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Re: Southwest Gas Corporation / Rates
Volumes I through VI (CONCLUDED)
October 3 through 11, 2005

STATUS OF ORIGINAL EXHIBITS

FILED WITH DOCKET CONTROL
10-12-2005

STAFF

1 through 23, 26, and 27

SOUTHWEST GAS

1 through 49, and 51

RUCO

1 through 12

ARIZONA COMMUNITY ACTION AGENCY (ACAA)

1

AUIA

1 and 2

SWEEP

1 and 2

DEPARTMENT OF DEFENSE (DOD)

1

EXHIBIT NUMBERS NOT UTILIZED
Numbers skipped or exhibit not used

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24 and 25

ORIGINAL EXHIBITS RETURNED TO PARTIES

SOUTHWEST GAS

50 Pending

Copy to:

Dwight D. Nodes, ACALJ (letter only)
Staff, Jason Gellman, Esq.
Southwest Gas Corp., Andy Bettwy, Esq.
RUCO, Scott Wakefield, Esq.

EXHIBIT
A-12
Admitted

Southwest Gas Corporation
Docket No. G-01551A-04-0876

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of
Prepared Rejoinder Testimony
of
James L. Cattanach

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BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
James L. Cattanach

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is James L. Cattanach. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same James L. Cattanach who sponsored direct testimony on behalf of Southwest Gas Corporation (Southwest or the Company) in this proceeding?

A. 2 Yes, I am.

Q. 3 What is the purpose of your prepared rejoinder testimony?

A. 3 The purpose of my prepared rejoinder testimony is to reply to the surrebuttal testimony presented by Arizona Corporation Commission Utilities Division Staff (Staff) witness Mr. William H. Musgrove regarding his assertions related to declining residential consumption per customer.

Q. 4 Did you prepare exhibits to support your rejoinder?

A. 4 Yes. I prepared the exhibits identified as Rejoinder Exhibit No.___(JLC-1) through Rejoinder Exhibit No.___(JLC-5).

Q. 5 Please summarize your rejoinder testimony.

A. 5 I will reply to the incorrect assertion made by Mr. Musgrove that "Southwest refuses to accept that average

sales per residential customer have been decreasing at rates that are driven by increases in the number of customers" (William H. Musgrove, Surrebuttal Testimony, Page 3, Lines 18 - 20). I will provide empirical evidence that both refutes Mr. Musgrove's assertion and clearly supports Southwest's position regarding the important role of vintage and new customers in explaining the decline in overall residential consumption per customer. I will also respond to Mr. Musgrove's statement that "Furthermore, Staff believes that the reported impact of a decline in residential sales per customer of approximately 11 percent since 1999 is overstated." (William H. Musgrove, Surrebuttal Testimony, Page 3, Lines 16 through 18.)

Q. 6 Could you briefly state Southwest's position related to declining residential consumption per customer in Arizona?

A. 6 Yes. Southwest's position has always been that improved appliance and dwelling efficiencies, and **the dramatic customer growth that Southwest has experienced in Arizona** are the primary factors contributing to the decline in overall residential consumption per customer. (James L. Cattanach, Direct Testimony, Pages 5 through 7.) The improved appliance efficiencies and better insulated homes have implications for both new customers and vintage customers. For new customers, it should be intuitive that improved efficiencies will translate into

lower consumption, and in turn, contribute to the decline in overall residential consumption per customer. The vintage customers have also contributed significantly to the decline in consumption per customer. For the vintage customers, the turnover or replacement of older appliances with relatively more efficient new appliances contributes to the decline in overall residential consumption per customer. It would also be reasonable to expect that a certain number of vintage customers would be adopting energy conservation practices to improve the thermal integrity of their homes. To reiterate, Southwest's position is that both vintage and new customers play a non-trivial role in explaining the decline in overall residential consumption per customer. Southwest's position was clearly outlined in my direct testimony.

Q. 7 Have you performed any empirical research that corroborates Southwest's position that both new customer growth and vintage customers contribute to the decline in overall residential consumption per customer?

A. 7 Yes. A number of quantitative analyses were performed that confirm residential consumption per customer is declining for both new and vintage customers. Both time series and cross-sectional data sets were utilized to analyze the historical declines in residential consumption per customer. **In conducting the empirical research, the null hypothesis is that both vintage and**

new customers are contributing to the decline in overall residential consumption per customer. In applied empirical research, the null hypothesis is the position that we believe is true. The null hypothesis is rejected only if there is compelling empirical or statistical evidence to the contrary.

QUANTITATIVE ANALYSIS ONE

Q. 8 Could you briefly discuss each quantitative analysis related to declining residential consumption per customer that was performed?

A. 8 Yes. The first data set examined was a time series data set that reflects weather normalized annual residential consumption per customer and average number of customers between 1985 and 2004. This data set provides an excellent "macro" level overview of declining residential consumption per customer in Arizona. Three-year centered moving averages of both residential consumption per customer and the number of customers were calculated to better discern the longer-term trends in the data. The attached Rejoinder Exhibit No.___(JLC-1) presents a time series plot overlay that depicts 3-year centered moving averages of both variables on the same graph (1985 and 2004 are dropped in the graph presentation due to the calculation of the centered moving averages). Examination of the graph reveals a number of important historical trends related to residential consumption per customer. First, it is quite evident based on casual empiricism, a

statistically significant downward trend in residential consumption per customer has occurred between 1985 and 2004. Second, the trajectory of consumption per customer was downward between 1985 and approximately 1992, even though customer growth was relatively moderate during this period. This would suggest that significant conservation was occurring with vintage customers during this period. Third, the graph depicts that the downward trend in consumption per customer steepened significantly in the mid-1990's. The structural change in the downward trajectory of residential consumption per customer coincides with both the escalation of residential customer growth and implementation of the Energy Policy Act of 1992. Overall, the graphical analysis illustrates the combined impacts of improved appliance and dwelling efficiencies and their linkage to both vintage and new customer consumption over the last twenty years.

QUANTITATIVE ANALYSIS TWO

Q. 9 Please continue your review of the analytical analyses that test the hypothesis that both vintage and new customers have contributed to the decline in overall residential consumption per customer.

A. 9 A second empirical analysis was performed utilizing a cross-sectional data set. Cross-sectional data is information collected on a set of observational units at a point in time. While the time series data in the previous analysis provides a "macro" view of the downward

trend in residential consumption per customer, the cross-sectional data provides a wonderful "micro" level picture of declining residential consumption per customer. In this quantitative analysis, the observational units are residential customers and their associated consumption, and the time period is the test year. For the 12-months ended August 2004, annual consumption per customer was examined by year of customer installation. The attached Rejoinder Exhibit No.___(JLC-2) presents a graph of weather normalized consumption per customer (12-months ended August 2004) for customers installed prior to 2000 (vintage customers), and customers installed for each year between 2000 and 2002 (new customers). A review of the graph reveals that new customer consumption is trending downwards, and new customers are consuming less than vintage customers. In fact, the most recent new customers are consuming less than the "older" new customers. The consumption data presented in the graph also provides important information on the decline in consumption per customer for vintage customers. The 2004 test year consumption for the vintage customers (installs prior to 2000) of 344.8 therms per customer is a reasonable approximation of the current consumption for the residential customers included in the 2000 rate case (Docket No. 01551A-00-0309). In the 2000 rate case, residential consumption was 388.4 therms per customer. The attached Rejoinder Exhibit No.___(JLC-3) presents

residential consumption per customer for the 2000 rate case and the comparable consumption for customers in the current rate case. Consumption per customer of the vintage customers has declined by approximately 43.6 therms between the 2000 rate case and the current rate case (installs prior to 2000). The empirical evidence is clear that vintage customers are utilizing significantly less natural gas, and contributing to the decline in overall residential consumption per customer. To summarize, the results of cross-sectional analyses presented in attached Rejoinder Exhibit Nos.___(JLC-2) and ___(JLC-3) demonstrate that new customers are consuming less than the vintage customers, new customer consumption is trending downward, and the vintage customers are consuming less than they did previously. **Therefore, it is reasonable to conclude that both new and vintage customers are contributing to the decline in overall residential consumption per customer.**

QUANTITATIVE ANALYSIS THREE

Q. 10 Did you perform any other empirical research to corroborate the previous analyses?

A. 10 Yes. Southwest utilized the cross-sectional data set to confirm the *a priori* expectation that the downward trend in consumption per customer for both vintage and new customers has been occurring over a longer historical time period. The attached Rejoinder Exhibit No.___(JLC-4) graphically presents consumption per customer for the 12-

months ended August 2004 for customers installed each year between 1991 and 2002. The data provides an indication of the trend in "new" residential consumption per customer since the escalation of customer growth and implementation of the Energy Policy Act of 1992. The graph clearly indicates that "new" customer consumption has been declining over a longer historical sample range. New customers installed in 2002 are using over 61 therms per customer less than "new" customers installed in 1991 for the same 12 month period ended August 2004. The longer-term decline in vintage consumption per customer is graphically presented in Rejoinder Exhibit No.___(JLC-5). In order to assess the change in vintage customer consumption over the longer term, residential consumption per customer (12-months ended August 2004) for customers installed prior to 1986 was compared to the consumption per customer utilized in the 1986 rate case (Docket Nos. U-1551-86-300 and 301). As was the case with the rate case comparison conducted in the previous analysis, the current consumption of the customers installed prior to 1986 is a reasonable approximation of current consumption levels of the 1986 rate case customers. The annual consumption of the vintage customers has declined from 555.6 therms (1986 rate case) to 341.7 therms (customers installs prior to 1986) per customer between the 1986 rate case and the current rate case. This is a decline of 213.9 therms per customer for vintage customers over the

nineteen year period. This second cross-sectional analysis confirms the *a priori* expectation that both new and vintage customers have contributed to the decline in overall consumption per customer over longer historical time periods.

Q. 11 Could you respond to Mr. Musgrove's statement that "Furthermore, Staff believes that the reported impact of a decline in residential sales per customer of approximately 11 percent since 1999 is overstated?" (William H. Musgrove, Surrebuttal Testimony, page 3, Lines 16 - 18)

A. 11 Yes. To be quite honest, I was perplexed by this statement. Both the 388.4 (2000 rate case) and the 347.0 (2004 rate case) therms per customer are a matter of evidentiary record. Both consumption statistics utilize weather normalized consumption per customer in the numerator and number of customers in the denominator. The difference between the two consumption statistics is 41.4 therms per customer. The calculated percentage decline is 10.7 percent. The weather normalized consumption per customer, difference, and percentage decline are straightforward arithmetic calculations. Since this not abstract math, there is no room for overstatement. As outlined in my direct testimony and supported by the quantitative research, a number of factors including improved appliance and dwelling efficiencies, and customer growth are contributing to the decline in

consumption per customer between the 2000 and 2004 rate cases.

CONCLUSION

Q. 12 Could you please summarize your conclusions and recommendations based upon the results of the empirical research presented?

A. 12 Yes. The results of the empirical research are unambiguous regarding the following: **(1) overall residential consumption per customer has declined dramatically over the last twenty years; (2) residential consumption per customer for both vintage and new customers has declined significantly over the last twenty years; and (3) both vintage and new customers have contributed to the decline in overall residential consumption per customer.** In the parlance of hypothesis testing, there is no compelling empirical evidence to reject the null hypothesis that both vintage and new customers are contributing to the decline in overall residential consumption per customer. Southwest's position that both vintage and new customers are contributing to the decline in overall residential consumption per customer is supported by common sense, casual empiricism, and more rigorous quantitative analyses. Mr. Musgrove's assertion that "Southwest refuses to accept that average sales per residential customer have been decreasing at rates that are driven by increases in the number of customers" is incorrect since

the empirical evidence suggests that customer growth is a contributing factor to the decline in overall residential consumption per customer. This is Southwest's position and this position has not changed. Since Mr. Musgrove's testimony is difficult to decipher, I will also state that any assertions made by Mr. Musgrove that vintage customers are not contributing to the decline in overall residential consumption per customer are erroneous and not supported by quantitative data and research. To trivialize the contribution of either vintage or new customers to declining overall residential consumption per customer is a result of misinterpreting the data.

Q. 13 Does this conclude your prepared rejoinder testimony?

A. 13 Yes, it does.

ARIZONA
RESIDENTIAL CUSTOMER CLASS (G-5)
CUSTOMERS AND WEATHER NORMALIZED CONSUMPTION PER CUSTOMER (THERMS)
3-YEAR CENTERED MOVING AVERAGES
1986 - 2003

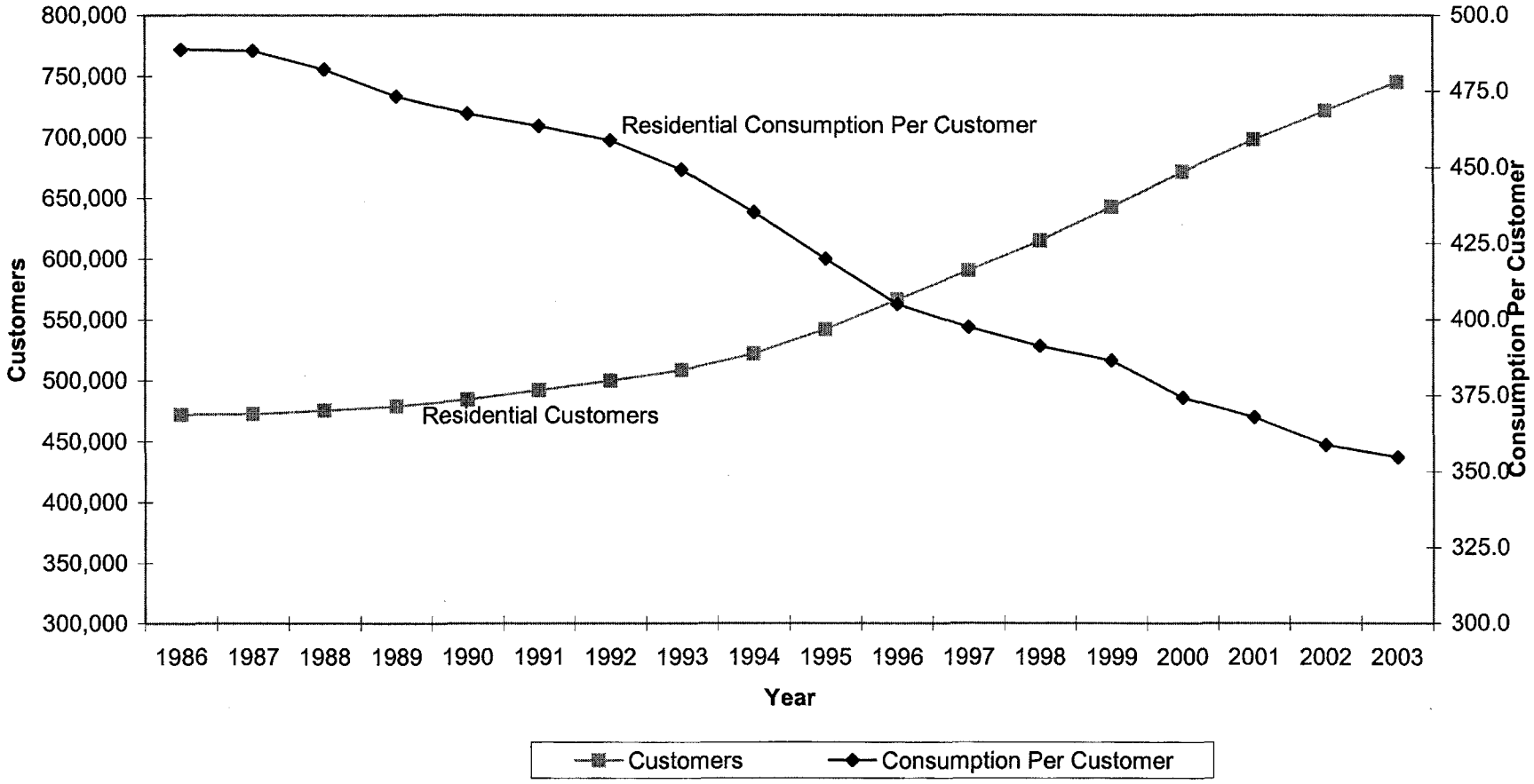
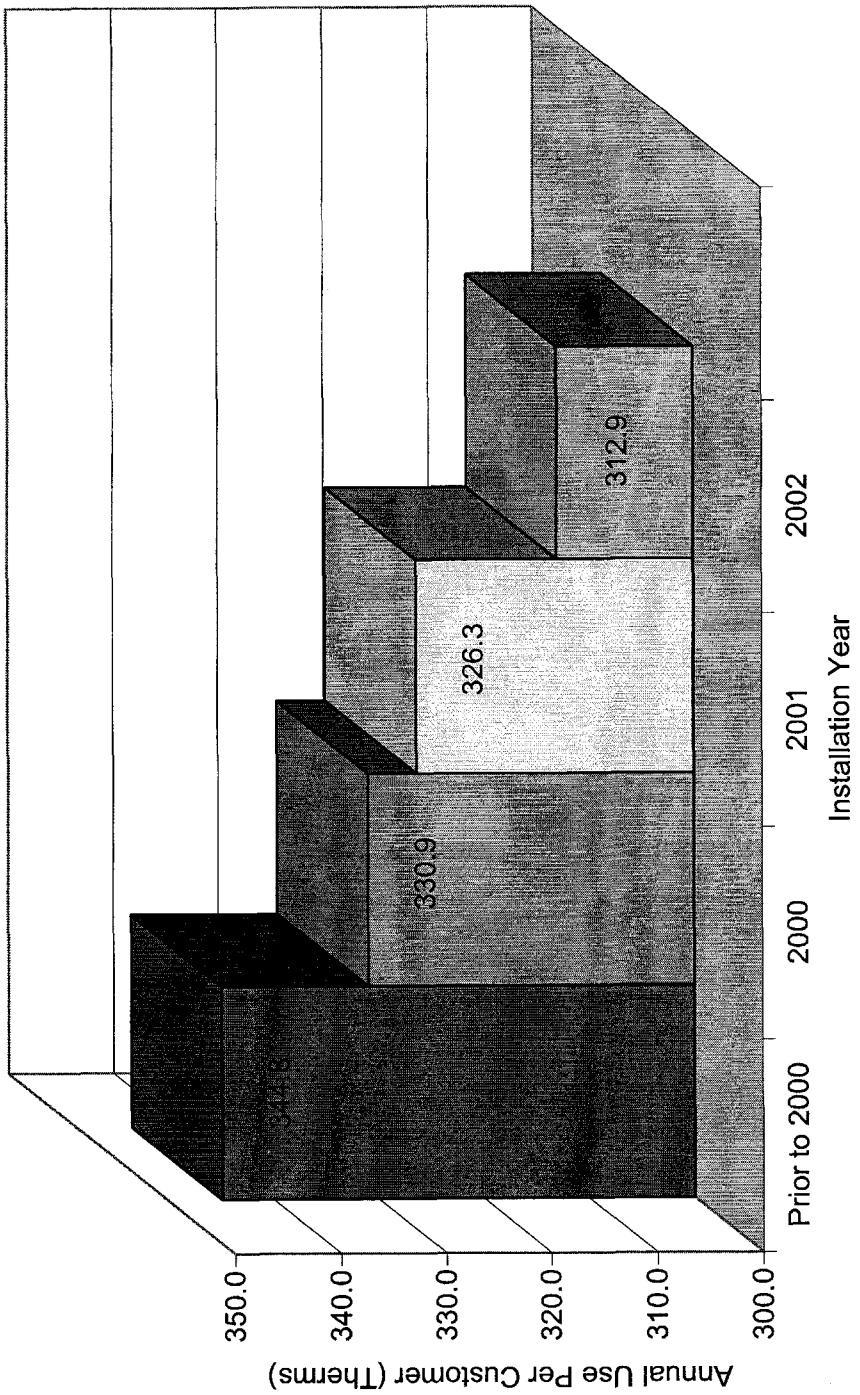


Exhibit No. __(JLC-1)
Sheet 1 of 1

SOUTHWEST GAS CORPORATION
ARIZONA
WEATHER NORMALIZED RESIDENTIAL CONSUMPTION PER CUSTOMER (G-5)
BY YEAR OF INSTALLATION
12 MONTHS ENDED AUGUST 2004



SOUTHWEST GAS CORPORATION
ARIZONA
WEATHER NORMALIZED RESIDENTIAL CONSUMPTION PER CUSTOMER (G-5)
VINTAGE CUSTOMERS
2000 RATE CASE VERSUS INSTALLS PRIOR TO 2000

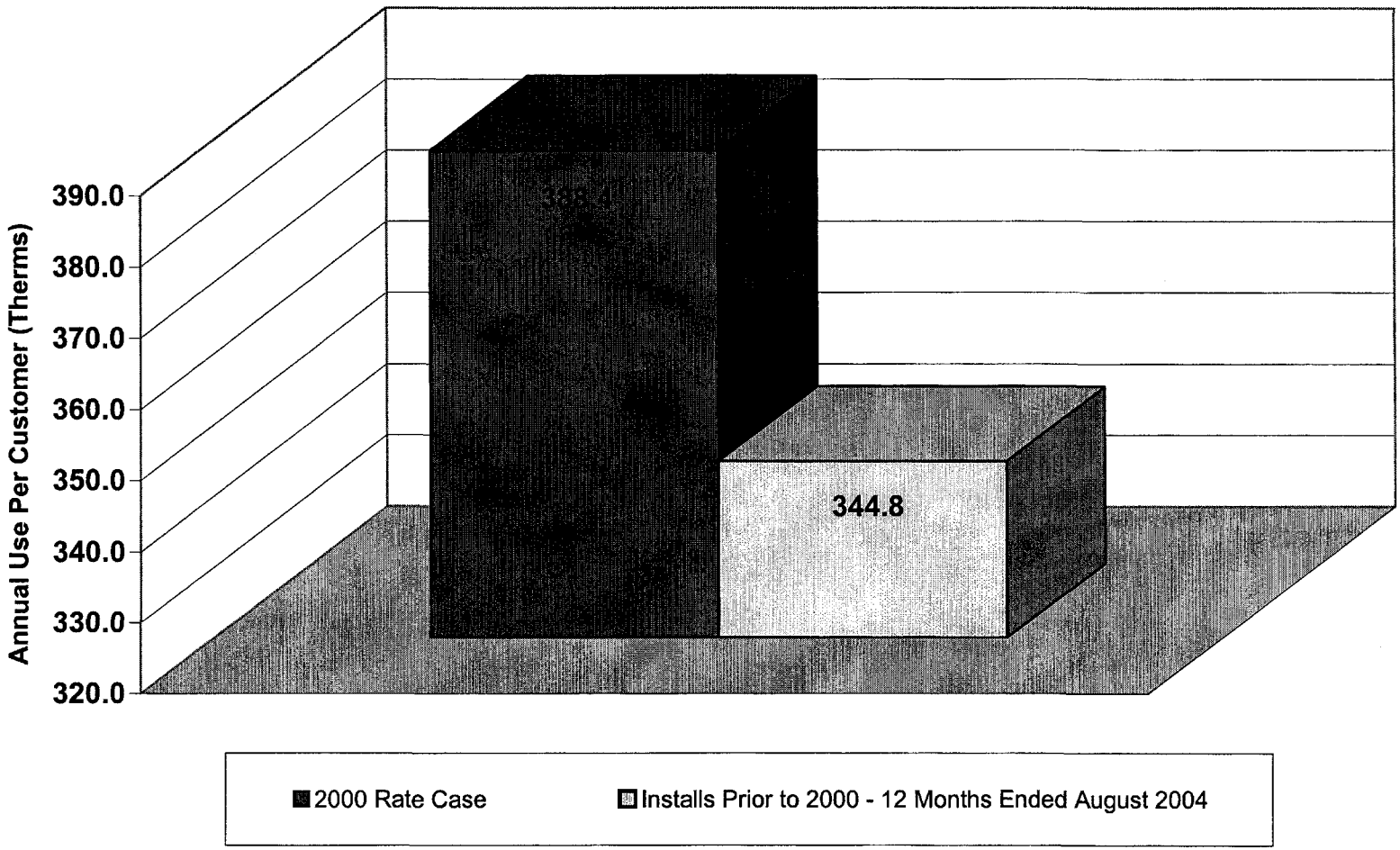
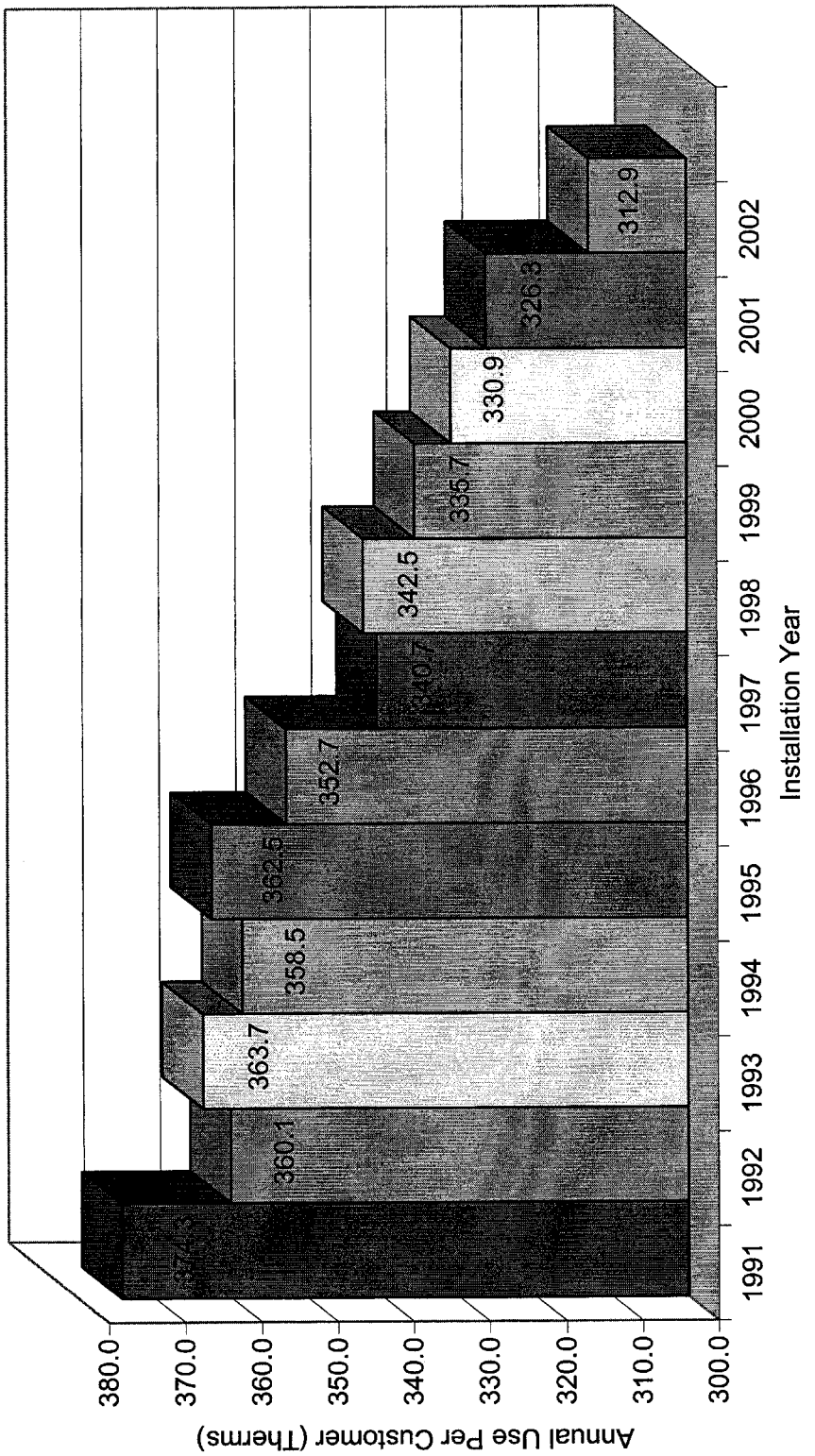


Exhibit No. ___(JLC-3)
Sheet 1 of 1

SOUTHWEST GAS CORPORATION
ARIZONA
WEATHER NORMALIZED RESIDENTIAL CONSUMPTION PER CUSTOMER (G-5)
BY YEAR OF INSTALLATION
12 MONTHS ENDED AUGUST 2004



SOUTHWEST GAS CORPORATION
ARIZONA
WEATHER NORMALIZED RESIDENTIAL CONSUMPTION PER CUSTOMER (G-5)
VINTAGE CUSTOMERS
1986 RATE CASE VERSUS INSTALLS PRIOR TO 1986

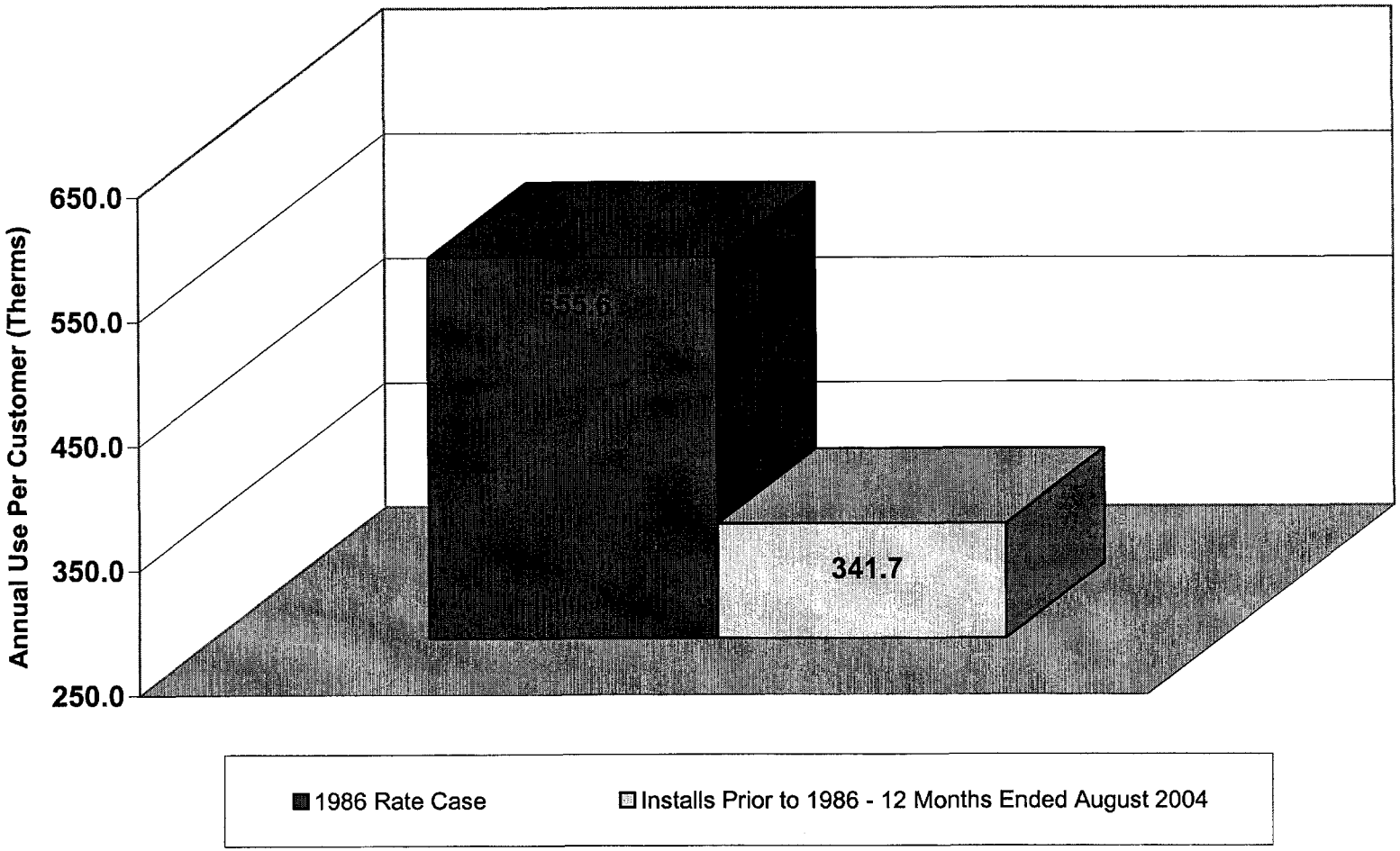


Exhibit No. ___(JLC-5)
Sheet 1 of 1

EXHIBIT
A-13
Admitted

Southwest Gas Corporation
Docket No. G-01551A-04-__

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony
of
VIVIAN E. SCOTT

I. INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Vivian E. Scott. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 What is your position and what are your responsibilities at Southwest Gas Corporation (Southwest)?

