Exhibit SCE-__(AVH-26)

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Pacific Gas Transmission Company	**)**	**Docket Nos. RP94-149-000,**
	)	**et al.**

PREPARED CROSS-ANSWERING TESTIMONY OF ANDREW J. VAN HORN, PH.D.

Competitive Benefits and Stranded Costs

February 7, 1995

Submitted on behalf of Southern California Edison Company

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PREPARED DIRECT TESTIMONY
OF
ANDREW J. VAN HORN

Q. Please state your name, position and business address.

A. My name is Andrew J. Van Horn. I am a principal of Van Horn Consulting, 61 Moraga Way, Suite 1, Orinda, California 94563.

Q. Have you previously submitted testimony in this proceeding?

A. Yes. My prepared direct testimony was submitted on November 17, 1994, on behalf of the Southern California Edison Company ("Edison").

I. SUMMARY AND CONCLUSIONS

Q. What is the purpose of your cross-answering testimony?

A. The purpose of my testimony is to respond to the prepared direct testimony of several intervenors who have questioned: 1) whether the benefits of competition can be measured through California border price reductions, and 2) whether tangible economic benefits have arisen from the 1993 Pacific Gas Transmission ("PGT") pipeline expansion ("the 1993 Expansion"), even when the costs to gas consumers of "stranded pipeline

capacity" are considered. Some intervenors have also raised various equity issues concerning the effects of equalized (rolled-in) versus vintage rates for the 1993 Expansion. These equity issues are addressed in my direct testimony and in the direct and cross-answering testimony of Colin C. Blaydon.

Q. Are you sponsoring any exhibits?

A. Yes, I am sponsoring the following exhibits:

Exhibit SCE-__(AVH-27) Econometric Estimation of the Permian Gas Price into the El Paso Pipeline

Exhibit SCE-___(AVH-28) Actual and Predicted Values for the Permian Price of Gas into the El Paso Pipeline

Exhibit SCE-___(AVH-29) Econometric Estimation of the San Juan Gas Price into the El Paso Pipeline

Exhibit SCE-___(AVH-30) Actual and Predicted Values for the San Juan Price of Gas into the El Paso Pipeline

Exhibit SCE-___(AVH-31) Econometric Estimation of the California Border Gas Price

Exhibit SCE-___(AVH-32) Actual and Predicted Values for the California Border Price of Gas

Exhibit SCE-__(AVH-33) Econometric Estimation of the California Border Gas Price Substituting an Alternative (Volumetric) Measure of Slack Capacity

Exhibit SCE-___(AVH-34) Econometric Estimation of the PG&E Core Subscription Gas Price

Exhibit SCE-___(AVH-35) Actual and Predicted Values for the PG&E Core Subscription Gas Price

Exhibit SCE-___(AVH-36) Econometric Estimation of the SCE Average Cost of Gas ("EACOG")

Exhibit SCE-___(AVH-37) Actual and Predicted Values for the SCE Average Cost of Gas (EACOG)

Exhibit SCE-___(AVH-38) Illustrative Distribution of the Benefits of Competition Under Netback Contracts Using the PGT Expansion

Exhibit SCE-___(AVH-39) Illustrative Distribution of the Benefits of Competition Under Netforward Contracts Using the PGT Expansion

Exhibit SCE-___(AVH-40) Derivation of California "Stranded Costs" Assigned to PGT Expansion and Line 401

Exhibit SCE-___(AVH-41) Derivation of PG&E "Stranded Costs" Assigned to the PGT Expansion and Line 401

Exhibit SCE-___(AVH-42) Five and Ten Year Commensurate Benefits Test (including "Stranded Costs") for Pre-Expansion FTS-1 (T-1) Customers in California

Exhibit SCE-___(AVH-43) Five and Ten Year Commensurate Benefits Test (including "Stranded Costs") for Pre-Expansion FTS-1 (T-1) Core Customers in California

Exhibit SCE-___(AVH-44) Five and Ten Year Commensurate Benefits Test (including "Stranded Costs") for Pre-Expansion FTS-1 (T-1) Noncore Customers in California

Exhibit SCE-___(AVH-45) Commensurate Benefits Test (including "Stranded Costs") for PITCO Service [FTS-1 (T-2)]

Q. Please summarize your principal conclusions.

A. My analysis shows that the specific concerns advanced by the witnesses for the California Public Utilities Commission ("CPUC") and the El Paso Natural Gas Company ("El Paso"), when properly considered, do not alter the fact that California gas consumers, including non-Expansion customers, have obtained significant economic benefits from the 1993 PGT Expansion that justify rolling-in the costs of the Expansion facilities.

The 1993 Expansion has enhanced gas-on-gas competition (including both supply basin and pipeline-to-pipeline competition) and has led to California border price reductions of about $0.17 per MMBtu

for all gas consumers, whether or not their purchases were in producing basins or at the border.

In this testimony I demonstrate that both California border and supply basin gas price reductions are directly related to the slack pipeline capacity that has been created by adding new interstate capacity to California. In contrast to the CPUC witness's views that gas-on-gas competitive benefits are not real and quantifiable, my analysis provides market evidence that the benefits of added pipeline capacity are real, quantifiable, statistically significant and are now occurring.

Q. Please summarize your analysis regarding the CPUC and El Paso witness claims concerning "stranded costs."

A. "Stranded costs" 1/ can arise as a result of the transition to a more competitive gas market and should be recovered through appropriate cost allocation mechanisms. However, it would be inappropriate for the Federal Energy Regulatory Commission ("FERC" or "Commission") to

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1/ In this discussion, I have used the CPUC's definition of "stranded costs" as transition costs which consumers incur in the form of higher intrastate rates through the Interstate Transition Cost Surcharge or ITCS. These costs arise whenever firm interstate pipeline capacity held by California LDCs is unmarketable at the full as-billed rate in the capacity release market. The CPUC's definition of regulatory "stranded costs" is distinct from the definition of economic "stranded costs" discussed in my direct testimony.

[Footnote continued]

attribute and apply estimated "stranded costs" solely to the performance of individual new competitors in a strict cost-benefit test to determine whether rates on the Expansion should be "equalized" or "vintage."

In California, "stranded pipeline costs" are defined as committed transportation costs that are associated with the reduced utilization of pipelines on which LDCs are paying demand charges. Although these charges must be paid with or without the new pipeline capacity, the CPUC and El Paso witnesses would have the Commission subtract such "stranded costs" from the estimation of the benefits of adding new capacity. Reduced utilization can occur because of changes in consumption, supply basin prices, pipeline costs and the entry of new competitors. However, reduced utilization does not always mean that temporarily idle pipeline capacity is economically "stranded," as I discussed in my direct testimony. In fact, some "stranded costs" that the CPUC and El Paso would include in the Commission's commensurate benefits test are the very same costs that competition is intended to reduce, i.e., they are, in fact, the benefits or cost savings brought about by enhanced competition. It simply does not make sense to construct a

[Footnote continued]

commensurate benefits test that applies such "stranded costs" to "offset" the benefits of competition. 2/ Furthermore, to apply a test where "stranded costs" are used to offset the benefits of competition would undermine economic market entry and subvert the efficient operation of the market in those very cases where competition is most needed to reduce or eliminate high costs. The result of applying such a test would be antithetical to the FERC's goals of encouraging competition and enhancing productive efficiency. 3/

Q. What are "stranded costs"?

A. "Stranded costs" are a result of market conditions as a whole, and are not caused solely by the presence of individual competitors who may render prior gas transportation arrangements unmarketable at their full regulated, as-billed rates ("ABR"). My direct testimony demonstrates that rather than being purely a cost to consumers, the buyers' flexibility, as

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2/ On page 45 of her prepared direct testimony, the CPUC witness recommends that "the stranded costs must be considered an offset to the benefit calculation." To do so, would be an improper manipulation of the commensurate benefits test in this proceeding.

