	0
11	Total Other	(134,496)	(136,063)	(138,303)	(139,762)	(139,762)	(139,762)
	Deductions For Reserves						
12	Accumulated Depreciation Reserve	5,889,916	6,162,181	6,449,589	6,733,066	7,012,081	7,307,089
13		974,483	1,007,521	1,018,484	1,035,458	1,103,925	1,157,652
14	Accumulated Deferred Taxes - CIAC	(112,055)	(119,413)	(125,776)	(130,640)	(139,278)	(146,057)
15	Accumulated Deferred Investment Tax Credits	(112,033)	(117,413)	(123,770)	(150,040)	(137,276)	(140,037)
16	Total Deductions For Reserves	6,752,343	7,050,289	7,342,297	7,637,884	7,976,728	8,318,685
10	Total Deductions For Reserves	0,732,343	7,030,207	1,572,271	7,037,007	1,210,120	0,510,005
17	Weighted Average Depreciated Rate Base	3,344,955	3,555,455	3,860,067	4,336,247	4,790,101	5,070,182
- /	Dunge Depresance Lane Dune	= -,: , , , , , ,	3,000,00	3,000,007	.,000,2	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2,070,102

#### Table 6



- 2. Revenue Requirement: The capital-related revenue requirement components for each attrition year are calculated using the methodologies described below:
  - a) Depreciation Expense: Depreciation expense is calculated by multiplying the current PTY plant-in-service weighted average increase by the test year's system average depreciation rate. (Table-8, Lines 1-7)
  - b) Ad Valorem Tax: Ad Valorem Tax is calculated by multiplying the current attrition year additions by the test year's system ad valorem tax rate. (Table-8, Lines 8-14)
  - c) State Tax Depreciation: State Tax Depreciation income tax expense is calculated by multiplying the current attrition year additions by the test year's system average state tax depreciation rate and by the state income tax rate. (Table-10, Lines 10-18)
  - d) Payroll Tax: Payroll Tax is calculated by multiplying the prior year payroll taxes by the current attrition year labor escalation rate forecasted by Global Insight. (Table-8, Lines 15-19)
  - e) Federal Tax Depreciation: Federal Tax Depreciation income tax expense is calculated by multiplying current attrition year additions by the test year's system average federal tax depreciation rate and by the federal income tax rate. (Table-10, Lines 1-9)
  - f) California Corporation Franchise Tax (Prior Year): Prior Year's state income tax is a deduction for federal income tax purposes. (Table-11, Lines 1-22)
  - g) Long-Term Debt Cost: Long-Term Debt Cost is calculated by multiplying the attrition year change in weighted average rate base by the authorized weighted cost of Long Term Debt. (Table-9, Lines 4-10)
  - h) Preferred Stock Cost: Preferred Stock Cost is calculated by multiplying the attrition year change in weighted average rate base by the authorized weighted return on Preferred Stock. (Table-9, Lines 11-17)
  - i) Common Equity Cost: Common Equity Cost is calculated by multiplying the attrition year change in weighted average rate base by the authorized weighted return on Common Equity. (Table-9, Lines 18-25)
  - j) Gross Ups: All revenue requirement components which are not directly deductible for income taxes are grossed up for income taxes. These are Book Depreciation, State Tax Depreciation, Federal Tax Depreciation, Preferred Stock Cost, Common Equity Cost, and California Corporation Franchise Tax (Prior Year). All revenue

#### Southern California Gas Company 2016 GRC – APP

#### Non-Shared Service Workpapers

requirement components are grossed up for FF&U using the factors referenced in Section D.

- 3. Tax Law Changes: SCG's revenue requirement will reflect all tax law changes (depreciation policy) and tax rate changes, including but not limited to changes in income taxes, payroll taxes, and ad valorem taxes.
- D. Franchise Fees and Uncollectible Gross Up: The total resulting O&M will be grossed up for FF&U using the franchise fee factors of 1.4336% and the uncollectible factor of 0.312%. The calculation of the gross up factor is shown below:

Table 7

Line No.	Description	
1	Revenues	1.000000
2	Uncollectible Tax Rate	0.003120
3	Uncollectible Amount Applied	1.000000
4	Less: Uncollectible (L2 * L3)	0.003120
5	Subtotal (L3 - L4)	0.996880
6	Franchise Fees Tax Rate	0.014136
7	Franchise Fees Amount Applied (L5)	0.996880
8	Less: Franchise Fees (L6 * L7)	0.014092
9	Subtotal (L7 - L8)	0.982788
10	Franchise Fee and Uncollectible Factor (1 / L9)	1.017513