A. 2 I am the Manager of Research/Conservation and Demand Side Management (DSM) at Southwest. In that capacity, I am responsible for conducting Southwest's current DSM programs. This function involves such activities as program implementation, monitoring, and reporting. I am also involved in the development of new conservation and energy efficiency programs, which includes program research, analysis, and evaluation. My statement of qualifications is attached to this testimony as Appendix A.

Q. 3 Please summarize the purpose of your prepared direct testimony.

A. 3 The purpose of my prepared direct testimony is to explain Southwest's current DSM programs and to provide an overview of new conservation and energy efficiency

programs that Southwest is proposing. I will also discuss the proposed cost recovery mechanism and approval process for the programs.

II. SOUTHWEST'S CURRENT DSM PROGRAMS

Q. 4 Is Southwest currently conducting any DSM programs?

A. 4 Yes. Southwest currently conducts two DSM programs: 1) the Low-Income Energy Conservation (LIEC) program; and 2) the Energy Advantage Plus (EAP) program.

Q. 5 Please describe the LIEC program.

A. 5 The LIEC program offers weatherization measures to Southwest's low-income customers. The purpose of the program is to increase energy efficiency and reduce customer energy bills through the installation of energy efficiency measures and consumer education.

Customers qualify for the LIEC program if they have a household income of up to 125 percent of the poverty guidelines established by the Federal Office of Management and Budget. Those customers who are handicapped or elderly (age 60 and over) are eligible, if they have an income of up to 150 percent of the federal poverty level. In addition to individual home weatherization, the program also provides special funding for large, multi-family housing projects.

The LIEC program is currently conducted by Southwest in conjunction with the Arizona Department of Commerce Energy Office, community action agencies, and other Arizona utilities. During the 2003-2004 program

year, a total of 257 low-income households and two special projects (multi-family housing) were served.

Q. 6 Is Southwest planning to continue the LIEC program?

A. 6 Yes. Southwest believes the LIEC is very beneficial to low-income customers and would like to continue offering the program. Southwest is proposing an annual funding level of $500,000 (an increase from the current $350,000) for the LIEC program.

Q. 7 Why is Southwest suggesting an increased funding level for the LIEC program?

A. 7 Southwest is suggesting an increased funding level in order to offer the LIEC program to additional eligible customers. Also, Southwest is proposing that a bill discount be provided to low-income customers through the LIEC program.

Q. 8 How much of the LIEC program funding would be allocated to bill discounts?

A. 8 Southwest suggests that up to $50,000 of the LIEC program funds be allocated to the bill discount portion of the program.

Q. 9 Please describe the EAP program.

A. 9 The EAP program is a residential new construction program. The goal of the program is to upgrade the energy efficiency of new housing through improved thermal shell construction and the installation of high-efficiency mechanical equipment. Since the start of the EAP program in 1996, approximately 225 builders have participated,

with nearly 24,000 new and improved homes being constructed in the Tucson market. Annual funding for the EAP program is currently $900,000.

Q. 10 Is Southwest planning to continue the EAP program?

A. 10 Southwest is planning to continue a modified version of the EAP program. In the past, Southwest has spent a considerable portion of the EAP program funds on cooperative incentives for homebuilders. However, Southwest now believes that the market has been sufficiently transformed and that incentives are no longer necessary to ensure more energy-efficient construction. In addition, new building codes (the 2000 International Energy Conservation Code) have been adopted in Tucson. These new codes set stricter standards and are likely to further transform the new construction market. However, Southwest does see a need for assisting homebuilders with plan review and random inspections of their new homes. As such, Southwest is proposing a continuation of the EAP program under the name of the Energy Star® Home Certification program, with annual funding of $250,000.

III. SOUTHWEST'S PROPOSED NEW CONSERVATION AND ENERGY EFFICIENCY PROGRAMS

Q. 11 Is Southwest proposing new conservation and energy efficiency programs?

A. 11 Yes. Southwest is proposing seven new programs and the associated funding, contingent upon Arizona Corporation

Commission (Commission) approval.

Q. 12 Why do you characterize Southwest's new proposals as "conservation and energy efficiency programs" instead of as "DSM programs"?

A. 12 The current LIEC and EAP programs have been characterized as DSM programs since their inception, and Southwest is concerned there may be some confusion if the historical characterization were to be dropped abruptly at this time. However, Southwest views both the existing programs and the proposed new programs as falling more appropriately under a common umbrella embracing the goals of conservation and energy efficiency. The DSM nomenclature is being maintained for the time being for the existing programs; however, Southwest views all of the programs (i.e., existing and proposed) to be in harmony with the goals of conservation and energy efficiency and, accordingly, when referred to in the aggregate, Southwest characterizes the programs as "conservation and energy efficiency programs."

Q. 13 Why is Southwest proposing an expansion of its conservation and energy efficiency programs?

A. 13 Southwest believes it is in the best interests of its customers, the State of Arizona, and the overall resource mix to expand Southwest's programs. An increased number of programs would enable Southwest to serve all customer segments, including residential, commercial, and industrial customers. Currently, Southwest's conservation

and energy efficiency programs serve only residential customers.

The expanded set of programs that Southwest is proposing would also provide programs for customers throughout Arizona. Although Southwest's LIEC program is offered on a statewide basis, the current EAP program is only available to Tucson customers. With more programs available, a greater number of customers would have the opportunity to lower both their energy usage and their utility bills.

Further, an increased conservation and energy efficiency portfolio will be advantageous to the overall resource mix by reducing the demand for natural gas and electricity, lowering natural gas and electrical peak demand, improving air quality, and conserving water.

Q. 14 In the Application in this proceeding, Southwest focuses on the continuing decline in average residential customer usage and the resulting adverse impacts on earnings. If the proposed new conservation and energy efficiency programs are approved by the Commission and they turn out to be successful, is it not true that the threat to Southwest's earnings would be exacerbated?

A. 14 Yes, and in large measure that is why Southwest is urging the Commission to approve its proposed Conservation Margin Tracker (CMT) to ensure, among other things, that Southwest will not be penalized by aggressively promoting the success of the programs.

Q. 15 What new programs is Southwest proposing for residential customers?

A. 15 Southwest is proposing three new conservation and energy efficiency programs for residential customers: 1) Multi-Family New Construction; 2) Residential Energy Conservation; and 3) Energy Star® Appliances.

Q. 16 Please explain the Multi-Family New Construction program.

A. 16 The Multi-Family New Construction program is designed for renters and condominium owners—two groups that are often under-served by existing programs, but which represent a significant potential for energy savings. Due to their generally lower economic status, renters are likely to have an even greater need for cost savings on their utility bills than single-family homeowners. Similarly, many condominium owners are often first-time homebuyers who cannot afford a single-family home. These customers have a need for lower utility bills and will likely benefit from a new construction program designed for multi-family housing. In order to serve the two groups, the program will focus on the designers and developers of multi-family new construction in Maricopa and Pima Counties. The program will also seek opportunities to partner with low-income housing agencies.

The purpose of the program is to provide energy-efficient housing in the multi-family sector. The program will require building standards that exceed existing building codes, similar to Southwest's EAP

program and the Energy Star® program sponsored by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). Both the building envelope and the appliances will be upgraded. Financial incentives will be offered to builders to mitigate first-cost concerns and encourage participation. The program will also include an educational component to increase the awareness of energy efficiency among consumers, builders, and designers.

Southwest is proposing an annual funding level of $1,200,000 for the Multi-Family New Construction program.

Q. 17 Please explain the Residential Energy Conservation program.

A. 17 The Residential Energy Conservation program will offer education, instruction, and incentives to do-it-yourself homeowners who wish to install energy-saving measures in their homes. The program targets all residential customers who weatherize or improve the energy efficiency of their homes themselves.

The purpose of the program is to increase energy efficiency and reduce customer energy bills. Southwest will partner with local home improvement stores to conduct in-store training seminars on basic weatherization techniques, such as installing insulation, weatherstripping, and caulking. Southwest will also work with the stores to make educational materials available to customers. Further, the program will offer rebates to

customers who purchase selected energy efficiency products and/or materials in the stores. Through such activities, the program is expected to increase consumer awareness about energy efficiency and save energy in Arizona homes.

Southwest is proposing an annual funding level of $200,000 for the Residential Energy Conservation program.

Q. 18 Please explain the Energy Star® Appliances program.

A. 18 The Energy Star® Appliances program is aimed at consumers who purchase either new or replacement equipment at retail stores. Various types of high-efficiency natural gas appliances and equipment are available for purchase at the retail level, including furnaces, water heaters, ranges, dishwashers, washing machines, and programmable thermostats. The goal of the program is to encourage consumers to purchase more efficient appliances and equipment for their homes.

The program promotes Energy Star® appliances certified by the EPA and the DOE. The program will feature partnerships between Southwest, appliance manufacturers, and retailers. It will focus on building consumer awareness by providing educational materials at the point of purchase and on increasing the availability of high-efficiency equipment in the stores. The program will also include retailer training. In addition, incentives will be offered to consumers for the purchase of selected high-efficiency appliances.

Southwest is proposing an annual funding level of $800,000 for the Energy Star® Appliances program.

Q. 19 What is the proposed annual funding level for all of the residential conservation and energy efficiency programs?

A. 19 The proposed funding level for all of the residential programs, both existing and new, is $2.95 million per year.

Q. 20 What new programs is Southwest proposing for commercial and industrial customers?

A. 20 Southwest is proposing four new conservation and energy efficiency programs for commercial and industrial customers: 1) Food Service Equipment; 2) Efficient Commercial Building Design; 3) Technology Information Center; and 4) Distributed Generation.

Q. 21 Please explain the Food Service Equipment program.

A. 21 The purpose of the Food Service Equipment program is to increase the utilization of high-efficiency cooking equipment in restaurants and commercial food service facilities throughout Arizona. The program is designed to educate food service managers about high-efficiency equipment and to influence their purchasing decisions. In addition to providing informational material and technical guides, Southwest will utilize its existing Food Service Center in Tempe as a training facility to demonstrate the latest, most efficient equipment available in the market.

The program will include rebates for

high-efficiency natural gas applications. Examples of eligible equipment include hot water booster heaters for dishwashers, new generations of commercial gas cooking appliances, energy-efficient warewashing equipment, and high-efficiency hot water heaters.

In addition, the program will feature free, low-flow, dish rinse wands that save water and energy, while also reducing the need for sewage treatment. Each rinse nozzle saves up to 100,000 gallons of water per year. To put that number in perspective, assume that 10,000 Arizona restaurants install one rinse wand each. The resulting water savings could be as much as one billion gallons of water per year. The nozzles also provide environmental benefits by significantly reducing the emission of chemical-based sanitizers into the wastewater. This part of the program will feature a partnership between the Food Service Center and Arizona water agencies.

Southwest is proposing an annual funding level of $500,000 for the Food Service Equipment program.

Q. 22 Please explain the Efficient Commercial Building Design program.

A. 22 The Efficient Commercial Building Design program targets architects, engineers, designers, trade allies, and builders of new commercial construction projects to improve the energy efficiency of commercial buildings. By targeting new construction, savings are obtained more

readily and more cost-effectively than through a retrofit program.

The purpose of this program is to reduce natural gas consumption and peak-day demand by encouraging commercial building owners to incorporate cost-effective, energy-saving measures in the design and construction of new buildings. Information and continuing education will be provided to the building and design community through educational materials and workshops. Information on energy-efficient equipment, manufacturers, and improved construction techniques and building materials will be included. The program will assist engineers and designers in identifying cost-effective construction and equipment choices that exceed building code requirements. The program will also provide financial incentives to builders to offset increased initial costs and encourage participation.

Southwest is proposing an annual funding level of $500,000 for the Efficient Commercial Building Design program.

Q. 23 Please explain the Technology Information Center program.

A. 23 The Technology Information Center program is designed to provide technical information to industrial and commercial customers to reduce energy usage, lower utility bills, answer questions about energy-efficient technologies, and increase awareness of environmental issues.

Various media formats will be utilized, including an Internet resource Web site, an "Ask an Expert" hotline, newsletters, and an electronic research library. Customer interest in various topics will be tracked for use in tailoring future programs to meet the needs of industrial/commercial customers.

Southwest is proposing an annual funding level of $35,000 for the Technology Information Center program.

Q. 24 Please explain the Distributed Generation program.

A. 24 The Distributed Generation program is intended for a variety of industrial customers, depending on the distributed generation application. Program participants could range from small to large industrial customers.

The program encourages projects that demonstrate either combined heat and power or peak-shaving concepts. Fuel cells and microturbines will be considered. An educational component is essential to the program to increase awareness and acceptance for the technology in the industrial community. Partnerships with municipalities and other funding sources will be encouraged. The program's advantages include higher efficiency, reduced emissions, cost savings, peak shaving, power reliability, and risk management.

Southwest is proposing an annual funding level of $400,000 for the Distributed Generation program.

Q. 25 What is the proposed funding level for the four new commercial and industrial programs?

A. 25 Southwest is proposing a total funding level of $1.435 million per year for the four new commercial and industrial programs.

Q. 26 What is the proposed funding level for all of the conservation and energy efficiency programs, both existing and proposed?

A. 26 The proposed funding level for all of the programs, both existing and proposed, is $4.385 million per year. A listing of the programs and the associated funding levels is provided in Appendix B.

IV. COST RECOVERY AND APPROVAL PROCESS

Q. 27 How does Southwest expect to recover the cost of the programs, if approved?

A. 27 Southwest is proposing that the current adjuster mechanism, which was approved by the Commission in Decision No. 60352, be utilized to provide cost recovery for the approved programs. The recovery mechanism has worked well to date, by facilitating the timely and ongoing recovery of program costs.

One difference, though, is that the current recovery mechanism recovers the cost of programs from residential customers only. Because the proposed programs are designed for all customer classes, Southwest expects that all customers would pay the surcharge in the future.

Q. 28 What is the current surcharge amount?

A. 28 The current surcharge amount paid by residential customers is $0.00486 per therm.

Q. 29 What is the projected future surcharge amount, if all of the proposed programs are approved?

A. 29 If all of the proposed programs are approved, the projected future surcharge would be approximately $0.00724, and would be paid by all customers.

Q. 30 How will Southwest obtain approval for the proposed programs?

A. 30 Southwest expects to obtain approval for the proposed programs through a two-part process. First, Southwest will request the Commission to approve the funding level presented in this Docket. If the requested funding level is approved, then Southwest will submit the proposed programs to the Commission Staff for pre-approval after this general rate case has concluded.

Q. 31 Will the cost-effectiveness of the programs be evaluated?

A. 31 Yes. Southwest expects to use the Societal Test to evaluate program cost-effectiveness. That particular test has been identified as the appropriate cost-effectiveness test in the draft DSM policy, which is being developed in the current Commission DSM workshop process.

Q. 32 Does Southwest agree with using the Societal Test?

A. 32 Yes. Southwest believes it is important to use the Societal Test because this test goes beyond the Total Resource Cost Test (the previously-used criterion test in Arizona) and incorporates the costs and benefits of emissions and water savings. Southwest believes that these factors are important to consider when determining

the total resource, economic, and societal value of conservation and energy efficiency programs.

Q. 33 Although Southwest is proposing a mechanism to recover the expenses associated with the conservation and energy efficiency programs, is it not true as discussed earlier in your testimony that, everything else remaining constant, Southwest would experience a revenue shortfall if the programs are successful?

A. 33 Yes. It is axiomatic that, if the programs result in decreased natural gas usage, a corresponding reduction in revenue from natural gas sales would be experienced.

Q. 34 Does Southwest have any proposal to address revenue shortfalls resulting from decreased natural gas usage?

A. 34 Yes. Southwest is proposing a decoupling mechanism referred to by Southwest as the CMT. It should be noted that the CMT not only addresses revenue shortfalls due to decreased natural gas usage but, as well, it protects Southwest's customers from revenue windfalls resulting from an increase in average residential natural gas consumption which could occur as a consequence of colder-than-normal weather. Southwest witness Edward B. Gieseking describes the CMT in detail in his prepared direct testimony.

Q. 35 Does Southwest have any concluding remarks about its proposals?

A. 35 Yes. Southwest believes that an expanded set of conservation and energy efficiency programs will benefit

both its customers and other Arizona energy consumers. Southwest has suggested expanding its currently successful residential programs to include other customer classes, including commercial and industrial customers. Southwest has also proposed offering more programs to existing residential customers. In addition, Southwest has presented programs that will reach many more customers throughout the State of Arizona. With increased program availability and customer outreach, Southwest can effect greater customer awareness and behavioral change. The result can only be beneficial for Arizona, in terms of saving energy resources, improving air quality, and conserving water.

Southwest also believes that the proposed programs can be implemented in a cost-effective manner. Southwest has suggested that funding be obtained through the continued use of the existing surcharge mechanism—a system that has worked well in the past for conservation and energy efficiency programs.

Q. 36 Does this conclude your prepared direct testimony?

A. 36 Yes, it does.

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APPENDIX A
STATEMENT OF QUALIFICATIONS
VIVIAN SCOTT

EDUCATION

UCLA – Los Angeles, California

1985	Ph.D. Marketing program – completed course requirements and qualifying exam

California State Polytechnic University - Pomona, California

1980	Master of Business Administration

Humboldt State University – Arcata, California

1972	B.A. Psychology

EXPERIENCE

Southwest Gas Corporation – Las Vegas, Nevada

2002-2004	Manager, Research/Conservation & DSM
1996-2002	Supervisor, Marketing Research
1993-1996	Administrator, Marketing/DSM
1989-1993	Specialist, Marketing/DSM

Develop, implement, promote, track, and report on demand side management programs in Arizona, Nevada, and California. Serve as a company witness in rate cases and regulatory matters. Coordinate with public utility commission staff, community-based organizations, contractors, and consultants. Conduct primary/secondary research projects and provide statistical/analytical support.

Millers Outpost – Ontario, California

1985-1989	Director, Marketing Research

Directed primary and secondary research projects for a 350-store clothing retailer throughout the Southwest. Provided input for strategic planning. Served as marketing consultant to other retail chains owned by parent corporation.

California State Polytechnic University – Pomona, California

1982-1985	Assistant Professor, Marketing
1980-1982	Lecturer, Management & Human Resources

Taught upper division courses in Marketing, Marketing Research, Business Computations, and Business Communications. Assisted in MBA program administration and student advising.

APPENDIX B
SOUTHWEST GAS CORPORATION

PROPOSED CONSERVATION AND ENERGY EFFICIENCY PROGRAMS INCLUDING CUSTOMER SECTOR AND FUNDING LEVEL

Customer Sector	Program	Funding
Residential	Low-Income Energy Conservation	$ 500,000
Residential	Energy Star Home Certification	250,000
Residential	Multi-Family New Construction	1,200,000
Residential	Residential Energy Conservation	200,000
Residential	Energy Star Appliances	800,000
Commercial/Industrial	Food Service Equipment	500,000
Commercial/Industrial	Efficient Commercial Building Design	500,000
Commercial/Industrial	Technology Information Center	35,000
Industrial	Distributed Generation	400,000
	Total	**$ 4,385,000**

EXHIBIT
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Admitted

Southwest Gas Corporation
Docket No. G-01551A-04-0876

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of
Prepared Rebuttal Testimony
of
VIVIAN E. SCOTT

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
VIVIAN E. SCOTT

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Vivian E. Scott. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom are you employed and in what capacity?

A. 2 I am employed by Southwest Gas Corporation (Southwest or the Company) as manager in the Research/Conservation and Demand Side Management (DSM) Department.

Q. 3 Did you sponsor direct testimony on behalf of Southwest in this proceeding?

A. 3 Yes. In my direct testimony I described Southwest's current DSM programs and provided an overview of new conservation and energy efficiency programs that Southwest is proposing be approved in this proceeding. For purposes of my rebuttal testimony, I will refer to these programs collectively as "energy efficiency" programs.

Q. 4 What is the purpose of your prepared rebuttal testimony?

A. 4 The purpose of my rebuttal testimony is to respond to specific aspects of the direct testimony presented by Mr. Steve P. Irvine, witness for the Arizona Corporation Commission Utilities Division Staff (Staff), Ms. Marylee

Diaz Cortez, witness for the Residential Utility Consumer Office (RUCO), and Mr. Jeff Schlegel, witness for the Southwest Energy Efficiency Project and Natural Resources Defense Council (SWEEP/NRDC), regarding their respective recommendations and comments concerning the energy efficiency programs that Southwest has proposed in this proceeding.

Q. 5 Please summarize your rebuttal testimony.

A. 5 My rebuttal testimony will address the following issues:

- Progress reports and filing practices
- Bill assistance component of Low-Income Energy Conservation (LIEC)
- Program approval, funding, and the collaborative process
- Proposal by SWEEP/NRDC to include a performance incentive
- Decoupling mechanisms and their relationship to energy efficiency programs

PROGRESS REPORTS AND FILING PRACTICES

Q. 6 What is Staff's recommendation regarding the progress reports and filing practices?

A. 6 Staff recommends that, in the future, semi-annual progress reports be certified by an officer of the Company and that existing filing practices continue.

Q. 7 Does Southwest agree with Staff's recommendation?

A. 7 Southwest agrees that the existing filing practices should continue into the future. With respect to progress

report certification, Southwest respectfully submits that officer certification for these reports is not necessary. Southwest's current practice is that the person who signs the report is the person who is generally the most knowledgeable about the information contained in the report. Staff has not presented any rationale to support the need for officer certification or evidence to suggest that a change in Southwest's current practice is necessary.

BILL ASSISTANCE COMPONENT OF LOW-INCOME ENERGY CONSERVATION (LIEC)

Q. 8 What is Staff's recommendation regarding the bill assistance component of the LIEC program?

A. 8 Staff's recommendation is to eliminate the bill assistance portion of the LIEC program, which would reduce the annual program funding by $50,000.

Q. 9 Does Southwest agree with Staff's recommendation to eliminate bill assistance from the LIEC program?

A. 9 No. The bill assistance component of the LIEC program should be retained. This special assistance funding is intended for emergency situations that may be encountered by low-income households. The proposed bill assistance funding level is relatively low, representing only ten percent of the total LIEC program funding. The bulk of the program funding is targeted at weatherization, which provides long-term energy savings, improved occupant health and safety, and lower customer bills.

Q. 10 Are you aware of any other Arizona utilities that include

a bill assistance component in their low-income weatherization programs?

A. 10 Yes. Arizona Public Service Company (APS) includes a bill assistance component for electric customers in its proposed Energy Wise Low-Income Weatherization Program (Energy Wise Program), as filed in Docket No. E-01345A-05-0414. APS has proposed an annual funding level of $250,000 for bill assistance, which approximates 23 percent of its total annual program funding.

Q. 11 How is Southwest planning to administer the bill assistance portion of the LIEC program?

A. 11 Although Southwest has not yet established bill assistance guidelines for its LIEC program, Southwest anticipates administering the bill assistance component of the LIEC program in a similar manner as APS administers its Energy Wise Program, including using the funds to pay for bills for customers in the following crisis situations: 1) customers who are at risk of endangering their health by not utilizing necessary appliances; 2) customers who experience a sudden loss of income; or 3) customers who incur an unexpected expense, such as a medical expense that results in their inability to pay their utility bill.

PROGRAM APPROVAL, FUNDING, AND THE COLLABORATIVE PROCESS

Q. 12 What is Southwest's response to Staff's, RUCO's, and SWEEP/NRDC's recommendations related to program approval, funding, and the collaborative process?

A. 12 Generally, Southwest supports the recommendations of Staff, RUCO, and SWEEP/NRDC regarding the proposed programs and their funding. Southwest also agrees that a 120-day time frame for formal program submittal is reasonable, given the complexity of program implementation, administration, and cost-effectiveness evaluation. With the exception of the bill assistance component of the LIEC program, none of the parties has opposed any of the energy efficiency programs or the funding levels proposed by Southwest. As such, Southwest respectfully requests that the Commission approve, in this proceeding, all of the energy efficiency programs proposed by Southwest. In addition, Southwest requests that the Commission approve the two modifications proposed by SWEEP/NRDC (Energy Star® Home Certification program and performance incentive), and the funding levels that have been proposed for each program. Southwest recognizes, notwithstanding these requests, that the individual programs will be brought forward for final Commission review and approval, prior to implementation, within the 120-day time frame mentioned above.

The Company also supports the collaborative process, with the exception of RUCO's and SWEEP/NRDC's proposals that any member of the working group be permitted to submit a program plan to the Commission for approval. As such, within the 120-day time frame for formal program

submittal, Southwest will work in a collaborative process with the stakeholders identified by RUCO and SWEEP/NRDC to solicit input and advice regarding how these programs should be implemented, administered, and reviewed for program performance.

PROPOSAL BY SWEEP/NRDC TO INCLUDE A PERFORMANCE INCENTIVE

Q. 13 What is SWEEP/NRDC's proposal with regard to a performance incentive?

A. 13 SWEEP/NRDC recognizes the inherent disincentive associated with a volumetric rate design and the effective decline in customer usage resulting from energy efficiency programs. As such, SWEEP/NRDC propose a performance incentive that Southwest could earn for effective program performance. SWEEP/NRDC suggests that the total incentive level be capped at ten percent of the total program funding. SWEEP/NRDC further explains that the mechanism should include a threshold for minimum performance; if actual performance is less than that threshold, then no incentive would be earned.

Q. 14 Does Southwest agree with the proposed performance incentive?

A. 14 Yes. Southwest agrees with the performance incentive proposed by SWEEP/NRDC. However, it should be noted that the performance incentive proposed by SWEEP/NRDC does not remove the financial disincentive that exists for Southwest to implement energy efficiency programs, as the Conservation Margin Tracker (CMT) proposed by Southwest

would do. Southwest witness, Mr. Edward B. Gieseking, in his rebuttal testimony, addresses this issue in more detail. The Company does agree, however, that a positive performance incentive is appropriate, in exchange for effective energy efficiency program performance.

Q. 15 Has the Commission approved similar performance incentives?

A. 15 Yes. The Commission approved a similar performance incentive for APS, in its 2005 rate case (Decision No. 67744).

DECOUPLING MECHANISMS AND THEIR RELATIONSHIP TO ENERGY EFFICIENCY PROGRAMS

Q. 16 Has Staff, RUCO, or SWEEP/NRDC recommended that the Commission approve any type of mechanism that would remove the financial disincentive for Southwest to aggressively encourage its customers to conserve natural gas?

A. 16 No. In fact, they have all opposed approval of Southwest's proposed CMT in this proceeding and none has proposed other mechanisms to alleviate this problem.

Q. 17 Should the Commission approve the new energy efficiency programs without adequately addressing the financial disincentive issue that these programs create?

A. 17 No. Southwest proposed these new energy efficiency programs together with the CMT so that there would not be a financial disincentive for Southwest to aggressively encourage customers to conserve natural gas. Southwest

would encourage the Commission to follow the guidance provided by the National Association of Regulatory Utility Commissioners in its resolution approving the Joint Statement of the American Gas Association and NRDC when it reaches its decision in this proceeding.

Q. 18 Does this conclude your prepared rebuttal testimony?

A. 18 Yes, it does.

Southwest Gas Corporation
Docket No. G-01551A-04-0876

EXHIBIT
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of
Prepared Rejoinder Testimony
of
VIVIAN E. SCOTT

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
VIVIAN E. SCOTT

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Vivian E. Scott. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same Vivian E. Scott who sponsored direct testimony and rebuttal testimony on behalf of Southwest in this proceeding?

A. 2 Yes. In my direct testimony, I described Southwest's current DSM programs and provided an overview of additional energy efficiency programs that Southwest is proposing for approval in this proceeding. In my rebuttal testimony, I addressed issues raised by other parties related to the proposed energy efficiency programs.

Q. 3 What is the purpose of your prepared rejoinder testimony?

A. 3 The purpose of my rejoinder testimony is to respond to specific aspects of the surrebuttal testimony presented by Mr. Steve P. Irvine, witness for the Arizona Corporation Commission Utilities Division Staff (Staff) regarding his recommendations and

comments concerning the energy efficiency programs that Southwest has proposed in this proceeding. My rebuttal and rejoinder testimony may not specifically respond to each issue or argument brought forth by the respective intervening parties in their direct and surrebuttal testimony. My silence should not be taken as acceptance of any intervening party's position, but rather that my previously filed direct and rebuttal testimony adequately supports the Company's position.

Q. 4 Please summarize your rejoinder testimony.

A. 4 My rejoinder testimony will address the following issues:

- Program approval process
- Scope of the Energy Star® Home Certification program
- Performance incentive

PROGRAM APPROVAL PROCESS

Q. 5 Does Staff understand Southwest's position with regard to the program approval issue?

A. 5 No. Staff states that it is unclear as to Southwest's position regarding program approval. To clarify, Southwest expects to obtain Commission approval for the proposed programs and the funding level of those programs in this proceeding. Southwest will then work with the collaborative group to develop plans (including final funding levels) to administer each program and submit the plans to the Commission for

final approval, within 120 days of a decision in this general rate case.

SCOPE OF THE ENERGY STAR® HOME CERTIFICATION PROGRAM

Q. 6 What is Staff's recommendation regarding the funding level for the Energy Star® Home Certification program?

A. 6 Staff recommends that the Energy Star® Home Certification program be funded at a level of $250,000 per year.

Q. 7 Does Southwest have any comments about Staff's recommended funding level for this program?

A. 7 Yes. Southwest would like to clarify that the Energy Star® Home Certification program could be funded at any number of different levels. Southwest can administer the program statewide at any of the proposed funding levels, but the level of funding will determine the breadth of the program. Clearly, with a higher funding level, the program can reach more builders and new homebuyers. This type of program is a good one, because it tends to be cost-effective, is well received by new homebuyers, and has long-term energy savings. Southwest will offer this program at whatever funding level the Commission deems reasonable and appropriate, especially when considered within the framework of the overall DSM program portfolio.