3/ As discussed in my direct testimony and in the testimony of Colin Blaydon, equalized rates in this case would lead to greater market efficiency and avoid the inefficiencies of charging two prices for the same service based simply on the customer's vintage.

measured by idle or slack capacity at the California border, contributes to lower consumer prices by providing increased gas-on-gas competition (including pipeline-to-pipeline competition). Therefore, from an economic perspective, currently "unutilized" interstate slack pipeline capacity into California is not economically "stranded" or unneeded in the manner that the term implies. In fact, it is the very increase in capacity provided by capacity additions that has created large gas price savings for all California consumers.

Q. In view of the CPUC's definition, should "stranded costs" be applied in the Commission's commensurate benefits test?

A. No. There are important conceptual difficulties in quantifying "stranded pipeline capacity" costs, as well as in attributing these costs for a cost-benefit test intended to be used for ratemaking. It is noteworthy that if the as-billed rate for existing interstate pipelines into California were higher, so would California's Interstate Transition Cost Surcharge ("ITCS") be higher. Indeed, pipelines with higher as-billed rates and pipelines accessing less competitive gas supplies will, therefore, have higher "stranded costs" according to the CPUC's definition. Yet, this circumstance represents exactly the type of situation where new market entrants should be encouraged to compete. But inclusion of stranded

costs in the commensurate benefits analysis would have the opposite effect.

In fact, the CPUC testimony creates a logical conundrum: the very costs that the CPUC recommends be subtracted from the calculation of benefits are the cost savings associated with the benefits of competition. Therefore, despite the CPUC and El Paso witnesses' discussions of "stranded costs," it is not appropriate for net benefits of the PGT Expansion to be calculated bearing the full burden of an ITCS amount which is estimated using the existing pipeline's "business-as-usual" costs. 4/ Lest the subtraction of business-as-usual "stranded costs" preclude the entry of new participants or prejudice the selection of a more efficient rate design, the Commission's commensurate benefits test for rolling-in the costs of the PGT Expansion should not directly incorporate

4/ The greater the "stranded costs," the greater the opportunity for competition to provide benefits. At least some "stranded costs" comprise the very costs competition is intended to reduce or eliminate. Hence, simply subtracting the CPUC's "stranded costs" from the benefits provided by a new or expanded pipeline, such as gas-on-gas competitive benefits, increased reliability and fuel efficiency, would apparently lower "net benefits," while masking the positive contribution the competitor is providing.

the "stranded capacity costs" proposed by the CPUC and El Paso witnesses. 5/

Q. What are your other conclusions and recommendations?

A. In contrast to the views expressed by the El Paso witness on page 47 "that an econometric approach is not capable of predicting or addressing the results of a major structural change in gas markets," I have determined that the direct gas-on-gas competitive benefits to all California gas consumers of the 1993 PGT Expansion were about $ 350 million in 1994, based on my own econometric analysis of the California gas market using the most recent data available to me. Even when estimates of regulatory "stranded costs" are subtracted -- and I do not believe they should be -- annual direct benefits to California consumers exceed $250 million (excluding the economic multiplier effects described in my direct

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5/ The estimation, allocation and recovery of California's "stranded ITCS costs" will be defined and determined by the CPUC. Since the PGT Expansion is already in operation, consideration of California's "stranded costs" by the Commission will not change the magnitude of those costs, unless the Commission's decision in this proceeding regarding appropriate rates for the PGT system makes the market less efficient and, thereby, reduces the benefits of competition. The appropriate choice of rates should maximize market efficiency and competitive benefits to all California consumers and be equitable for both pre-Expansion and Expansion customers. For the fully integrated PGT pipeline system, equalized rates will be more equitable and efficient and are more likely to maximize the benefits of competition.

[Footnote continued]

testimony.) Future yearly direct benefits to California consumers as a whole should continue at about this magnitude, while "stranded costs" should terminate as existing LDC contractual obligations for firm capacity expire.

Turning to the effects of the 1993 Expansion on pre-Expansion customers, my econometric analysis of gas prices for Pacific Gas & Electric Company's ("PG&E's") core and core subscription customers (who represent pre-Expansion customers) shows that the direct gas-on-gas competitive benefits per MMBtu to PG&E's current customers are equivalent to the price reductions obtained by other California consumers. This amounts to a reduction in gas prices of about $0.17 per MMBtu attributable to the PGT Expansion for all California consumers, including PG&E's core customers.

Overall, the direct benefits of the PGT Expansion to PG&E core and noncore ratepayers significantly outweigh the costs of moving to equalized (rolled-in) rates by a large amount, even when allowance is made for "stranded costs." The core ratepayer, for whom the greatest concern has been expressed by the CPUC and others, benefits the most

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[Footnote continued]

from the PGT Expansion, because of the substantial gas-on-gas competitive benefits provided by the Expansion and, partly, because the CPUC has imposed a cap on the core's responsibility for stranded costs. This cap limits the core's yearly allocation of stranded costs to 10 percent of the cost of the capacity reserved for core customers. 6/ Even if "stranded costs" are evaluated, I conclude that for PG&E's core and noncore ratepayers, PITCO and for PGT's FTS-1 (T-1) customers as a whole, the immediate roll-in of PGT rates is more than justified by the net benefits received, as summarized in Table AVH-1.

6/ In Decision No. 92-07-025 the CPUC stated "[w]e believe 10% is a reasonable figure for determining the core class' responsibility over and above the capacity held to serve the core during peak periods. This cap would limit the core's annual liability to the cost of 107 MMcf/d on SoCalGas' system and 120 MMcf/d on PG&E's system, in addition to the reservations already allocated to the core." D.92-07-025, p. 19. In Decision No. 94-12-052 the CPUC indicated that the core cap should be calculated "with no distinction as to which pipeline has generated the stranded costs." The CPUC affirmed its opinion that the cap on the core's liability should not be calculated on a "pipeline-by-pipeline" basis. D.94-12-052, p. 40.

Table AVH-1

Commensurate Benefits for FTS-1 (T-1) Service to PG&E Pre-Expansion Customers in Moving from Vintage to Equalized Rates[+] (5-Year Levelized Benefits in $/MMBtu)

	Core	Noncore	Both
Direct Benefits	$0.129	$0.129	$0.129
Less "Stranded Costs"	($0.047)	($0.053)	($0.051)
Net Direct Benefits	$0.082	$0.076	$0.078

[+] See Exhibits SCE-__(AVH-40) to SCE-___ (AVH-44). These values exclude the indirect benefits arising from the direct cost savings brought about by the 1993 PGT Expansion.

II. THE PGT EXPANSION HAS LOWERED GAS PRICES IN PRODUCING BASINS, AS WELL AS AT THE CALIFORNIA BORDER.

Q. The CPUC's witness, Natalie Walsh, contends that gas price reduction benefits from the PGT Expansion at the California border are the result of pipeline-to-pipeline competition and that these benefits will accrue primarily to non-core buyers who obtain released pipeline capacity at discounted prices, not to PG&E's core customers, because PG&E purchases considerable gas in the producing basins, not at the border. Does the evidence support these assertions?

A. No, these views are not supported by the facts. To examine the claims of the CPUC witness, I tested the economic relationships among changes in Permian and San Juan basin prices to the recent interstate pipeline capacity additions to California. As discussed below, these relationships show that between 1990 and 1994 the increases in interstate pipeline capacity into California have caused Permian basin prices to decline by a minimum of 16 cents per MMBtu. The impact of the PGT Expansion has lowered Permian and San Juan basin gas prices by at least 5 cents per MMBtu in each supply basin.

Furthermore, gas purchased in Canada for core customer use and transported by local distribution companies ("LDCs") using their firm interstate capacity rights, has also experienced lower California border prices, as a result of reduced U.S. domestic basin prices and pipeline-to-pipeline competition in the released capacity market. It is essentially an axiom of competition that if a lower price can be obtained at the California border, then other prices will adjust to reflect these lower border prices, whether or not title to the gas is taken in the basin or elsewhere. The California border price sets an upper bound on the basin price that can be obtained by Canadian producers. If the Canadian basin price plus the variable cost of transportation to the California border is greater than the California border price, then the buyer's incremental costs are minimized

by buying gas at the California border. This is true even when the buyer's firm pipeline capacity is not used, because the costs of firm capacity rights are essentially sunk costs and should not affect incremental purchase decisions. Thus, straight-forward economic logic dictates that even core ratepayers would be paying more in Canada for gas without the PGT Expansion than they now pay with the Expansion. In addition, when there is an excess of supply in Alberta, the added PGT Expansion capacity enables purchasers in California and the Northwest to purchase greater quantities of low-priced Canadian gas than previously possible.