#### Table 8

#### Southern California Gas Company 2016 GRC Calculation of Revenue Requirement Increase (Thousands of Dollars)

	Section-	1		
Line	Depreciation Expense	2016	2017	2018
1	2016 Accrual	410,069		
2	/ 2016 Wtd Avg Plant in Service	11,988,298		
3	= System Average Depreciation Rate	3.42%	3.42%	3.42%
4	x Plant in Service Weighted Average Increase		792,698	622,038
5	= Increase in Depreciation Expense		27,115	21,277
6	x NTG Multiplier	1.7172063	1.7172063	1.7172063
7	= Increase in RR		46,562	36,537
	Ad Valorem Taxes			
8	2016 Ad Valorem Taxes	52,210		
9	/ 2016 Plant in Service	12,581,303		
10	= System Average Ad Valorem Tax Rate	0.41%	0.41%	0.41%
11	x Current Attrition Year Additions		618,966	628,488
12	= Increase Full Year Additions		2,569	2,608
13	x Franchise Requirements NTG	1.0145342	1.0145342	1.0145342
14	= Increase in RR		2,606	2,646
	Payroll Taxes			
15	Prior Year Payroll Taxes		48,280	49,572
16	x Current Year Labor Escalation Rate		2.68%	2.59%
17	= Increase in Full Year Additions		1,292	1,283
18	x Franchise Requirements Net-To-Gross Multiplier		1.0145342	1.0145342
19	= Increase in Revenue Requirements		1,311	1,301

#### Table 9

#### Southern California Gas Company 2016 GRC Calculation of Revenue Requirement Increase (Thousands of Dollars)

	Sectio	on-2		
Line	Change in Weighed Average Ratebase	2016	2017	2018
1	2016 Test Year Weighted Average Ratease	4,336,247	4,336,247	
2	Weighed Average Ratebase		4,790,101	5,070,182
3	Change in Weighted Average Ratebase		453,854	280,081
	Long Term Debt			
4	Prior Year Return on Debt	5.77%	5.77%	5.77%
5	x Prior Year Debt Capitalization	45.60%	45.60%	45.60%
6	= Prior Year Weighted Cost of Debt	2.63%	2.63%	2.63%
7	x Change in Weighted Average Ratebase		453,854	280,081
8	= Change in Weighted Average Cost of Debt		11,941	7,369
9	x Franchise Requirements NTG		1.0145342	1.0145342
10	= Increase in RR		12,115	7,476
	Preferred Stock			
11	Prior Year Return on Preferred Stock	6.00%	6.00%	6.00%
12	x Prior Year Preferred Stock Capitalization	2.40%	2.40%	2.40%
13	= Prior Year Weighted Cost of Preferred Stock	0.14%	0.14%	0.14%
14	x Change in Weighted Average Ratebase		453,854	280,081
15	= Change in Weighted Cost of Preferred Stock		654	403
16	x NTG	1.7175373	1.7175373	1.7175373
17	= Increase in RR		1,122	693
	Common Equity			
18	Prior Return on Common Equity	10.10%	10.10%	10.10%
19	x Prior Year Common Equity Capitalization	52.00%	52.00%	52.00%
20	= Prior Year Weighted Cost of Common Equity	5.25%	5.25%	5.25%
21	x Change in Weighted Average Ratebase		453,854	280,081
22	= Change in Weighted Cost of Common Equity		23,836	14,710
23	x NTG	1.7175373	1.7175373	1.7175373
24	= Increase in RR		40,940	25,265
25	Total Increase in RR		54,177	33,434

#### Table 10

# Southern California Gas Company 2016 GRC Calculation of Revenue Requirement Increase (Thousands of Dollars)

	Section-3			
<u>Line</u>	Federal Tax Depreciation (ACRS/MACRS Basis)	2016	2017	2018
1	2016 Federal Tax Depreciation	307,373		
2	/ 2016 Plant in Service	12,581,303		
3	= System Average Federal Tax Depreciation Rate	2.44%	2.44%	2.44%
4	x Current Attrition Year Additions		618,966	628,488
5	= Increase in Federal Tax Depreciation Expense		15,122	15,355
6	x -Federal Income Tax Rate	(0.350)	(0.350)	(0.350)
7	= Federal Income Taxes		(5,293)	(5,374)
8	x NTG	1.7175	1.7175	1.7175
9	= Increase in RR		(9,090)	(9,230)
	State Tax Depreciation			
10	2016 State Tax Depreciation	434,574		
11	/ 2016 Plant in Service	12,581,303		
12	= System Average State Tax Depreciation Rate	3.45%	3.45%	3.45%
13	x Current Attrition Year Additions		618,966	628,488
14	= Increase in State Tax Depreciation Expense		21,380	21,709
15	x -State Income Tax Rate		(0.0884)	(0.0884)
16	= State Income Taxes		(1,890)	(1,919)
17	x NTG Multiplier	1.7172063	1.7172063	1.7172063
18	= Increase in RR		(3,245)	(3,295)

