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PREPARED DIRECT TESTIMONY OF
LUIS PANDO
SOUTHERN CALIFORNIA GAS COMPANY

September 3, 2003

2005 BIENNIAL COST ALLOCATION PROCEEDING

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PREPARED DIRECT TESTIMONY OF
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SOUTHERN CALIFORNIA GAS COMPANY

A. PURPOSE

My testimony presents the forecasts of intrastate transportation throughput for SoCalGas' wholesale and electric generation customers for the years 2005 and 2006, excluding the following customer segments: Enhanced Oil Recovery (EOR) cogeneration which is covered in the testimony of SoCalGas witness Ms. Sharon R. Pope; refinery cogeneration which is covered in the testimony of SoCalGas witness Ms. Brenda H. Chen; and small cogeneration which is covered in the testimony of SoCalGas witness Mr. Mark Otrhalek. SoCalGas' wholesale loads include the California portion of Southwest Gas, the cities of Long Beach and Vernon, and San Diego Gas & Electric Company ("SDG&E"). SoCalGas also has Distribuidora de Gas Natural de Mexicali ("DGN") as an international customer.

SoCalGas' Electric Generation (EG) market is comprised of: (1) utility electric generation ("UEG") customer loads from the cities of Burbank, Glendale, Pasadena and Anaheim, the Los Angeles Department of Water and Power ("LADWP"), and the Imperial Irrigation District ("IID"); (2) large cogeneration customers (greater than 20 MW) that the Federal Electric Regulatory Commission ("FERC") classifies as Qualifying Facilities ("QF"); and (3) merchant electric generation customers, classified by the FERC as Exempt Wholesale Generators ("EWG"). Load provided to the Vernon UEG is now incorporated into the Vernon wholesale load. SDG&E's electric generation customers include plants formerly owned by SDG&E, cogeneration facilities and proposed new EWG power plants. SoCalGas has a total of 49 UEG, large cogeneration and EWG customers, four wholesale customers and one international customer.

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B. FACTORS AFFECTING SOCALGAS THROUGHPUT

Gas demand by SoCalGas' EG (with the exception of cogeneration) customers has demonstrated a high degree of volatility over the past decade. This is due to the nature of the electric marketplace. Given the age of the facilities located in southern California, the relative efficiency of the generation is very low compared to other generation assets competing to meet the retail demand in the Western Electricity Coordinating Council ("WECC"). As a result, SoCalGas' EG (with the exception of cogeneration) customers tend to operate as the incremental suppliers of wholesale electricity. Thus, the output of these plants becomes highly dependent on marginal changes in the following:

- Availability of hydroelectric generation in the WECC, in particular, from the Pacific Northwest ("PNW")
- End-use electricity demand
- Availability of traditional base load generation sources, such as nuclear and coal plants
- Construction of new generation facilities
- Electric transmission

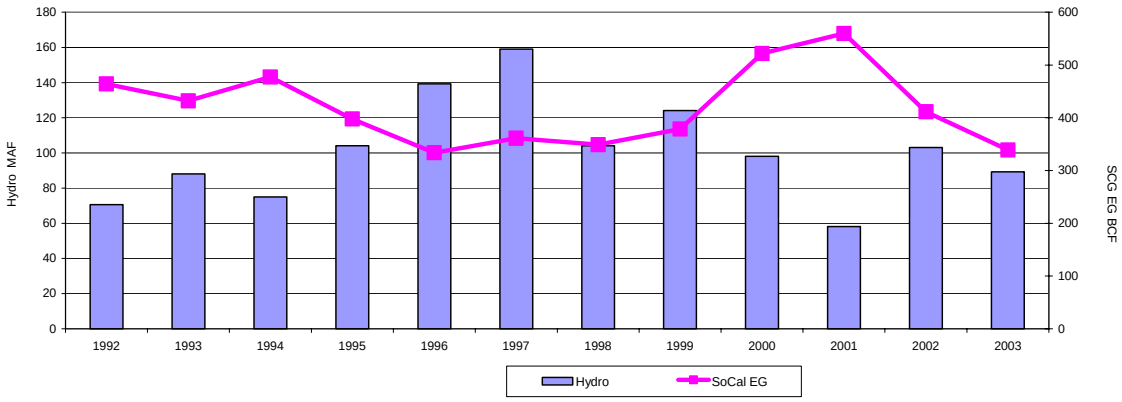
C. SOCALGAS EG THROUGHPUT FROM 2000 THROUGH 2003