Walsh's view on pages 67 and 69 and El Paso's opinion on page 42 is that the downward price responsiveness of gas in Southern California is limited. On the contrary, California border price reductions reflect the general market, and all consumers benefit from price reductions, so long as they participate in this general competitive marketplace. The El Paso witness claims on pages 5 and 6 that netback contracts will pass cost savings to the seller. Even if that were the case, this does not mean that overall productive efficiency is not increased and that benefits to the overall gas market do not exist. In addition, PG&E's core customers, who represent pre-Expansion customers, would be unaffected by this claim, since PG&E does not currently purchase gas under netback arrangements.

Added pipeline capacity has certainly contributed to competition among both gas suppliers and transporters. My analysis shows that California border prices have been lowered by the 1993 PGT Expansion via gas-on-gas competition in producing basins and via pipeline-to-pipeline competition among transporters serving California. The relative price reductions by suppliers and transporters vary according to market conditions, but both behave so that the price of gas is competitive at the California border.

Q. Would you please explain theoretically why you anticipated that the increases in pipeline capacity to California have had a measurable impact upon the Permian basin price?

A. In general, a substantial increase in competitive gas supplies will cause an increase in competition among all pipelines and gas producers that serve the state. Other factors being equal, economic theory says that for the market to clear, an increase in supply should be matched by a decrease in price. Thus, in order to compete in California, suppliers would need to lower their prices so that the delivered price is competitive. As described above, the California border price reductions are felt by both producers and transporters.

Q. The CPUC witness has questioned whether PG&E obtains any benefits from lower California border prices, since "PG&E purchases all of its

Canadian gas supplies for its core customers in Alberta. Similarly, PG&E buys nearly all of its Southwest gas supplies in the San Juan, Permian, and Anadarko producing basins." (page 36) Would you please outline your empirical market analysis to examine the validity of the CPUC witness' contention?

A. Market data demonstrates that the 1993 Expansion has influenced both basin and transport prices, leading to overall lower delivered prices at the California border. My analysis begins with the hypothesis that observed changes in Permian and San Juan basin prices have been related to changes in the Henry Hub price, a national reference point for the commodity price of gas, and to changes in "slack capacity" at the California border, as defined in my direct testimony and Exhibit SCE-__(AVH-27). Slack capacity is a simple market measure of relative purchasing flexibility and options available to gas buyers. I have tested this hypothesis using recorded data to estimate the parameters of an equation that statistically relates the monthly basin gas price to the gas price at the Henry Hub in Louisiana and to slack capacity measured at the California border. The equation presented in Exhibit SCE-___(AVH-27) cover a four year interval using monthly data from

October 1990 to September 1994. 7/ Its parameters have been statistically determined using the ordinary least-squares statistical method.

Q. Would you please describe the results of your statistical analysis of the Permian basin price?

A. My estimation of the price of Permian gas into the El Paso pipeline is shown in Exhibit SCE-___(AVH-27). The estimated parameter on the Henry Hub price is 0.82, which indicates that the Permian price will change approximately 4 cents for every 5 cent change in the Henry Hub. The estimated parameter on slack capacity entering California is negative 0.07, which indicates that the Permian price has changed approximately 7 cents for each million MMBtu/day (about 1 Bcf/d) of pipeline capacity added to California during this period. All of the estimated parameters are statistically significant. The adjusted R-square of the equation is a very high 0.91, which indicates that substantially all of the variance in the Permian price is explained by the equation. Exhibit SCE-___(AVH-28) illustrates how closely the equation's predicted values for Permian-El Paso prices compare to actual prices over this period, despite the very wide range of Permian prices from below $1.05 to over $2.40 per MMBtu.

7/ Four years is the maximum whole-year interval in which data is available for all of the data series required to test the relationship.

[Footnote continued]

Q. Would you please provide the results of your statistical analysis of the San Juan basin price?

A. The estimation of the price of San Juan gas into the El Paso pipeline is shown in Exhibit SCE-___(AVH-29). The estimated parameter on the Henry Hub price is 0.86, which indicates that the Permian price will change approximately 5 cents for every 6 cent change in the Henry Hub price. The estimated parameter on slack capacity is negative 0.091, which indicates that the Permian price changed approximately 9 cents for each million MMBtu/day (about 1 Bcf/d) of new pipeline capacity into California. A transitional dummy variable has been added to this equation to account for the effect of also adding pipeline capacity into the previously constrained San Juan basin. The addition of this capacity into this supply basin somewhat relieved the competitive pressure on producers to compete with each other to gain access to the previously limited pipeline capacity out of the basin. The estimated value of the transitional dummy parameter is +0.13, which indicates that removing the pipeline capacity constraints out of the region enabled the San Juan price to increase by about 13 cents, at the same time as the basin price

[Footnote continued]

was also being reduced by increased slack capacity into California. The adjusted R-square of the equation is a very high 0.89, which indicates that substantially all of the variance in the San Juan price is explained by the equation. Exhibit SCE-___(AVH-30) illustrates how closely the equation's predicted values for San Juan prices track actual prices over this time interval, again over a range from nearly $1.00 to over $2.40 per MMBtu over a complete four year period.

Q. Are the results of these equations consistent with economic theory?

A. Very much so. These two supply basins compete for market share in California. In a competitive marketplace, I would expect that prices in these two basins would be affected by national market conditions, measured by the Henry Hub price on the supply side, and California market conditions, measured by the slack capacity variable on the demand side. These equations not only show that this is true, but the estimated coefficients on the Henry Hub price and slack capacity are close in value to each other in both equations, which further validates the hypothesis. The results of these equations show that 81% to 86% of the change in the national benchmark price (i.e., the Henry Hub price) is reflected by prices in these competing supply basins. The basin price reduction effects of California's pipeline expansion-induced competition, which is measured by the coefficient on the California slack capacity

variable, is estimated to be about 7 to 9 cents per trillion Btu of added capacity at the California border. As I discuss below, this is a lower bound estimate, which represents about 40 percent of the total gas price reduction impact at the California border due to added pipeline capacity.

Q. Have you tested this relationship between California slack capacity and other gas prices?

A. Yes. I derived a similar equation to test the relationship between Chicago citygate prices and California slack capacity. I observed no significant relationship between them. In other words, the coefficient relating California slack capacity to Chicago prices was 0.002 and was statistically consistent with zero, as I would expect given the geographic separation of these markets.

Q. Why do these statistical estimates represent a "minimum" or "lower bound" value for the basin price reductions in response to California's added capacity?

A. There are three reasons why Exhibits SCE-___(AVH-27) and SCE-___(AVH-29) underestimate the effects of California gas-on-gas competition on prices in these supply basins. These reasons are:

1. Given the proximity of the Permian basin and the Henry Hub and their competing sales to the same Midwest markets, it is unlikely that a substantial, externally induced change in Permian prices

would have no effect upon the price of gas at the Henry Hub. A reasonable assumption is that the decline in Permian basin prices has also caused a drop in Louisiana and other Gulf Coast prices, including the Henry Hub price, as Permian gas displaced from California markets sought to make sales in competition with these supplies. To the extent that other gas prices have been forced down, the gas-on-gas competitive benefits of the pipeline capacity expansions into California have been greater than my empirical results indicate.

2. Based upon observation of the equation residuals, it appears that the 1993 PGT Expansion has had a greater impact upon Permian and San Juan prices than the 1992 pipeline expansions by about 3 cents per MMBtu more than predicted by the equation. To confirm this observation, I re-estimated the Exhibit SCE-___(AVH-27) and Exhibit SCE-___(AVH-29) equations, splitting slack capacity into two variables: one to represent the period before the 1993 Expansion and one after the Expansion. The results of this estimation confirm my observation that the PGT Expansion has had a greater than average impact and that the estimated parameter on slack capacity over the entire period understates the

decline in basin prices due to enhanced gas-on-gas competition after the PGT Expansion.