PERFORMANCE INCENTIVE

Q. 8 What is Staff's recommendation regarding a performance incentive?

A. 8 Staff does not recommend implementation of a performance incentive.

Q. 9 Does Southwest agree with Staff's recommendation?

A. 9 No. Southwest believes it should be allowed to earn a performance incentive for effective DSM program performance. In light of the undisputed fact that there is a financial disincentive for Southwest to promote conservation and energy efficiency, and in the interest of fairness, Southwest believes that all Arizona utilities should be allowed to earn a performance incentive on DSM programs. Just as Arizona Public Service Company was allowed to earn a performance incentive of up to ten percent of their total DSM program funding, Southwest believes it is equitable for the Commission to allow the Company to earn a similar incentive. However, as noted in my rebuttal testimony, a performance incentive or the recovery of program costs do not fully compensate Southwest for lost earnings due to conservation and energy efficiency, and the approval of the DSM programs should be conditioned upon the Commission's approval of the conservation margin tracker.

Q. 10 Does this conclude your prepared rejoinder testimony?

A. 10 Yes.

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Admitted

Southwest Gas Corporation
Docket No. G-01551A-04-__

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony
of
A. BROOKS CONGDON

Q. 1 Please state your name and business address.

A. 1 My name is A. Brooks Congdon. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom are you employed and in what capacity?

A. 2 I am employed by Southwest Gas Corporation (Southwest or the Company) as Manager/Pricing and Tariffs.

Q. 3 Please state your educational background and business experience.

A. 3 I received a Bachelor of Science degree in Economics from Iowa State University in 1975.

In 1976, I began working as a Forecasting Analyst for General Telephone of the Midwest. My responsibilities there primarily involved projecting growth in demand for telephone service in eastern Nebraska and western Iowa.

In 1980, I began working as a Rate Analyst in the Rate department of Pacific Power and Light Company in Portland, Oregon, involved primarily in performing cost-of-service studies and designing rates for electric and water utilities.

In 1984, I accepted a position at Kansas Electric Power Cooperative in Topeka, Kansas where my primary

responsibilities included coordination of intervention in wholesale power rate cases at the Federal Energy Regulatory Commission and preparation of the cooperatives' rate case activity before the Kansas Corporation Commission.

I began my employment with Southwest in 1987 in the Rate department (now the Pricing and Tariffs department) as a Rate Specialist. Since that time, I have held positions of increasing responsibility. My present position is Manager/Pricing and Tariffs.

Q. 4 Briefly state the nature of your present responsibilities and duties with Southwest.

A. 4 I report to the Director/Pricing and Tariffs. I am responsible for the development of rate design and tariff proposals for Southwest in its three-state retail rate jurisdictions.

Q. 5 Have you previously testified before any regulatory commission?

A. 5 Yes. I have submitted testimony and testified before the Arizona Corporation Commission (Commission), the Public Utilities Commission of Nevada, the California Public Utilities Commission, and the Kansas Corporation Commission.

Q. 6 Briefly describe the purpose of your prepared direct testimony and the schedules you are sponsoring in this proceeding?

A. 6 The purpose of my testimony is to sponsor Southwest's adjustments to customer bills and volumes for ratemaking

purposes, the calculation of revenues at present and proposed rates, the utilization of Southwest's embedded customer class cost of service study (ECCOSS) to allocate Southwest's proposed margin revenue requirement to customer classes, and the development of Southwest's proposed rates and Southwest's proposed changes to tariff schedules. I am sponsoring Schedule C-2, Adjustment Nos. 1 and 2 and Schedules H-1 through H-8.

VOLUME AND CUSTOMER ADJUSTMENTS

Q. 7 Please describe the methodology Southwest utilized to develop the annualized number of bills and volumes for the test period under present rate schedules.

A. 7 The development of the billing determinants began with the compilation of the monthly recorded number of bills and therms by rate schedule for the 12-month test year ended August 31, 2004. A number of adjustments were made to the recorded information to derive the adjusted test period billing determinants.

Q. 8 Please describe the adjustments to Southwest's recorded test year billing determinants.

A. 8 After compiling the recorded billing determinants for the test year, Southwest made the following adjustments to the recorded number of bills and therms: (1) billing adjustments, (2) volume annualizations, (3) customer reclassifications, (4) weather normalization, (5) customer annualizations, and (6) reclassification of full margin transportation customers to present rate schedules. These

adjustments are reflected individually by rate schedule in Schedule H-2, Sheets 14 and 15. The adjustments to Southwest's recorded test year number of bills and therms produce the annualized test period number of bills and therms at present rate schedules.

Q. 9 Why have you made these adjustments to the recorded number of bills and therms for the test period?

A. 9 The purpose of the six adjustments is to ensure that Southwest's test period number of bills and volumes accurately reflect a full 12 months of consumption under normal weather conditions for each active customer billed at the end of the test year.

Q. 10 Please explain the purpose of Southwest's proposed billing adjustments.

A. 10 After compiling recorded test year billing determinants, significant billing anomalies were investigated to ensure that the correct consumption level is reflected for each month in the test period. A majority of the corrections for billing adjustments involved restating monthly consumption levels of the impacted accounts, with no impact upon the total test period sales. This was necessary to ensure that the monthly adjusted volumes reflect an accurate portrayal of actual test period consumption. Otherwise, distorted monthly values would affect the reliability of the regression analyses associated with Southwest's weather normalization adjustments, which are discussed in detail by Southwest

witness James L. Cattanach. The impacts of the billing adjustments are summarized by rate schedule in Schedule H-2, Sheet 15, columns (c) and (d).

Q. 11 Please explain Southwest's volume annualization adjustments.

A. 11 Upon completion of the process of correcting for billing adjustments, customer-specific volume annualization adjustments were performed to reflect a full year of consumption for each active customer billed (excluding residential and small commercial customer classes) during August 2004 (the end of the test year). This process involves estimating consumption for months in the test year for which new customers had not been receiving service or were clearly in a start-up phase, as well as removing consumption attributable to specific customers that discontinued service. Volume annualization adjustments are summarized by rate schedule in Schedule H-2, Sheet 15, columns (e) and (f).

Q. 12 Please explain the purpose of Southwest's customer reclassification adjustments.

A. 12 Customer reclassification adjustments move customers and volumes between tariff schedules to the proper schedule based on the end of the test year customer composition. Reclassification adjustments do not impact the overall number of bills or volumes, as shown in Schedule H-2, Sheet 15, line 22, columns (g) and (h).

Q. 13 Earlier in your testimony you referred to weather

normalization adjustments. Please explain the purpose of these adjustments.

A. 13 Weather normalization adjustments were performed for the purpose of providing an accurate depiction of monthly volumes under normal weather conditions. To the extent that weather deviates from normal (average) weather conditions, heat-sensitive consumption per customer is adjusted to provide an accurate representation of monthly volumes under normal weather conditions.

Mr. Cattanach discusses the mechanics of Southwest's weather normalization process in detail in his direct testimony. The net result of Southwest's weather normalization adjustment was a decrease in volumes for the test period of 566,341 therms. The effect of Southwest's weather normalization adjustment by customer class is shown in Schedule H-2, Sheet 14, line 22, column (d).

Q. 14 Were there any other adjustments made to the number of test year bills or volumes under present rate schedules?

A. 14 Yes, there were. Customer annualization adjustments, using the same methodology adopted by the Commission in Decision Nos. 60352 and 64172, were computed for the residential rate schedule and small commercial customers within the general service rate schedules. This method captures the seasonal nature of test year customer growth by comparing the number of customers in the last month of the test year (August 2004), to the same month of the prior year (August 2003). The growth in customers is then

prorated across the test period in declining intervals with 11/12ths of the adjustment in the first month of the test period (September 2003), 10/12ths in the second month, and so forth. Adjustments to annualize volumes were made by multiplying the monthly customer additions by the respective monthly weather-adjusted average use per customer. Customer and volume adjustments are then added to the weather-normalized monthly bills and volumes to produce annualized test period monthly bills and volumes. Customer annualization adjustments are shown in Schedule H-2, Sheet 14, columns (e) and (f).

Q. 15 Why were customer annualization adjustments only performed for the residential schedule and small commercial customers?

A. 15 With the exception of the residential rate schedule and the small commercial customers within the general service rate schedules, all rate schedules have been annualized by individual customer, based upon customer-specific information. These customer-specific annualization adjustments were covered under the volume annualization adjustments previously discussed in my testimony. Because of the sheer magnitude of the residential and small commercial customers, tracking each individual's billing history to perform customer-specific billing or annualization adjustments is impractical. For that reason, annualization adjustments were performed using the number of customers at the end of the test year and

the weather normalized average consumption per customer for the residential and small commercial customers.

Q. 16 Please describe the final adjustment reflected on Schedule H-2, Sheet 14, columns (e) and (f), Reclassification of Full Margin Transportation Customers to Present Rate Schedules.

A. 16 This adjustment reclassifies bills and volumes for full-margin transportation customers to their applicable sales rate schedules to reflect pricing for these customers at present rate schedules.

Q. 17 Did Southwest make any other adjustments to test year bills and volumes at present rate schedules?

A. 17 No. The adjustments I just described complete Southwest's adjustments to test year bills and volumes at present rate schedules. The total of these adjustments are reflected for each rate schedule on Schedule H-2, Sheet 14, columns (g) and (h). Schedule H-2, Sheet 13 displays the recorded test year bills and volumes by rate schedule, the total of Southwest's adjustments from Schedule H-2, Sheet 14 and the resulting adjusted total bills and volumes for each of Southwest's presently effective rate schedules. Revenues at present rates and rate schedules, based on Schedule H-2, Sheet 13 are developed in Schedule H-2, Sheets 1-3.

PROPOSED RATE SCHEDULE RECLASSIFCATION

Q. 18 Please explain the adjustments reflected on Schedule H-2, Sheet 12.

A. 18 Schedule H-2, Sheet 12 contains adjustments to: 1) reclassify customers served under Southwest's current Residential and Small General Gas Service rate schedules to newly proposed rate schedules; 2) reclassify Small Essential Agricultural customers to the proposed Small, Medium and Transportation Eligible General Service rate schedules; and 3) reclassify Armed Forces customers to the appropriate Medium, Large and Transportation Eligible General Service rate schedules. The adjusted total bills and volumes for Southwest's proposed rate schedules reflected on Schedule H-2, Sheet 12, columns (f) and (i) are used in the development of Southwest's proposed rates. Revenues at present rates and proposed rate schedules, based on Schedule H-2, Sheet 12 are developed in Schedule H-2, Sheets 4-8, and revenues at proposed rates and proposed rate schedules are developed in Schedule H-2, Sheets 9-11.

ALLOCATION OF SOUTHWEST'S PROPOSED MARGIN TO CUSTOMER CLASSES

Q. 19 Please describe how you utilized Southwest's ECCOSS in allocating Southwest's proposed margin to customer classes.

A. 19 As in prior rate cases, Southwest has used the ECCOSS as a guide in apportioning its requested increase in margin revenue among customer classes.

Schedule H-6, Sheets 1 and 2 reflect the development of Southwest's proposed allocation of margin to customer classes. The proposed approach results in

narrowing the gap between the system average return and that of the various classes of customers in order to establish margin revenue requirements by class that are more reflective of the cost of providing service.

Southwest proposes to apportion the proposed margin deficiency of $70,809,128 to customer classes using the same methodology adopted by the Commission in Southwest's last Arizona general rate case Docket No. G-01551A-00-0309. Southwest's proposal allocates the margin deficiency based on the system overall percentage margin increase and the relationship for each class of margin at present rates to the margin required for each class to earn the proposed system rate of return. However, no class return at proposed rates should be less than one-half of the proposed system rate of return.

Southwest's proposed allocation of margin consists of the following steps:

(1) For each customer class (excluding negotiated classes), determine the ratio of margin required to earn the proposed system rate of return to margin at present rates;

(2) Multiply the system average percentage increase in margin by the ratio determined in step (1) to develop an adjusted percentage margin increase for each class. The adjusted percentage increases were capped at twice the system average percent increase in margin to more evenly distribute the increase in

margin among customer classes and, because the Natural Gas Engine market is very responsive to price, the percentage was established so there was no overall change in margin for that class;

(3) Ensure the class rate of return is at least one-half of the proposed system rate of return. This requirement was waived for one customer class in order to avoid an unacceptably large percentage increase in margin; and

(4) Allocate any resulting over- or under-collection in margin back to all classes as a percent of margin resulting from step (2).

Q. 20 Why is it important for Southwest to align its rates more closely with the actual cost to provide service?

A. 20 To the extent rates for a class (or classes) of customers do not fully recover Southwest's cost of providing service, growth in those markets results in revenue deficiency. This phenomenon has been particularly noticeable in the residential customer class, which has experienced considerable growth over an extended period of time.

Additionally, competition in Arizona's energy marketplace requires Southwest to eliminate the historical subsidies provided to core customers by customers who have competitive alternatives to natural gas.

As competition increases and energy customers become more sophisticated, aligning rates more closely

with the actual costs of serving each customer class is necessary to ensure customers make economic energy choices.

Q. 21 What are the advantages of Southwest's proposed method of apportioning the proposed increase in margin among customer classes?

A. 21 The proposed allocation methodology apportions the cost of providing service to the different customer classes in a uniform, non-discriminatory manner while continuing the gradual movement of customer class margin responsibility towards fully-allocated cost of service.

Q. 22 Does Southwest recommend that the Commission use this method regardless of the level of margin increase that is ultimately approved?

A. 22 Yes. Depending on the level of margin ultimately authorized by the Commission, Southwest's proposed allocation of margin among customer classes can still be utilized by adjusting customer class margins at the authorized rate of return as discussed in step number (1) above and through following steps (2) through (4).

PROPOSED RATES AND TARIFF CHANGES

Q. 23 What is the objective of Southwest's proposed changes to its rate design in this case?

A. 23 As stated by Southwest witness Edward B. Gieseking, the objective of Southwest's rate design proposal is to maximize, to the extent possible given other rate design considerations, the movement toward cost-based pricing

for its gas distribution services.

Q. 24 Please summarize the rate design and tariff changes that Southwest is proposing in this proceeding.

A. 24 Southwest's proposed rate design and tariff changes are summarized below:

- Establish a new rate schedule for multi-family residential customers to reflect differences in the cost of providing service to multi-family customers and in multi-family customers' annual use of natural gas vis-à-vis single-family residential customers.
- Adjust the seasonally differentiated declining block rate designs for residential rate schedules by reducing the first block volumes, increasing the block rate differentials and extending the length of the summer season.
- Incorporate the low-income residential discount under Southwest's proposed single- and multi-family rate schedules and cancel Rate Schedule No. G-10, Low-Income Residential Gas Service.
- Cancel Southwest's Rate Schedule Nos. G-15 and G-16 Special Residential Gas Service.
- Add an additional general service rate schedule. Current Small General Service customers whose consumption is less than or equal to 7,200 therms annually, have been divided into the new Small (up to 600 therms per year) and Medium General Service customers (601 to 7,200 therms per year).

- Revise the billing determinant calculation for Southwest's general service schedule applicable to customers whose annual use exceeds 180,000 therms.
- Calculate general service rates to minimize differences in monthly bills to customers at the cross-over volumes between general service rate schedules.
- Close the Small Essential Agricultural rate schedule to new customers.
- Cancel Schedule No. G-35, the Armed Forces Gas Service.
- Revise the monthly basic service charge provision applicable to Southwest's Air-Conditioning Gas Service rate schedule.
- Expand the applicability of the current Cogeneration Gas Service rate schedule to provide service to other small electric generation customers (and renaming the schedule to Electric Generation Service). Limit Southwest's obligation to provide sales service to larger electric generation customers and include the Electric Generation rate schedule in Southwest's Special Supplementary Tariff Purchased Gas Cost Adjustment Provision.
- Implement tariff language necessary for Southwest's proposed Conservation Margin Tracker (CMT).
- Cancel Sheet No. 14, Statement of Rates Effective Transportation Rates Applicable To Arizona Schedules, and incorporate language on Sheet No. 13 describing

Southwest's pricing for transportation service.

- Adjust Southwest's Service Establishment and Returned Item charges to reflect current costs. Additional revenue derived from these changes is reflected in Southwest's other operating revenues at proposed rates.
- Make minor changes to Southwest's Rules to reflect proposed changes in rate schedules and better conform Southwest's Arizona Gas Tariff language to current business practice.

RATE DESIGN FOR SINGLE- AND MULTI-FAMILY RESIDENTIAL

Q. 25 Mr. Gieseking, in his prepared direct testimony, states that Southwest's residential rate design proposal is conditioned upon whether the Commission authorizes the CMT. If the Commission does not approve the implementation of the CMT, Southwest proposes that more of Southwest's costs of service be recovered in the basic service charge and the first block commodity rate. Please explain the development of Southwest's residential rate proposals.

A. 25 In both proposals, Southwest utilized bill frequency analyses for single- and multi-family customers to set the proposed summer and winter season blocks to capture approximately 50 percent of total seasonal volume in the first block of the rate structures. Setting the monthly blocks in this fashion results in lower monthly block volumes as illustrated below.

Description	First Block Volume Summer	Winter
Single-Family		
Proposed Block	8	30
Average Use	16	56
Multi-Family Apartment		
Proposed Block	7	18
Average Use	12	30

Southwest then set the price for the second block of the proposed rate structures to recover 100 percent of the demand- and commodity-related costs, plus a significant portion of the customer-related costs. A greater amount of customer-related cost is assigned to the second block rate in Southwest's primary rate proposal. The ECCOSS amounts utilized in these calculations are reflected in Schedule H-6, Sheets 6 and 7.

If the CMT is approved, Southwest proposes that pricing for the second block of the residential rate schedules be set at $.25000 per therm. If the CMT is not approved, the second block price should be $.15000 per therm to more accurately reflect Southwest's marginal cost of providing service.

Next, Southwest looked at the customer-related costs calculated in the ECCOSS. These customer-related costs are approximately $26 per month for single-family and $21 per month for multi-family residential customers (see Schedule H-6, Sheet 6).

In continuation of the effort to stabilize the

recovery of authorized margin, Southwest proposes an increase to the current residential basic service charges. If the Commission approves the CMT, Southwest proposes to establish the basic service charge for single-family customers at $12 per month and the multi-family basic service charge at $11 per month. This would increase the basic service charges by approximately 22 percent of the difference between the currently effective rate and the customer-related cost calculated in the ECCOSS.

If the Commission does not approve the CMT, Southwest proposes additional margin stabilization through basic service charges of $16 and $14 per month for single- and multi-family customers, respectively. This would increase the basic service charges by approximately 44 percent of the difference between the currently effective rate and the customer-related cost calculated in the ECCOSS.

After setting the second block and basic service charge rates, the first block rate is calculated to recover the remaining residential margin requirement.

GENERAL GAS SERVICE RATE SCHEDULES

Q. 26 Please describe the changes Southwest is proposing to the General Gas Service rate schedules.

A. 26 Southwest's currently effective Arizona General Gas Service rate schedules include discrete prices for Small (annual usage 0 - 7,200 therms), Medium (annual usage

7,201 - 180,000 therms) and Large (annual usage greater than 180,000 therms) General Gas Service customers. As described by Mr. Gieseking, Southwest is proposing to create an additional schedule to separate the current Small General Gas Service customers into separate rate schedules for customers using up to 600 therms per year and customers using between 601 and 7,200 therms annually. This will allow pricing that more closely matches Southwest's cost of service while, at the same time, minimizing the impact on Southwest's smallest General Gas Service customers. Implementation of four, rather than three, General Gas Service rate schedules also allows Southwest to minimize differences in customer bills at the "cross-over" volumes between the proposed General Gas Service rate schedules.

In establishing rates for the proposed General Gas Service rate schedules, Southwest attempted to minimize differences in monthly bills for service at the cross-over volumes between general service rate schedules. The importance of accomplishing this is illustrated by the following example. Given Southwest's presently effective Medium and Large General Gas Service margin rates, a customer's Medium General Gas Service monthly bill at 15,000 therms would be $4,171.65. The same customer's Large General Gas Service monthly bill with the demand charge based on the large general service class load factor would only be $2,702.66.

Differences in monthly bills between proposed general service rate schedules should be minimized to avoid rate shock to customers who increase or decrease their use of natural gas and see a disproportionate change in their monthly bill if they are reclassified to another general service rate schedule. Similarly, Southwest should neither benefit nor be harmed if customers are reclassified to another general service rate schedule. Southwest's proposed adjustments to the basic service charges for all general service rate schedules were made to minimize differences in monthly bills at the cross-over volumes between general service rate schedules.

REVISIONS TO SOUTHWEST'S COGENERATION GAS SERVICE RATE SCHEDULE

Southwest's presently effective Rate Schedule No. G-60 is available only to customers that meet the efficiency standards outlined in Title 18, Code of Federal Regulation, Part 292, Subparts A and B. Southwest proposes to make the schedule available to all electric generation customers and change the title of Schedule No. G-60 to Electric Generation Gas Service.

Southwest, with expected changes on the El Paso Natural Gas pipeline system, is concerned with regard to the impact of providing sales service to future electric generation customers. To address this issue, Southwest proposes to include language in Schedule No. G-60 requiring new electric generation customers whose

facilities exceed 5 megawatts in nameplate capacity to take transportation service or, if qualified, enter into a Special Gas Procurement Agreement under Schedule No. G-30, and to more equitable recover the cost of upstream pipeline capacity Southwest proposes to remove Schedule No. G-60 from the current G-60/G-80 seasonal gas purchase portfolio and include Schedule No. G-60 in Southwest's Special Supplementary Tariff Purchased Gas Adjustment Provision.

GAS COST ADJUSTMENT

Q. 27 Please describe Southwest's annualization of gas costs for ratemaking purposes.

A. 27 As detailed in Schedule C-2, Adjustment No. 2, gas costs have been annualized by applying the average cost of gas in sales rates effective August 31, 2004, to Southwest's adjusted test year sales volumes.

Q. 28 Please explain the gas cost adjustment reflected in Schedule C-2, Sheets 1 and 2.

A. 28 Schedule C-2, Sheet 1 summarizes the components of gas cost, which have been removed from Southwest's cost of service for ratemaking purposes.

The volume adjustment reflects the differences between recorded sales and adjusted test year sales. Column (k) reflects the total ratemaking adjustment given the August 31, 2004 cost of gas, included in sales rates and adjusted test year sales. Schedule C-2, Sheet 2 reflects volume adjustments in columns (c) through (f)

and rate adjustments in columns (g) through (j) using the present gas cost accounting methodology. The rate adjustment reflects the difference between the cost of purchased gas recorded in Account No. 803 and the cost of gas effective August 31, 2004. Southwest's gas cost adjustments do not impact its rate case margin(s).

SUMMARY

Q. 29 Has Southwest quantified the impact of its proposed changes in rates?

A. 29 Yes. The overall impact of the proposed changes to margin developed in Schedule H-6 is summarized in Schedule H-1, Sheets 1 and 2 and Schedule H-2, Sheets 9-11. Schedule H-1, Sheet 1 summarizes the change in revenue, including gas cost, for each rate class that results from Southwest's proposed changes to margin. The impact by class of Southwest's proposed changes to margin is reflected on Schedule H-1, Sheet 2. Changes in revenue by rate component are reflected in Schedule H-2, Sheets 9-11.

Q. 30 Has Southwest prepared schedules summarizing the impact of its proposed rates by rate component and the impact on customer bills?

A. 30 Yes. Schedule H-3, Sheets 1-3 compare the currently effective and proposed rate components for each rate schedule. Schedule H-4, Sheets 1-10 present typical monthly bill comparisons for major rate schedules showing the impact, including all surcharges, of Southwest's proposed changes in rates. Schedule H-7, Sheets 1-3

reflect Southwest's proposed low-income residential customer benefit and the resulting affect on low-income customer bills. Schedule H-8, Sheets 1-8 reflect the calculation of proposed rates without the CMT and the impact of those rates on affected rate schedules.

Q. 31 Does this conclude your prepared direct testimony?

A. 31 Yes, it does.

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EXHIBIT
A-17
Admitted

Southwest Gas Corporation
Docket No. G-01551A-04-0876

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of
Prepared Rebuttal Testimony
of
A. BROOKS CONGDON

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
A. BROOKS CONGDON

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is A. Brooks Congdon. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Did you submit prepared direct testimony in this Docket on behalf of Southwest Gas Corporation (Southwest or Company)?

A. 2 Yes.

Q. 3 What is the purpose of your rebuttal testimony?

A. 3 The purpose of my rebuttal testimony is to respond to the direct testimony presented by the following witnesses: Ms. Marylee Diaz Cortez and Mr. Rodney L. Moore, witnesses for the Residential Utility Consumer Office (RUCO); Messrs. Robert G. Gray and William H. Musgrove, witnesses for the Arizona Corporation Commission Utilities Division Staff (Staff); Mr. Jeff Schlegel, witness for the Southwest Energy Efficiency Project and Natural Resources Defense Council (SWEEP/NRDC); and Mr. Jeffery L. Hoffman, witness for Yuma Cogeneration Associates (YCA), regarding their respective recommendations and comments concerning Southwest's

proposed rate design, revenue allocation to customer classes, tariff revisions, and customer bill format.

Q. 4 Did you prepare exhibits to support your rebuttal?

A. 4 Yes. I prepared the exhibits identified as Rebuttal Exhibit No.___(ABC-1) through Rebuttal Exhibit No.___ (ABC-XX).

Q. 5 Please summarize your rebuttal testimony.

A. 5 My rebuttal testimony will address the following key issues:

1. Southwest's proposed residential rate design.
2. Need for a shift in rate design policy.
3. Gas and electric utilities and their rate designs.
4. Cost of service rate design and the use of declining block rates.
5. Impact of Southwest's, Staff's, and RUCO's rate design proposals on Southwest's customers.
6. Southwest's rate design promotes energy efficiency.
7. Southwest's proposed margin allocation.
8. Southwest's adjusted test period bills and volumes.
9. Southwest's proposed multi-family rate schedule.
10. Southwest's proposed year-round low-income discount.
11. Rate Schedule G-15 - Special Residential Service for Gas Air Conditioning.
12. Rate Schedule G-25 - General Gas Service.
13. Rate Schedule G-35 - Gas Service to Armed Forces and Rate Schedule G-75 - Small Essential Agricultural User Gas Service.

14. Rate Schedule G-60 - Cogeneration Gas Service.

15. Rate Schedule G-80 - Natural Gas Engine Gas Service.

16. Southwest's Energy Share program.

17. Interest rate on customer deposits.

18. Cost of subsequent meter tests for large volume customers.

19. Purchased Gas Adjustment (PGA) bank balance trigger.

20. Southwest's title assignment service.

SOUTHWEST'S PROPOSED RESIDENTIAL RATE DESIGN

A. Need for Shift In Rate Design Policy

Q. 6 Is there a need for shift in rate design policy with respect to Arizona gas utilities?

A. 6 Yes. Arizona's marketplace for natural gas and electric service has changed dramatically, and these changes call for the careful consideration of the potential negative consequences of not changing Southwest's rate design to adapt to the changing marketplace. Accordingly, in order to achieve the most efficient long-term rate design solution to the challenges presented by today's marketplace, Southwest's marginal commodity price signal to customers should be set as close as possible to the incremental marginal cost of delivering gas to its customers.

Q. 7 Why is it critical at this time to fully consider the marginal cost of service in the development of rates?

A. 7 Economists agree that prices reflecting the marginal costs of production provide the most accurate price

signal and will lead to an economically efficient use of energy resources. In a competitive market, the forces of competition will ultimately drive prices toward the marginal cost of production. In a regulated environment, where regulation is a substitute for the competitive marketplace, rates that best promote conservation and energy efficiency would reflect the marginal cost of service. Southwest's marginal cost of service provides the most accurate price signal to its customers and encourages an economic level of gas consumption and energy efficiency.

B. Gas and Electric Utilities and Their Rate Designs

Q. 8 Please explain some of the changes in the electric and gas utility industries that make changes in Southwest's rate design necessary?

A. 8 Due to increases in the cost of incremental generation and transmission capacity, the electric utility industry changed from a declining average unit cost industry in the late 1960s to an increasing average unit cost industry today.

In addition, during this same time period, there have been important changes in the natural gas distribution business, including the following: (1) the development of a robust competitive marketplace for natural gas supply subsequent to the deregulation of well-head gas prices; (2) capacity constraints and sustained high gas prices related to growth in gas-fired

electric generation; (3) and the erosion of revenue resulting from a chronic reduction in residential customers' average annual use per customer.

Q. 9 Since natural gas and electricity are both public utility services, shouldn't the Commission's regulation of the two products be similar as far as the pricing of service to residential customers?

A. 9 No. Because of certain changes in the electric and gas utility industry it is not appropriate to structure the rate designs in the same way.

Q. 10 Why are inverted rates (used by some electric utilities) not appropriate for a gas utility?

A. 10 In an increasing unit cost industry (like the electric utilities) inverted rates may be appropriate because they reflect the long-term cost of providing service. Conversely, in a declining average unit cost industry (like gas utilities), inverted or even flat rates do not reflect long-term costs. Thus, for many electric companies inverted rates are, in fact, cost-based and send the correct price signal to electric customers that increased demand will result in increased costs.

As such, the residential rate design philosophy applied to Arizona's electric utilities is not proper for Southwest for many reasons including: (1) the differences in the consumption trends of natural gas and electric residential customers; (2) the fact that gas service, at least as far as residential customer use is concerned, is

a discretionary service; and (3) the differences in utility cost-structure. Accordingly, these factors require a new approach to the development of Southwest's residential rate design.

Q. 11 Please discuss the differences in the consumption trends of gas and electric customers, and why natural gas is a discretionary energy source.

A. 11 Unlike electricity, which is the only energy choice for many residential applications such as: lighting, refrigeration, home computers, television sets, microwaves, and ceiling fans, natural gas is a discretionary fuel and has basically one residential purpose which is to provide heat for items such as space heat, water heat, clothes drying, and cooking. Although consumers are demanding increasing amounts of electricity for new residential appliances, there is minimal potential for increased gas use. In fact, customers have the option to choose electricity to displace gas at their discretion. Therefore, as weather becomes warmer and as new homes and gas appliances become more efficient, Southwest's average use per customer has decreased and can only be expected to decrease further in the future. Consequently, to limit the further erosion of Southwest's cost recovery and earnings, it is necessary to address the declining average use phenomenon through proper cost of service rate design.

Q. 12 Why do cost-structure differences between gas and

electric systems require differences in gas and electric rate designs?

A. 12 Southwest's cost structure is fundamentally different from that of an electric utility because the cost of incremental capacity on Southwest's distribution system is very small relative to the electric industry. The incremental cost of delivering additional volumes of natural gas is far less than the incremental cost to deliver additional quantities of electricity because gas distribution is subject to economies of scale. In contrast, incremental increases in electric capacity require capital intensive investment in new generation and, depending on the location of the generation facility, transmission facilities. This results in an increasing average unit cost in the electric industry.

Q. 13 Please explain how changes in residential customers' demand for natural gas impacts Southwest's cost structure.

A. 13 The cost to Southwest of providing service to residential customers consists entirely of fixed customer-related and demand-related costs of providing customers access to the system, with the exception of *de minimus* commodity-related costs. Southwest incurs these costs regardless of how much gas customers actually use. Therefore, excluding the cost of gas, there are few, if any, savings Southwest can achieve on its gas distribution system as a result of customers reducing their use of gas. Consequently, a

residential rate design (in an environment of declining average usage) where Southwest's fixed cost of service is recovered through a volumetric rate design places Southwest at risk for the non-recovery of its fixed cost of service because there are no savings for Southwest associated with decreased residential customer usage. A volumetric rate design also increases customers' exposure to high winter bills during colder-than-normal weather.