Electric generation customers served by SoCalGas operated at historically high capacity factors from the summer of 2000 through 2001. However, this fact provides little insight into the forecast for 2004 through 2006 due to anomalies that occurred in the WECC during 2000-01. These anomalies helped push SoCalGas deliveries to electric generators to record levels in 2000-2001. Consequently, 2000-2001 EG operation is an unreliable indicator of future throughput.

The most significant factor leading to high throughput in 2000 and 2001 was the near record-low run-off (snow pack) in the PNW during the winter of 2000-01 that resulted in a severe reduction in hydroelectric generation. SoCalGas EG throughput is inversely correlated to the hydroelectric generation in the PNW. This correlation is demonstrated in Figure 1, which shows recorded PNW hydroelectric generation (primary axis) versus historic electric generation

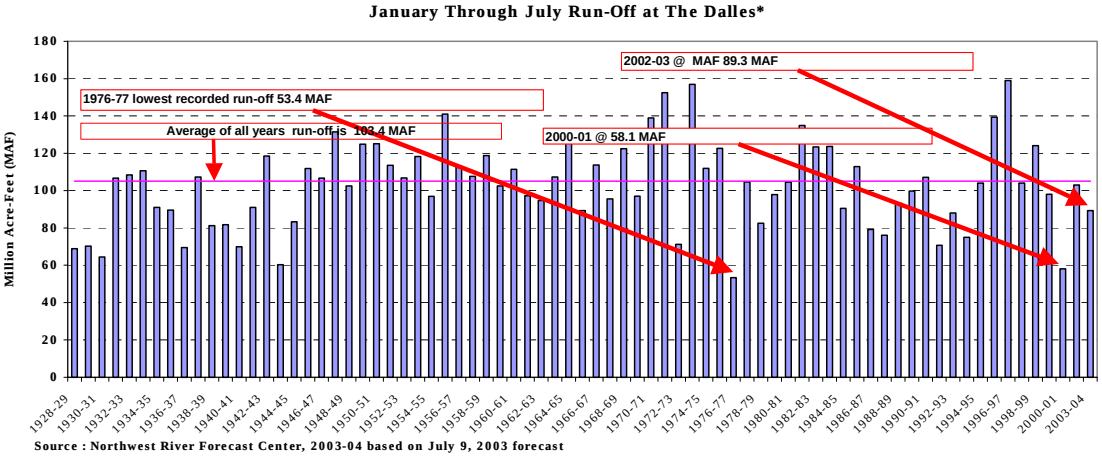
(including EWG, UEG, refinery cogeneration, small cogeneration and EOR cogeneration) throughput on the SoCalGas system (secondary axis). The winter of 2000-01 was one of the driest on record in the western US. For example, Grand Coulee, the largest hydroelectric generating station in the United States, recorded its worst flows ever. Historic run-off at a key PNW hydroelectric project known as The Dalles is shown in Figure 2, and demonstrates the magnitude of the low run-off in water year 2000-2001. California also experienced below normal snowfall during the 2000 and 2001 water years.

Figure 1: SoCalGas EG Throughput versus Flow through the Dalles



2003 represent forecast values

Figure 2: Historic January-July Run-Off at the Dalles



Relatively few new power plants were constructed while WECC demand in the1990's grew at a brisk rate with the robust economy. By the year 2000, growing electric end-use demand, coupled with the low hydro production, forced existing old and relatively inefficient generators to run at high capacity factors. Also, six out of the eight nuclear power plants located in the WECC underwent a refueling outage between October 2000 and July 2001 while there were extended unplanned outages at the San Onofre and Diablo Canyon nuclear power plants. All these factors combined to push SoCalGas EG throughput to record levels in 2001.