3. I have also observed the changes in California market share over time between Permian-San Juan, Rocky Mountain and Canadian gas suppliers. As shown in Exhibits SCE-___(AVH-12) and SCE-___(AVH-13) in my direct testimony, the combined market share of Permian and San Juan producers has declined since mid-1992. Economic logic dictates that in order to have maintained a constant market share, Permian producers would have had to offer lower prices than they actually did. Hence, the actual observed basin prices incorporate higher priced sales to other markets from gas displaced in California by lower priced gas.

Q. The CPUC witness believes that the border price benefits should not be applied to gas purchased in producing basins. (page 38) What is your conclusion about the effect that pipeline expansions have had on competition in the basins, as opposed to pipeline-to-pipeline competition?

A. Market data and statistical tests clearly show that added pipeline capacity has increased gas-on-gas competition among producers, as well as pipeline-to-pipeline competition among transporters. My analysis shows that the decline in basin prices has accounted for at least forty (40)

percent of the capacity-induced change in the California border price, with that forty percent contribution most likely being an under-estimate.

Q. Please explain how the lower California border price and the lower Permian and San Juan basin prices resulting from pipeline expansions to California also exert a downward influence on prices in the Canadian and the Rocky Mountain production basins for gas buyers (and consumers) who have reserved firm pipeline capacity back to these basins?

A. The California border price sets an upper bound on the basin price that can be obtained by producers. As described before, if the price in any supply basin plus the cost of variable transportation to the California border is greater than the California border price, then the buyer's incremental costs would be minimized by buying gas at the California border. This is true even when the buyer's firm pipeline capacity rights are not used, since the near-term cost of these rights are essentially sunk costs and should not affect incremental purchase decisions.

Without the PGT Expansion: 1) domestic gas-on-gas competition and pipeline-to-pipeline competition would be less; 2) the California border price would be higher as a result; and, 3) the upper bound on Canadian and Rocky Mountain basin prices would increase. Thus, even core ratepayers would be paying more in Canada or the Rocky Mountains

for their gas without the PGT Expansion than they now pay with the Expansion.

Q. On page 38 of his testimony, El Paso witness Weisenmiller argues that published gas price indices do not accurately reflect the cost of gas paid by actual purchasers. He specifically disputes the measurement of natural gas prices, saying that they do not "take into account prevalent realities concerning contract provision." Is it possible that reputable surveys of natural gas price data, including the surveys of prices at the California border and in the Permian and San Juan basins that you have used, are invalid?

A. The El Paso witness is using an existential argument, 8/ which is simply not correct. Gas price data is heavily and directly surveyed by a number of independent firms. Because of the extensive effort at price discovery, pricing information should be as accurate as any natural gas data. Many contracts involving millions of dollars are tied to these natural gas price surveys of border and basin prices.

Border price comparisons have long been a fundamental element of California LDC purchasing practice, as well as providing a basis for the

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8/ The existential argument emphasizes that since every buyer is different, any comparison or averaging will be inaccurate.

[Footnote continued]

CPUC's own reasonableness reviews of utility purchases and for calculations of disallowances. Border price comparisons were mandated by the CPUC in Decision No. 84-12-067, 9/ since they correspond to citygate prices for PG&E and SoCalGas. Border prices are tracked by numerous segments of the industry, including surveys and compilations by newsletters and reports, and thus play an important role in gas purchasing for California consumption, whether or not title to the gas is taken in the basins, at the border, or at the burnertip.

[Footnote continued]

9/ This 1984 CPUC Decision revised PG&E's natural gas rates and developed a procedure for sequencing PG&E's purchases from El Paso and PGT by comparing delivered costs at the California border. Decision No. 84-12-067, p. 41.

III. THE ARGUMENTS OF THE EL PASO AND CPUC WITNESSES UNDERESTIMATE OR SIMPLY IGNORE THE PRICE REDUCTIONS BROUGHT ABOUT BY THE PGT EXPANSION FOR BOTH EXPANSION AND NON-EXPANSION CUSTOMERS.

A. MARKET DATA ESTABLISHES THAT ENHANCED GAS-ON-GAS COMPETITION, DUE TO THE 1993 EXPANSION, HAS BENEFITED NON-EXPANSION CUSTOMERS, AS WELL AS ALL CALIFORNIA GAS CONSUMERS.

Q. In her testimony CPUC witness Walsh claims: "The only real and quantifiable benefit of the expansion to pre-expansion shippers is the reduction in transportation fuel costs." Do you agree?

A. No, I do not. The FERC and the CPUC have instituted considerable regulatory reforms over the last decade with the goal of realizing tangible competitive benefits. Many other organizations have labored to create air quality improvements and environmental enhancements that are both tangible and measurable.

In this proceeding the very benefits cited by witness Walsh as having "no direct relationship to ratepayer cost responsibility" are being compared with respect to their cost and benefit causation. One of the basic issues in this case revolves around the net benefits to pre-Expansion customers caused by the Expansion service, as well as benefits of the Expansion to others in California who do not directly access the pipeline.

Q. In his testimony the El Paso witness refers to the "ephemeral, speculative estimates of benefits" from gas on gas competition (page 3, line 15) and further argues that PG&E's non-Expansion ratepayers will incur significant costs from the PGT Expansion. Is El Paso's opinion consistent with the market's response to the PGT Expansion?

A. No, it is not. Market data, supported by sound economic theory, directly contradict the views of the El Paso witness. Exhibits SCE-___(AVH-27) to SCE-___(AVH-45) demonstrate the benefits empirically and show that PG&E's non-Expansion ratepayers and PITCO, a pre-Expansion customer, receive significant benefits from the 1993 Expansion. This empirical demonstration of benefits also meets the three criteria posited by Amoco witness Means as being relevant to rate design in this case. (See the Direct Testimony of Robert C. Means on behalf of Amoco, November 17, 1994, p. 20, ln 18 to p. 21, ln 1.)

Q. Please explain how you have reached different conclusions than the CPUC and El Paso witnesses.

A. In my direct testimony I examined the behavior of California border prices by developing two statistical relationships between the California border price, the Henry Hub price and monthly slack pipeline capacity into California. The interstate pipeline capacity serving the general California market is one important component of slack capacity, and

additions to interstate capacity have increased slack capacity to California significantly over the last four years.

The basic relationship presented in Exhibit SCE-___(AVH-4) was derived using data from August 1990 through July 1994. I have updated this equation using the most recent four year period for which data is now available to me, October 1990 through September 1994. Revised Energy Information Administration ("EIA") data, as recently reported by the EIA, have been incorporated, as well as including the El Paso/Mojave capacity addition in June 1992, in order to determine the sensitivity of the fit to this capacity. 10/ The results of the updated econometric equation are a slightly better fit, R-bar squared of 0.742, with essentially no change to the coefficient on slack capacity. The parameters of the fit are shown in Exhibit SCE-___(AVH-31), and the predicted versus actual values for the California border price through September 1994 are illustrated in Exhibit

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10/ I initially excluded the June 1992, El Paso/Mojave addition, because it served an incremental segment of the overall California market, Enhanced Oil Recovery customers, as acknowledged by the El Paso witness on page 57 of his testimony, and because, unlike the other expansions, total El Paso throughput volumes did not increase substantially in response to this added capacity. The other expansions immediately increased throughput, using their new capacity to serve the broader market. Incorporating the updated data and including the Mojave capacity has resulted in only a small change in the estimated coefficient on slack capacity: from -0.221 to -0.219 = 0.002, which is negligible.

[Footnote continued]

SCE-___(AVH-32). Based on this analysis and my knowledge of gas markets, the price reductions caused by the 1993 PGT Expansion are real and continuing. Moreover, my prior analysis is reinforced by the addition of the recent market data.

Q. Have you updated your alternative equation, which uses a different method for estimating slack capacity?

A. Yes, I have updated the relationship presented in Exhibit SCE-___(AVH-6), which was derived using volumetric throughput data from July 1990 through June 1994. Exhibit SCE-___(AVH-33) uses recent FERC Form 11 data through September 1994. Again, the parameters of this fit confirm the prior numbers and indicate that for each million MMBtu/day (i.e., about 1.0 Bcf/day) increase in pipeline capacity to California between 1990 and 1994, a 22 cent decrease in the price of natural gas occurred relative to the price that would have been paid at the California border in the absence of the capacity addition. This translates to a 16.9 cents per MMBtu reduction in the border price brought about by the 1993 PGT Expansion.