C. Cost of Service Rate Design and the Use of Declining Block Rates

Q. 14 Did Southwest consider recovering its fixed costs through a full cost of service-based rate design?

A. 14 Yes. Schedule H-6, Sheet 6 reflects the full cost of service-based charges that would be applicable to Southwest's single-family and multi-family rate schedules (as well as Southwest's other rate schedules) under a full cost of service-based rate design. However, due to the need to balance rate designs with the principle of gradualism, Southwest proposed basic service charges [with and without the Conservation Margin Tracker (CMT)] that are well below the full cost of service amounts for single-family and multi-family residential gas service of $26.25 and $20.65, respectively. Also, Southwest's proposed second block margin rates (with and without the CMT) are well above the full commodity-related costs of service rate reflected on line 7 of Schedule H-6, Sheet 6.

Q. 15 Does any party to this proceeding dispute your

calculations presented in Schedule H-6, Sheet 6?

A. 15 No.

Q. 16 Please respond to Staff's contention that Southwest's inclusion of customer-related costs in the second block of the rate design is not consistent with traditional rate design.

A. 16 Traditional utility rate design has always included a portion of customer-related costs not captured in the basic service charge in commodity margin rates. In addition, Staff acknowledges that the commodity margin rates must also recover fixed demand-related distribution costs. However, it was not possible to recover 100 percent of the balance of customer-related costs (the portion not captured in the basic service charge) in the first block of the rate design without creating unacceptably large impacts on low-use customers. As a result, it was necessary for Southwest to recover a portion of customer-related costs in the second block of the proposed residential rate structures. Accordingly, Southwest's proposed rate design is traditional in that it balances the strict cost of service-based ratemaking principles with the competing goal of gradualism.

Q. 17 Do you agree with Staff's assertion that none of the other Arizona local distribution companies have a declining block rate structure for their residential customers?

A. 17 No. Although not regulated by the Commission, the City of

Mesa Gas has a seasonal declining block rate design, Schedule No. G1.1 Residential Gas Service. In fact, during the summer season, there is a $.35 per therm reduction from the first to the second block of the rate schedule, and the second block margin rate is less than $.17 per therm.

Q. 18 Why is it significant to note the City of Mesa's Schedule No. G1.1 Residential Gas Service rate design?

A. 18 It is noteworthy that another Arizona gas distribution company does have declining block residential rates, contrary to Staff's assertion.

Q. 19 Do you agree with Staff's claim that a declining block rate structure is more complicated than a flat rate structure, and that a flat rate structure would be easier for customers to understand and for Southwest to administer?

A. 19 Although on its face a declining block rate structure may appear more complicated, utilities in Arizona have had declining or inverted rates for many years. Southwest has had a declining block rate design for residential gas service in Arizona since September of 1997, and, to Southwest's knowledge, the declining rate design has not been a problem or caused confusion with Southwest's customers. Two of Arizona's largest electric utilities also have blocked residential rate designs. One has a three tier inverted block summer rate structure, and the other has a declining block winter rate structure. If a

flat rate design is imposed on Southwest, the basic service charge necessary to give Southwest a reasonable opportunity to recover its authorized margin may be too high to meet any gradualism test.

Q. 20 Do RUCO and Staff recognize the principle of cost of service-based rate design in their proposals?

A. 20 No. RUCO and Staff effectively ignored cost of service principles in their residential rate designs. Neither Staff's nor RUCO's proposed residential rate designs improve Southwest's marginal price signal. In fact, both proposals amplify the distortion in Southwest's marginal price signal by increasing the marginal commodity prices customers will pay. Departing from marginal cost pricing increases the likelihood that customers will make poor energy decisions which will negatively impact Arizona's energy marketplace (which I discuss later in my testimony).

D. Impact of Southwest's, Staff's, and RUCO's Rate Design Proposals on Southwest's Customers

Q. 21 How has Staff characterized the impact Southwest's residential rate design proposal will have on its customers?

A. 21 Staff asserts that Southwest's changes are front-loaded and will impact low usage residential customers particularly hard, while high usage customers will experience relatively small increases.

Q. 22 Has Staff provided a quantitative analysis that

thoroughly evaluates the impact of Southwest's proposed rate design on residential customers and has Staff determined whether the impact of Southwest's proposal is equitable for all customers?

A. 22 No. Purportedly, Staff has been unable to quantify the difference in customer impact between its and Southwest's proposed rate designs.

Q. 23 What should the Commission consider in evaluating the effects of Southwest's, and the other parties' residential rate design proposals?

A. 23 The Commission should not conclude from Staff's unfounded assertions that Southwest's proposed residential rate design impacts low-usage residential customers more than high-usage customers. Rather, the Commission should evaluate how the total dollar increase and the resulting residential margin is distributed among all customers.

Q. 24 What would be an appropriate method to show the Commission the total dollar increase among all customers?

A. 24 An appropriate method would be to select usage above and below the mode to allow the Commission to see how each rate design proposal affects the upper and lower five percent of customers. In fact, I used the mode usage in my Rebuttal Exhibit No.___(ABC-1), instead of the average usage, because the mode value is where the greatest number of bills actually fall, and, therefore, reflects the usage most customers experience. I also selected the midpoint usage between the upper and lower usage levels

and the mode for each month of the test period, and calculated monthly bills for each of the rate designs.

Q. 25 Have you prepared an exhibit that illustrates how residential margin is distributed among all customers?

A. 25 Yes. In my Rebuttal Exhibit No.___(ABC-1), lines 1-5, the Commission can see the shift in margin recovery between small and large residential customers under Southwest's, Staff's, and RUCO's rate design proposals. Further, lines 11-15 reflect the differences in the average margin per customer as compared to Southwest's proposed average margin per customer. This comparison demonstrates that the high-use residential customers contribute significantly more on a margin per customer basis under Southwest's proposed rate design.

Q. 26 When reviewing a proposed rate design and its impact on customer bills, is it appropriate to focus only on the percentage change of the bill?

A. 26 No. When reviewing Southwest's proposed rate design, focusing on the dollar difference is more important because percentage changes can be misleading. For example, a four dollar increase in Southwest's basic service charge equates to a 50 percent increase if there is zero consumption (in August of the test period, 31,237 of Southwest's residential customers had zero consumption). As such, in this example, the real impact on a customer's bill is four dollars. For instance, in my Rebuttal Exhibit No.___(ABC-1), lines 6-10, the

Commission can see that the monthly dollar shift in margin recovery between small and large residential customers under Southwest's, Staff's, and RUCO's rate design proposals is not that significant.

Q. 27 Why is it also important to know the annual dollar effect when analyzing the impact of Southwest's proposal?

A. 27 Knowledge of the annual dollar effect is also important because Southwest's proposal shifts margin recovery from the winter to the summer season. As such, for many customers, increases in summer bills will be offset by decreases in their winter bills.

Q. 28 Why is it important to know the number of customers within each consumption group that are affected by the proposed rate designs?

A. 28 Knowledge of the number of customers affected within each consumption group is critical because when rate design changes are made, the results vary amongst the consumption groups. In some cases we might see a result that affects some consumption groups more than others. However, if we know that only a small fraction of total customers are affected, we are in a better position to make a decision based on how a particular proposal affects the majority of customers.

Q. 29 Please summarize the results of your Rebuttal Exhibit No.___(ABC-2).

A. 29 Rebuttal Exhibit No.___(ABC-2) illustrates the impact of Southwest's, Staff's, and RUCO's rate design proposals on

Southwest's single-family low-income customers.

In evaluating the information presented in Rebuttal Exhibit No.___(ABC-2), it is important to bear in mind that many of Southwest's low-income customers consume relatively high volumes of gas during the winter. Rebuttal Exhibit No.___(ABC-2) shows that approximately 50 percent of low-income customers' annual bills would be less under Southwest's proposed rate design than Staff's or RUCO's proposed rate designs.

Q. 30 Do you have any additional comments with respect to your Rebuttal Exhibit Nos.___(ABC-1) and ____(ABC-2)?

A. 30 Yes. During the last several years, purchased gas costs have increased markedly due to changes in the national market for gas that are beyond Southwest's control, but nevertheless have a major impact on customers' bills. The increases in gas cost have already had a much larger impact on Southwest's high-use residential customers (not to mention Southwest's much higher-use commercial and industrial customers) than on low-use residential customers. Consideration should be given to the impact of today's high gas prices when reviewing the bill impacts presented in these exhibits.

Q. 31 What has Southwest done to moderate the impact on small residential customers?

A. 31 Southwest moderated the impact on small residential customers by proposing a new rate schedule applicable to residential customers residing in multi-family

structures. In addition to differences in the cost of providing service, Southwest's multi-family customers on average use almost 100 therms, or 28 percent, less gas annually than single-family residential customers. As such, the multi-family rate schedule allowed Southwest to moderate the effect of changes in rate design on multi-family customers by proposing a lower basic service charge and lower first block consumption levels through Southwest's proposed single-family rate design.

In addition, Southwest's proposed changes to its residential basic service charges and second block commodity margin rates are much less than would be required if rates were to reflect full cost of service.

Q. 32 Does shifting rates toward Southwest's cost of service result in greater stability in customers' bills and in the Company's revenue stream?

A. 32 Yes. I have quantified the impact to customer bills and to Southwest's revenue that would result from variations in customer usage (through conservation or weather) under Southwest's, Staff's, and RUCO's proposed rate designs. I calculated the average dollar increase in customers' winter bills if sales were to increase in response to weather being colder than normal. I have also calculated the decrease in Southwest's margin revenue, if residential sales were to decrease by ten therms per customer (as was experienced in 2003). The results of these calculations are summarized in the following tables.

Colder Than Normal Weather (1998 HDDs)

Rate Design	Average Winter Bill Increase
Southwest (no CMT)	$ 7.82
Southwest (CMT)	13.03
RUCO	28.63
Staff	30.59

Ten Therm Decrease in Residential Use per Customer

Rate Design	SWG Margin Decrease
Southwest (current)	$3,513,043
Southwest (no CMT)	$2,311,340
Southwest (CMT)	-0-
RUCO	4,547,838
Staff	4,952,410

The above information demonstrates the greater degree of stability that Southwest's proposed rate designs provide customers and shareholders as compared to Staff's and RUCO's proposals.

E. Southwest's Rate Design Promotes Energy Efficiency

Q. 33 Please explain why using natural gas as a domestic fuel is critical to conserving our natural gas resources.

A. 33 In today's energy marketplace, the most critical aspect of accomplishing the objective of preserving our supplies of natural gas is retaining gas as the fuel of choice for domestic space heating, water heating, clothes drying, and cooking requirements. These four major domestic uses of energy are not discretionary uses. Residential

customers require these services and will utilize electric appliances if natural gas is either unavailable or inappropriately priced. In today's energy market, because incremental electric generation capacity is mainly natural gas fired, increases in the demand for electricity correspondingly increase the demand for natural gas. Therefore, using natural gas to generate electricity and using electric appliances to provide the four domestic services mentioned above requires almost twice as much natural gas providing these services with natural gas appliances.

Moreover, the emergence of gas fired generation as the marginal energy source for incremental electric demand has drastically altered electric and gas industry dynamics. The relative inefficiency of burning natural gas in the generation process and today's sustained high natural gas prices impact the traditional view of conservation as it relates to residential customers.

Q. 34 Please explain how utilizing natural gas appliances for the four major domestic applications you mention can reduce the consumption of natural gas by almost 50 percent as compared to electric appliances.

A. 34 The efficiency gain is not necessarily in the appliances themselves, but rather in the large percentage of energy that is lost in electric generation and transmission of electricity, particularly over long distances. For example, a state-of-the-art gas turbine generator is only

about 42 percent efficient. That is, for every 100 therms of energy burned, only 42 therms of useful electric energy is actually produced. Depending upon the distance, transmission losses can also be significant. There are huge energy efficiency losses in the generation and transmission of electricity as compared to energy efficiency losses of approximately five percent in the transmission of natural gas from the wellhead to the end-use customer. Consequently, in terms of the total volume of natural gas transported and consumed, utilizing natural gas as an end-use domestic energy source where possible is the most efficient energy choice.

Q. 35 Please explain how the residential rate design proposed by Southwest has an energy efficiency and conservation effect on the consumption of natural gas.

A. 35 As I have just described, the total demand for natural gas can actually be reduced if gas is available to meet residential customers' space heating, water heating, clothes drying, and cooking requirements (four-use). In today's market, the best way to ensure that natural gas continues to be desirable from the customers' perspective, is to equitably distribute the recovery of Southwest's fixed customer-related and demand-related costs of providing service across the residential customer class. The Commission's approval of Southwest's proposed rate design will accomplish this objective by shifting margin recovery away from the volumetric-

sensitive commodity component of residential rates into the monthly basic service charge and non-volumetric-sensitive rate components. For Arizona, the long-term result will be reduced overall demand for natural gas and lower average electric and gas prices for the following reasons:

1. The likelihood of gas customers switching to electric service in response to artificially inflated marginal commodity charges in Southwest's residential rate design is reduced.
2. Retaining four-use homes as gas customers reduces the incremental demand for electric generation, thereby reducing the overall demand for natural gas.
3. Reducing the demand for electricity delays the need for expensive new generation and transmission resources, thereby putting downward pressure on electric rates.
4. Retaining four-use gas customers reduces Southwest's average cost of providing distribution service.

Q. 36 Please explain why Southwest's proposed residential rate design more accurately reflects marginal cost than the rate designs proposed by Staff and RUCO.

A. 36 Southwest's cost of service is generally fixed, that is, once customers have been connected to the system, Southwest's cost of providing service does not vary with the amount of gas actually used (other than the cost of the commodity itself). Putting this into perspective, it

costs the same amount for Southwest to read meters, render and process bills, and pay its employees in August when average residential customer usage is 10 therms as it does in December when average usage is 51 therms.

Accordingly, Southwest's proposed residential rate design focuses on Southwest's cost structure, including the following: 1) the adjustments to the length of the summer and winter rate blocks; 2) the changes to the length of the summer and winter seasons; and 3) the changes to the block rate differential.

Southwest's, Staff's, and RUCO's residential rate design proposals are reflected in the table below.

Description	SWG CMT	SWG No CMT	Staff	RUCO
Bills Stopping in 2nd Block	62%	62%	40%	n/a
Marginal Price	$.250	$.150	$.490	$.487
Residential Margin (millions)	$266	$266	$242	$241

As shown above, Southwest's proposed changes to lengths of the summer and winter rate blocks and to the summer and winter seasons result in 62 percent of the residential customers' consumption stopping in the second block of the rate design (where pricing is closer to marginal cost). Southwest's proposed second block margin rates of $0.25 per therm, if the Commission grants the CMT, and $0.15 per therm, if the CMT is denied, are much

closer to the marginal cost of service than the rate designs proposed by Staff and RUCO. As such, Southwest's rates will better promote the efficient use of gas.

SOUTHWEST'S PROPOSED MARGIN ALLOCATION

Q. 37 Please briefly discuss how Southwest's method of allocating the total system margin revenue requirement among customer classes differs from allocation methodologies set forth by Staff and RUCO in their direct testimony.

A. 37 Southwest's allocation methodology is based firmly on the results of its Class Cost of Service Study (CCOSS). RUCO's proposed allocation maintains the relationship of residential and non-residential margin as a percent of total margin as it exists today at Southwest's currently effective rates. Staff provides no explanation in its direct testimony in support of how it determined proposed customer class margin requirements. Thus, the essential differences in the various allocation methodologies is that Southwest's allocation is well founded upon the CCOSS (which Staff has recommended the Commission approve) and Southwest's allocation methodology gradually moves each classes' rate of return closer to the cost of service. As previously discussed, in the long-term setting prices that reflect cost of service sends proper price signals to customers and maximizes overall efficiency.

Q. 38 How are Staff's and RUCO's allocation of total proposed

class margin requirements different from Southwest's proposal?

A. 38 Staff's allocation results in an approximately $9 million shift in margin from residential customers to general service customers. RUCO's allocation results in an approximately $10 million shift of margin from residential to general service customers.

Q. 39 Have you quantified the effect of Southwest's, Staff's and RUCO's proposals on the rate of return (ROR) for the residential and general service classes of customers?

A. 39 Yes. Southwest's proposal results in a ROR for the residential classes of 7.09 percent and 17.77 percent for the general service classes (Schedule No. G-26b, Sheet 2). Staff's and RUCO's margin allocation increases the average ROR for general service customer classes to approximately 20 percent, which is more than twice Southwest's requested system average ROR of 9.4 percent. In addition, Staff's and RUCO's residential margin allocation depresses Southwest's average ROR on residential customer classes to approximately 6.4 percent.

Q. 40 Are there any adverse consequences if the Commission were to adopt Staff's and RUCO's proposed allocation?

A. 40 Yes. There are definitely long-term negative implications associated with setting rates that do not reflect cost of service. The residential customer classes are Southwest's fastest growing market segment and drive the vast majority of Southwest's costs. If changes are made to

further depress the authorized ROR in a customer class whose ROR is already lower than the ROR required to maintain the system, then the likelihood that Southwest's revenues will be deficient overall is increased, which sends the wrong signal to the financial community. Company witnesses Steven M. Fetter, Theodore K. Wood, and Frank J. Hanley discuss this topic further.

Q. 41 What is your conclusion regarding the allocation of Southwest's total authorized margin revenue to customer classes?

A. 41 For each of the foregoing reasons, the Commission should accept Southwest's proposed allocation of margin to customer classes.

SOUTHWEST'S ADJUSTED TEST PERIOD BILLS AND VOLUMES

Q. 42 Please explain how RUCO calculated its proposed bills and volumes for each rate schedule?

A. 42 Southwest requested support for RUCO's adjustments in Southwest Data Request No. RUCO 1-1. Essentially, RUCO attempted to utilize Southwest's recorded bills and volumes to recalculate the recorded revenues for each rate schedule. To the extent the recalculated annual revenue didn't match Southwest's recorded test year revenue, RUCO adjusted Southwest's recorded bills and volumes to reconcile the difference.

Q. 43 Has Southwest provided RUCO a reconciliation of its recorded bills and volumes, and its recorded revenues?

A. 43 Yes. In its response to RUCO Data Request No. 9.01,

Southwest provided residential bill frequency analyses (BFAs) for each month of the test year. BFAs are necessary to correctly price the first and second block volumes of Southwest's existing residential rates. To further assist RUCO, Southwest also multiplied the recorded bills and volumes for each month of the test year by the effective margin and gas cost rates, and compared the results to the recorded test year revenue. Southwest's recalculation of residential revenue was accurate to 0.03 percent of the recorded revenue reported for the test year. This comparison is reflected on Sheet No. 3, line 1 of Rebuttal Exhibit No.___(ABC-4).

Q. 44 What is the problem with RUCO's calculated increases to Southwest's residential bills and volumes?

A. 44 First, RUCO did not properly utilize data reflected in the BFAs. Specifically, the monthly volumes RUCO put into the first block of the residential rates were understated by approximately 88 million therms, which resulted in the same 88 million therms being priced at the lower second block rate. This mistake alone resulted in RUCO understating residential revenues by approximately $7.4 million. As a consequence, RUCO increased residential bills and volumes to capture these dollars.

Second, RUCO improperly uses ratios to distribute Southwest's total proposed adjustments to bills and volumes reflected on Line 24, Columns (d) and (g) of Schedule H-2, Sheet 13. RUCO's use of these ratios does

not properly distribute Southwest's adjustments to bills and volumes among rate schedules.

Southwest has notified RUCO of these two errors and presumably RUCO will be revising its calculations accordingly.

Q. 45 Does Staff accept Southwest's adjusted test period bills and volumes for each rate schedule?

A. 45 Yes. However, Staff does not accept all of Southwest's proposed reclassifications of customers to new rate schedules.

Q. 46 Which set of bills and volumes should be utilized in calculating rates that reflect the Commission's authorized level of margin?

A. 46. The Commission should utilize Southwest's adjusted bills and volumes if the Commission accepts the new rate schedules and customer reclassifications proposed by Southwest. Alternatively, if Southwest's new rate schedules and customer reclassifications are not approved, Staff's bills and volumes would be appropriate.

SOUTHWEST'S PROPOSED MULTI-FAMILY RATE SCHEDULE

Q. 47 Please summarize Staff's and RUCO's position regarding Southwest's proposal to implement a new rate schedule for service to residential customers residing in multi-family structures.

A. 47 RUCO supports Southwest's proposal to implement a distinct multi-family residential rate schedule while Staff does not support the proposal. Staff contends that

there is no compelling reason to split the existing residential customer class into subclasses.

Q. 48 What is the benefit of Southwest's proposed multi-family rate schedule?

A. 48 Multi-family customers use significantly less gas annually on average than Southwest's single-family residential customers. Creating a distinct rate schedule for service to multi-family customers allows the Commission to moderate the affect on Southwest's smallest residential customers as it moves residential service rates gradually towards the cost of service.

Implementation of the multi-family rate schedule facilitates the development of a monthly basic service charge and seasonal commodity rate blocks that are reflective of the cost of service and usage characteristics that are unique to this particular customer class. To the extent Southwest's multi-family customers' cost of service and average use are both less than comparable amounts for single-family customers, these differences can be addressed in rate design. As such, Southwest's multi-family rate schedule better reflects the cost of service through rates for both multi-family and single-family customers.

SOUTHWEST'S PROPOSED YEAR-ROUND LOW-INCOME RATE DISCOUNT

Q. 49 Please summarize Staff's and RUCO's position regarding Southwest's proposal on low-income service.

A. 49 RUCO does not oppose Southwest's proposal. However, Staff

contests extending the discount for low-income service on a year-round basis and instead prefers to retain Southwest's currently effective 20 percent discount on the first 150 therms of winter use.

Q. 50 Please explain the rationale behind Southwest's proposed year-round low-income discount.

A. 50 Southwest's residential rate design proposal shifts a portion of margin recovery from the winter season into the summer season. Thus, there is less of a need to shield low-income customers from the affect of high winter bills. As a result, this justifies the reduction in the discount percentage that will be applied to all volumes throughout the calendar year.

Q. 51 Has Southwest discussed its low-income rate proposals with local community action groups or community agencies?

A. 51 Yes. Southwest met with representatives from the Phoenix and Tucson Urban Leagues, Pima County Community Action Agency, Salvation Army, Green Valley Assistance Services, and the Western Arizona Council of Governments to discuss Southwest's proposed changes to its residential and low-income residential rate schedules.

Q. 52 Did you receive any specific feedback regarding the structure of the low-income rate discount?

A. 52 No.

Q. 53 Have any of the groups included in Southwest's outreach effort filed testimony in this case?

A. 53 Yes. However, none of them have taken issue with the

changes to the low-income discount.

Q. 54 If the Commission does not accept Southwest's proposed rate design that moves a portion of margin from winter months to summer months, should the current low-income discount of 20 percent be modified?

A. 54 No.

RATE SCHEDULE G-15 - SPECIAL RESIDENTIAL SERVICE FOR GAS AIR CONDITIONING

Q. 55 Do Staff and RUCO oppose Southwest's proposal to eliminate Rate Schedule G-15 - Special Residential Service for Gas Air Conditioning?

A. 55 While RUCO does not oppose Southwest's proposal, Staff does oppose the elimination of the G-15 rate schedule.

Q. 56 Please respond to Staff's proposal for Rate Schedule G-15?

A. 56 The differential between the currently effective G-15 air conditioning rate and the proposed second block margin rates is very small. As such, Southwest proposed to eliminate Rate Schedule G-15 and to reclassify customers served on that schedule to Rate Schedule G-5. However, if the Commission rejects Southwest's proposed residential rate design and adopts either of the rate designs proposed by Staff or RUCO, Southwest recommends that Rate Schedule G-15 be retained and the summer air conditioning margin rate be set at $.25 per therm.

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. . . . .

SOUTHWEST'S RATE SCHEDULE G-25 - GENERAL GAS SERVICE

Q. 57 Please summarize the differences between Southwest's proposed rate designs and the rate designs proposed by Staff and RUCO with respect to Rate Schedule G-25.

A. 57 There are differences regarding the appropriate level of monthly basic service charges, and with regard to Staff's opposition to Southwest's method for calculating the billing demand units for its largest general service customers and Staff's opposition to Southwest proposal to create a new small general service rate class.

Q. 58 Why should the Commission approve Southwest's proposed rate designs for general service rate schedules?

A. 58 The Commission should approve Southwest's general service rate design proposal, including the proposed Small General Service rate schedule, because: 1) Southwest's proposed basic service charges move rates closer to cost of service than Staff's proposal; 2) Southwest's basic service charge proposals reflect more gradual changes in rates than RUCO and do not result in excessive customer impacts; and 3) Southwest's proposed billing demand calculation stabilizes revenues and more fairly reflects the value to customers of Southwest's service on an annual basis.

A. General Gas Service Basic Service Charges.

Q. 59 Please briefly summarize the basic service charge proposals of each party.

A. 59 Southwest's and RUCO's proposals both include the new

Small General Gas Service rate schedule whereas Staff's proposal does not include this schedule. This complicates the comparison of Staff's proposal to Southwest's and RUCO's respective proposals. Southwest's, Staff's, and RUCO's proposed basic service charges for the general service rate schedules are contrasted in the table below.

Proposed Schedule	Current Charge	Staff	SWG	RUCO
Small GS	$20.00	$24.00	$25.00	$34.57
Medium GS	20.00	24.00	35.00	48.39
Large GS	90.00	105.00	150.00	207.40
Transport Eligible	500.00	540.00	750.00	1,037.41

*** Please note that Staff's proposed small general service basic service charge is reflected in both the Small GS and Medium GS proposed schedules. While the Large GS and Transport Eligible schedules reflect the proposed basic service charges for Staff's medium and large general service schedules.

As noted in the table, by failing to move toward a cost of service rate design, Staff's charges are inadequately low. Whereas, RUCO's basic service charges reflect unacceptably large increases.

Q. 60 Can you illustrate the effect of Staff's basic service charge proposal?

A. 60 Yes, Staff's proposal results in customers on each general service rate schedule paying basic service charges that are much less than Southwest's fixed customer-related costs. To illustrate this point, I have summarized the fixed monthly customer-related charges reflected in Schedule H-6, Sheet 6 that would apply to

each of Southwest's proposed general service rate schedules.

Proposed Schedule	Charge
Small GS	$74.86
Medium GS	79.02
Large GS	145.81
Transport Eligible	754.99

Staff's proposed Small General Gas Service rates include a monthly basic charge of $24.00 per month and a commodity margin rate of $.44700 per therm (See Schedule RGG3-17). As such, Staff's proposal results in customers whose average monthly usage is less than 123 therms not even paying their full share of Southwest's customer-related costs ($79.02 minus $24.00 divided by $.44700 per therm).

Consequently, Staff's proposed rate design results in approximately 70 percent (280,000 out of 393,517) of the total bills on Staff's proposed Small General Gas Service rate schedule paying less than Southwest's fixed customer-related cost of service.

Q. 61 Does Southwest's proposed general service rate design completely cure the problem you have illustrated above?

A. 61 No, the need for gradualism in rate changes prevents the movement from "where we are today" to cost-based rates in one step. However, Southwest's proposal does go considerably further than Staff's in moving toward cost-based rates.

Q. 62 Have you analyzed the affect of Staff's proposed general gas service rates at the crossover volumes between general service rate schedules?

A. 62 Yes. The dollar differences under both Staff's and Southwest's proposed rate designs for customers switching between the smaller volume general service rate schedules are not significant. However, with respect to customers switching between the Medium General Gas Service and the Large General Gas Service rate schedules, Staff's rate design results in approximately $21,000 change in annual costs. Whereas, there is only a $9,000 change in annual costs under Southwest's proposal.

B. Billing Demand Volumes for Southwest's Largest General Service Customers.

Q. 63 Please respond to Staff's proposal to retain the current method for determining billing demand volumes for general service customers using more than 180,000 therms on an annual basis.

A. 63 Southwest's disagrees with Staff's proposal because its current billing demand volume calculations place Southwest at somewhat greater risk for recovery of its authorized margin. Southwest's proposal to utilize customers' non-coincident peak month to establish their billing demand volume takes some of the risk of revenue recovery out of rates while, at the same time, reflecting the value to customers of Southwest's service on an annual basis.

C. Southwest's Proposed Small General Gas Service Rate Schedule

Q. 64 Please summarize Staff's and RUCO's position regarding Southwest's proposal to implement a new rate schedule for service to general service customers using less than 600 therms annually.

A. 64 RUCO does not oppose Southwest's proposal. However, Staff does not support Southwest's proposal because it claims this new smaller commercial class would experience a larger rate increase than if they remained part of the current small commercial class.

Q. 65 Is Staff's assertion correct that implementing a new rate schedule for Southwest's smallest general service class causes these customers to experience a larger rate increase?

A. 65 No. Implementing a distinct rate schedule for Southwest's smallest general service class actually allows the Commission to moderate the affect on the small general service class (0 - 600 therms annually) if necessary, while at the same time permitting rates for Southwest's proposed medium general service class (601 - 7,200 therms annually) to be adjusted further toward cost of service than would otherwise be possible.

Q. 66 If the Commission determines that further moderation of the increase to the smallest general service class is necessary, how could this be accomplished?

A. 66 Additional moderation can easily be accomplished by simply further reducing the class margin increase.

RATE SCHEDULES G-35 - GAS SERVICE TO ARMED FORCES AND G-75 - SMALL ESSENTIAL AGRICULTURAL USER GAS SERVICE

Q. 67 Please respond to Staff's suggestion that customers served under rate Schedule Nos. G-35 and/or G-75 should be allowed to switch to general service rate schedules between rate cases if they desire.

A. 67 Staff's proposal to allow customers to switch rate schedules if their annual cost of service is reduced, but to not reflect such customer movement in rate design is tantamount to designing an under-recovery of margin into rates. Rather than allowing Southwest to reclassify customers to less costly rate schedules and design rates accordingly, Staff suggests designing rates first and then waiting to see if any customers switch schedules. Staff's proposal results in increased risk to Southwest, while providing no greater benefit to customers than they would receive under Southwest's proposal. Therefore, the Commission should accept Southwest's proposal.

RATE SCHEDULE G-60 - COGENERATION GAS SERVICE

Q. 68 Please respond to Staff's recommendation regarding Rate Schedule G-60.

A. 68 Staff mischaracterizes Southwest's proposal as banning customers above 5 MW from taking service under the G-60 schedule. Southwest's proposal does not ban any customer from taking service under Rate Schedule G-60. Southwest's proposal simply requires that customers whose facilities exceed the 5 MW threshold take transportation service at

the Schedule G-60 rates, thus eliminating the risk to Southwest's sales customers associated with the procurement of the upstream gas supply and interstate pipeline requirements for these large customers. Similarly, the portion of Southwest's proposal requiring customers greater than 5 MW who desire to have Southwest procure their gas supply to enter into special procurement agreement (SPA) service was simply intended to provide Southwest with greater ability to manage upstream supply costs and risks. However, Southwest is willing to include the SPA language from its Rate Schedule G-30 as a special condition in Rate Schedule G-60 in response to Staff's recommendation that Southwest include provisions in the G-60 schedule to protect core sales customers.