In 2002, SoCalGas' EG throughput declined significantly when compared to 2001. The water year 2001-02 was closer to an historical average year leading to much higher hydroelectric production in the spring and summer of 2002. In addition, unlike 2001, the nuclear power plants in the WECC did not experience a high level of unexpected outages in 2002 and new generation assets became operational.

In response to the energy crisis, construction commenced on a large number of new power plants in the WECC during 2000-2001 time period, a number of which became or will become operational by the end of 2003. A significant portion of this new capacity is associated with contracts signed by the California Department of Water Resources ("CDWR") in response to the energy crisis. The impact of the new generation can be shown on SoCalGas' EWG/UEG 2003 year-to-date throughput when compared to 2002 year-to-date. The EWG/UEG throughput is down significantly when compared to 2002 despite two major occurrences that should have increased 2003 year-to-date SoCalGas EG demand when compared to 2002 year-to-date demand. The first occurrence is a dry 2002-2003 year in the Pacific Northwest that has led to decreased hydroelectricity production when compared to 2002 (see Figure 2). Second, during July 2003, six Western cities registered their hottest month ever and six other Western cities had their warmest July ever. This heat resulted in increased electricity demand in the WECC.

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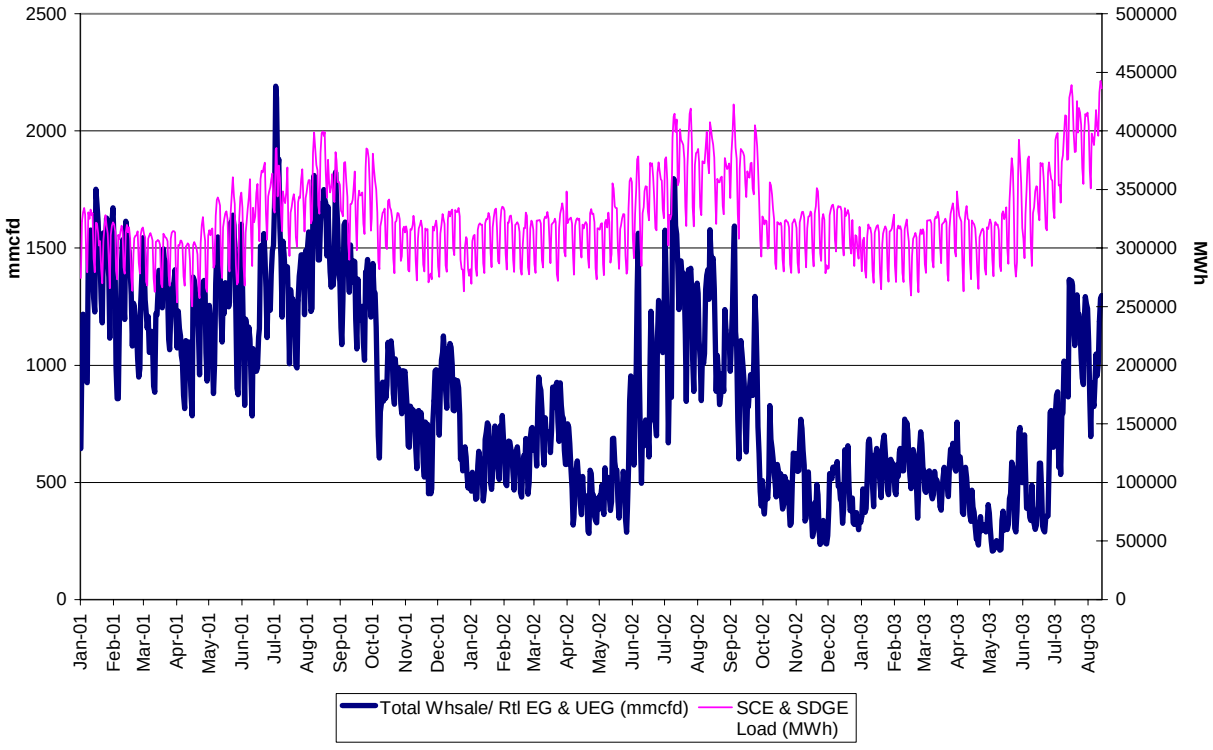
The drop in throughput is demonstrated in Figure 3, which shows a graph of SCE and SDG&E electric demand (secondary vertical axis) versus SoCalGas EG throughput (primary vertical axis) from 2001 through mid-August 2003. The graph clearly shows a reduction in throughput to EWG/UEG customers and the drop in percentage of electric-end use in Southern California demand met by SoCalGas' EWG/UEG customers. The drop in SoCalGas EG throughput in 2003 is remarkable when compared to the same months in 2002 considering the fact that there was increased southern California electric demand in 2003 when compared to 2002 and less hydroelectric generation in 2003 when compared to 2002.