[Footnote continued]

Q. Intervenors have questioned whether the price paid by PG&E for its gas and the California border price are related. Have PG&E customers received price reductions from the PGT Expansion?

A. Yes, they have received benefits. I have examined the relationship between the California border price, as reported by Gas Daily, and the total procurement costs of PG&E gas, as filed by PG&E with the CPUC for core subscription service. 11/ PG&E prices are a subset of California market prices, so there should be some measurable correlation in their behavior over time with border prices. In addition, I have tested the relationship of slack capacity to the PG&E price series. To examine this data, I conducted a statistical "correlation" test between the two data series, which reveals that they are more than 68 percent correlated. Put another way, three-quarters of the movement in PG&E procurement costs is related to the California border price, which is not surprising.

Q. Have you quantified the gain by PG&E core ratepayers from increased gas-on-gas competition brought about by the PGT Expansion?

11/ The Gas Daily California border end-user price is the same series that was used in my direct testimony. The PG&E price is filed under schedule G-CS and labeled "Total Procurement Charge". The PG&E price reflects the month of data collection (the prior month), as opposed to the effective date. The time interval is August 1991, when the C-CS schedules were initially filed, through the end of 1994.

[Footnote continued]

A. Yes, I have. In my direct testimony and in the analyses described above, I developed and confirmed the hypothesis that the increase in systemwide "slack capacity" provides all gas buyers with more flexibility and enables them to buy at a lower cost. I have applied the basic equation used in Exhibits SCE-___(AVH-4), SCE-___(AVH-6), SCE-___(AVH-27), SCE-___(AVH-29), SCE-___(AVH-31), and SCE-___(AVH-33) to PG&E's core customer prices since August 1991. According to theory, the price PG&E paid for its gas should be related to a national benchmark price of gas and to California's slack capacity on the interstate pipelines entering the state. Other factors, including contract restructuring and prices in other supply basins, have influenced the price, particularly during a transition period between November 1993 and February 1994. Despite the influence of other factors, the equation tests the relationship between the monthly market price obtained by PG&E for its core customers and the interstate pipeline capacity available to the California market.

Q. What are the results of your analysis of PG&E prices?

A. The PG&E procurement cost equation results are presented in Exhibit SCE-___(AVH-34). The PG&E equation uses the same theoretical

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[Footnote continued]

context, the same explanatory variables, and the same data interval as the equation presented in Exhibit SCE-___(AVH-31), and a dummy variable to account for increased purchase prices during the first several months after PG&E restructured its long-term Canadian supply arrangements to spot market oriented contracts. Contrary to the assertions of the El Paso and CPUC witnesses, the price reductions achieved by PG&E's core customers due to added pipeline capacity during this period are nearly the same as the reductions obtained by the California market as a whole. As shown in Exhibit SCE-___(AVH-34) and plotted in Exhibit SCE-___(AVH-35), increased pipeline capacity into California has directly benefited PG&E customers by about 22 cents per million MMBtu/d of added interstate pipeline capacity (i.e., per about 1 Bcf/d of added capacity).

My economic studies of actual market behavior both in the California consuming market and in Southwest supply basins have demonstrated empirically and established statistically that the PGT Expansion has provided a lower gas cost benefit to PG&E's core customers (and to other California consumers) of about 16.9 cents per MMBtu.

Q. Although the Commission's commensurate benefits test focuses on pre-Expansion customers, do other California ratepayers benefit from the 1993 Expansion?

A. Yes. The market analyses described above demonstrate the pervasive nature of the competitive benefits brought by added capacity. In addition to PG&E's gas costs, I have analyzed Edison's average cost of gas ("EACOG") using the same economic model. The EACOG includes all Edison gas purchases for electric generating units located in California. Exhibit SCE-___(AVH-36) shows the parameters of the economic model, while Exhibit SCE-___(AVH-37) plots the predicted and actual values for the EACOG. These parameters and the observed price response are consistent with the other analyses, demonstrating that Edison's ratepayers have received a price reduction comparable to PG&E and other California ratepayers due to the PGT Expansion.

Q. CPUC witness Walsh testifies that 70% of the savings to Edison of rolled-in rates would merely increase the profits of the Canadian producers with which it has netback contracts rather than go to Edison's ratepayers. El Paso witness Weisenmiller testifies that customers that purchase gas under netback contracts do not realize any savings from competition that lowers the price of gas at the California border because those savings will be passed back to the suppliers. Are these positions correct?

A. No. Competition that lowers market prices will provide benefits to consumers purchasing gas under netback contracts.

As explained in the Prepared Cross-Answering Testimony of Michael J. Blower, Edison has four supply contracts with Canadian producers which contain netback provisions. Of the 200 MMcfd of capacity that Edison holds on the PGT Expansion, approximately 145 MMcfd of gas (approximately 29% of Edison's total gas portfolio) is purchased under the netback provisions of those contracts. The price to be paid by Edison for this gas is tied to the EACOG -- a measure reflecting Edison's marketplace, including deliveries at the California border. The remaining 55 MMcfd is purchased under netforward provisions of those contracts.

One of the primary benefits associated with a roll-in of the PGT Expansion costs is shown in Exhibit SCE-___(AVH-38). Although the seller receives the benefit of the cost shift to roll-in, Edison receives the benefit of competition from the PGT Expansion ($0.17 per MMBtu).

But this is not the only benefit. Under the netforward provisions of the contracts, Edison receives a dollar for dollar reduction in its delivered gas costs if the costs of the Expansion are rolled-in, as explained by Mr. Blower and as shown on Exhibit SCE-___(AVH-39). In addition, the cost of the volumes of gas purchased under the netforward provisions of the Canadian contracts is reflected in the EACOG. Because the reductions associated with the netforward purchases are reflected in the

EACOG, and because the price of the netback volumes is tied to the EACOG, the price of netback volume is likewise reduced.

And there is another effect. As a result of the price reductions associated with both the netforward and netback purchases, the price of gas from the Southwest would tend to be lower due to competitive effects on border delivery prices. Lower Southwest prices would then lower the EACOG price (which is an average price of all gas purchased by Edison) which would in turn lower the Canadian producer netback prices.

1. THE CPUC WITNESS' VIEW THAT FUEL SAVINGS CONSTITUTE "THE ONLY REAL AND QUANTIFIABLE BENEFIT" OF THE EXPANSION CONTRADICTS THE STATED OPINION OF THE CPUC.

Q. Are the views expressed by witness Walsh that fuel savings are the only real benefit consistent with prior CPUC decisions?

A. No, they are not. Through its actions the CPUC has sought to obtain tangible benefits of competition. In its decisions the CPUC has identified the benefits of competition as "substantial," not "ephemeral," as suggested by El Paso witness Weisenmiller. 12/ In Decision 90-02-016 -- the landmark decision issued in February 1990 where the CPUC addressed

12/ El Paso Direct Testimony, Exhibit___(RBW-1), p. 3, ln 15.

California's need for more interstate capacity and determined that the market should decide which pipelines were constructed rather than the regulator -- the CPUC stated that its goals were:

- To obtain, where economical, sufficient pipeline capacity to foster active gas-on-gas competition so as to secure the benefits of a competitive market for gas for all California consumers.
- To ensure that the costs of new capacity additions, as well as the costs of existing capacity from which load may be displaced because of new capacity, are fairly allocated."

In this decision the CPUC clearly viewed gas-on-gas competition benefits as tangible. The CPUC's Finding of Fact #17 states:

> Additional pipeline capacity will not only satisfy the need for natural gas but will also provide an enhanced level of transportation service to noncore customers; will access new gas production areas; will secure price and supply on a long-term basis; and will permit gas-on-gas and pipeline-on-pipeline competition. (CPUC Decision No. 90-02-016, p. 116.)

The CPUC declined to project the amount of savings to be realized by additional capacity, but found "that the savings will be substantial."