RATE SCHEDULE G-80 - NATURAL GAS ENGINE GAS SERVICE

Q. 69 Please briefly describe the customers comprising Rate Schedule G-80.

A. 69 Rate Schedule G-80 is comprised of customers who use natural gas to pump water for irrigation. This is a very price-sensitive market as many customers have electricity as a competitive energy source. As such, the impact of rate increases is significant to this particular customer because from season to season they may, or may not, decide to irrigate and produce crops based upon the cost to operate their irrigation equipment and their opportunity to be profitable.

Q. 70 Has Southwest seen any losses in market share to date as a result of increases in gas prices?

A. 70 Not to my knowledge, but the current cost of gas has not yet been reflected in the G-80 rates. As explained by Staff witness Robert G. Gray, gas prices for Rate Schedule G-80 are reset twice a year on April 1st and October 1st.

Q. 71 Does Southwest know what the October 1st rates for this schedule will be?

A. 71 Yes. The gas cost portion of rates will increase by almost 20 cents per therm, resulting in a 27 percent increase in the commodity rate for G-80 customers.

Q. 72 What is the most appropriate level of margin the Commission should assign to this rate class?

A. 72 Southwest assigned no increase in margin to this class of customers because it is concerned that it may lose some of its G-80 market simply due to increases in gas costs. In other words, Southwest does not want to compound the revenue affect of losing a portion of this market by assigning additional increases in margin to this schedule. Staff has proposed that Rate Schedule G-80 margin be increased by approximately $354,500 and RUCO has proposed a decrease in rate schedule margin of approximately $81,000. On that basis, RUCO's proposal to reduce G-80 margin provides the strongest price signal to retain G-80 load and thus the most protection to Southwest. Conversely Staff's proposal to increase G-80

margin rates provides the strongest price signal to G-80 customers to switch to electricity or even stop farming due to increased costs.

Therefore, if the Commission does not accept the reduction in G-80 margin proposed by RUCO, it should accept Southwest's proposal to retain the present level of margin for this rate schedule.

SOUTHWEST'S ENERGY SHARE PROGRAM

Q. 73 Please respond to Staff's proposal that Southwest change its bill format to include a box that customers can check if they wish to participate in the Energy Share Program.

A. 73 Southwest strongly supports retention of its current method of notifying customers of the energy share program and their opportunity to contribute via a bill insert, unless Staff presents clear and convincing evidence that a change in the program notification process would result in a greater benefit than its cost.

INTEREST RATE ON CUSTOMER DEPOSITS

Q. 74 What are Staff's recommendations related to interest rates applicable to customer deposits and balancing accounts?

A. 74 Staff opposes the Company's proposal to reduce the interest rate applicable to customer deposits from six percent to three percent. Staff, on the other hand, is proposing in this proceeding that the interest rate applicable to Southwest's Purchased Gas Cost Adjustment (PGA), Low-Income Rate Assistance (LIRA) and Demand Side

Management (DSM) bank balancing accounts be the monthly one-year nominal Treasury constant maturity rate, which has been slightly above three percent in recent months.

Q. 75 Does Southwest agree with Staff's recommendations?

A. 75 No. The interest rate applicable to customer deposits and bank balancing accounts should be the same, or at least approximately the same. Southwest disagrees with Staff's recommendations only to the extent that Staff's recommendations result in vastly different interest rates for customer deposits and bank balancing accounts.

COST OF SUBSEQUENT METER TESTS FOR LARGE VOLUME CUSTOMERS

Q. 76 Please respond to Staff's opposition to Southwest's proposal to charge customers whose annual volume exceeds 180,000 therms the actual cost of "subsequent" customer requested meter tests.

A. 76 The charge for the first customer requested meter test is fixed at $25.00. It is reasonable to expect that the cost of testing larger more complex meters could exceed $25.00 dollars by a wide margin. Accordingly, permitting Southwest to charge larger customers the actual cost of any subsequent meter tests will reduce an existing inter-customer subsidy where smaller customers are essentially subsidizing the cost of meter tests for larger customers.

PGA BANK BALANCE TRIGGER

Q. 77 Is Southwest opposed to Staff's recommendation to increase Southwest's PGA bank balance trigger?

A. 77 No. However, it potentially increases the amount of money carried in the balancing account, and the financial community may view this proposal as yet another example of increased risk of doing business with Southwest (this view was provided by Mr. Dimitri Nikas in his presentation at the Law Seminars International conference held in Las Vegas, Nevada on February 17 and 18 of 2004).

Q. 78 What is your recommendation regarding Staff's proposal to increase Southwest's PGA bank balance trigger?

A. 78 If the Commission chooses to increase the PGA bank balance trigger as proposed by Staff, a balanced and equitable approach includes a corresponding three-cent per therm increase to the cap on changes in Southwest's monthly gas cost adjustment. An increase to the cap will save Arizona customers in the long-run by minimizing under-collections, and reduce the carrying costs on the PGA balance.

SOUTHWEST'S TITLE ASSIGNMENT SERVICE

Q. 79 Does Southwest agree with Yuma Cogeneration Associates' (YCA) allegations pertaining to Southwest's proposal regarding the elimination of Title Assignment provision in its Special Supplementary Tariff.

A. 79 No. Southwest proposed that the Title Assignment (TA) provision in its currently effective Special Supplementary Tariff Interstate Pipeline Capacity Services Provision be cancelled, primarily because no customer has taken service under the TA since March of

1998. Furthermore, Southwest disagrees with YCA's characterization of the Master Service Agreement, the TA, and the party's conversations regarding those agreements. Nonetheless, in light of YCA's concerns, Southwest would be willing to withdraw its request to cancel the TA.

Q. 80 Does this conclude your prepared rebuttal testimony?

A. 80 Yes, it does.

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
DIFFERENCE IN ANNUAL MARGIN PER BILL
SINGLE-FAMILY RESIDENTIAL GAS SERVICE

Line No.	Description (a)	Southwest (b)	RUCO (c)	Staff (d)	Percentage of Bills in Interval (e)	Line No.
	Average Annual Margin at Proposed Rate Design [1]					
1	First 5 Percent of Total Bills	$ 185	$ 161	$ 145	5.2%	1
2	Mid-Point First Percent and Mode	266	217	207	14.1%	2
3	Mode Use (Greatest Number of Bills)	315	273	270	22.1%	3
4	Mid-Point Mode and 95 Percent	382	417	425	42.5%	4
5	95 Percent of Total Bills	447	560	579	11.1%	5
	Dollar Difference Per Month Between Southwest and RUCO and Staff Rate Designs					
6	First 5 Percent of Total Bills		$ 2.00	$ 3.40		6
7	Mid-Point First Percent and Mode		4.13	4.90		7
8	Mode Use (Greatest Number of Bills)		3.44	3.74		8
9	Mid-Point Mode and 95 Percent		(2.95)	(3.61)		9
10	95 Percent of Total Bills		(9.43)	(11.03)		10
	Plus/Minus Average Margin per Customer [2]					
11	First 5 Percent of Total Bills	$ (143)	$ (167)	$ (183)		11
12	Mid-Point First Percent and Mode	(62)	(111)	(121)		12
13	Mode Use (Greatest Number of Bills)	(13)	(55)	(58)		13
14	Mid-Point Mode and 95 Percent	54	89	97		14
15	95 Percent of Total Bills	119	232	251		15

[1] RUCO and Staff rate designs calculated at Southwest's proposed residential margin revenue.
[2] Average annual Single-Family residential margin at Southwest proposed rates of $328.

Rebuttal Testimony
Exhibit No. __(ABC-1)

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
DIFFERENCE IN ANNUAL MARGIN PER BILL
LOW INCOME SINGLE-FAMILY RESIDENTIAL GAS SERVICE

Line No.	Description (a)	Southwest (b)	RUCO (c)	Staff (d)	Percentage of Bills in Interval (e)	Line No.
	Average Annual Margin					
1	First 5 Percent of Total Bills	$ 130	$ 114	$ 118	4.90%	1
2	Mid-Point First Percent and Mode	209	199	218	16.61%	2
3	Mode Use (Greatest Number of Bills)	224	202	217	23.13%	3
4	Mid-Point Mode and 95 Percent	279	309	334	39.15%	4
5	95 Percent of Total Bills	335	432	469	10.95%	5

Rebuttal Testimony
Exhibit No. __(ABC-2)

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
PERCENTAGE OF TOTAL MARGIN BY USAGE INTERVAL
SINGLE-FAMILY RESIDENTIAL GAS SERVICE

Line No.	Description (a)	Southwest (b)	RUCO (c)	Staff (d)	Percent of Customers in Interval (e)	Line No.
1	First 5 Percent of Total Bills	2.6%	2.3%	2.1%	5.2%	1
2	Mid-Point First Percent and Mode	10.3%	8.6%	8.1%	14.1%	2
3	Mode Use (Greatest Number of Bills)	20.5%	17.3%	17.0%	22.1%	3
4	Mid-Point Mode and 95 Percent	43.4%	42.2%	42.4%	42.5%	4
5	95 Percent of Total Bills	14.4%	16.9%	17.3%	11.1%	5
6	95 to 100 Percent of Bills	8.7%	12.7%	13.1%	5.0%	6
7	Total	100.0%	100.0%	100.0%	100.0%	7

Rebuttal Testimony
Exhibit No. __(ABC-3)

117-001

SOUTHWEST GAS CORPORATION
2004 ARIZONA GENERAL RATE CASE
*** * ***
RESIDENTIAL UTILITY CONSUMER OFFICE
DATA REQUEST NO. RUCO-9
(RUCO-9-1)

DOCKET NO.: G-01551A-04-0876
COMMISSION: ARIZONA CORPORATION COMMISSION
DATE OF REQUEST: APRIL 21, 2005

Request No. RUCO-9-1:

Bill Counts - With reference to the Company's Schedule H-2, Sheet 16 of 16, please provide a breakdown of the calculation of each revenue total in column (e). An adequate breakdown would be a bill frequency analysis for each rate schedule for each month of the test year; similar to Workpapers, Schedule H-5, Sheets 1 through 27, except as being representative of recorded values not "test year as adjusted" and repeated for all rate schedules.

Respondent: Gas Resources Planning/Pricing & Tariffs

Response:

Please see the attached response reflecting Southwest's calculation of each customers class' recorded revenue total in Schedule H-2, Sheet 16, Column (e). Included in the attachment are residential bill frequency analyses (BFAs) and monthly bills and volumes for former Black Mountain Gas customers for the recorded period.

In preparing this response, Southwest discovered that Schedule H-2, Sheet 16 of 16, inadvertently included $520,661 in recorded revenues for rate Schedule G-45 - Street Lighting Gas Service, that should have been included in Rate Schedule G-35 - Armed Forces Gas Service. The correction is reflected in the attached response.

Sheet 2

(Revised Page)

G-01551A-04-0876
Attachment to RUCO 9-1
84 Pages

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
SALES AND REVENUE BY RATE SCHEDULE AS RECORDED
FOR THE TWELVE MONTHS ENDED AUGUST 31, 2004

Line No.	Description	Schedule No.	Recorded Test Year Data: Number Of Bills [1]	Sales (Therms) [1]	Revenues	Line No.
	(a)	(b)	(c)	(d)	(e)	
1	Residential Gas Service	G-5	9,253,061	267,837,474	$ 330,193,899	1
2	Low Income Residential Gas Service	G-10	371,675	10,695,648	11,186,780	2
3	Special Residential Gas Service for A/C	G-15	1,883	228,821	201,618	3
4	Special Residential Gas Service for Electric Generation	G-16	0	0	0	4
5	Master Metered Mobile Home Park Gas Service	G-20	2,293	2,519,499	2,126,052	5
	General Gas Service	G-25				
6	Small		391,164	47,557,432	49,120,076	6
7	Medium		81,423	136,866,745	110,818,391	7
8	Large		1,254	44,280,034	29,805,775	8
9	Optional Gas Service	G-30	395	103,995,837	64,228,107	9
10	Gas Service to Armed Forces	G-35	99	3,308,091	2,258,902	10
11	Air Conditioning Gas Service	G-40	465	1,067,788	628,151	11
12	Street Lighting Gas Service	G-45	338	100,215	80,302	12
	Gas Service for Compression on Customer's Premises	G-55				
13	Small		309	196,184	139,636	13
14	Large		323	1,873,025	1,208,203	14
15	Residential		1,348	80,334	60,298	15
16	Cogeneration Gas Service	G-60	269	14,998,373	8,293,990	16
17	Small Essential Agriculture User Gas Service	G-75	1,169	7,932,305	5,507,594	17
18	Natural Gas Engine Gas Service	G-80	7,372	20,198,094	12,442,282	18
19	Resale Gas Service	G-95	3	(14,502)	(7,296)	19
20	Total Gas Sales		10,114,843	663,721,397	$ 628,292,760	20
21	Transportation Service Including Special Contract	T-1/B-1	2,770	65,680,156	9,099,186	21
22	Other Operating Revenue				9,885,120	22
23	Total Arizona		10,117,613	729,401,553	$ 647,277,066	23

[1] See Workpapers H-2, Sheets 41 - 43.

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
SALES AND REVENUE BY RATE SCHEDULE (RECORDED AND CALCULATED)
FOR THE TWELVE MONTHS ENDED AUGUST 31, 2004

Line No.	Description	Schedule No.	Recorded Test Year Data: Number Of Bills [1]	Recorded Test Year Data: Sales (Therms) [1]	Recorded Test Year Data: Revenues	Calculated Revenues from Bills and Therms: Number Of Bills	Calculated Revenues from Bills and Therms: Sales (Therms)	Calculated Revenues from Bills and Therms: Revenues	Difference	Percent of Filed	Line No.
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
1	Residential Gas Service [2], [3]	G-5	9,253,061	267,837,474	$ 330,193,899	$ 9,253,061	267,837,474	$ 330,082,778	(111,121)	-0.03%	1
2	Low Income Residential Gas Service [2], [4]	G-10	371,675	10,695,648	11,186,780	371,675	10,695,648	11,158,125	(28,656)	-0.26%	2
3	Special Residential Gas Service for A/C	G-15	1,883	228,821	201,618	1,883	228,821	201,752	135	0.07%	3
4	Special Residential Gas Service for Electric Generation	G-16	0	0	0	0	0	0	0	0.00%	4
5	Master Metered Mobile Home Park Gas Service	G-20	2,293	2,519,499	2,126,052	2,293	2,519,499	2,148,479	22,427	1.05%	5
	General Gas Service	G-25									
6	Small		391,164	47,557,432	49,120,076	391,164	47,557,432	49,115,667	(4,408)	-0.01%	6
7	Medium		81,423	136,866,745	110,818,391	81,423	136,866,745	110,818,764	374	0.00%	7
8	Large		1,254	44,280,034	29,805,775	1,254	44,280,034	29,829,346	23,571	0.08%	8
9	Optional Gas Service [6]	G-30	395	103,995,837	64,228,107	395	103,995,837	64,228,107	0	0.00%	9
10	Gas Service to Armed Forces [5]	G-35	99	3,308,091	2,258,902	99	3,308,091	2,250,966	(7,936)	-0.35%	10
11	Air Conditioning Gas Service [2]	G-40	465	1,067,788	628,151	465	1,067,788	626,645	(1,507)	-0.24%	11
12	Street Lighting Gas Service (Unmetered) [5]	G-45	338	100,215	80,302	338	100,215	96,317	16,016	19.94%	12
	Gas Service for Compression on Customer's Premises	G-55									
13	Small		309	196,184	139,636	309	196,184	127,391	(12,245)	-8.77%	13
14	Large		323	1,873,025	1,208,203	323	1,873,025	1,208,771	568	0.05%	14
15	Residential		1,348	80,334	60,298	1,348	80,334	60,213	(85)	-0.14%	15
16	Cogeneration Gas Service [2]	G-60	269	14,998,373	8,293,990	269	14,998,373	8,299,091	5,100	0.06%	16
17	Small Essential Agriculture User Gas Service	G-75	1,169	7,932,305	5,507,594	1,169	7,932,305	5,472,983	(34,610)	-0.63%	17
18	Natural Gas Engine Gas Service	G-80	7,372	20,198,094	12,442,282	7,372	20,198,094	12,466,637	24,355	0.20%	18
19	Resale Gas Service [6]	G-95	3	(14,502)	(7,296)	3	(14,502)	(7,296)	0	0.00%	19
20	Total Gas Sales		10,114,843	663,721,397	$ 628,292,760	10,114,843	663,721,397	628,184,738	(108,022)	-0.02%	20
21	Transportation Service Including Special Contract [6]	T-1/B-1	2,770	65,680,156	9,099,186	2,770	65,680,156	9,099,186	0	0.00%	21
22	Other Operating Revenue [6]				9,885,120			9,885,120	0	0.00%	22
23	Total Arizona		10,117,613	729,401,553	$ 647,277,066	10,117,613	729,401,553	647,169,044	(108,022)	-0.02%	23

[1] See Workpapers H-2, Sheets 41 - 43.
(2) Includes Black Mountain Gas Schedules priced under appropriate rates.
[3] Residential volumes and revenues under Schedule R-1 for July and August are calculated at at the tier 1 rates.
[4] Low Income volumes under Black Mountain R-1 are calculated at at the tier 1 rates.
[5] Armed Forces Recorded adjusted for correction in intial reporting. $520,661 reported as gas light revenue on Schedule H-2, Sheet 16 of 16.
[6] Optional Sales, Transportation Service, Resale, and Other Operating Revenue are not priced.

Sheet 3

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
Residential Gas Service													
Sales	7,666,811	8,712,926	13,724,667	37,414,653	51,978,027	50,963,678	37,218,333	16,007,022	12,369,431	10,357,680	8,717,262	7,736,843	262,869,333
Customers	740,431	745,537	753,734	762,157	768,878	770,431	775,195	771,435	769,605	770,511	772,017	773,772	9,173,703
Tier 1	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	
Tier 2	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.02325)	(0.02325)	0.01194	0.01194	0.01194	0.01194	0.01194	0.01181	0.01073	0.01073	0.01073	0.01073	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Basic Service Charge	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	
Consolidated Factor													
Tier 1	0.9094	0.8712	0.8973	0.6434	0.5190	0.5297	0.6600	0.8769	0.7847	0.8332	0.8819	0.9097	
Tier 2	0.0906	0.1288	0.1027	0.3566	0.4810	0.4703	0.3400	0.1231	0.2153	0.1668	0.1181	0.0903	
Volumes													
Tier 1	6,972,198	7,590,701	12,315,144	24,072,588	26,976,596	26,995,460	24,564,100	14,036,558	9,706,293	8,630,019	7,687,753	7,040,025	176,587,434
Tier 2	694,613	1,122,225	1,409,523	13,342,065	25,001,431	23,968,218	12,654,233	1,970,464	2,663,138	1,727,661	1,029,509	698,818	86,281,899
Total Recorded	12,901,651	13,889,030	19,093,898	41,071,778	54,294,062	54,300,688	42,112,368	22,079,057	18,611,695	16,576,651	15,043,408	14,102,900	324,077,206
Black Mountain R-1													
Sales	0	0	0	565,714	1,033,331	978,071	1,012,909	495,897	356,698	239,024	168,501	117,996	4,968,141
Customers	0	0	0	8,451	8,615	8,713	8,837	8,876	8,964	9,053	9,112	8,737	79,358
Basic Service Charge				6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	
Margin				0.62357	0.62357	0.62357	0.62357	0.62357	0.62357	0.62357	0.48762	0.48762	
Gas Cost				0.46524	0.46715	0.48457	0.49393	0.50472	0.52668	0.52099	0.52880	0.53172	
Tariff Rate				1.08881	1.09072	1.10814	1.11750	1.12829	1.15025	1.14456	1.01642	1.01934	
Total Recorded				666,661	1,178,765	1,136,118	1,184,948	612,772	464,076	327,895	244,164	190,174	6,005,572
Low Income Residential GAS.													
Sales	327,693	357,131	589,341	1,608,259	2,135,353	2,051,205	1,502,326	624,464	469,652	383,392	333,359	310,130	10,692,305
Customers	31,432	31,441	31,430	31,288	31,473	31,299	31,357	31,002	30,701	30,192	29,571	30,409	371,595
Tier 1	0.48762	0.48762	0.29691	0.29621	0.29567	0.29218	0.29031	0.28818	0.48762	0.48762	0.48762	0.48762	
Tier 2	0.40344	0.40344	0.22956	0.22887	0.22832	0.22484	0.22297	0.22084	0.40344	0.40344	0.40344	0.40344	
Tier 3			0.40344	0.40344	0.40344	0.40344	0.40344	0.40344					
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03020)	(0.03020)	0.00499	0.00499	0.00499	0.00499	0.00499	0.00486	0.00486	0.00486	0.00486	0.00486	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Basic Service Charge	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	$ 7.00	
Consolidated Factor													
Tier 1	0.9317	0.9289	0.9490	0.6484	0.5310	0.5470	0.6825	0.9573	0.8569	0.9050	0.9295	0.9442	
Tier 2	0.0683	0.0711	0.0499	0.3452	0.4515	0.4398	0.3112	0.0421	0.1431	0.0950	0.0705	0.0558	
Tier 3	-		0.0011	0.0064	0.0175	0.0132	0.0063	0.0006					
Volumes													
Tier 1	305,312	331,739	559,285	1,042,795	1,133,872	1,122,009	1,025,337	597,799	402,445	346,970	309,857	292,825	7,470,245
Tier 2	22,381	25,392	29,408	555,171	964,112	902,120	467,524	26,290	67,207	36,422	23,502	17,305	3,136,835
Tier 3	0	0	648	10,293	37,369	27,076	9,465	375	0	0	0	0	85,225
Total Recorded	516,622	544,164	667,114	1,415,369	1,798,951	1,764,866	1,374,767	713,459	687,900	596,834	545,471	529,041	11,154,558

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
Low Income Residential G.S. - Black Mtn Gas													
Sales				102	732	808	990	249	176	114	91	81	3,343
Customers				1	1	10	12	11	10	11	12	12	80
Margin				0.40597	0.40543	0.40194	0.40007	0.39791	0.62357	0.62357	0.48762	0.48762	
Gas Cost				0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment				-	-	-	-	-	-	-	0.00486	0.00486	
Monthly Gas Cost Adjustment				0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Total Tariff Rate				0.87121	0.87258	0.88651	0.89400	0.90263	1.15025	1.14456	1.02128	1.02420	
Basic Service Charge				6.00000	6.00000	6.00000	6.00000	6.00000	6.00000	6.00000	7.00000	7.00000	
Total Recorded				$ 94.86	$ 644.73	$ 776.30	$ 957.06	$ 290.75	$ 262.44	$ 196.48	$ 176.94	$ 166.96	3,567
Special Residential G.S. for A/C													
Sales	24,311	17,288	11,730	20,984	25,901	22,975	19,416	12,260	13,735	16,627	19,712	23,882	228,821
Customers	159	159	159	158	159	159	159	156	153	154	153	155	1,883
Tier 1	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	0.48762	
Tier 2	0.19125	0.19125	0.40344	0.40344	0.40344	0.40344	0.40344	0.40344	0.19125	0.19125	0.19125	0.19125	
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03020)	(0.03020)	0.00499	0.00499	0.00499	0.00499	0.00499	0.00486	0.00486	0.00486	0.00486	0.00486	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Gas Cost Total	0.42324	0.42581	0.46594	0.47023	0.47214	0.48956	0.49892	0.50958	0.53154	0.52585	0.53366	0.53658	
Basic Service Charge	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	
Consolidation Factor													
Tier 1	0.1025	0.1467	0.3763	0.2809	0.2356	0.2648	0.2994	0.3569	0.1860	0.1474	0.1170	0.1005	
Tier 2	0.8975	0.8533	0.6237	0.7191	0.7644	0.7352	0.7006	0.6431	0.8140	0.8526	0.8830	0.8995	
Volumes													
Tier 1	2,492	2,536	4,414	5,894	6,102	6,084	5,813	4,376	2,555	2,451	2,306	2,400	47,423
Tier 2	21,819	14,752	7,316	15,090	19,799	16,891	13,603	7,884	11,180	14,176	17,406	21,482	181,398
Total Recorded	16,949	12,691	11,841	20,093	24,464	22,301	19,282	12,810	11,909	13,882	16,197	19,333	201,752
Special Resid. G.S. for Electric Generation													
Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Master Metered Mobile Home Parks													
Sales	67,966	83,393	163,492	392,403	476,707	479,771	335,611	165,200	119,770	91,047	77,891	66,248	2,519,499
Customers	194	193	192	192	191	190	192	190	190	190	190	189	2,293
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.02325)	(0.02325)	0.01194	0.01194	0.01194	0.01194	0.01194	0.01181	0.01073	0.01073	0.01073	0.01073	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	0.31415	
Total Tariff Rate	0.74434	0.74691	0.78704	0.79133	0.79324	0.81066	0.82002	0.83068	0.85156	0.84587	0.85368	0.85660	
Basic Service Charge	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	
Total Recorded	$ 60,289.81	$ 71,937.07	$ 138,274.74	$ 320,120.27	$ 387,693.06	$ 398,431.16	$ 284,807.73	$ 146,728.34	$ 111,491.34	$ 86,513.93	$ 75,993.99	$ 66,198.04	2,148,479

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
General Gas Service - Small													
Sales	2,245,769	2,426,413	3,209,337	5,745,112	7,004,923	7,051,212	5,590,406	3,374,717	2,860,535	2,575,177	2,264,002	2,140,124	46,487,727
Customers	31,735	31,829	32,178	32,912	33,294	33,255	33,226	32,669	32,316	32,072	31,871	31,952	389,309
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	0.38024	
Tariff Rate	0.79849	0.80106	0.84119	0.84548	0.84739	0.86481	0.87417	0.88496	0.90692	0.90123	0.90904	0.91196	
Basic Service Charge	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00	
Total Recorded	$ 2,427,924.09	$ 2,580,282.40	$ 3,343,222.19	$ 5,515,617.29	$ 6,601,781.70	$ 6,763,058.65	$ 5,551,485.21	$ 3,639,869.56	$ 3,240,596.40	$ 2,962,266.77	$ 2,695,488.38	$ 2,590,747.48	47,912,340
Black Mountain C-1													
Sales				154,901	184,656	199,340	157,339	118,225	94,758	79,768	64,959	15,759	1,069,705
Customers				216	220	221	221	219	218	219	220	101	1,855
Gas Cost				0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment				-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment				0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin				0.62357	0.62357	0.62357	0.62357	0.62357	0.62357	0.62357	0.38024	0.38024	
Tariff Rate				1.08881	1.09072	1.10814	1.11750	1.12829	1.15025	1.14456	0.90904	0.91196	
Basic Service Charge				15.00000	15.00000	15.00000	15.00000	15.00000	15.00000	15.00000	20.00000	20.00000	
Total Recorded				$ 171,897.76	$ 204,707.99	$ 224,211.63	$ 179,141.33	$ 136,677.09	$ 112,265.39	$ 94,584.26	$ 63,450.33	$ 16,391.58	1,203,327
General Gas Service - Medium													
Sales	7,124,560	7,862,162	10,615,715	16,258,771	17,699,058	17,687,142	15,242,088	11,043,616	9,619,207	8,594,491	7,792,317	7,327,618	136,866,745
Customers	6,746	6,772	6,758	6,783	6,815	6,774	6,799	6,800	6,750	6,751	6,829	6,846	81,423
Gas Cost	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	$ 0.37034	
Rate Adjustment	$ (0.03519)	$ (0.03519)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Monthly Gas Cost Adjustment	$ 0.08310	$ 0.08567	$ 0.09061	$ 0.09490	$ 0.09681	$ 0.11423	$ 0.12359	$ 0.13438	$ 0.15634	$ 0.15065	$ 0.15846	$ 0.16138	
Margin	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	0.27211	
Basic Service Charge	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	$ 90.00	
Total Recorded	$ 5,525,651.24	$ 6,057,407.91	$ 8,390,176.04	$ 12,598,874.80	$ 13,697,555.62	$ 13,993,166.81	$ 12,287,959.09	$ 9,191,012.22	$ 8,291,226.36	$ 7,423,880.81	$ 6,855,554.61	$ 6,506,299.18	110,818,764
General Gas Service - Large													
Sales	2,949,136	3,044,152	3,608,837	4,786,985	4,726,659	4,741,749	4,130,422	3,652,953	3,155,288	3,371,637	3,143,446	2,968,770	44,280,034
Customers	105	104	104	103	104	103	102	104	102	104	108	111	1,254
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	0.08548	
Basic Service Charge	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	
Monthly Demand Charge	325,371.84	325,371.84	325,371.84	325,371.84	325,371.84	325,371.84	325,371.84	325,371.84	340,089.24	340,089.24	340,089.24	340,089.24	
Total Recorded	$ 1,863,440.12	$ 1,918,626.00	$ 2,349,348.64	$ 3,013,160.22	$ 2,989,465.41	$ 3,079,905.86	$ 2,769,579.65	$ 2,533,344.70	$ 2,322,630.34	$ 2,436,885.93	$ 2,325,045.25	$ 2,227,914.08	29,829,346
Optional Gas Service													
Sales	8,838,157	8,332,887	6,810,026	5,090,187	6,319,220	6,659,114	6,720,692	4,027,450	9,334,602	12,160,736	15,845,036	13,857,730	103,995,837
Customers	56	29	29	32	37	36	36	28	29	29	28	26	395

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
Gas Services to Armed Forces													
Sales	160,158	171,264	282,571	515,594	526,577	530,120	301,258	200,789	157,681	149,342	148,892	163,845	3,308,091
Customers	8	8	8	8	8	8	8	8	8	9	9	9	99
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	0.18966	
Basic Service Charge	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	
Total Recorded	$ 100,161.65	$ 107,353.25	$ 186,643.52	$ 340,462.51	$ 348,661.04	$ 360,222.81	$ 208,736.96	$ 142,223.87	$ 115,753.21	$ 109,279.89	$ 110,122.95	$ 121,344.51	2,250,966
Air Conditioning Gas Service													
Small Commercial WITH A/C													
Sales	32,272	23,037	11,181	12,225	7,349	7,662	2,284	14,221	15,622	23,540	30,501	35,156	215,050
Customers	2	2	2	2	2	2	2	2	2	2	3	4	27
Small Commercial A/C ONLY													
Sales	42,705	30,367	51,541	11,706	12,131	10,953	10,819	18,652	31,665	49,563	61,484	56,504	388,090
Customers	29	29	27	32	35	34	35	34	33	32	31	28	336
Large Commercial WITH A/C													
Sales	35,318	20,395	12,419	1,998	16	209	548	4,469	2,020	0	487	41	77,920
Customers	1	1	1	1	1	1	1	1	1	1	1	1	12
Large Commercial A/C ONLY													
Sales	52,444	42,360	16,618	4,802	2,474	3,520	14,110	6,165	58,102	42,239	45,537	54,457	342,828
Customers	3	3	3	3	3	3	3	2	3	3	3	3	35
Small Essential Agriculture A/C ONLY													
Sales	3,525	3,309	3,335	3,538	4,328	3,484	4,194	4,002	3,846	3,768	3,422	3,149	43,900
Customers	1	1	1	1	1	1	1	1	1	1	1	1	12
Total Sales	166,264	119,468	95,094	33,880	25,722	25,320	31,614	47,197	110,777	118,211	140,886	149,307	1,063,740
													422
Basic Service Charge (sm)	20	20	20	20	20	20	20	20	20	20	20	20	
Basic Service Charge (lg)	500	500	500	500	500	500	500	500	500	500	500	500	
Basic Service Charge (Ag)	75	75	75	75	75	75	75	75	75	75	75	75	
No Basic Service Charge	0	0	0	0	0	0	0	0	0	0	0	0	
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	0.07613	
Tariff Rate	0.49438	0.49695	0.53708	0.54137	0.54328	0.56070	0.57006	0.58085	0.60281	0.59712	0.60493	0.60785	
Total Recorded	84,352.60	61,524.62	53,188.09	20,556.62	16,249.25	16,451.92	20,296.88	29,169.38	69,012.48	72,801.15	87,421.17	92,891.26	623,915
Black Mountain GAC-1													
Sales	0.00	0.00	0.00	389.00	576.00	508.00	341.00	312.00	478.00	899.00	545.00	0.00	4,048
Customers	0.00	0.00	0.00	5.00	6.00	6.00	5.00	5.00	5.00	5.00	4.00	2.00	43
Gas Cost				0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment				-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment				0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin				0.09000	0.09000	0.09000	0.09000	0.09000	0.09000	0.09000	0.07613	0.07613	
Tariff Rate				0.55524	0.55715	0.57457	0.58393	0.59472	0.61668	0.61099	0.60493	0.60785	
Basic Service Charge				6.00	6.00	6.00	6.00	6.00	6.00	6.00	20.00	20.00	
Total Recorded				246	357	328	229	216	325	579	410	40	2,729