Figure 3: SCE & SDG&E Loads vs SCG Wholesale/Retail EWG/UEG demand



D. EG AND COGENERATION FORECAST METHODOLOGY

Due to the complex interaction of the supply and demand components, the EG forecast is based on an analysis of the operation of power plants in the western electric market using the MultiSym model developed by Henwood Energy Services (HESI). MultiSym is currently licensed in 5 continents for analysis of power generation economics and wholesale power markets, in both regulated and deregulated environments, and has been used by SoCalGas in previous applications before the Commission.

MultiSym simulates operation of generation and transmission resources. The model is designed to capture the fundamental structural changes in electricity markets and assess the financial impacts on generating assets and power contracts. It models in detail the electricity supply and demand on an hourly basis, and provides results of generation unit output, including fuel burn. The model performs the simulation of traditional and restructured markets. It represents the physical and economic operating characteristics of the electric utility or market, and uses projections of peak loads and supply for the study period.

E. EG FORECAST ASSUMPTIONS

1. Electric Market Structure and Scope

The market simulated is comprised of the electric load, transmission and generation resources currently located within the WECC. Reliability constraints such as spinning reserve and must-run requirements are incorporated into the simulation. In addition, firm transmission transfer limits as published by the WECC are incorporated into the simulation.

2. Generator Cost and Performance Characteristics

The generator operating characteristics used in the MultiSym model are based on values adopted in regulatory proceedings and filings (e.g. California Energy Commission Electricity Report, Federal Energy Regulatory Commission forms). The forecast of cogeneration load is based on each individual QF contract and each plant's competitive position. The gas price used

in this forecast is provided in the testimony and workpapers of SoCalGas witness Ms. Loan X. Nguyen.

3. Electric Demand

SoCalGas is using the California Energy Commission's (CEC) California end-use electric demand forecast, that was developed by the CEC in December, 2002[1]. For the remainder of the WECC, SoCalGas is using the Henwood Energy Services (HESI) end-use electric demand forecast, which was developed from various sources including demand forecasts filed by utilities before the FERC. The electric demand forecast incorporates recent developments in the Western electric markets and reflects a forecast of the western US economic growth.

4. Availability of Hydroelectricity

Limited multi-year storage in California and the PNW makes annual hydroelectric generation in the WECC dependent on each year's run-off. The Dalles is used as a bellwether project for gauging run-off on the Columbia River system by the energy industry and the PNW River entities (US Army Corp of Engineers, Northwest River Forecast Center, Bonneville Power Authority, etc.). Figure 4 shows a layout of the Columbia River system. The Dalles is the second to the last project on the Columbia river and is located downstream of most hydroelectric power projects located on the Columbia River and its tributary system (over 35,000 MW of capacity) making the project an excellent measure of relative generation in the PNW. In addition, there are extensive records of flows at the Dalles that date back to 1878, allowing insight into the variability of hydroelectric generation.