(Emphasis added, op cit, p. 56.) Rather than considering gas-on-gas competitive benefits to be "intangible benefits," the CPUC considered these benefits to be "substantial." 13/ The CPUC further recognized the potential benefits of "excess capacity" when it stated that ". . . without excess capacity there can be no enhanced reliability and no chance of lower prices. By providing excess capacity, we are creating the opportunity to make better choices. It is against this background of persuasive evidence that new capacity will provide substantial benefits that we approach the task of determining how much additional pipeline capacity is required." (Decision No. 90-02-016, p. 57 (emphasis added).) Again in November 1991, the CPUC stated in Decision No. 91-11-025 that "[t]he extent of competition in gas markets depends in large part on customer access to reliable gas transportation. Under existing arrangements, noncore shippers do not have access to firm transportation to move their gas. The problem has been particularly acute on the

13/ In this decision to encourage new interstate capacity to serve California, the CPUC explicitly rejected the views of the Division of Ratepayer Advocates ("DRA") that "the expected benefits or reduction in gas costs from gas-on-gas competition resulting from new capacity additions are significantly lower than the costs of new interstate pipeline capacity." CPUC Decision No. 90-02-016, p. 25.

interstate system because interstate pipeline capacity is currently scarce." CPUC Decision No. 91-11-025, p. 5.

Q. What did this CPUC decision say about environmental benefits?

A. With respect to environmental benefits, the Concurring Opinion of Commissioner Hulett in Decision No. 90-02-016 stated: "Clearly, as the state's electric utilities and other industries move away from using environmentally inferior crude oil in order to improve the state's air quality, natural gas becomes the predominant fuel in the state's energy mix." Although CPUC witness Walsh cites Decision No. 90-02-016 on page 13 of her testimony, I believe that the CPUC's statements present a different view of the real and substantial nature of gas-on-gas competitive benefits and of air quality improvements resulting from gas use. As demonstrated by my direct testimony in this proceeding, the gas-on-gas benefits anticipated by the CPUC are already being realized, and tangible environmental benefits will arise near the turn of the century.

IV. USING MARKET SIMULATION MODELS IS ONE APPROPRIATE WAY TO ESTIMATE FUTURE BENEFITS

Q. Both witnesses Walsh (at page 56) and Weisenmiller (at page 3) claim that the North American Regional Gas ("NARG") Model applied on behalf of PGT bears little relationship to reality. Do you agree?

A. No, I do not agree with the opinions of witnesses Walsh and Weisenmiller. While the NARG model is complex, the model's general equilibrium formulation and approach is economically sound. Although various intervenor's, including Edison, have requested various changes to the data and various modeling assumptions, I believe that the NARG model's methodology for projecting the future behavior of interrelated gas markets is valid, and that the model results should be scrutinized with respect to the assumptions used, rather than rejected as being "divorced from key market realities."

Q. On pages 37 and 38 of the El Paso testimony, witness Weisenmiller argues against models that focus "exclusively on price terms," since he feels that such an analysis would over-simplify the "vital complexities of competition." How valid are these El Paso arguments?

A. These arguments are not valid. The El Paso witness is using the old anti-model argument that because the economy is complex, a statistical model will always be too simple to capture marketplace fundamentals. The El Paso argument is discredited by the simple fact that the DRI and DFI energy models and price forecasts have been used by numerous businesses and government agencies in their planning processes. Businesses would not subscribe to these forecasting services, if they did not provide some important insights.

Q. Are prices really affected by "affiliation?" That is, is it valid to assume that anti-competitive practices caused by affiliated or inter-connected firms will "bias" the marketplace and distort the results of these forecasting models?

A. This assertion is untrue. The El Paso witness is attempting to show that effective competition does not exist in the U.S. natural gas marketplace, and that differences in the situation of each consumer or supplier are not captured in economic models. Nevertheless, a fundamental premise of these models is true in the marketplace: The vast majority of gas producers are motivated by trying to get the best possible price for their gas; buyers are trying to get the lowest delivered price. While modeling assumptions and algorithms necessarily simplify reality, if properly implemented, models can provide a comprehensive and correct means of understanding and representing many factors influencing market behavior.

V. EVEN AFTER ACCOUNTING FOR THE COSTS OF ROLLED-IN RATES AND FOR "STRANDED CAPACITY" COSTS, THE PGT EXPANSION HAS PROVIDED SUBSTANTIAL NET BENEFITS FOR NON-EXPANSION CUSTOMERS AND FOR ALL CALIFORNIA GAS CONSUMERS.

Q. Both the CPUC and El Paso witnesses have argued that "stranded costs" offset the benefits of competition. Do you agree that regulatory "stranded

costs" will negate the benefits of competition provided by the 1993 Expansion?

A. No, I do not.

Q. Do you agree with the method used by the CPUC witness to calculate "stranded costs?"

A. No. There are several shortcomings to the calculation. For example, the comparison period prior to the PGT Expansion from August 1 to October 31, 1993 is too short and does not reflect seasonal effects. Furthermore, during this period the original PGT facilities were not available for capacity release, increasing the demand for and the price of the other released capacity used to estimate a baseline rate for capacity release. In addition, the CPUC calculation does not account for interruptible transport during the period.

Q. Assume that the CPUC's definition of stranded costs should be considered in evaluating a new pipeline. If you subtract an estimate of the costs of California's ITCS (i.e., "stranded capacity costs") from the PGT Expansion benefits you have calculated, are there still net direct benefits to California gas consumers from the PGT Expansion?

A. Even if the stranded cost arguments of the El Paso and CPUC witnesses are considered appropriate, my testimony shows that the direct benefits (excluding any indirect benefits resulting from economic multiplier effects

in the California economy) that have already been provided by the 1993 Expansion to all California gas consumers exceed any reasonable estimates of "stranded costs" by an initial year amount in the range of $250 million. Not only are there substantial benefits to California consumers as a whole, but my calculations show that the 1993 Expansion provides substantial net benefits to PG&E's customers -- on the order of $ 115 million per year after subtracting regulatory "stranded costs." These net benefits are summarized as follows:

Initial Year Direct Consumer Benefits from the PGT Expansion (measured at the Burnertip in $ Millions)

	Total CA	**PG&E**
Border Price Benefits to California Consumers	$350	$161
Less: Costs of "Stranded" Pipeline Capacity	($95)	($46)
Net Burnertip Benefits to California Consumers in 1994	$255	$115

Q. Assuming that "stranded costs" should be considered in this proceeding, how would you calculate the "stranded capacity" costs estimated by the CPUC and El Paso witnesses?

A. There are three components of regulatory stranded cost which I have considered: 1) costs of utility "stranded capacity" on the interstate pipelines; 2) added costs of future utility "stranded capacity" on PGT

attributable to the added costs of rolled-in rates compared to vintage rates (assuming the implementation of rolled-in rates on January 1, 1996); and 3) possible added intrastate ratepayer costs attributable to Line 401 shipments to destinations in Northern California. For the largest of these costs, which are the costs of utility "stranded capacity" on the interstate pipelines, I used the California utilities' own forecasts of these costs, as reported to the CPUC in various proceedings where the amounts and methods for amortizing the CPUC's ITCS are currently being reviewed. The methods I used to estimate the other sources of "stranded costs" are described step-by step in Exhibit SCE-___(AVH-40), which contains a projection of costs from these sources for the ten year period beginning in 1994.

Q. How did you apportion the total cost estimates of PG&E and SoCalGas for "stranded costs" between the PGT Expansion and other recent pipeline expansions serving California?