#### Table 11

# Southern California Gas Company 2016 GRC Calculation of Revenue Requirement Increase (Thousands of Dollars)

	Section-4		
<u>Line</u>	California Corporation Franchise Tax (Prior Year)	2017	2018
1	+ Depreciation		46,562
2	+ State Tax Depreciation		(3,245)
3	+ Federal Tax Depreciation (ACRS/MACRS)		(9,090)
4	+ Ratebase: Preferred Stock		1,122
5	+ Ratebase: Common Stock Equity		40,940
6	+ Financial Component: Preferred Stock		-
7	:Common Equity		-
8	+ CCFT		(2,386)
9	+ State & Federal Rate Changes		
10	= RR Increase		73,902
11	x Priror Year State Income Tax Cumulative Component		0.088400
12	= Prior Year State Income Tax Increase		6,533
13	+ Prior Year State Income Tax (State Tax Depreciation Expense)		(1,890)
14	+ Prior Year State Income Tax (State Rate Change)		-
15	= Prior Year Total State Income Taxes		4,643
16	Prior Year Current California Corp Franchise Tax	14,330	18,973
17	- Prior Year CCFT Deductible for Federal Income Taxes	10,360	14,330
18	= Increase CCFT Deduction on Federal Income Taxes	3,969	4,643
19	x -Federal Income Tax Rate	(0.3500)	(0.3500)
20	= Federal Income Taxes	(1,389)	(1,625)
21	x NTG	1.7175373	1.7175373
22	Increase in RR	(2,386)	(2,791)

#### Table 12

(DATA INPUT: ASSET HISTORY BY ASSET CLASS)		Additions	Additions	Additions	Additions	Additions
Asset Class	Asset Class Description	2009	2010	2011	2012	2013
(FORMULA: NARROW DOWN TO CATEGORY)		Additions	Additions	Additions	Additions	Additions
	Intangible	5,240.00	0.00	11,000.00	1,887.99	5,717.89
	UGS	33,897,057.89	46,828,735.32	69,441,060.77	59,504,931.96	32,461,877.53
	Transmission	91,403,096.57	55,360,173.88	110,067,840.38	113,688,934.91	101,493,194.74
	Distribution	208,649,096.32	205,187,105.45	268,623,378.70	275,098,069.66	246,791,078.45
	General Plant-Non Depreciable	0.00	99,818.16	0.00	0.00	0.00
	General Plant-Buildings	7,897,914.40	5,802,499.53	36,722,947.98	26,014,731.88	3,017,044.30
	General Plant Capital Tools	1,625,072.11	1,844,754.30	3,094,761.49	2,061,055.17	2,515,375.47
	General Plant Communications	4,890,582.43	30,079,716.16	31,038,091.66	7,057,654.65	13,829,503.34
	General Plant Miscellaneous	489,908.16	1,001,465.74	265,885.13	321,178.11	675,919.90
	General Plant Computer HW & SW	54,628,382.03	128,888,719.86	88,964,232.34	139,183,600.53	181,255,916.37
	Cushion Gas	0.00	0.00	1,063,906.00	1,226,295.00	738,371.91
Total By Category		403,486,349.91	475,092,988.40	609,293,104.45	624,158,339.86	582,783,999.90

Table 13
Southern California Gas Company

Calculation of Monthly CWIP, Plant and Accumulated Depreciation Balances (Thousands of Dollars)

Asset Type: Total Utility Plant

Line No.	_	2014	2015	2016
1	Beg Month CWIP Balance	230,363	264,743	301,654
2 3	Expenditures Expenditures - AFUDC	673,630 25,832	757,230 29,552	918,371 37,434
4	Total Expenditures	699,462	786,781	955,805
5	Additions	642,638	723,684	941,477
6	Additions - AFUDC	22,444	26,186	40,218
7	Total Additions	665,081	749,871	981,695
8	End Month CWIP	264,743	301,654	275,764
9	Interest Bearing CWIP	255,358	292,563	265,397
10	Non-interest Bearing CWIP	9,386	9,091	10,367
11	End Month CWIP	264,743	301,654	275,764
12	Beg Month Plant Balance	10,489,859	11,057,849	11,705,859
	Bog Month Flam Balance	10,400,000	11,007,040	11,700,000
13	Additions	665,081	749,871	981,695
14	Retirements	97,092	101,860	106,252
15	Transfers	0	0	0
16	End Month Plant Balance	11,057,849	11,705,859	12,581,303
17	Depreciation Accrual Accrual Monthly Rate	398,155	425,386	410,069
18	Beg Month Reserve Balance	6,026,050	6,303,604	6,601,126
19	Provision	398,155	425,386	410,069
20	Retirements	97,092	101,860	106,252
21	Salvage	1,553	1,632	1,718
22	Removal Costs	25,063	27,635	35,245
23	Transfers	0	О	0
24	End Month Reserve Balance	6,303,604	6,601,126	6,871,416