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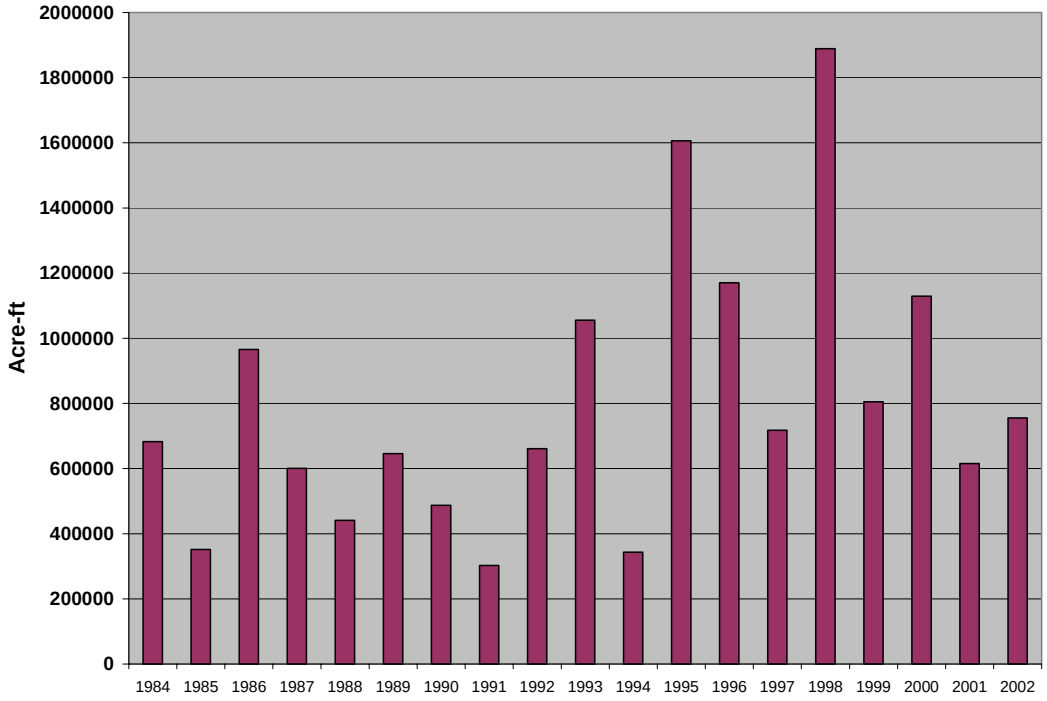
[1] The CEC produced a new demand forecast for California in August 2003. SoCalGas did not have time to incorporate this updated electric demand forecast into its modeling simulations. However, the difference between the CEC'S December 2002 forecast and the August 2003 forecast is less than 1%.

Figure 4: Layout of Columbia River System Hydroelectric Projects

The historical data indicates a random variability to PNW hydroelectric generation in any given year (see Figure 2). California hydroelectric generation also exhibits a year-to-year random variability as shown on Figure 5, which shows historical flows on the Sacramento River. Therefore, SoCalGas assumes that precipitation in the in the PNW and California will be characterized as near average for the purpose of forecasting the availability of hydroelectricity in these regions. While SoCalGas monitors the reports with the latest information on the water levels in the reservoirs and snow pack readings, that information for the BCAP period will not be available until the winter of 2004-2005. Since there is no statistical correlation about the likelihood of excess or shortage of hydroelectricity at this time, SoCalGas used the assumption of average availability for the 2005 and 2006 forecast.[2]

[2] This is consistent with the forecast methodology used in California Gas Reports and those submitted in previous cost allocation proceedings.

Figure 5: Flows on the Sacramento River at Delta 1984-2002



Source: California Department of Water Resources

5. Generation Capacity

The development of new power plants in the WECC has now matured. The large amount of announced power plant development has been pared down and power plants likely to be on-line during the 2005 BCAP period have been more clearly defined. During the past three years, the CEC has identified over 75,000 MW of proposed new power projects with only about half actually being constructed.