A. The CPUC encouraged interstate pipeline expansion into California in Decision No. 90-02-016 issued in February 1990. Several expansions occurred after that date, including 200 MMcfd by El Paso in late 1990, 400 MMcfd by El Paso/Mojave in mid-1992, 340 MMcfd by Transwestern in spring 1992, 700 MMcfd by Kern River in spring 1992, and 755 MMcfd by PGT in late 1993. In my view there is no overriding reason why the

drop in El Paso and Transwestern throughput that has occurred in 1993 and 1994, given the relatively flat gas demand in the state, should be attributed solely to the last increment of these new pipeline capacity additions. Rather, it is more likely a result of all post-1990 increments, including those on El Paso itself, and of other market conditions. 14/

On page 57 of his direct testimony, El Paso witness Weisenmiller has adopted a fraction for prorating California's "stranded costs" to the 1993 Expansion, based on a modified ratio of added capacity after 1992. For the sake of these calculations, I have used the Weisenmiller ratio, "the numerator of which is the 755 MMcf/d of PGT Expansion capacity, and the denominator of which is the sum of the capacity expansions of all pipelines to the California border in 1992 and 1993, less the incremental markets served by those expansions (i.e., the Enhanced Oil Recovery market in California and the Saguaro power facility in southern

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14/ In Decision No. 92-07-025 and again in D. 94-12-052, the CPUC stated that "the reasons for excess capacity are many and include FERC and Commission [CPUC] decisions to 'let the market decide' how much new capacity should be constructed..." The CPUC went on to state, "Because no specific class of customer is responsible for stranded costs, we will allocate some of those costs to all customers." D. 92-07-025, pp. 18-19. Similarly, in D.94-12-052 the CPUC determined that the core cap should not be calculated on a "pipeline-by-pipeline" basis, in order not to "skew allocation of transition costs when utilities scale back commitments on pipelines." D.94-12-052, p. 41.

[Footnote continued]

Nevada)." I have used this fraction, 84/160=.525, to attribute to the PGT Expansion a portion of the total costs forecast by PG&E and SoCalGas for "stranded" interstate pipeline capacity.

Q. CPUC witness Walsh states that PG&E's intrastate Line 401 (required to transmit gas shipped on the Expansion within California) has stranded other PG&E intrastate capacity, namely capacity on PG&E's Line 300. Is this true?

A. Gas destined for delivery within PG&E service territory that flows on the segregated Line 401 does produce less revenue for the rest of PG&E's non-segregated gas transmission and distribution system than would have occurred, if that gas had not been transported on Line 401. The amount by which revenues may be reduced is equal to the gas volume shipped on Line 401 for delivery in PG&E's service territory multiplied by PG&E's backbone credit. 15/

[Footnote continued]

15/ In implementing its cross-over ban, the CPUC determined that Line 401 shippers would pay the same intrastate transport rate as all other shippers in PG&E's service territory, and that they would receive the backbone credit to reflect the fact that they are not using the transmission portion of PG&E's non-segregated intrastate system. The CPUC determined in D.92-10-056 that customers should not pay twice for backbone service.

Of the 755 MMcf/d takeaway capacity of Line 401 at Malin, Southern California utilities and cities have contracted for 262 MMcf/d. These entities ship gas all the way to Kern River station under high load factor contracts. Of the remaining capacity of 493 MMcf/d, I estimate that another 88 MMcf/d is used to transport gas to other Southern California customers under short- and medium-term contract arrangements (in accordance with the 1994 California Gas Report projection). This leaves about 405 MMcf/d of Line 401 capacity available for use by Northern California customers. If, on average over the year, this capacity is used at an 80% load factor, the initial year revenue loss to PG&E's non-segregated transmission and distribution system would be about $15 million (405 MMcf/d x 1.015 MMBtu/Mcf x 80% x 365 x $0.125/MMBtu). This is an approximate, though, perhaps somewhat high, estimate of the revenue loss to PG&E that, according to the CPUC, needs to be absorbed by PG&E ratepayers as a result of Line 401 shipments.

Q. What about Line 401 itself? Doesn't the fact that it is less than fully utilized at present also increase costs to PG&E ratepayers?

A. By order of the CPUC, the risk and, hence, the costs of unsubscribed and unutilized capacity on PG&E's Line 401 are borne by PG&E's stockholders and not by its ratepayers. The subscribed capacity is held entirely by non-PG&E entities, primarily Southern California utilities.

Therefore, the degree of utilization of Line 401, whether by subscribed or unsubscribed shippers, does not affect the costs for which PG&E ratepayers bear responsibility.

Q. If rolled-in rate treatment is adopted in this rate case, will PG&E's "stranded costs" on PGT increase after the date of roll-in?

A. Yes, to some degree. I have estimated this effect in Exhibit SCE-___(AVH-40) by multiplying PG&E's estimate of PGT "stranded costs" under vintage rates by a ratio minus one. The numerator of this ratio is the rolled-in demand rate and the denominator is the vintage demand rate. The added costs are equal to this difference, as shown.

Q. Do you have any caveats to offer with regard to using these estimates of "stranded capacity?"

A. Yes. First, it should be recognized that the CPUC's definition of "stranded costs" is that "stranded costs" occur when a utility is unable to broker its surplus interstate capacity at the full as-billed rate. This is a regulatory definition which does not mean that the so-called "stranded capacity" is not economically useful. As I mentioned earlier, I have reservations about applying such a calculation of stranded costs within the context of a benefits test that attributes these costs to a particular competitor in the broader market for the purpose of determining whether rolled-in rates should be preferred to vintage rates.

Q. If California gas demand had grown at the rates projected during the planning period for the PGT Expansion would a different level of stranded interstate pipeline costs have been experienced at this time?

A. Yes. If California gas demand had increased up to the levels that were anticipated several years ago, the amount of "stranded" interstate pipeline costs now being estimated in California would be less. The PGT Expansion was built to meet a California gas demand which industry participants, regulators, consumers and competitors all felt would have grown by 1994. To the extent that this demand growth has failed to materialize on the anticipated schedule, it may not be reasonable to assign to the Expansion the stranded costs that resulted from the lack of projected demand growth. Viewed in this context, the $95 million dollar estimate overstates the annual "stranded cost" responsibility that should be attributed to the presence of the post-1990 Expansions, on the supply-side of the market, rather than to lower than expected consumption, on the demand-side of the market. As described previously, stranded costs

result from market conditions that encompass both supply and demand, and numerous participants, not just pipelines. 16/

Q. Do you have other caveats to offer with regard to interpreting these estimates of "stranded costs"?

A. Yes. The issue here is not "who pays for stranded costs?" It is the propriety of including "stranded costs" in the economic test to determine the benefits of a particular pipeline project. The cost of stranded capacity to consumers is a function not only of the estimated amount of stranded capacity but also of its per unit cost (i.e., the demand charge). The timing or vintage of rates on California's pre-Expansion interstate capacity is a market circumstance which is not attributable to the PGT Expansion. 17/

16/ Of course, as gas demand grows in the future, California should experience lower stranded costs than are now estimated under current demand levels.

17/ In fact, for many years prior to the completion of the Kern River Pipeline in 1992, El Paso, Transwestern and PGT essentially shared a captive market in California that required all of their capacity during high demand periods. As competition developed from the 1992 expansions into California, both El Paso and Transwestern lowered their mainline rates by unbundling transportation from gathering, storage and merchant services. They also implemented the straight fixed variable ("SFV") rate design, which encourages increased throughput by firm capacity holders. Today, in California, under the SFV rate design, utilities and ultimately their end-use customers bear the cost of the capacity on El Paso and Transwestern that is not competitive at the full as-billed rate.

For example, if the as-billed rates on the El Paso pipeline were twice their current values, estimates for the stranded costs on El Paso could be twice as high, and the need for competitive alternatives might well be greater. Yet, the methodology proposed by Weisenmiller and Walsh would subtract these greater "stranded costs" from the competitive benefits of the 1993 Expansion in order to claim that there are no "net benefits," and to assert that a less efficient, less equitable vintage rate structure for PGT should be preferred. This is faulty logic.

Q. What happens to the CPUC's estimate of "stranded costs" if FERC lifts the as-billed rate cap?

A. If FERC lifts the as-billed rate cap, as has been proposed, then this stranded cost estimate would decline. Without the ABR cap, during periods of strong demand, the market clearing price for released capacity would undoubtedly rise periodically to levels above the rolled-in rate. Revenues obtained during these periods would offset stranded costs that accrue during lower demand periods. Also, as California market demand grows over time, the value of released capacity will increase. This, too, will reduce costs to PG&E and its ratepayers for "stranded capacity".