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
Street Lighting Gas Service													
Sales	8,738	8,710	7,937	8,811	8,375	8,169	8,035	8,421	8,285	8,592	8,064	8,078	100,215
	9,397	9,397	9,397	9,397	9,397	9,397	9,397	9,397	9,397	9,397	9,397	9,397	112,764
Customers	28	28	27	27	28	27	28	28	29	29	29	30	338
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	0.47648	
Tariff Rate	0.89473	0.89730	0.93743	0.94172	0.94363	0.96105	0.97041	0.98120	1.00316	0.99747	1.00528	1.00820	
Total Recorded	7,818.15	7,815.48	7,440.38	8,297.49	7,902.90	7,850.82	7,797.24	8,262.69	8,311.18	8,570.26	8,106.58	8,144.24	96,317
Gas Service for Comp. On Cust. Premises													
Compressed Natural Gas - Residential													
Sales	7,678	8,043	7,165	6,823	6,159	6,179	6,678	6,757	6,638	7,057	6,058	5,099	80,334
Customers	108	114	114	114	115	113	113	112	112	112	111	110	1,348
Compressed Natural Gas - Small													
Sales	17,746	16,190	18,679	16,631	13,483	15,181	15,621	17,266	18,313	17,952	14,406	14,716	196,184
Customers	35	29	29	27	26	24	24	23	23	23	23	23	309
Compressed Natural Gas - Large													
Sales	179,443	185,344	149,473	165,414	125,234	161,973	160,862	151,616	176,416	151,733	125,298	140,219	1,873,025
Customers	26	27	26	28	27	27	27	27	27	27	27	27	323
Total Sales	204,867	209,577	175,317	188,868	144,876	183,333	183,161	175,639	201,367	176,742	145,762	160,034	2,149,543
Basic Service Charge (Res)	8	8	8	8	8	8	8	8	8	8	8	8	
Basic Service Charge (Sm)	20	20	20	20	20	20	20	20	20	20	20	20	
Basic Service Charge (Lg)	170	170	170	170	170	170	170	170	170	170	170	170	
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	0.13305	
Tariff Rate	0.55130	0.55387	0.59400	0.59829	0.60020	0.61762	0.62698	0.63777	0.65973	0.65404	0.66185	0.66477	
Residential Revenue	5,097	5,367	5,168	4,994	4,617	4,720	5,091	5,205	5,275	5,512	4,897	4,270	60,213
Small Revenue	10,483	9,547	11,675	10,490	8,612	9,856	10,274	11,472	12,542	12,201	9,995	10,243	127,391
Large Revenue	103,347	107,246	93,207	103,726	79,755	104,628	105,447	101,286	120,977	103,829	87,518	97,803	1,208,771

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
Cogeneration Gas Service													
Commercial - Small G.S.													
Sales	3,266	2,884	0	0	0	0	0	0	0	0	10	0	6,160
Customers	3	3	2	2	2	2	2	2	2	2	2	2	26
Commercial - Medium G.S.													
Sales	55,813	79,834	42,855	35,102	40,617	89,839	29,109	29,115	37,277	30,526	27,123	31,439	528,649
Customers	6	6	6	6	5	7	5	5	5	5	5	6	67
Commercial - Large G.S.													
Sales	187,624	212,399	264,893	272,769	179,068	161,349	234,148	212,666	182,903	251,083	260,479	253,364	2,672,745
Customers	3	3	4	3	4	4	5	5	5	5	5	5	51
Industrial - Small G.S.													
Sales	10	(51)	123	133	51	82	31	0	20	21	0	0	420
Customers	1	0	2	2	2	2	2	2	2	2	2	3	22
Industrial - Medium G.S.													
Sales	0	22,348	11,226	14,884	10,820	9,666	12,850	15,467	10,325	16,094	10,718	7,614	142,012
Customers	1	2	2	2	2	2	2	2	2	2	2	1	22
Industrial - Large G.S.													
Sales	1,011,366	934,395	1,032,073	1,067,818	865,571	859,379	912,718	1,002,660	915,253	978,798	1,051,240	969,761	11,601,032
Customers	5	4	4	4	4	4	4	4	4	4	4	4	49
Military Cogen - (GTS Billed)													
Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Small Essential Agriculture G.S.													
Sales	3,649	4,182	4,271	4,404	5,106	4,356	3,102	2,883	3,044	3,583	5,004	3,771	47,355
Customers	2	2	2	2	2	2	2	2	2	2	2	2	24
Total Sales	1,261,728	1,255,991	1,355,441	1,391,919	1,102,346	1,090,291	1,180,981	1,255,555	1,137,406	1,268,464	1,344,507	1,265,949	14,910,578
													261
Basic Service Charge (Sm)	20	20	20	20	20	20	20	20	20	20	20	20	
Basic Service Charge (Med)	90	90	90	90	90	90	90	90	90	90	90	90	
Basic Service Charge (Lg)	500	500	500	500	500	500	500	500	500	500	500	500	
Basic Service Charge (Ag)	75	75	75	75	75	75	75	75	75	75	75	75	
Margin	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	0.08934	
Gas Cost	0.33387	0.50054	0.50054	0.50054	0.50054	0.50054	0.50054	0.43742	0.43742	0.43742	0.43742	0.43742	
Tariff Rate	0.42321	0.58988	0.58988	0.58988	0.58988	0.58988	0.58988	0.52676	0.52676	0.52676	0.52676	0.52676	
Total Recorded Revenue	538,836	745,314	804,498	825,515	655,112	648,181	701,997	666,736	604,500	673,536	713,593	672,231	8,250,048
Black Mountain CGEN-1 (M)													
Sales	0	0	0	3,191	(1,113)	34,380	10,977	7,236	11,416	11,641	10,067	0	87,795
Customers	0	0	0	1	1	1	1	1	1	1	1	0	8
Gas Cost				0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.43742	0.43742	
Rate Adjustment				-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment				0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	-	-	
Margin				0.06000	0.06000	0.06000	0.06000	0.06000	0.06000	0.06000	0.08934	0.08934	
Tariff Rate				0.52524	0.52715	0.54457	0.55393	0.56472	0.58668	0.58099	0.52676	0.52676	
Basic Service Charge				30.00	30.00	30.00	30.00	30.00	30.00	30.00	90.00	90.00	
Total Recorded				1,706	(557)	18,752	6,110	4,116	6,728	6,793	5,393	0	49,042

Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
Small Essential Ag. Gas Service													
Sales	552,012	585,221	665,600	857,139	836,269	841,204	642,069	583,350	598,327	626,618	574,998	569,498	7,932,305
Customers	86	87	96	94	123	118	116	90	90	89	89	91	1,169
Gas Cost	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	0.37034	
Rate Adjustment	(0.03519)	(0.03519)	-	-	-	-	-	-	-	-	-	-	
Monthly Gas Cost Adjustment	0.08310	0.08567	0.09061	0.09490	0.09681	0.11423	0.12359	0.13438	0.15634	0.15065	0.15846	0.16138	
Margin	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	0.19468	
Basic Service Charge	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	
Total Recorded	$ 344,794.72	$ 366,728.53	$ 443,587.33	$ 572,693.17	$ 562,692.91	$ 580,237.82	$ 450,835.13	$ 414,744.99	$ 438,359.16	$ 455,126.70	$ 422,674.55	$ 420,508.35	5,472,983
Natural Gas Engine Gas Service													
Sales	2,404,972	1,872,941	1,142,424	480,857	365,747	453,365	633,209	1,498,466	2,214,511	3,011,480	3,222,182	2,897,940	20,198,094
Customers	623	620	607	599	591	607	618	642	624	621	611	609	7,372
Margin	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	0.16189	
Gas Cost	0.33387	0.50054	0.50054	0.50054	0.50054	0.50054	0.50054	0.43742	0.43742	0.43742	0.43742	0.43742	
Tariff Rate	0.49576	0.66243	0.66243	0.66243	0.66243	0.66243	0.66243	0.59931	0.59931	0.59931	0.59931	0.59931	
Basic Service Charge	80.00	0.00	0.00	0.00	0.00	0.00	0.00	80.00	80.00	80.00	80.00	80.00	
Total Recorded	1,242,128.92	1,240,692.31	756,775.93	318,534.10	242,281.79	300,322.58	419,456.64	949,405.66	1,377,098.59	1,854,490.08	1,979,965.89	1,785,484.42	12,466,637
Resale Gas Service													
Sales	(7,428)	(7,074)	0	0	0	0	0	0	0	0	0	0	(14,502)
Customers	1	1	1	0	0	0	0	0	0	0	0	0	3

SOUTHWEST[illegible]ORPORATION
TOTA[illegible]ZONA
TWELVE MONTHS ENDED AUGUST 2004
RECORDED DELIVERIES (THERMS) AND CUSTOMERS

Rate Schedule	Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
G-5	Residential Gas Service													
	Sales	7,666,811	8,712,926	13,724,667	37,414,653	51,978,027	50,963,678	37,218,333	16,007,022	12,369,431	10,357,680	8,717,262	7,738,843	262,869,333
	Customers	740,431	745,537	753,734	762,157	768,878	770,431	775,195	771,435	769,605	770,511	772,017	773,772	9,173,703
R-1	Residential G. S. - Black Mtn Gas													
	Sales	0	0	0	565,714	1,033,331	978,071	1,012,909	495,897	356,698	239,024	168,501	117,996	4,968,141
	Customers	0	0	0	8,451	8,615	8,713	8,837	8,876	8,964	9,053	9,112	8,737	79,358
G-10	Low Income Residential GAS.													
	Sales	327,893	357,131	589,341	1,608,259	2,135,353	2,051,205	1,502,326	624,464	469,652	383,392	333,359	310,130	10,692,305
	Customers	31,432	31,441	31,430	31,288	31,473	31,299	31,357	31,002	30,701	30,192	29,571	30,409	371,595
R-1	Low Income Residential G.S. - Black Mtn Gas													
	Sales	0	0	0	102	732	808	990	249	176	114	91	81	3,343
	Customers	0	0	0	1	1	10	12	11	10	11	12	12	80
G-15	Special Residential G.S. for A/C													
	Sales	24,311	17,288	11,730	20,984	25,901	22,975	19,416	12,260	13,735	16,627	19,712	23,882	228,821
	Customers	159	159	159	158	159	159	159	156	153	154	153	155	1,883
G-16	Special Resid. G.S. for Electric Generation													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
G-20	Master Metered Mobile Home Parks													
	Sales	67,966	83,393	163,492	392,403	476,707	479,771	335,611	165,200	119,770	91,047	77,891	66,248	2,519,499
	Customers	194	193	192	192	191	190	192	190	190	190	190	189	2,293
G-25 (S)	General Gas Service - Small													
	Apartments													
	Sales	58,507	66,550	115,148	221,563	238,786	223,520	179,380	113,068	87,348	75,135	65,673	56,041	1,500,719
	Customers	877	871	876	883	882	873	865	865	861	862	872	871	10,458
	Small Commercial Gas Service													
	Sales	2,183,029	2,351,691	3,088,627	5,510,857	6,752,421	6,811,886	5,396,114	3,251,704	2,761,134	2,491,845	2,191,204	2,074,860	44,865,372
	Customers	30,809	30,910	31,254	31,982	32,364	32,331	32,312	31,755	31,406	31,161	30,950	31,032	378,266
	Large Commercial Gas Service													
	Sales	246	239	276	1,172	1,873	1,575	752	333	292	153	107	135	7,153
	Customers	13	12	12	12	12	12	12	12	12	12	12	12	145
	Small Industrial Gas Service													
	Sales	3,987	7,933	5,286	11,520	11,843	14,231	14,160	9,612	11,761	8,044	7,018	9,088	114,483
	Customers	36	36	36	35	36	39	37	37	37	37	37	37	440
C-1	Small Commercial Gas Service - Black Mtn Gas													
	Sales	0	0	0	154,901	184,656	199,340	157,339	118,225	94,758	79,768	64,959	15,759	1,069,705
	Customers	0	0	0	216	220	221	221	219	218	219	220	101	1,855
G-25 (M)	General Gas Service - Medium													
	Apartments													
	Sales	398,147	432,120	583,104	1,083,785	1,240,961	1,220,690	1,014,577	640,984	532,312	478,902	412,722	383,568	8,421,872
	Customers	326	329	325	327	332	336	334	335	333	336	336	336	3,985
	Small Commercial Gas Service													
	Sales	6,049,817	6,691,100	9,175,155	13,878,313	15,021,964	15,046,923	12,947,464	9,537,976	8,284,057	7,362,233	6,691,582	6,282,987	116,969,571
	Customers	6,251	6,273	6,261	6,286	6,311	6,269	6,296	6,297	6,249	6,247	6,325	6,344	75,409
	Large Commercial Gas Service													
	Sales	336,199	349,777	449,320	773,967	922,589	833,602	760,857	452,516	400,306	357,191	301,126	291,215	6,228,665
	Customers	74	75	75	74	75	73	73	72	73	73	73	74	884
	Small Industrial Gas Service													
	Sales	340,397	389,165	408,136	522,706	513,544	585,927	519,190	412,140	402,532	396,165	386,887	369,848	5,246,637
	Customers	95	95	97	96	97	96	96	96	95	95	95	92	1,145
	Large Essential Agriculture													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0

SOUTHWEST G[illegible]RPORATION
TOTAL [illegible]ZONA
TWELVE MONTHS ENDED AUGUST 2004
RECORDED DELIVERIES (THERMS) AND CUSTOMERS

Rate Schedule	Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
G-25 (L)	General Gas Service - Large													
	Apartments													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
	Small Commercial Gas Service													
	Sales	193,358	197,568	211,957	318,430	392,218	376,552	349,423	217,005	231,524	252,130	229,747	262,757	3,232,669
	Customers	11	11	11	10	10	10	10	11	12	13	13	15	137
	Large Commercial Gas Service													
	Sales	1,507,534	1,625,780	1,966,419	2,686,401	2,866,066	2,679,255	2,349,901	2,142,962	1,753,817	1,708,773	1,498,038	1,366,098	24,151,044
	Customers	54	54	53	55	55	55	56	56	54	54	52	53	651
G-25 (L)	General Gas Service - Large													
	Small Industrial Gas Service													
	Sales	1,113,655	1,112,832	1,262,821	1,556,356	1,277,971	1,433,991	1,264,044	1,170,143	1,041,327	1,244,991	1,121,513	1,083,816	14,683,460
	Customers	34	34	35	33	35	34	32	33	32	33	35	36	406
	Large Industrial Gas Service													
	Sales	134,589	107,972	167,640	225,798	190,404	251,951	167,054	122,843	128,620	165,743	294,148	256,099	2,212,861
	Customers	6	5	5	5	4	4	4	4	4	4	8	7	60
	Large Essential Ag. Gas Service													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
G-30	Optional Gas Service													
	Sales	8,838,157	8,332,887	6,810,026	5,090,187	6,319,220	6,659,114	6,720,692	4,027,450	9,334,602	12,160,736	15,845,036	13,857,730	103,995,837
	Customers	56	29	29	32	37	36	36	28	29	29	28	26	395
G-35	Gas Services to Armed Forces													
	Sales	160,158	171,264	282,571	515,594	526,577	530,120	301,258	200,789	157,681	149,342	148,892	163,845	3,308,091
	Customers	8	8	8	8	8	8	8	8	8	9	9	9	99
G-40	Air Conditioning Gas Service													
	Small Commercial WITH A/C													
	Sales	32,272	23,037	11,181	12,225	7,349	7,662	2,284	14,221	15,622	23,540	30,501	35,156	215,050
	Customers	2	2	2	2	2	2	2	2	2	2	3	4	27
	Small Commercial A/C ONLY													
	Sales	42,705	30,367	51,541	11,317	11,555	10,445	10,478	18,340	31,187	48,664	60,939	56,504	384,042
	Customers	29	29	27	27	29	28	30	29	28	27	27	26	336
	Large Commercial WITH A/C													
	Sales	35,318	20,395	12,419	1,998	16	209	548	4,469	2,020	0	487	41	77,920
	Customers	1	1	1	1	1	1	1	1	1	1	1	1	12
	Large Commercial A/C ONLY													
	Sales	52,444	42,360	16,618	4,802	2,474	3,520	14,110	6,165	58,102	42,239	45,537	54,457	342,828
	Customers	3	3	3	3	3	3	3	2	3	3	3	3	35
	Small Industrial WITH A/C													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
	Large Industrial A/C ONLY													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
	Small Essential Agriculture WITH A/C													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
	Small Essential Agriculture A/C ONLY													
	Sales	3,525	3,309	3,335	3,538	4,328	3,484	4,194	4,002	3,846	3,768	3,422	3,149	43,900
	Customers	1	1	1	1	1	1	1	1	1	1	1	1	12
	Military WITH A/C (GTS Billed)													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
GAC-1	Small Commercial A/C Only -Black Mtn Gas													
	Sales	0	0	0	389	576	508	341	312	478	899	545	0	4,048
	Customers	0	0	0	5	6	6	5	5	5	5	4	2	43
G-45	Street Lighting Gas Service													
	Sales	8,738	8,710	7,937	8,811	8,375	8,169	8,035	8,421	8,285	8,592	8,064	8,078	100,215
	Customers	28	28	27	27	28	27	28	28	29	29	29	30	338

SOUTHWEST[illegible]ORPORATION
TOTA[illegible]ZONA
TWELVE MONTHS ENDED AUGUST 2004
RECORDED DELIVERIES (THERMS) AND CUSTOMERS

Rate Schedule	Description	September 2003	October 2003	November 2003	December 2003	January 2004	February 2004	March 2004	April 2004	May 2004	June 2004	July 2004	August 2004	TOTAL
G-55	Gas Service for Comp. On Cust. Premises													
	Compressed Natural Gas - Residential													
	Sales	7,678	8,043	7,165	6,823	6,159	6,179	6,678	6,757	6,638	7,057	6,058	5,099	80,334
	Customers	108	114	114	114	115	113	113	112	112	112	111	110	1,348
	Compressed Natural Gas - Small													
	Sales	17,746	16,190	18,679	16,631	13,483	15,181	15,621	17,266	18,313	17,952	14,406	14,716	196,184
	Customers	35	29	29	27	26	24	24	23	23	23	23	23	309
	Compressed Natural Gas - Large													
	Sales	179,443	185,344	149,473	165,414	125,234	161,973	160,862	151,616	176,416	151,733	125,298	140,219	1,873,025
	Customers	26	27	26	28	27	27	27	27	27	27	27	27	323
CNG-1	Compressed Natural Gas - Black Mtn Gas													
	Sales													0
	Customers													0
G-60	Cogeneration Gas Service													
	Commercial - Small G.S.													
	Sales	3,266	2,884	0	0	0	0	0	0	0	0	10	0	6,160
	Customers	3	3	2	2	2	2	2	2	2	2	2	2	26
	Commercial - Medium G.S.													
	Sales	55,813	79,834	42,855	31,911	41,730	55,459	18,132	21,879	25,861	18,885	17,056	31,439	440,854
	Customers	6	6	6	6	5	7	5	5	5	5	5	6	67
	Commercial - Large G.S.													
	Sales	187,624	212,399	264,893	272,769	179,068	161,349	234,148	212,666	182,903	251,083	260,479	253,364	2,672,745
	Customers	3	3	4	3	4	4	5	5	5	5	5	5	51
	Industrial - Small G.S.													
	Sales	10	(51)	123	133	51	82	31	0	20	21	0	0	420
	Customers	1	0	2	2	2	2	2	2	2	2	2	3	22
	Industrial - Medium G.S.													
	Sales	0	22,348	11,226	14,884	10,820	9,666	12,850	15,467	10,325	16,094	10,718	7,614	142,012
	Customers	1	2	2	2	2	2	2	2	2	2	2	1	22
	Industrial - Large G.S.													
	Sales	1,011,366	934,395	1,032,073	1,067,818	865,571	859,379	912,718	1,002,660	915,253	978,798	1,051,240	969,761	11,601,032
	Customers	5	4	4	4	4	4	4	4	4	4	4	4	49
	Military Cogen - (GTS Billed)													
	Sales	0	0	0	0	0	0	0	0	0	0	0	0	0
	Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
	Small Essential Agriculture G.S.													
	Sales	3,649	4,182	4,271	4,404	5,106	4,356	3,102	2,883	3,044	3,583	5,004	3,771	47,355
	Customers	2	2	2	2	2	2	2	2	2	2	2	2	24
CGEN-1	Commercial - Cogen (M) - Black Mtn Gas													
	Sales	0	0	0	3,191	(1,113)	34,380	10,977	7,236	11,416	11,641	10,067	0	87,795
	Customers	0	0	0	1	1	1	1	1	1	1	1	0	8
G-75	Small Essential Ag. Gas Service													
	Sales	552,012	585,221	665,600	857,139	836,269	841,204	642,069	583,350	598,327	626,618	574,998	569,498	7,932,305
	Customers	86	87	96	94	123	118	116	90	90	89	89	91	1,169
G-80	Natural Gas Engine Gas Service													
	Sales	2,404,972	1,872,941	1,142,424	480,857	365,747	453,365	633,209	1,498,466	2,214,511	3,011,480	3,222,182	2,897,940	20,198,094
	Customers	623	620	607	599	591	607	618	642	624	621	611	609	7,372
G-95	Resale Gas Service													
	Sales	(7,428)	(7,074)	0	0	0	0	0	0	0	0	0	0	(14,502)
	Customers	1	1	1	0	0	0	0	0	0	0	0	0	3
	Total Sales Service													
	Sales	33,995,714	35,052,450	42,457,529	75,518,719	94,593,942	94,001,755	74,922,177	43,299,018	42,834,100	43,241,682	44,022,479	39,781,832	663,721,397
	Customers	811,830	817,034	825,548	843,251	850,769	852,180	857,135	852,483	850,014	850,258	851,072	853,269	10,114,843
	Transportation													
	Deliveries	4,677,995	5,206,582	5,704,320	6,183,241	6,094,946	6,400,934	6,073,914	5,600,719	5,323,873	4,901,590	4,861,384	4,650,658	65,680,156
	Customers	232	231	226	231	231	240	227	232	231	231	231	227	2,770
	District Total													
	Deliveries	**38,673,709**	**40,259,032**	**48,161,849**	**81,701,960**	**100,688,888**	**100,402,689**	**80,996,091**	**48,899,737**	**48,157,973**	**48,143,272**	**48,883,863**	**44,432,490**	729,401,553
	Customers	**812,062**	**817,265**	**825,774**	**843,482**	**851,000**	**852,420**	**857,362**	**852,715**	**850,245**	**850,489**	**851,303**	**853,496**	10,117,613

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = SEPTEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-4,599	-4,599	29,015	29,015	-0.06	3.91	712,466	0	-4,599	-0.06
1	11,096	6,497	11,096	40,111	0.09	5.41	701,370	701,370	707,867	9.29
2	36,388	42,885	18,194	58,305	0.56	7.86	683,176	1,366,352	1,409,237	18.50
3	142,794	185,679	47,598	105,903	2.44	14.28	635,578	1,906,734	2,092,413	27.46
4	202,460	388,139	50,615	156,518	5.09	21.11	584,963	2,339,852	2,727,991	35.81
5	259,335	647,474	51,867	208,385	8.50	28.10	533,096	2,665,480	3,312,954	43.48
6	337,770	985,244	56,295	264,680	12.93	35.70	476,801	2,860,806	3,846,050	50.48
7	388,283	1,373,527	55,469	320,149	18.03	43.18	421,332	2,949,324	4,322,851	56.74
8	449,184	1,822,711	56,148	376,297	23.92	50.75	365,184	2,921,472	4,744,183	62.27
9	420,804	2,243,515	46,756	423,053	29.45	57.06	318,428	2,865,852	5,109,367	67.06
10	485,950	2,729,465	48,595	471,648	35.83	63.61	269,833	2,698,330	5,427,795	71.24
11	415,536	3,145,001	37,776	509,424	41.28	68.70	232,057	2,552,627	5,697,628	74.78
12	391,956	3,536,957	32,663	542,087	46.42	73.11	199,394	2,392,728	5,929,685	77.83
13	363,376	3,900,333	27,952	570,039	51.19	76.88	171,442	2,228,746	6,129,079	80.45
14	334,390	4,234,723	23,885	593,924	55.58	80.10	147,557	2,065,798	6,300,521	82.70
15	310,065	4,544,788	20,671	614,595	59.65	82.89	126,886	1,903,290	6,448,078	84.63
16	286,832	4,831,620	17,927	632,522	63.42	85.31	108,959	1,743,344	6,574,964	86.30
17	255,765	5,087,385	15,045	647,567	66.77	87.33	93,914	1,596,538	6,683,923	87.73
18	228,312	5,315,697	12,684	660,251	69.77	89.04	81,230	1,462,140	6,777,837	88.96
19	217,778	5,533,475	11,462	671,713	72.63	90.59	69,768	1,325,592	6,859,067	90.03
20	191,460	5,724,935	9,573	681,286	75.14	91.88	60,195	1,203,900	6,928,835	90.94
25	654,418	6,379,353	28,845	710,131	83.73	95.77	31,350	783,750	7,163,103	94.02
30	362,031	6,741,384	13,064	723,195	88.48	97.53	18,286	548,580	7,289,964	95.68
35	212,023	6,953,407	6,490	729,685	91.27	98.41	11,796	412,860	7,366,267	96.69
40	137,731	7,091,138	3,642	733,327	93.08	98.90	8,154	326,160	7,417,298	97.36
45	93,561	7,184,699	2,189	735,516	94.30	99.20	5,965	268,425	7,453,124	97.83
50	67,298	7,251,997	1,407	736,923	95.19	99.39	4,558	227,900	7,479,897	98.18
55	54,995	7,306,992	1,041	737,964	95.91	99.53	3,517	193,435	7,500,427	98.45
60	40,462	7,347,454	699	738,663	96.44	99.62	2,818	169,080	7,516,534	98.66
65	31,652	7,379,106	503	739,166	96.86	99.69	2,315	150,475	7,529,581	98.83
70	27,748	7,406,854	409	739,575	97.22	99.74	1,906	133,420	7,540,274	98.97
75	23,830	7,430,684	327	739,902	97.53	99.79	1,579	118,425	7,549,109	99.09
80	18,940	7,449,624	243	740,145	97.78	99.82	1,336	106,880	7,556,504	99.18
85	16,592	7,466,216	200	740,345	98.00	99.85	1,136	96,560	7,562,776	99.27
90	15,565	7,481,781	177	740,522	98.20	99.87	959	86,310	7,568,091	99.34
95	10,292	7,492,073	111	740,633	98.34	99.89	848	80,560	7,572,633	99.40
100	10,676	7,502,749	109	740,742	98.48	99.90	739	73,900	7,576,649	99.45
105	7,626	7,510,375	74	740,816	98.58	99.91	665	69,825	7,580,200	99.49
110	9,612	7,519,987	89	740,905	98.70	99.92	576	63,360	7,583,347	99.54
115	8,926	7,528,913	79	740,984	98.82	99.93	497	57,155	7,586,068	99.57
120	5,791	7,534,704	49	741,033	98.90	99.94	448	53,760	7,588,464	99.60
125	6,773	7,541,477	55	741,088	98.99	99.95	393	49,125	7,590,602	99.63
130	4,087	7,545,564	32	741,120	99.04	99.95	361	46,930	7,592,494	99.66
135	4,255	7,549,819	32	741,152	99.10	99.96	329	44,415	7,594,234	99.68
140	3,848	7,553,667	28	741,180	99.15	99.96	301	42,140	7,595,807	99.70