Over 25,000 MW of new power plants have been constructed in the WECC since 2001 with another 9,400 MW due to come on-line in 2003. SoCalGas has incorporated these power plants, as well as any power plants currently under construction, into its demand forecast model. In addition, SoCalGas added two new combined cycle facilities expected to be connected to

SoCalGas or SDG&E during 2006. The first is the 1,060 MW Mountainview power plant being developed by Intergen. Southern California Edison signed an option to purchase the power plant from Intergen and Southern California Gas Company has begun construction on the lateral pipeline needed to serve the project. In May 2003, SDG&E issued an RFP for capacity and energy. SoCalGas added a generic combined cycle facility to its demand forecast model to represent the possibility that a new combined cycle will be built in response to SDG&E's RFP. The total amount of capacity added, or forecast to be added, in the WECC in the years 2001 through 2006 is shown in Table 1.

Table 1: New capacity added between 2001 and 2006

Region	Peaker	CC	Coal	Other	Total
Southwest and Rockies	2631	14001	800	204	17636
Pacific Northwest and Canada	1061	4946	780	950	7737
Other California/CFE*	1459	9306	0	484	11249
SCG/SDG&E	1907	3158	0	32	5097
Total	7058	31411	1580	1670	41719

*Includes all other California and CFE generation not connected to SCG/SDGE system

As shown in Table 1, most of the new generation is connected to or expected to connect to pipelines other than those owned by SoCalGas or SDG&E. These new generators for the most part are gas-fired combined cycle power plants and are on average over 30% more efficient than most existing EG generators currently served by SoCalGas. Figure 6 shows the relative efficiency of the major existing SoCalGas EG (excluding cogeneration) customers compared to a new combined cycle.

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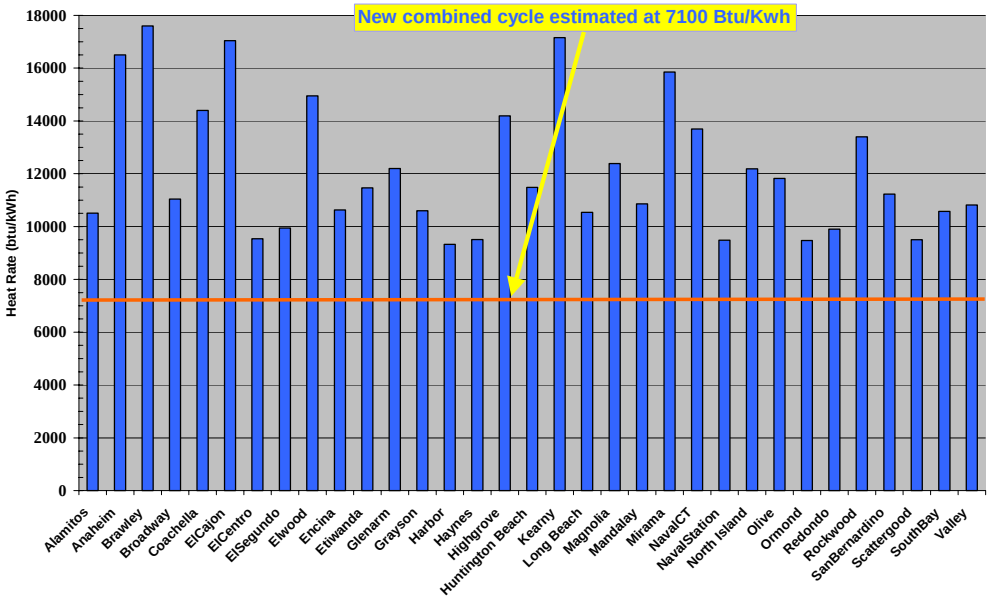
Figure 6: Heat Rates of SoCalGas Served Power Plants



6. Electric Transmission

The power crisis coupled with the addition of new generation resources has triggered interest in the expansion of the WECC transmission system. Three large projects are underway that will impact the ability to import power into Southern California. The first is the expansion of the interconnection between California and the Mexican state of Baja California Norte (known as Path 45) that was completed in 2003. Second, SDG&E is expanding the capability to move power from the Imperial Valley and Baja California Norte into the SDG&E's load center. The current transfer limit is constrained between SDG&E's Miguel and Mission substations, and an expansion at this point is expected to be completed in 2006. Third, SCE is expanding its ability to import power from central California into the LA basin (known as Path 26): this project is scheduled to be completed in 2004. This expansion will permit more power to be imported from the Pacific Northwest as well as from efficient generation that has located in the central valley of California. Together these three projects are expected to increase the non-simultaneous transfer into Southern California by 1000 MW.