Q. The Amoco witness suggests that only non-Expansion customers should be considered, while the CPUC witness indicates that only noncore/wholesale demand should be evaluated. Did you perform a

commensurate benefits test for PGT's FTS-1 (T-1) non-expansion capacity holders, which incorporates the "stranded costs" you have just discussed?

A. Yes. Despite my theoretical objections to incorporating these "stranded costs" in this particular cost-benefit comparison, I have performed a commensurate benefits test for the pre-Expansion FTS-1 (T-1) customer group (PG&E) as a whole, incorporating the estimate of "stranded costs" into the test. I have also examined the impact of rolled-in rates on the core and non-core ratepayer classes of PG&E-held capacity. The results of these tests incorporating the costs of roll-in and estimates of "stranded costs" are shown in Exhibits SCE-___(AVH-42 to 44).

Q. Please explain these exhibits.

A. Exhibit SCE-___(AVH-42) shows that for the FTS-1 (T-1) customer class as a whole, which includes PG&E's core and core-subscription customers and represents PG&E's "pre-Expansion" customers, the direct benefits of the PGT Expansion outweigh the costs of moving from vintage to rolled-in rates, when measured over 5 and 10 years, shown on a levelized cents per MMBtu basis. (Levelizing uses net present value to compare varying rates over this period.) Over a five year period, the levelized net direct benefits are $0.129 per MMBtu before subtracting regulatory "stranded costs" and $0.078 per MMBtu after subtracting "stranded costs," while over a ten year period the levelized net benefits are slightly larger. The

year-to-year variation in the benefits is shown in the Exhibit as well -- the range is $0.003 to $0.138 per MMBtu.

Q. What do the Exhibits show for the core ratepayer subclass?

A. Exhibit SCE-___(AVH-43) shows that for core ratepayers the direct benefits of the PGT Expansion are even greater than for all FTS-1 (T-1) customers as a whole. Over a five year period the levelized net benefits to core ratepayers are $0.129 per MMBtu, without considering regulatory "stranded costs," and $0.082 per MMBtu after subtracting "stranded costs." Over a ten year period the levelized net benefits are somewhat larger. In all years the benefits to the core rate payer after roll-in are positive --- the range being $0.005 to $0.144 per MMBtu.

Q. Why are core ratepayer benefits higher than for all FTS-1 (T-1) customers as a whole?

A. In Decision 92-07-025, pages 18 and 19, the CPUC determined that PG&E core ratepayers would not bear responsibility for any ITCS ("stranded capacity") costs that exceed 10% of the core's allocated pipeline demand charges on PGT and El Paso. Under the "stranded cost" forecasts used for the commensurate benefits test, this cap effectively allocates "stranded costs" from core to non-core users within the FTS-1 (T-1) or PG&E customer class. With this lower "stranded cost" allocation the core ratepayer receives more net benefits from the PGT Expansion.

Q. What are the net benefits to the non-core subset?

A. Despite the 10% limit on core ratepayer responsibility for "stranded costs," the direct benefits of the PGT Expansion for the non-core ratepayer subset of FTS-1 (T-1) customers are also positive. Over a five year period the levelized net benefits of the 1993 Expansion to non-core ratepayers are $0.129 without considering "stranded costs" and $0.076 per MMBtu after subtracting "stranded costs." Over a ten year period the levelized net benefits are higher.

Q. Have you evaluated commensurate benefits for the other major California pre-Expansion customer, PITCO?

A. Yes, I have. The first year commensurate benefits to PITCO after roll-in are shown in Exhibit SCE-___(AVH-45). The first year net direct benefits after roll-in would be about $0.205, ignoring "stranded costs" and $0.178 after subtracting "stranded costs."

Q. What do these commensurate benefit test results mean?

A. The direct benefits of the PGT Expansion to PG&E core and non-core ratepayers and to PITCO substantially outweigh their added costs of moving to rolled-in rates, even after subtracting estimates of regulatory "stranded costs." The core ratepayer, for whom the greatest concern has been expressed by the CPUC and others, benefits the most from the PGT Expansion. For either class of ratepayer and for pre-Expansion

customers, as a whole, the roll-in of PGT rates by January 1, 1996 is more than justified in terms of net benefits, as well as by equity and market efficiency considerations.

VI. DESPITE THE CLAIMS OF THE EL PASO AND CPUC WITNESSES, THERE WILL BE AIR QUALITY BENEFITS FROM THE EXPANSION, DEPENDENT ON THE RATE OF GROWTH IN CALIFORNIA'S GAS DEMAND.

Q. The CPUC witness' contends on page 77 of her testimony that "PGT must prove that those [air quality] benefits would never have occurred if the expansion were never built" . . . [and that] . . . "virtually all of the California air quality benefits claimed by PGT would have occurred even if the PGT expansion were never built." Do you agree with these contentions?

A. No, I do not. The fundamental building block for estimating the environmental benefits attributable to the 1993 PGT Expansion is the future shortage of gas that would arise in the absence of any post-1990 pipeline expansions to California. The issue is not whether some other pipeline would have been built to supply the additional gas that PGT will supply; the issue is whether or not increased gas use in California will have environmental benefits compared to the use of alternative fuels in the absence of added pipeline capacity. El Paso's incremental demand standard, discussed on page 61 of its testimony, implies that no new

pipeline or supply source could claim environmental benefits, while the CPUC witness acknowledges that marginal suppliers could claim benefits on page 78 of her testimony. This is the approach I have adopted for the calculations presented in my direct testimony, including only those volumes above the import capacity of the total pre-Expansion interstate capacity into California, in order to conservatively quantify the environmental benefits of the PGT Expansion. 18/

I have addressed the environmental benefits extensively in my direct testimony and have quantified both their timing and magnitude. The critical issue is: when environmental benefits will occur, not: if they will occur. 19/

Q. El Paso's witness alleges that the marginal costs of air quality programs typically equal their benefits, so no net environmental benefits of the 1993 Expansion are likely to exist. Do you agree?

18/ My approach to the timing of environmental benefits differs from PGT's method, which pro-rates the environmental benefits of the Expansion across all gas volumes, giving an earlier estimate of when benefits would begin.

19/ Section V of my direct testimony, pages 47 to 52, Exhibits SCE-___(AVH-17) to SCE-___(AVH-21) and the extensive workpapers accompanying section V deal with these issues.

A. No, I do not agree. On page 62 the El Paso witness asserts that the quantification of environmental benefits must account for all the costs of achieving these benefits. Of course, such a comparison would involve a massive undertaking to assess the societal costs of our environmental programs. Witness Weisenmiller goes on to state without proof that "The marginal costs of these [air quality improvement] programs typically are balanced with the marginal social benefits,...so there are no net benefits 'left-over' which PGT can claim for off-setting the costs of roll-in." This statement that there are no net benefits from the typical environmental program is faulty logic from the get-go. To apply this logic would mean that no environmental programs should be undertaken, when the "net benefits" calculated according to such a criterion were near zero. Of course, the greater the necessity to clean up, the worse the environmental clean-up costs, even if the "net benefits" are near zero.

Weisenmiller's logic fails to distinguish an outcome with a cleaner environment achieved with small "net benefits," rather than an outcome that maintains a dirty environment with "no net benefits," but continuing environmental damage. 20/ Witness Weisenmiller also fails to point out

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20/ This same faulty logic is the logic discussed earlier regarding "stranded capacity costs." That is, high "stranded costs" include costs that

[Footnote continued]

that achieving the same degree of environmental clean-up in the absence of added gas supply would very likely be more costly to society. Hence, it is appropriate for the Commission to consider the environmental benefits without quantifying all the net costs of environmental programs, provided that gas-use will be a cost-effective means of achieving these benefits, which is quite likely.

Q. Does this conclude your testimony?

A. Yes.

[Footnote continued]

competitive benefits are intended to eliminate or reduce -- thus, using "stranded costs" to "offset" the competitive benefits in a cost-benefit test, as recommended by the CPUC and El Paso, will lead to apparently low "net benefits" in precisely those circumstances where competition should be encouraged. The FERC should not fall into this trap for examining either the benefits of competition or the benefits of environmental clean-up.

Exhibit SCE-__(AVH-26)

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