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = SEPTEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	2,999	7,556,666	21	741,201	99.19	99.96	280	40,600	7,597,266	99.72
150	3,985	7,560,651	27	741,228	99.24	99.97	253	37,950	7,598,601	99.74
155	2,137	7,562,788	14	741,242	99.27	99.97	239	37,045	7,599,833	99.75
160	4,580	7,567,368	29	741,271	99.33	99.97	210	33,600	7,600,968	99.77
165	2,122	7,569,490	13	741,284	99.35	99.97	197	32,505	7,601,995	99.78
170	3,533	7,573,023	21	741,305	99.40	99.98	176	29,920	7,602,943	99.79
175	2,599	7,575,622	15	741,320	99.43	99.98	161	28,175	7,603,797	99.80
180	3,558	7,579,180	20	741,340	99.48	99.98	141	25,380	7,604,560	99.81
185	1,645	7,580,825	9	741,349	99.50	99.98	132	24,420	7,605,245	99.82
190	1,133	7,581,958	6	741,355	99.52	99.98	126	23,940	7,605,898	99.83
195	1,923	7,583,881	10	741,365	99.54	99.98	116	22,620	7,606,501	99.84
200	1,384	7,585,265	7	741,372	99.56	99.99	109	21,800	7,607,065	99.85
999,999	33,447	7,618,712	109	741,481	100.00	100.00	0	0	7,618,712	100.00
TOTAL	7,618,712		741,481							
AVG. USE	10.3									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = OCTOBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-3,551	-3,551	25,526	25,526	-0.04	3.41	723,570	0	-3,551	-0.04
1	10,000	6,449	10,000	35,526	0.07	4.74	713,570	713,570	720,019	8.25
2	30,468	36,917	15,234	50,760	0.42	6.78	698,336	1,396,672	1,433,589	16.43
3	106,263	143,180	35,421	86,181	1.64	11.50	662,915	1,988,745	2,131,925	24.43
4	158,708	301,888	39,677	125,858	3.46	16.80	623,238	2,492,952	2,794,840	32.02
5	226,410	528,298	45,282	171,140	6.05	22.85	577,956	2,889,780	3,418,078	39.16
6	311,676	839,974	51,946	223,086	9.62	29.78	526,010	3,156,060	3,996,034	45.79
7	369,313	1,209,287	52,759	275,845	13.86	36.82	473,251	3,312,757	4,522,044	51.81
8	456,168	1,665,455	57,021	332,866	19.08	44.44	416,230	3,329,840	4,995,295	57.23
9	433,251	2,098,706	48,139	381,005	24.05	50.86	368,091	3,312,819	5,411,525	62.00
10	532,700	2,631,406	53,270	434,275	30.15	57.97	314,821	3,148,210	5,779,616	66.22
11	434,929	3,066,335	39,539	473,814	35.13	63.25	275,282	3,028,102	6,094,437	69.83
12	429,468	3,495,803	35,789	509,603	40.05	68.03	239,493	2,873,916	6,369,719	72.98
13	408,070	3,903,873	31,390	540,993	44.73	72.22	208,103	2,705,339	6,609,212	75.73
14	381,528	4,285,401	27,252	568,245	49.10	75.86	180,851	2,531,914	6,817,315	78.11
15	358,290	4,643,691	23,886	592,131	53.21	79.05	156,965	2,354,475	6,998,166	80.18
16	329,648	4,973,339	20,603	612,734	56.98	81.80	136,362	2,181,792	7,155,131	81.98
17	300,611	5,273,950	17,683	630,417	60.43	84.16	118,679	2,017,543	7,291,493	83.54
18	273,582	5,547,532	15,199	645,616	63.56	86.19	103,480	1,862,640	7,410,172	84.90
19	254,733	5,802,265	13,407	659,023	66.48	87.98	90,073	1,711,387	7,513,652	86.09
20	232,140	6,034,405	11,607	670,630	69.14	89.53	78,466	1,569,320	7,603,725	87.12
25	818,422	6,852,827	36,023	706,653	78.52	94.33	42,443	1,061,075	7,913,902	90.68
30	457,979	7,310,806	16,525	723,178	83.77	96.54	25,918	777,540	8,088,346	92.67
35	281,678	7,592,484	8,622	731,800	86.99	97.69	17,296	605,360	8,197,844	93.93
40	185,179	7,777,663	4,891	736,691	89.11	98.34	12,405	496,200	8,273,863	94.80
45	120,734	7,898,397	2,821	739,512	90.50	98.72	9,584	431,280	8,329,677	95.44
50	92,564	7,990,961	1,935	741,447	91.56	98.98	7,649	382,450	8,373,411	95.94
55	71,178	8,062,139	1,345	742,792	92.37	99.16	6,304	346,720	8,408,859	96.35
60	60,647	8,122,786	1,048	743,840	93.07	99.30	5,256	315,360	8,438,146	96.68
65	49,128	8,171,914	782	744,622	93.63	99.40	4,474	290,810	8,462,724	96.96
70	41,886	8,213,800	618	745,240	94.11	99.49	3,856	269,920	8,483,720	97.20
75	33,914	8,247,714	466	745,706	94.50	99.55	3,390	254,250	8,501,964	97.41
80	29,890	8,277,604	383	746,089	94.84	99.60	3,007	240,560	8,518,164	97.60
85	27,847	8,305,451	336	746,425	95.16	99.64	2,671	227,035	8,532,486	97.76
90	25,692	8,331,143	292	746,717	95.46	99.68	2,379	214,110	8,545,253	97.91
95	19,456	8,350,599	209	746,926	95.68	99.71	2,170	206,150	8,556,749	98.04
100	17,177	8,367,776	175	747,101	95.88	99.73	1,995	199,500	8,567,276	98.16
105	19,081	8,386,857	185	747,286	96.09	99.76	1,810	190,050	8,576,907	98.27
110	14,167	8,401,024	131	747,417	96.26	99.78	1,679	184,690	8,585,714	98.37
115	13,466	8,414,490	119	747,536	96.41	99.79	1,560	179,400	8,593,890	98.47
120	16,395	8,430,885	139	747,675	96.60	99.81	1,421	170,520	8,601,405	98.55
125	10,823	8,441,708	88	747,763	96.72	99.82	1,333	166,625	8,608,333	98.63
130	12,421	8,454,129	97	747,860	96.87	99.84	1,236	160,680	8,614,809	98.71
135	14,232	8,468,361	107	747,967	97.03	99.85	1,129	152,415	8,620,776	98.77
140	9,093	8,477,454	66	748,033	97.13	99.86	1,063	148,820	8,626,274	98.84

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = OCTOBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	10,862	8,488,316	76	748,109	97.26	99.87	987	143,115	8,631,431	98.90
150	8,303	8,496,619	56	748,165	97.35	99.88	931	139,650	8,636,269	98.95
155	9,018	8,505,637	59	748,224	97.46	99.88	872	135,160	8,640,797	99.00
160	8,047	8,513,684	51	748,275	97.55	99.89	821	131,360	8,645,044	99.05
165	9,115	8,522,799	56	748,331	97.65	99.90	765	126,225	8,649,024	99.10
170	9,078	8,531,877	54	748,385	97.76	99.91	711	120,870	8,652,747	99.14
175	6,756	8,538,633	39	748,424	97.83	99.91	672	117,600	8,656,233	99.18
180	7,475	8,546,108	42	748,466	97.92	99.92	630	113,400	8,659,508	99.22
185	6,036	8,552,144	33	748,499	97.99	99.92	597	110,445	8,662,589	99.25
190	6,771	8,558,915	36	748,535	98.07	99.93	561	106,590	8,665,505	99.29
195	8,106	8,567,021	42	748,577	98.16	99.93	519	101,205	8,668,226	99.32
200	5,936	8,572,957	30	748,607	98.23	99.93	489	97,800	8,670,757	99.35
999,999	154,755	8,727,712	489	749,096	100.00	100.00	0	0	8,727,712	100.00
TOTAL	8,727,712		749,096							
AVG. USE	11.7									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = NOVEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-6,715	-6,715	15,734	15,734	-0.05	2.08	740,086	0	-6,715	-0.05
1	6,138	-577	6,138	21,872	-0.00	2.89	733,948	733,948	733,371	5.36
2	16,986	16,409	8,493	30,365	0.12	4.02	725,455	1,450,910	1,467,319	10.73
3	48,504	64,913	16,168	46,533	0.47	6.16	709,287	2,127,861	2,192,774	16.04
4	73,672	138,585	18,418	64,951	1.01	8.59	690,869	2,763,476	2,902,061	21.23
5	109,635	248,220	21,927	86,878	1.82	11.49	668,942	3,344,710	3,592,930	26.28
6	163,812	412,032	27,302	114,180	3.01	15.11	641,640	3,849,840	4,261,872	31.17
7	217,882	629,914	31,126	145,306	4.61	19.22	610,514	4,273,598	4,903,512	35.87
8	301,992	931,906	37,749	183,055	6.82	24.22	572,765	4,582,120	5,514,026	40.33
9	323,847	1,255,753	35,983	219,038	9.19	28.98	536,782	4,831,038	6,086,791	44.52
10	410,360	1,666,113	41,036	260,074	12.19	34.41	495,746	4,957,460	6,623,573	48.45
11	421,036	2,087,149	38,276	298,350	15.27	39.47	457,470	5,032,170	7,119,319	52.07
12	431,424	2,518,573	35,952	334,302	18.42	44.23	421,518	5,058,216	7,576,789	55.42
13	429,208	2,947,781	33,016	367,318	21.56	48.60	388,502	5,050,526	7,998,307	58.50
14	439,236	3,387,017	31,374	398,692	24.77	52.75	357,128	4,999,792	8,386,809	61.34
15	441,705	3,828,722	29,447	428,139	28.00	56.65	327,681	4,915,215	8,743,937	63.96
16	437,648	4,266,370	27,353	455,492	31.21	60.26	300,328	4,805,248	9,071,618	66.35
17	429,420	4,695,790	25,260	480,752	34.35	63.61	275,068	4,676,156	9,371,946	68.55
18	436,392	5,132,182	24,244	504,996	37.54	66.81	250,824	4,514,832	9,647,014	70.56
19	394,858	5,527,040	20,782	525,778	40.43	69.56	230,042	4,370,798	9,897,838	72.40
20	392,660	5,919,700	19,633	545,411	43.30	72.16	210,409	4,208,180	10,127,880	74.08
25	1,682,776	7,602,476	73,749	619,160	55.61	81.92	136,660	3,416,500	11,018,976	80.60
30	1,251,000	8,853,476	44,977	664,137	64.76	87.87	91,683	2,750,490	11,603,966	84.88
35	964,633	9,818,109	29,440	693,577	71.81	91.76	62,243	2,178,505	11,996,614	87.75
40	683,749	10,501,858	18,096	711,673	76.81	94.16	44,147	1,765,880	12,267,738	89.73
45	480,723	10,982,581	11,222	722,895	80.33	95.64	32,925	1,481,625	12,464,206	91.17
50	360,811	11,343,392	7,539	730,434	82.97	96.64	25,386	1,269,300	12,612,692	92.25
55	299,326	11,642,718	5,666	736,100	85.16	97.39	19,720	1,084,600	12,727,318	93.09
60	230,132	11,872,850	3,978	740,078	86.84	97.92	15,742	944,520	12,817,370	93.75
65	176,442	12,049,292	2,806	742,884	88.13	98.29	12,936	840,840	12,890,132	94.28
70	147,188	12,196,480	2,167	745,051	89.21	98.58	10,769	753,830	12,950,310	94.72
75	118,003	12,314,483	1,620	746,671	90.07	98.79	9,149	686,175	13,000,658	95.09
80	102,489	12,416,972	1,316	747,987	90.82	98.96	7,833	626,640	13,043,612	95.41
85	86,320	12,503,292	1,043	749,030	91.45	99.10	6,790	577,150	13,080,442	95.68
90	67,750	12,571,042	771	749,801	91.95	99.20	6,019	541,710	13,112,752	95.91
95	60,487	12,631,529	650	750,451	92.39	99.29	5,369	510,055	13,141,584	96.12
100	49,035	12,680,564	501	750,952	92.75	99.36	4,868	486,800	13,167,364	96.31
105	45,102	12,725,666	438	751,390	93.08	99.41	4,430	465,150	13,190,816	96.48
110	41,764	12,767,430	387	751,777	93.39	99.47	4,043	444,730	13,212,160	96.64
115	34,792	12,802,222	308	752,085	93.64	99.51	3,735	429,525	13,231,747	96.78
120	31,360	12,833,582	266	752,351	93.87	99.54	3,469	416,280	13,249,862	96.91
125	29,014	12,862,596	236	752,587	94.08	99.57	3,233	404,125	13,266,721	97.04
130	29,920	12,892,516	234	752,821	94.30	99.60	2,999	389,870	13,282,386	97.15
135	29,762	12,922,278	224	753,045	94.52	99.63	2,775	374,625	13,296,903	97.26
140	22,602	12,944,880	164	753,209	94.68	99.65	2,611	365,540	13,310,420	97.36

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = NOVEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR	
									THERMS	PERCENT
145	19,725	12,964,605	138	753,347	94.83	99.67	2,473	358,585	13,323,190	97.45
150	18,810	12,983,415	127	753,474	94.97	99.69	2,346	351,900	13,335,315	97.54
155	20,046	13,003,461	131	753,605	95.11	99.71	2,215	343,325	13,346,786	97.62
160	15,619	13,019,080	99	753,704	95.23	99.72	2,116	338,560	13,357,640	97.70
165	15,963	13,035,043	98	753,802	95.34	99.73	2,018	332,970	13,368,013	97.78
170	18,303	13,053,346	109	753,911	95.48	99.75	1,909	324,530	13,377,876	97.85
175	18,494	13,071,840	107	754,018	95.61	99.76	1,802	315,350	13,387,190	97.92
180	16,365	13,088,205	92	754,110	95.73	99.77	1,710	307,800	13,396,005	97.98
185	16,287	13,104,492	89	754,199	95.85	99.79	1,621	299,885	13,404,377	98.04
190	12,957	13,117,449	69	754,268	95.95	99.79	1,552	294,880	13,412,329	98.10
195	10,599	13,128,048	55	754,323	96.02	99.80	1,497	291,915	13,419,963	98.16
200	10,689	13,138,737	54	754,377	96.10	99.81	1,443	288,600	13,427,337	98.21
999,999	532,940	13,671,677	1,443	755,820	100.00	100.00	0	0	13,671,677	100.00
TOTAL	13,671,677		755,820							
AVG. USE	18.1									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = DECEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-6,633	-6,633	8,639	8,639	-0.02	1.13	757,971	0	-6,633	-0.02
1	2,465	-4,168	2,465	11,104	-0.01	1.45	755,506	755,506	751,338	2.01
2	5,502	1,334	2,751	13,855	0.00	1.81	752,755	1,505,510	1,506,844	4.03
3	14,721	16,055	4,907	18,762	0.04	2.45	747,848	2,243,544	2,259,599	6.05
4	18,960	35,015	4,740	23,502	0.09	3.07	743,108	2,972,432	3,007,447	8.05
5	24,545	59,560	4,909	28,411	0.16	3.71	738,199	3,690,995	3,750,555	10.04
6	31,890	91,450	5,315	33,726	0.24	4.40	732,884	4,397,304	4,488,754	12.02
7	38,955	130,405	5,565	39,291	0.35	5.13	727,319	5,091,233	5,221,638	13.98
8	50,976	181,381	6,372	45,663	0.49	5.96	720,947	5,767,576	5,948,957	15.92
9	58,050	239,431	6,450	52,113	0.64	6.80	714,497	6,430,473	6,669,904	17.85
10	80,540	319,971	8,054	60,167	0.86	7.85	706,443	7,064,430	7,384,401	19.77
11	87,021	406,992	7,911	68,078	1.09	8.88	698,532	7,683,852	8,090,844	21.66
12	101,376	508,368	8,448	76,526	1.36	9.98	690,084	8,281,008	8,789,376	23.53
13	116,207	624,575	8,939	85,465	1.67	11.15	681,145	8,854,885	9,479,460	25.37
14	130,606	755,181	9,329	94,794	2.02	12.37	671,816	9,405,424	10,160,605	27.20
15	148,470	903,651	9,898	104,692	2.42	13.66	661,918	9,928,770	10,832,421	29.00
16	162,224	1,065,875	10,139	114,831	2.85	14.98	651,779	10,428,464	11,494,339	30.77
17	176,647	1,242,522	10,391	125,222	3.33	16.33	641,388	10,903,596	12,146,118	32.51
18	195,066	1,437,588	10,837	136,059	3.85	17.75	630,551	11,349,918	12,787,506	34.23
19	205,618	1,643,206	10,822	146,881	4.40	19.16	619,729	11,774,851	13,418,057	35.92
20	221,700	1,864,906	11,085	157,966	4.99	20.61	608,644	12,172,880	14,037,786	37.58
25	1,313,964	3,178,870	57,056	215,022	8.51	28.05	551,588	13,789,700	16,968,570	45.42
30	1,592,741	4,771,611	56,888	271,910	12.77	35.47	494,700	14,841,000	19,612,611	52.50
35	1,899,306	6,670,917	57,640	329,550	17.86	42.99	437,060	15,297,100	21,968,017	58.80
40	2,133,072	8,803,989	56,243	385,793	23.57	50.32	380,817	15,232,680	24,036,669	64.34
45	2,064,717	10,868,706	48,045	433,838	29.09	56.59	332,772	14,974,740	25,843,446	69.18
50	2,108,086	12,976,792	43,958	477,796	34.74	62.33	288,814	14,440,700	27,417,492	73.39
55	2,246,166	15,222,958	42,434	520,230	40.75	67.86	246,380	13,550,900	28,773,858	77.02
60	2,059,134	17,282,092	35,527	555,757	46.26	72.50	210,853	12,651,180	29,933,272	80.13
65	1,904,021	19,186,113	30,248	586,005	51.36	76.44	180,605	11,739,325	30,925,438	82.78
70	1,834,127	21,020,240	26,997	613,002	56.27	79.96	153,608	10,752,560	31,772,800	85.05
75	1,737,235	22,757,475	23,831	636,833	60.92	83.07	129,777	9,733,275	32,490,750	86.97
80	1,517,325	24,274,800	19,471	656,304	64.98	85.61	110,306	8,824,480	33,099,280	88.60
85	1,395,498	25,670,298	16,826	673,130	68.71	87.81	93,480	7,945,800	33,616,098	89.98
90	1,275,302	26,945,600	14,500	687,630	72.13	89.70	78,980	7,108,200	34,053,800	91.16
95	1,134,880	28,080,480	12,214	699,844	75.17	91.29	66,766	6,342,770	34,423,250	92.14
100	975,286	29,055,766	9,959	709,803	77.78	92.59	56,807	5,680,700	34,736,466	92.98
105	872,521	29,928,287	8,479	718,282	80.11	93.70	48,328	5,074,440	35,002,727	93.70
110	796,669	30,724,956	7,374	725,656	82.24	94.66	40,954	4,504,940	35,229,896	94.30
115	658,290	31,383,246	5,828	731,484	84.01	95.42	35,126	4,039,490	35,422,736	94.82
120	568,305	31,951,551	4,819	736,303	85.53	96.05	30,307	3,636,840	35,588,391	95.26
125	496,388	32,447,939	4,038	740,341	86.86	96.57	26,269	3,283,625	35,731,564	95.65
130	424,366	32,872,305	3,318	743,659	87.99	97.01	22,951	2,983,630	35,855,935	95.98
135	395,393	33,267,698	2,974	746,633	89.05	97.39	19,977	2,696,895	35,964,593	96.27
140	344,199	33,611,897	2,495	749,128	89.97	97.72	17,482	2,447,480	36,059,377	96.52

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = DECEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	298,038	33,909,935	2,085	751,213	90.77	97.99	15,397	2,232,565	36,142,500	96.75
150	256,328	34,166,263	1,732	752,945	91.46	98.22	13,665	2,049,750	36,216,013	96.94
155	226,659	34,392,922	1,481	754,426	92.06	98.41	12,184	1,888,520	36,281,442	97.12
160	192,537	34,585,459	1,219	755,645	92.58	98.57	10,965	1,754,400	36,339,859	97.28
165	173,804	34,759,263	1,067	756,712	93.04	98.71	9,898	1,633,170	36,392,433	97.42
170	163,260	34,922,523	972	757,684	93.48	98.84	8,926	1,517,420	36,439,943	97.54
175	147,035	35,069,558	850	758,534	93.87	98.95	8,076	1,413,300	36,482,858	97.66
180	115,120	35,184,678	647	759,181	94.18	99.03	7,429	1,337,220	36,521,898	97.76
185	109,505	35,294,183	599	759,780	94.48	99.11	6,830	1,263,550	36,557,733	97.86
190	107,131	35,401,314	570	760,350	94.76	99.18	6,260	1,189,400	36,590,714	97.95
195	92,119	35,493,433	477	760,827	95.01	99.25	5,783	1,127,685	36,621,118	98.03
200	77,010	35,570,443	389	761,216	95.22	99.30	5,394	1,078,800	36,649,243	98.10
999,999	1,787,403	37,357,846	5,394	766,610	100.00	100.00	0	0	37,357,846	100.00
TOTAL	37,357,846		766,610							
AVG. USE	48.7									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = JANUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-5,097	-5,097	7,095	7,095	-0.01	0.92	765,200	0	-5,097	-0.01
1	2,003	-3,094	2,003	9,098	-0.01	1.18	763,197	763,197	760,103	1.46
2	4,312	1,218	2,156	11,254	0.00	1.46	761,041	1,522,082	1,523,300	2.93
3	9,999	11,217	3,333	14,587	0.02	1.89	757,708	2,273,124	2,284,341	4.40
4	12,664	23,881	3,166	17,753	0.05	2.30	754,542	3,018,168	3,042,049	5.86
5	17,175	41,056	3,435	21,188	0.08	2.74	751,107	3,755,535	3,796,591	7.31
6	21,876	62,932	3,646	24,834	0.12	3.22	747,461	4,484,766	4,547,698	8.76
7	26,929	89,861	3,847	28,681	0.17	3.71	743,614	5,205,298	5,295,159	10.20
8	33,320	123,181	4,165	32,846	0.24	4.25	739,449	5,915,592	6,038,773	11.63
9	36,675	159,856	4,075	36,921	0.31	4.78	735,374	6,618,366	6,778,222	13.05
10	43,400	203,256	4,340	41,261	0.39	5.34	731,034	7,310,340	7,513,596	14.47
11	57,332	260,588	5,212	46,473	0.50	6.02	725,822	7,984,042	8,244,630	15.88
12	57,984	318,572	4,832	51,305	0.61	6.64	720,990	8,651,880	8,970,452	17.28
13	64,636	383,208	4,972	56,277	0.74	7.29	716,018	9,308,234	9,691,442	18.67
14	71,582	454,790	5,113	61,390	0.88	7.95	710,905	9,952,670	10,407,460	20.04
15	79,755	534,545	5,317	66,707	1.03	8.64	705,588	10,583,820	11,118,365	21.41
16	86,064	620,609	5,379	72,086	1.20	9.33	700,209	11,203,344	11,823,953	22.77
17	97,002	717,611	5,706	77,792	1.38	10.07	694,503	11,806,551	12,524,162	24.12
18	104,526	822,137	5,807	83,599	1.58	10.82	688,696	12,396,528	13,218,665	25.46
19	108,053	930,190	5,687	89,286	1.79	11.56	683,009	12,977,171	13,907,361	26.79
20	115,080	1,045,270	5,754	95,040	2.01	12.31	677,255	13,545,100	14,590,370	28.10
25	681,192	1,726,462	29,571	124,611	3.33	16.14	647,684	16,192,100	17,918,562	34.51
30	868,876	2,595,338	31,005	155,616	5.00	20.15	616,679	18,500,370	21,095,708	40.63
35	1,108,102	3,703,440	33,570	189,186	7.13	24.50	583,109	20,408,815	24,112,255	46.44
40	1,470,938	5,174,378	38,779	227,965	9.97	29.52	544,330	21,773,200	26,947,578	51.90
45	1,645,028	6,819,406	38,259	266,224	13.13	34.47	506,071	22,773,195	29,592,601	57.00
50	1,893,434	8,712,840	39,428	305,652	16.78	39.58	466,643	23,332,150	32,044,990	61.72
55	2,232,192	10,945,032	42,096	347,748	21.08	45.03	424,547	23,350,085	34,295,117	66.05
60	2,391,945	13,336,977	41,256	389,004	25.69	50.37	383,291	22,997,460	36,334,437	69.98
65	2,472,176	15,809,153	39,263	428,267	30.45	55.45	344,028	22,361,820	38,170,973	73.52
70	2,550,826	18,359,979	37,518	465,785	35.36	60.31	306,510	21,455,700	39,815,679	76.69
75	2,668,291	21,028,270	36,536	502,321	40.50	65.04	269,974	20,248,050	41,276,320	79.50
80	2,522,834	23,551,104	32,359	534,680	45.36	69.23	237,615	19,009,200	42,560,304	81.97
85	2,443,387	25,994,491	29,453	564,133	50.07	73.05	208,162	17,693,770	43,688,261	84.14
90	2,419,165	28,413,656	27,491	591,624	54.72	76.61	180,671	16,260,390	44,674,046	86.04
95	2,178,606	30,592,262	23,438	615,062	58.92	79.64	157,233	14,937,135	45,529,397	87.69
100	2,082,296	32,674,558	21,272	636,334	62.93	82.40	135,961	13,596,100	46,270,658	89.12
105	1,840,970	34,515,528	17,881	654,215	66.48	84.71	118,080	12,398,400	46,913,928	90.36
110	1,842,083	36,357,611	17,051	671,266	70.03	86.92	101,029	11,113,190	47,470,801	91.43
115	1,511,395	37,869,006	13,385	684,651	72.94	88.65	87,644	10,079,060	47,948,066	92.35
120	1,413,836	39,282,842	11,988	696,639	75.66	90.20	75,656	9,078,720	48,361,562	93.14
125	1,266,167	40,549,009	10,299	706,938	78.10	91.54	65,357	8,169,625	48,718,634	93.83
130	1,047,088	41,596,097	8,185	715,123	80.11	92.60	57,172	7,432,360	49,028,457	94.43
135	977,079	42,573,176	7,351	722,474	82.00	93.55	49,821	6,725,835	49,299,011	94.95
140	896,114	43,469,290	6,495	728,969	83.72	94.39	43,326	6,065,640	49,534,930	95.40

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = JANUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	748,872	44,218,162	5,239	734,208	85.16	95.07	38,087	5,522,615	49,740,777	95.80
150	683,757	44,901,919	4,623	738,831	86.48	95.67	33,464	5,019,600	49,921,519	96.15
155	628,974	45,530,893	4,111	742,942	87.69	96.20	29,353	4,549,715	50,080,608	96.46
160	557,359	46,088,252	3,528	746,470	88.77	96.66	25,825	4,132,000	50,220,252	96.72
165	478,243	46,566,495	2,935	749,405	89.69	97.04	22,890	3,776,850	50,343,345	96.96
170	417,037	46,983,532	2,484	751,889	90.49	97.36	20,406	3,469,020	50,452,552	97.17
175	385,821	47,369,353	2,231	754,120	91.23	97.65	18,175	3,180,625	50,549,978	97.36
180	341,424	47,710,777	1,919	756,039	91.89	97.90	16,256	2,926,080	50,636,857	97.53
185	324,548	48,035,325	1,774	757,813	92.52	98.12	14,482	2,679,170	50,714,495	97.68
190	260,659	48,295,984	1,387	759,200	93.02	98.30	13,095	2,488,050	50,784,034	97.81
195	232,300	48,528,284	1,204	760,404	93.47	98.46	11,891	2,318,745	50,847,029	97.93
200	212,591	48,740,875	1,074	761,478	93.88	98.60	10,817	2,163,400	50,904,275	98.04
999,999	3,180,007	51,920,882	10,817	772,295	100.00	100.00	0	0	51,920,882	100.00
TOTAL	51,920,882		772,295							
AVG. USE	67.2									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = FEBRUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-4,002	-4,002	7,035	7,035	-0.01	0.91	769,689	0	-4,002	-0.01
1	2,186	-1,816	2,186	9,221	-0.00	1.19	767,503	767,503	765,687	1.50
2	4,560	2,744	2,280	11,501	0.01	1.48	765,223	1,530,446	1,533,190	3.01
3	9,636	12,380	3,212	14,713	0.02	1.89	762,011	2,286,033	2,298,413	4.51
4	12,088	24,468	3,022	17,735	0.05	2.28	758,989	3,035,956	3,060,424	6.00
5	17,200	41,668	3,440	21,175	0.08	2.73	755,549	3,777,745	3,819,413	7.49
6	22,236	63,904	3,706	24,881	0.13	3.20	751,843	4,511,058	4,574,962	8.97
7	26,250	90,154	3,750	28,631	0.18	3.69	748,093	5,236,651	5,326,805	10.44
8	33,184	123,338	4,148	32,779	0.24	4.22	743,945	5,951,560	6,074,898	11.91
9	38,664	162,002	4,296	37,075	0.32	4.77	739,649	6,656,841	6,818,843	13.37
10	48,550	210,552	4,855	41,930	0.41	5.40	734,794	7,347,940	7,558,492	14.82
11	57,893	268,445	5,263	47,193	0.53	6.08	729,531	8,024,841	8,293,286	16.26
12	61,968	330,413	5,164	52,357	0.65	6.74	724,367	8,692,404	9,022,817	17.69
13	69,329	399,742	5,333	57,690	0.78	7.43	719,034	9,347,442	9,747,184	19.11
14	76,034	475,776	5,431	63,121	0.93	8.13	713,603	9,990,442	10,466,218	20.52
15	83,730	559,506	5,582	68,703	1.10	8.85	708,021	10,620,315	11,179,821	21.92
16	92,944	652,450	5,809	74,512	1.28	9.59	702,212	11,235,392	11,887,842	23.31
17	98,804	751,254	5,812	80,324	1.47	10.34	696,400	11,838,800	12,590,054	24.68
18	105,624	856,878	5,868	86,192	1.68	11.10	690,532	12,429,576	13,286,454	26.05
19	117,895	974,773	6,205	92,397	1.91	11.90	684,327	13,002,213	13,976,986	27.40
20	121,520	1,096,293	6,076	98,473	2.15	12.68	678,251	13,565,020	14,661,313	28.75
25	708,211	1,804,504	30,754	129,227	3.54	16.64	647,497	16,187,425	17,991,929	35.28
30	885,595	2,690,099	31,613	160,840	5.27	20.71	615,884	18,476,520	21,166,619	41.50
35	1,123,451	3,813,550	34,050	194,890	7.48	25.09	581,834	20,364,190	24,177,740	47.40
40	1,413,615	5,227,165	37,137	232,027	10.25	29.87	544,697	21,787,880	27,015,045	52.97
45	1,675,363	6,902,528	38,949	270,976	13.53	34.89	505,748	22,758,660	29,661,188	58.16
50	2,009,930	8,912,458	41,874	312,850	17.47	40.28	463,874	23,193,700	32,106,158	62.95
55	2,254,401	11,166,859	42,520	355,370	21.89	45.75	421,354	23,174,470	34,341,329	67.33
60	2,507,953	13,674,812	43,258	398,628	26.81	51.32	378,096	22,685,760	36,360,572	71.29
65	2,547,690	16,222,502	40,458	439,086	31.81	56.53	337,638	21,946,470	38,168,972	74.84
70	2,647,016	18,869,518	38,934	478,020	37.00	61.54	298,704	20,909,280	39,778,798	77.99
75	2,737,595	21,607,113	37,502	515,522	42.36	66.37	261,202	19,590,150	41,197,263	80.77
80	2,623,440	24,230,553	33,660	549,182	47.51	70.70	227,542	18,203,360	42,433,913	83.20
85	2,463,942	26,694,495	29,698	578,880	52.34	74.53	197,844	16,816,740	43,511,235	85.31
90	2,351,365	29,045,860	26,736	605,616	56.95	77.97	171,108	15,399,720	44,445,580	87.14
95	2,199,658	31,245,518	23,670	629,286	61.26	81.02	147,438	14,006,610	45,252,128	88.72
100	2,027,841	33,273,359	20,710	649,996	65.24	83.68	126,728	12,672,800	45,946,159	90.08
105	1,802,096	35,075,455	17,505	667,501	68.77	85.94	109,223	11,468,415	46,543,870	91.26
110	1,698,961	36,774,416	15,735	683,236	72.10	87.96	93,488	10,283,680	47,058,096	92.27
115	1,472,610	38,247,026	13,037	696,273	74.99	89.64	80,451	9,251,865	47,498,891	93.13
120	1,371,436	39,618,462	11,626	707,899	77.68	91.14	68,825	8,259,000	47,877,462	93.87
125	1,166,318	40,784,780	9,488	717,387	79.97	92.36	59,337	7,417,125	48,201,905	94.51
130	1,020,719	41,805,499	7,978	725,365	81.97	93.39	51,359	6,676,670	48,482,169	95.06
135	896,221	42,701,720	6,742	732,107	83.72	94.26	44,617	6,023,295	48,725,015	95.53
140	813,827	43,515,547	5,901	738,008	85.32	95.02	38,716	5,420,240	48,935,787	95.95