F. ELECTRIC GENERATION FORECAST RESULTS

The SoCalGas EG forecast as generated by Henwood's MultiSym model using the aforementioned assumptions for the years 2005 and 2006 is shown in Table 2. The historical throughput for 1998 through 2002 and the current cost allocation levels are also shown. The average of the 2005 and 2006 electric generation forecasts is 33% below the 1999 BCAP adopted cost allocation levels and represents a 55% drop from 2001 throughput. SoCalGas forecasts its EWG/UEG demand to decline from 2003 through 2005, with the decline reversing in 2006.

Table 2: SoCalGas Electric Generation Forecast

Mdth

Customer Class	Adopted 1999 BCAP Throughput	1999	2000	2001	2002	Forecast 2005	Forecast 2006	Average Demand 2005 - 2006
SoCalGas Electric Generation*	267,691	261,130	385,848	426,714	270,246	145,370	209,992	177,681
Wholesale Electric Generation	89,944	65,715	84,697	102,450	86,657	55,041	70,949	62,995

*Excludes Small Cogen, EOR Cogen, Refinery Cogen

Alternative pipelines serve the majority of the new capacity built from 2001 through 2004. Table 3 shows the amount of coal and combined cycle power plants to be added by year in each sub-region. These plants take market share from older and less efficient operating assets in the simulation analysis. The location of new power plants will lead to excessive reserve margins in the some areas of the WECC. Arizona and Nevada are especially over built and new combined cycles in these areas are expected operate in an intermediate basis rather than in a base-load manner.

Table 3 Coal and Combined Cycle Power Plants' Additions

	Region				
Year	Southwest and Rockies	Pacific Northwest and Canada	Other California/ CFE*	SCG/SDGE	Total
2001	2106	979	1606	0	4691
2002	2544	1578	1960	0	6082
2003	6495	1381	5060	574	13510
2004	2031	488	600	0	3119
2005	825	450	80	1018	2373
2006	800	850	0	1566	3216

The downward effect on throughput that these new power plants have on the older assets owned by SoCalGas' EWG/UEG customers is limited only by electric transmission transfer limits and system stability requirements that are met by these older assets. Over time 3000 MW of new and efficient EWG/UEG generation is forecast to connect to SoCalGas, of which more than half is not expected to be operational until 2006. These new assets, coupled with growing electric end-use demand, reverse the decline in throughput for SoCalGas' EWG/UEG customers by 2006.

G. WHOLESALE AND INTERNATIONAL FORECAST METHODOLOGY AND ASSUMPTIONS

The wholesale and international forecast is based on the latest information available from Long Beach, San Diego Gas & Electric (SDG&E), and DGN. The forecast of total demand for service to the wholesale customers, SDG&E, Long Beach, Vernon and Southwest Gas, and to DGN is shown in Table 3 and discussed below for each customer.

Table 4 Wholesale Throughput Forecast

Mdth

Customer	Segment	Adopted 1999 BCAP Throughput	1999	2000	2001	2002	Forecast Average Year 2005	Forecast Average Year 2006	Average Demand for Average Year 2005 - 2006	Forecast Cold Year 2005	Forecast Cold Year 2006	Average Demand for Cold Year 2005 - 2006
SDG&E												
	Core	46,003	53,165	48,830	51,466	51,991	51,208	51,813	51,511	55,656	56,316	55,986
	Non-Core	8,621	8,264	7,893	4,491	3,640	3,862	3,877	3,870	3,862	3,877	3,870
	EG	89,944	65,715	84,697	102,450	86,657	51,847	66,145	58,996	51,847	66,145	58,996
	Total	**144,568**	**127,144**	**141,420**	**158,407**	**142,288**	**106,917**	**121,835**	**114,376**	**111,365**	**126,338**	**118,851**
Long Beach		**7,782**	**9,881**	**8,834**	**7,963**	**7,590**	**10,238**	**10,238**	**10,238**	**10,726**	**10,726**	**10,726**
Vernon												
	Core	584					1,147	1,529	1,338	1,147	1,529	1,338
	Non-Core	3,279					3,750	5,250	4,500	3,750	5,250	4,500
	EG	1,299					3,194	4,804	3,999	3,194	4,804	3,999
	Total	**5,162**	**0**	**0**	**0**	**0**	**8,091**	**11,584**	**9,837**	**8,091**	**11,584**	**9,837**
Southwest		**9,167**	**9,502**	**9,305**	**8,808**	**8,710**	**8,710**	**8,710**	**8,710**	**9,468**	**9,468**	**9,468**
Total Wholesale		**166,679**	**146,527**	**159,559**	**175,178**	**158,588**	**133,956**	**152,367**	**143,162**	**139,651**	**158,115**	**148,883**
DGN		**3,642**	**3,927**	**3,966**	**2,152**	**3,628**	**4,624**	**4,835**	**4,730**	**4,624**	**4,835**	**4,730**

1. Southwest Gas

SoCalGas began providing service to Southwest Gas pursuant to a wholesale service agreement executed on March 9, 1993. The forecast in Table 3 is based on 2002 recorded usage since Southwest Gas' demand has remained relatively flat since initiating service with SoCalGas.

2. Long Beach

The demand forecast for Long Beach is based on input from Long Beach. In 2003, a new cogeneration power plant in Long Beach began operation, using the city's local supplies, and increasing Long Beach's demand forecast for intrastate transportation by 3 MMdth. Long Beach expects its throughput to remain relatively flat from 2005 through 2006.

3. San Diego Gas and Electric

The forecast for SDG&E's non-EG throughput is based on input provided by SDG&E witness Mr. Greg Katsapis. The core sector and non-core sectors are forecast to remain flat. SDG&E's EG demand was developed using the MultiSym model while Mr. Katsapis provided the cogeneration forecast. Gasoducto Rosarito, formerly served by SDG&E, took service from the Baja Norte pipeline in September 2002, thereby having a downward affect on future demand.

4. City of Vernon

The forecast for Vernon load for the BCAP period is based on the continued development of the Vernon municipal gas distribution system. The forecast throughput for core customers located in Vernon is based on 2002 recorded volumes, with a transition of 25% of the current core load per quarter starting in November, 2004. The non-UEG demand for Vernon has remained relatively flat for the past six years. The demand forecast for EG customers, including cogeneration customers, was developed using the MultiSym model.

5. DGN

SoCalGas' demand forecast for international service to Distribuidora De Gas Natural De Mexicali (DGN) is based on input from DGN.

This concludes my testimony.

QUALIFICATIONS

My name is Luis Pando. My business address is 555 West 5th Street, Los Angeles California 90013-1011.

I am employed by SoCalGas as the Electric Generation Manager in the Major Markets Customer Services Department. In that capacity, my responsibilities include providing forecast of EG and wholesale customers as well as providing various analysis and consulting services on issues regarding these customers. My work experience includes over 18 years of experience in the energy business.

Prior to assuming my position, I was the Manager of Strategic Market Analysis at Intergen, an international power plant developer. Before that, I was a senior consultant at Henwood Energy Services where my duties involved applying the Henwood's simulation models in analysis conducted for domestic and international clients, including extended assignments in Australia, Spain and the United Kingdom. Domestic clients included the Los Angeles Department Water and Power, Southern Company and its affiliates, Reliant Energy, Duke Energy and Florida Power and Light. I also worked at Pacific, Gas and Electric ("PG&E") and Southern California Edison ("SCE") in the areas of system operations and planning. I also previously worked for SoCalGas as manager of demand forecasting.

In addition, my experience includes serving as a power trader for Avista Energy, participating on a three-member founding team for Hafslund Energy Trading, a WSCC energy trading company. I attended the Massachusetts Institute of Technology and have previously testified before this Commission.