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = FEBRUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	732,114	44,247,661	5,124	743,132	86.75	95.68	33,592	4,870,840	49,118,501	96.30
150	601,482	44,849,143	4,065	747,197	87.93	96.20	29,527	4,429,050	49,278,193	96.62
155	550,821	45,399,964	3,602	750,799	89.01	96.66	25,925	4,018,375	49,418,339	96.89
160	494,597	45,894,561	3,131	753,930	89.98	97.07	22,794	3,647,040	49,541,601	97.13
165	413,490	46,308,051	2,537	756,467	90.79	97.39	20,257	3,342,405	49,650,456	97.35
170	368,740	46,676,791	2,196	758,663	91.52	97.67	18,061	3,070,370	49,747,161	97.54
175	346,650	47,023,441	2,004	760,667	92.20	97.93	16,057	2,809,975	49,833,416	97.71
180	289,979	47,313,420	1,630	762,297	92.77	98.14	14,427	2,596,860	49,910,280	97.86
185	282,605	47,596,025	1,545	763,842	93.32	98.34	12,882	2,383,170	49,979,195	97.99
190	247,482	47,843,507	1,317	765,159	93.81	98.51	11,565	2,197,350	50,040,857	98.11
195	212,792	48,056,299	1,103	766,262	94.22	98.65	10,462	2,040,090	50,096,389	98.22
200	203,309	48,259,608	1,027	767,289	94.62	98.79	9,435	1,887,000	50,146,608	98.32
999,999	2,743,522	51,003,130	9,435	776,724	100.00	100.00	0	0	51,003,130	100.00
TOTAL	51,003,130		776,724							
AVG. USE	65.7									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = MARCH

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-4,561	-4,561	7,335	7,335	-0.01	0.94	773,020	0	-4,561	-0.01
1	2,706	-1,855	2,706	10,041	-0.00	1.29	770,314	770,314	768,459	2.07
2	6,044	4,189	3,022	13,063	0.01	1.67	767,292	1,534,584	1,538,773	4.15
3	12,498	16,687	4,166	17,229	0.04	2.21	763,126	2,289,378	2,306,065	6.21
4	17,536	34,223	4,384	21,613	0.09	2.77	758,742	3,034,968	3,069,191	8.27
5	23,260	57,483	4,652	26,265	0.15	3.37	754,090	3,770,450	3,827,933	10.31
6	28,758	86,241	4,793	31,058	0.23	3.98	749,297	4,495,782	4,582,023	12.34
7	37,765	124,006	5,395	36,453	0.33	4.67	743,902	5,207,314	5,331,320	14.36
8	47,176	171,182	5,897	42,350	0.46	5.43	738,005	5,904,040	6,075,222	16.37
9	55,530	226,712	6,170	48,520	0.61	6.22	731,835	6,586,515	6,813,227	18.35
10	69,580	296,292	6,958	55,478	0.80	7.11	724,877	7,248,770	7,545,062	20.33
11	92,587	388,879	8,417	63,895	1.05	8.19	716,460	7,881,060	8,269,939	22.28
12	96,648	485,527	8,054	71,949	1.31	9.22	708,406	8,500,872	8,986,399	24.21
13	110,019	595,546	8,463	80,412	1.60	10.30	699,943	9,099,259	9,694,805	26.12
14	126,616	722,162	9,044	89,456	1.95	11.46	690,899	9,672,586	10,394,748	28.00
15	142,635	864,797	9,509	98,965	2.33	12.68	681,390	10,220,850	11,085,647	29.86
16	158,176	1,022,973	9,886	108,851	2.76	13.95	671,504	10,744,064	11,767,037	31.70
17	181,033	1,204,006	10,649	119,500	3.24	15.31	660,855	11,234,535	12,438,541	33.51
18	194,724	1,398,730	10,818	130,318	3.77	16.70	650,037	11,700,666	13,099,396	35.29
19	224,466	1,623,196	11,814	142,132	4.37	18.21	638,223	12,126,237	13,749,433	37.04
20	232,600	1,855,796	11,630	153,762	5.00	19.70	626,593	12,531,860	14,387,656	38.76
25	1,440,358	3,296,154	62,511	216,273	8.88	27.71	564,082	14,102,050	17,398,204	46.87
30	1,826,914	5,123,068	65,239	281,512	13.80	36.07	498,843	14,965,290	20,088,358	54.12
35	2,144,145	7,267,213	65,064	346,576	19.58	44.41	433,779	15,182,265	22,449,478	60.48
40	2,289,279	9,556,492	60,229	406,805	25.74	52.13	373,550	14,942,000	24,498,492	66.00
45	2,308,599	11,865,091	53,792	460,597	31.96	59.02	319,758	14,389,110	26,254,201	70.73
50	2,244,551	14,109,642	46,859	507,456	38.01	65.03	272,899	13,644,950	27,754,592	74.77
55	2,126,874	16,236,516	40,162	547,618	43.74	70.18	232,737	12,800,535	29,037,051	78.22
60	2,006,894	18,243,410	34,633	582,251	49.15	74.61	198,104	11,886,240	30,129,650	81.17
65	1,805,348	20,048,758	28,689	610,940	54.01	78.29	169,415	11,011,975	31,060,733	83.67
70	1,683,613	21,732,371	24,776	635,716	58.54	81.46	144,639	10,124,730	31,857,101	85.82
75	1,606,925	23,339,296	22,017	657,733	62.87	84.29	122,622	9,196,650	32,535,946	87.65
80	1,414,336	24,753,632	18,150	675,883	66.68	86.61	104,472	8,357,760	33,111,392	89.20
85	1,271,526	26,025,158	15,333	691,216	70.11	88.58	89,139	7,576,815	33,601,973	90.52
90	1,190,807	27,215,965	13,536	704,752	73.32	90.31	75,603	6,804,270	34,020,235	91.65
95	1,044,125	28,260,090	11,238	715,990	76.13	91.75	64,365	6,114,675	34,374,765	92.60
100	939,090	29,199,180	9,590	725,580	78.66	92.98	54,775	5,477,500	34,676,680	93.41
105	812,846	30,012,026	7,895	733,475	80.85	93.99	46,880	4,922,400	34,934,426	94.11
110	723,521	30,735,547	6,705	740,180	82.80	94.85	40,175	4,419,250	35,154,797	94.70
115	617,176	31,352,723	5,463	745,643	84.46	95.55	34,712	3,991,880	35,344,603	95.21
120	562,329	31,915,052	4,768	750,411	85.97	96.16	29,944	3,593,280	35,508,332	95.65
125	479,477	32,394,529	3,901	754,312	87.27	96.66	26,043	3,255,375	35,649,904	96.04
130	415,946	32,810,475	3,252	757,564	88.39	97.08	22,791	2,962,830	35,773,305	96.37
135	376,936	33,187,411	2,835	760,399	89.40	97.44	19,956	2,694,060	35,881,471	96.66
140	359,462	33,546,873	2,607	763,006	90.37	97.78	17,349	2,428,860	35,975,733	96.91

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = MARCH

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	306,819	33,853,692	2,149	765,155	91.20	98.05	15,200	2,204,000	36,057,692	97.13
150	248,643	34,102,335	1,681	766,836	91.87	98.27	13,519	2,027,850	36,130,185	97.33
155	222,593	34,324,928	1,455	768,291	92.47	98.45	12,064	1,869,920	36,194,848	97.50
160	206,957	34,531,885	1,310	769,601	93.02	98.62	10,754	1,720,640	36,252,525	97.66
165	182,690	34,714,575	1,121	770,722	93.52	98.77	9,633	1,589,445	36,304,020	97.80
170	151,319	34,865,894	901	771,623	93.92	98.88	8,732	1,484,440	36,350,334	97.92
175	143,837	35,009,731	832	772,455	94.31	98.99	7,900	1,382,500	36,392,231	98.04
180	126,997	35,136,728	714	773,169	94.65	99.08	7,186	1,293,480	36,430,208	98.14
185	118,166	35,254,894	646	773,815	94.97	99.16	6,540	1,209,900	36,464,794	98.23
190	104,865	35,359,759	558	774,373	95.25	99.23	5,982	1,136,580	36,496,339	98.32
195	89,878	35,449,637	466	774,839	95.50	99.29	5,516	1,075,620	36,525,257	98.39
200	81,413	35,531,050	411	775,250	95.72	99.35	5,105	1,021,000	36,552,050	98.47
999,999	1,590,299	37,121,349	5,105	780,355	100.00	100.00	0	0	37,121,349	100.00
TOTAL	37,121,349		780,355							
AVG. USE	47.6									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = APRIL

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-1,811	-1,811	11,918	11,918	-0.01	1.53	768,948	0	-1,811	-0.01
1	5,790	3,979	5,790	17,708	0.02	2.27	763,158	763,158	767,137	4.79
2	13,232	17,211	6,616	24,324	0.11	3.12	756,542	1,513,084	1,530,295	9.55
3	31,821	49,032	10,607	34,931	0.31	4.47	745,935	2,237,805	2,286,837	14.27
4	47,216	96,248	11,804	46,735	0.60	5.99	734,131	2,936,524	3,032,772	18.93
5	72,215	168,463	14,443	61,178	1.05	7.83	719,688	3,598,440	3,766,903	23.51
6	108,240	276,703	18,040	79,218	1.73	10.14	701,648	4,209,888	4,486,591	28.00
7	153,174	429,877	21,882	101,100	2.68	12.95	679,766	4,758,362	5,188,239	32.38
8	226,168	656,045	28,271	129,371	4.09	16.57	651,495	5,211,960	5,868,005	36.62
9	267,156	923,201	29,684	159,055	5.76	20.37	621,811	5,596,299	6,519,500	40.68
10	328,160	1,251,361	32,816	191,871	7.81	24.57	588,995	5,889,950	7,141,311	44.56
11	430,254	1,681,615	39,114	230,985	10.49	29.58	549,881	6,048,691	7,730,306	48.24
12	431,784	2,113,399	35,982	266,967	13.19	34.19	513,899	6,166,788	8,280,187	51.67
13	461,500	2,574,899	35,500	302,467	16.07	38.73	478,399	6,219,187	8,794,086	54.88
14	481,404	3,056,303	34,386	336,853	19.07	43.14	444,013	6,216,182	9,272,485	57.86
15	500,040	3,556,343	33,336	370,189	22.19	47.41	410,677	6,160,155	9,716,498	60.64
16	523,200	4,079,543	32,700	402,889	25.46	51.60	377,977	6,047,632	10,127,175	63.20
17	524,229	4,603,772	30,837	433,726	28.73	55.54	347,140	5,901,380	10,505,152	65.56
18	513,144	5,116,916	28,508	462,234	31.93	59.20	318,632	5,735,376	10,852,292	67.72
19	539,448	5,656,364	28,392	490,626	35.30	62.83	290,240	5,514,560	11,170,924	69.71
20	504,300	6,160,664	25,215	515,841	38.45	66.06	265,025	5,300,500	11,461,164	71.52
25	2,232,311	8,392,975	97,725	613,566	52.38	78.58	167,300	4,182,500	12,575,475	78.48
30	1,650,380	10,043,355	59,332	672,898	62.67	86.17	107,968	3,239,040	13,282,395	82.89
35	1,192,358	11,235,713	36,397	709,295	70.12	90.83	71,571	2,504,985	13,740,698	85.75
40	838,939	12,074,652	22,139	731,434	75.35	93.67	49,432	1,977,280	14,051,932	87.69
45	550,619	12,625,271	12,870	744,304	78.79	95.32	36,562	1,645,290	14,270,561	89.05
50	389,375	13,014,646	8,142	752,446	81.22	96.36	28,420	1,421,000	14,435,646	90.08
55	298,319	13,312,965	5,644	758,090	83.08	97.08	22,776	1,252,680	14,565,645	90.90
60	222,399	13,535,364	3,847	761,937	84.47	97.58	18,929	1,135,740	14,671,104	91.55
65	175,717	13,711,081	2,798	764,735	85.56	97.93	16,131	1,048,515	14,759,596	92.11
70	138,848	13,849,929	2,043	766,778	86.43	98.20	14,088	986,160	14,836,089	92.58
75	118,091	13,968,020	1,619	768,397	87.17	98.40	12,469	935,175	14,903,195	93.00
80	108,717	14,076,737	1,394	769,791	87.84	98.58	11,075	886,000	14,962,737	93.37
85	88,913	14,165,650	1,072	770,863	88.40	98.72	10,003	850,255	15,015,905	93.71
90	74,837	14,240,487	852	771,715	88.87	98.83	9,151	823,590	15,064,077	94.01
95	68,407	14,308,894	736	772,451	89.29	98.92	8,415	799,425	15,108,319	94.28
100	66,250	14,375,144	676	773,127	89.71	99.01	7,739	773,900	15,149,044	94.54
105	52,696	14,427,840	512	773,639	90.04	99.07	7,227	758,835	15,186,675	94.77
110	53,221	14,481,061	493	774,132	90.37	99.14	6,734	740,740	15,221,801	94.99
115	50,282	14,531,343	445	774,577	90.68	99.19	6,289	723,235	15,254,578	95.20
120	45,748	14,577,091	388	774,965	90.97	99.24	5,901	708,120	15,285,211	95.39
125	42,439	14,619,530	345	775,310	91.23	99.29	5,556	694,500	15,314,030	95.57
130	39,642	14,659,172	310	775,620	91.48	99.33	5,246	681,980	15,341,152	95.74
135	38,281	14,697,453	288	775,908	91.72	99.37	4,958	669,330	15,366,783	95.90
140	35,576	14,733,029	258	776,166	91.94	99.40	4,700	658,000	15,391,029	96.05

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = APRIL

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	36,157	14,769,186	253	776,419	92.17	99.43	4,447	644,815	15,414,001	96.19
150	30,379	14,799,565	205	776,624	92.36	99.46	4,242	636,300	15,435,865	96.33
155	32,146	14,831,711	210	776,834	92.56	99.48	4,032	624,960	15,456,671	96.46
160	25,741	14,857,452	163	776,997	92.72	99.50	3,869	619,040	15,476,492	96.58
165	26,901	14,884,353	165	777,162	92.88	99.53	3,704	611,160	15,495,513	96.70
170	29,044	14,913,397	173	777,335	93.07	99.55	3,531	600,270	15,513,667	96.81
175	24,405	14,937,802	141	777,476	93.22	99.57	3,390	593,250	15,531,052	96.92
180	25,089	14,962,891	141	777,617	93.37	99.58	3,249	584,820	15,547,711	97.02
185	26,900	14,989,791	147	777,764	93.54	99.60	3,102	573,870	15,563,661	97.12
190	22,159	15,011,950	118	777,882	93.68	99.62	2,984	566,960	15,578,910	97.22
195	25,452	15,037,402	132	778,014	93.84	99.63	2,852	556,140	15,593,542	97.31
200	25,740	15,063,142	130	778,144	94.00	99.65	2,722	544,400	15,607,542	97.40
999,999	961,405	16,024,547	2,722	780,866	100.00	100.00	0	0	16,024,547	100.00
TOTAL	16,024,547		780,866							
AVG. USE	20.5									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = MAY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-1,693	-1,693	17,957	17,957	-0.01	2.31	759,633	0	-1,693	-0.01
1	8,030	6,337	8,030	25,987	0.05	3.34	751,603	751,603	757,940	6.12
2	19,926	26,263	9,963	35,950	0.21	4.62	741,640	1,483,280	1,509,543	12.19
3	54,015	80,278	18,005	53,955	0.65	6.94	723,635	2,170,905	2,251,183	18.17
4	85,364	165,642	21,341	75,296	1.34	9.68	702,294	2,809,176	2,974,818	24.01
5	133,840	299,482	26,768	102,064	2.42	13.13	675,526	3,377,630	3,677,112	29.68
6	200,106	499,588	33,351	135,415	4.03	17.41	642,175	3,853,050	4,352,638	35.14
7	267,687	767,275	38,241	173,656	6.19	22.33	603,934	4,227,538	4,994,813	40.32
8	361,976	1,129,251	45,247	218,903	9.12	28.15	558,687	4,469,496	5,598,747	45.20
9	391,104	1,520,355	43,456	262,359	12.27	33.74	515,231	4,637,079	6,157,434	49.71
10	474,870	1,995,225	47,487	309,846	16.11	39.85	467,744	4,677,440	6,672,665	53.86
11	499,675	2,494,900	45,425	355,271	20.14	45.69	422,319	4,645,509	7,140,409	57.64
12	486,636	2,981,536	40,553	395,824	24.07	50.90	381,766	4,581,192	7,562,728	61.05
13	490,360	3,471,896	37,720	433,544	28.03	55.75	344,046	4,472,598	7,944,494	64.13
14	487,256	3,959,152	34,804	468,348	31.96	60.23	309,242	4,329,388	8,288,540	66.91
15	484,590	4,443,742	32,306	500,654	35.87	64.39	276,936	4,154,040	8,597,782	69.40
16	463,280	4,907,022	28,955	529,609	39.61	68.11	247,981	3,967,696	8,874,718	71.64
17	433,806	5,340,828	25,518	555,127	43.11	71.39	222,463	3,781,871	9,122,699	73.64
18	423,936	5,764,764	23,552	578,679	46.54	74.42	198,911	3,580,398	9,345,162	75.44
19	417,791	6,182,555	21,989	600,668	49.91	77.25	176,922	3,361,518	9,544,073	77.04
20	382,860	6,565,415	19,143	619,811	53.00	79.71	157,779	3,155,580	9,720,995	78.47
25	1,500,506	8,065,921	65,900	685,711	65.11	88.18	91,879	2,296,975	10,362,896	83.65
30	953,717	9,019,638	34,348	720,059	72.81	92.60	57,531	1,725,930	10,745,568	86.74
35	622,175	9,641,813	19,016	739,075	77.83	95.05	38,515	1,348,025	10,989,838	88.71
40	403,469	10,045,282	10,667	749,742	81.09	96.42	27,848	1,113,920	11,159,202	90.08
45	276,149	10,321,431	6,454	756,196	83.32	97.25	21,394	962,730	11,284,161	91.09
50	196,369	10,517,800	4,107	760,303	84.90	97.78	17,287	864,350	11,382,150	91.88
55	149,638	10,667,438	2,829	763,132	86.11	98.14	14,458	795,190	11,462,628	92.53
60	125,879	10,793,317	2,177	765,309	87.13	98.42	12,281	736,860	11,530,177	93.08
65	100,840	10,894,157	1,603	766,912	87.94	98.63	10,678	694,070	11,588,227	93.54
70	83,382	10,977,539	1,228	768,140	88.61	98.78	9,450	661,500	11,639,039	93.95
75	71,012	11,048,551	974	769,114	89.19	98.91	8,476	635,700	11,684,251	94.32
80	64,093	11,112,644	823	769,937	89.71	99.02	7,653	612,240	11,724,884	94.65
85	52,882	11,165,526	638	770,575	90.13	99.10	7,015	596,275	11,761,801	94.95
90	52,758	11,218,284	599	771,174	90.56	99.17	6,416	577,440	11,795,724	95.22
95	47,063	11,265,347	506	771,680	90.94	99.24	5,910	561,450	11,826,797	95.47
100	48,028	11,313,375	491	772,171	91.33	99.30	5,419	541,900	11,855,275	95.70
105	41,938	11,355,313	407	772,578	91.66	99.36	5,012	526,260	11,881,573	95.91
110	38,520	11,393,833	357	772,935	91.98	99.40	4,655	512,050	11,905,883	96.11
115	36,395	11,430,228	322	773,257	92.27	99.44	4,333	498,295	11,928,523	96.29
120	32,677	11,462,905	277	773,534	92.53	99.48	4,056	486,720	11,949,625	96.46
125	33,471	11,496,376	272	773,806	92.80	99.51	3,784	473,000	11,969,376	96.62
130	30,307	11,526,683	237	774,043	93.05	99.54	3,547	461,110	11,987,793	96.77
135	26,971	11,553,654	203	774,246	93.27	99.57	3,344	451,440	12,005,094	96.91
140	22,202	11,575,856	161	774,407	93.44	99.59	3,183	445,620	12,021,476	97.04

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = MAY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	25,849	11,601,705	181	774,588	93.65	99.61	3,002	435,290	12,036,995	97.17
150	26,637	11,628,342	180	774,768	93.87	99.64	2,822	423,300	12,051,642	97.29
155	22,782	11,651,124	149	774,917	94.05	99.66	2,673	414,315	12,065,439	97.40
160	21,335	11,672,459	135	775,052	94.22	99.67	2,538	406,080	12,078,539	97.50
165	20,536	11,692,995	126	775,178	94.39	99.69	2,412	397,980	12,090,975	97.60
170	20,985	11,713,980	125	775,303	94.56	99.71	2,287	388,790	12,102,770	97.70
175	19,530	11,733,510	113	775,416	94.72	99.72	2,174	380,450	12,113,960	97.79
180	13,882	11,747,392	78	775,494	94.83	99.73	2,096	377,280	12,124,672	97.87
185	21,047	11,768,439	115	775,609	95.00	99.75	1,981	366,485	12,134,924	97.96
190	15,603	11,784,042	83	775,692	95.13	99.76	1,898	360,620	12,144,662	98.04
195	20,245	11,804,287	105	775,797	95.29	99.77	1,793	349,635	12,153,922	98.11
200	15,236	11,819,523	77	775,874	95.41	99.78	1,716	343,200	12,162,723	98.18
999,999	568,425	12,387,948	1,716	777,590	100.00	100.00	0	0	12,387,948	100.00
TOTAL	12,387,948		777,590							
AVG. USE	15.9									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = JUNE

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-12,502	-12,502	24,506	24,506	-0.12	3.15	753,183	0	-12,502	-0.12
1	9,343	-3,159	9,343	33,849	-0.03	4.35	743,840	743,840	740,681	7.16
2	24,710	21,551	12,355	46,204	0.21	5.94	731,485	1,462,970	1,484,521	14.35
3	83,238	104,789	27,746	73,950	1.01	9.51	703,739	2,111,217	2,216,006	21.41
4	132,896	237,685	33,224	107,174	2.30	13.78	670,515	2,682,060	2,919,745	28.22
5	189,625	427,310	37,925	145,099	4.13	18.66	632,590	3,162,950	3,590,260	34.70
6	271,260	698,570	45,210	190,309	6.75	24.47	587,380	3,524,280	4,222,850	40.81
7	343,147	1,041,717	49,021	239,330	10.07	30.77	538,359	3,768,513	4,810,230	46.48
8	426,992	1,468,709	53,374	292,704	14.19	37.64	484,985	3,879,880	5,348,589	51.69
9	438,390	1,907,099	48,710	341,414	18.43	43.90	436,275	3,926,475	5,833,574	56.37
10	460,830	2,367,929	46,083	387,497	22.88	49.83	390,192	3,901,920	6,269,849	60.59
11	550,484	2,918,413	50,044	437,541	28.20	56.26	340,148	3,741,628	6,660,041	64.36
12	468,492	3,386,905	39,041	476,582	32.73	61.28	301,107	3,613,284	7,000,189	67.65
13	451,633	3,838,538	34,741	511,323	37.09	65.75	266,366	3,462,758	7,301,296	70.56
14	436,338	4,274,876	31,167	542,490	41.31	69.76	235,199	3,292,786	7,567,662	73.13
15	416,400	4,691,276	27,760	570,250	45.34	73.33	207,439	3,111,585	7,802,861	75.40
16	392,240	5,083,516	24,515	594,765	49.13	76.48	182,924	2,926,784	8,010,300	77.41
17	379,015	5,462,531	22,295	617,060	52.79	79.35	160,629	2,730,693	8,193,224	79.18
18	329,328	5,791,859	18,296	635,356	55.97	81.70	142,333	2,561,994	8,353,853	80.73
19	318,212	6,110,071	16,748	652,104	59.05	83.85	125,585	2,386,115	8,496,186	82.10
20	289,240	6,399,311	14,462	666,566	61.84	85.71	111,123	2,222,460	8,621,771	83.32
25	1,111,046	7,510,357	48,856	715,422	72.58	91.99	62,267	1,556,675	9,067,032	87.62
30	662,954	8,173,311	23,902	739,324	78.98	95.07	38,365	1,150,950	9,324,261	90.11
35	420,997	8,594,308	12,829	752,153	83.05	96.72	25,536	893,760	9,488,068	91.69
40	257,577	8,851,885	6,811	758,964	85.54	97.59	18,725	749,000	9,600,885	92.78
45	172,908	9,024,793	4,040	763,004	87.21	98.11	14,685	660,825	9,685,618	93.60
50	131,759	9,156,552	2,754	765,758	88.49	98.47	11,931	596,550	9,753,102	94.25
55	103,506	9,260,058	1,958	767,716	89.49	98.72	9,973	548,515	9,808,573	94.79
60	86,521	9,346,579	1,493	769,209	90.32	98.91	8,480	508,800	9,855,379	95.24
65	71,945	9,418,524	1,143	770,352	91.02	99.06	7,337	476,905	9,895,429	95.63
70	63,495	9,482,019	936	771,288	91.63	99.18	6,401	448,070	9,930,089	95.96
75	50,433	9,532,452	691	771,979	92.12	99.27	5,710	428,250	9,960,702	96.26
80	49,112	9,581,564	631	772,610	92.59	99.35	5,079	406,320	9,987,884	96.52
85	42,402	9,623,966	511	773,121	93.00	99.41	4,568	388,280	10,012,246	96.76
90	36,006	9,659,972	410	773,531	93.35	99.47	4,158	374,220	10,034,192	96.97
95	39,684	9,699,656	427	773,958	93.73	99.52	3,731	354,445	10,054,101	97.16
100	32,703	9,732,359	334	774,292	94.05	99.56	3,397	339,700	10,072,059	97.33
105	29,238	9,761,597	284	774,576	94.33	99.60	3,113	326,865	10,088,462	97.49
110	25,355	9,786,952	235	774,811	94.58	99.63	2,878	316,580	10,103,532	97.64
115	26,260	9,813,212	233	775,044	94.83	99.66	2,645	304,175	10,117,387	97.77
120	21,741	9,834,953	184	775,228	95.04	99.68	2,461	295,320	10,130,273	97.90
125	20,914	9,855,867	170	775,398	95.24	99.71	2,291	286,375	10,142,242	98.01
130	23,150	9,879,017	181	775,579	95.47	99.73	2,110	274,300	10,153,317	98.12
135	19,154	9,898,171	144	775,723	95.65	99.75	1,966	265,410	10,163,581	98.22
140	17,076	9,915,247	124	775,847	95.82	99.76	1,842	257,880	10,173,127	98.31

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = JUNE

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	19,144	9,934,391	134	775,981	96.00	99.78	1,708	247,660	10,182,051	98.40
150	13,900	9,948,291	94	776,075	96.14	99.79	1,614	242,100	10,190,391	98.48
155	17,133	9,965,424	112	776,187	96.30	99.81	1,502	232,810	10,198,234	98.55
160	14,389	9,979,813	91	776,278	96.44	99.82	1,411	225,760	10,205,573	98.62
165	13,192	9,993,005	81	776,359	96.57	99.83	1,330	219,450	10,212,455	98.69
170	12,098	10,005,103	72	776,431	96.69	99.84	1,258	213,860	10,218,963	98.75
175	11,753	10,016,856	68	776,499	96.80	99.85	1,190	208,250	10,225,106	98.81
180	15,318	10,032,174	86	776,585	96.95	99.86	1,104	198,720	10,230,894	98.87
185	13,352	10,045,526	73	776,658	97.08	99.87	1,031	190,735	10,236,261	98.92
190	12,404	10,057,930	66	776,724	97.20	99.88	965	183,350	10,241,280	98.97
195	11,573	10,069,503	60	776,784	97.31	99.88	905	176,475	10,245,978	99.01
200	11,102	10,080,605	56	776,840	97.42	99.89	849	169,800	10,250,405	99.06
999,999	267,359	10,347,964	849	777,689	100.00	100.00	0	0	10,347,964	100.00
TOTAL	10,347,964		777,689							
AVG. USE	13.3									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = JULY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-172	-172	28,508	28,508	-0.00	3.66	750,570	0	-172	-0.00
1	11,060	10,888	11,060	39,568	0.12	5.08	739,510	739,510	750,398	8.59
2	31,890	42,778	15,945	55,513	0.49	7.13	723,565	1,447,130	1,489,908	17.06
3	125,325	168,103	41,775	97,288	1.93	12.49	681,790	2,045,370	2,213,473	25.35
4	191,380	359,483	47,845	145,133	4.12	18.63	633,945	2,535,780	2,895,263	33.16
5	256,735	616,218	51,347	196,480	7.06	25.22	582,598	2,912,990	3,529,208	40.42
6	333,636	949,854	55,606	252,086	10.88	32.36	526,992	3,161,952	4,111,806	47.10
7	392,770	1,342,624	56,110	308,196	15.38	39.56	470,882	3,296,174	4,638,798	53.13
8	429,248	1,771,872	53,656	361,852	20.29	46.45	417,226	3,337,808	5,109,680	58.52
9	485,172	2,257,044	53,908	415,760	25.85	53.37	363,318	3,269,862	5,526,906	63.30
10	454,240	2,711,284	45,424	461,184	31.05	59.20	317,894	3,178,940	5,890,224	67.46
11	479,039	3,190,323	43,549	504,733	36.54	64.79	274,345	3,017,795	6,208,118	71.11
12	461,712	3,652,035	38,476	543,209	41.83	69.72	235,869	2,830,428	6,482,463	74.25
13	401,804	4,053,839	30,908	574,117	46.43	73.69	204,961	2,664,493	6,718,332	76.95
14	377,552	4,431,391	26,968	601,085	50.76	77.15	177,993	2,491,902	6,923,293	79.30
15	348,525	4,779,916	23,235	624,320	54.75	80.14	154,758	2,321,370	7,101,286	81.34
16	319,056	5,098,972	19,941	644,261	58.40	82.70	134,817	2,157,072	7,256,044	83.11
17	299,115	5,398,087	17,595	661,856	61.83	84.95	117,222	1,992,774	7,390,861	84.65
18	270,882	5,668,969	15,049	676,905	64.93	86.89	102,173	1,839,114	7,508,083	86.00
19	246,069	5,915,038	12,951	689,856	67.75	88.55	89,222	1,695,218	7,610,256	87.17
20	227,900	6,142,938	11,395	701,251	70.36	90.01	77,827	1,556,540	7,699,478	88.19
25	804,106	6,947,044	35,444	736,695	79.57	94.56	42,383	1,059,575	8,006,619	91.71
30	473,373	7,420,417	17,087	753,782	84.99	96.75	25,296	758,880	8,179,297	93.68
35	276,904	7,697,321	8,455	762,237	88.16	97.84	16,841	589,435	8,286,756	94.91
40	177,208	7,874,529	4,691	766,928	90.19	98.44	12,150	486,000	8,360,529	95.76
45	127,209	8,001,738	2,971	769,899	91.65	98.82	9,179	413,055	8,414,793	96.38
50	95,331	8,097,069	1,994	771,893	92.74	99.08	7,185	359,250	8,456,319	96.86
55	74,400	8,171,469	1,409	773,302	93.59	99.26	5,776	317,680	8,489,149	97.23
60	63,144	8,234,613	1,091	774,393	94.32	99.40	4,685	281,100	8,515,713	97.54
65	49,228	8,283,841	782	775,175	94.88	99.50	3,903	253,695	8,537,536	97.79
70	39,466	8,323,307	581	775,756	95.33	99.57	3,322	232,540	8,555,847	98.00
75	33,973	8,357,280	465	776,221	95.72	99.63	2,857	214,275	8,571,555	98.18
80	29,458	8,386,738	378	776,599	96.06	99.68	2,479	198,320	8,585,058	98.33
85	25,134	8,411,872	303	776,902	96.35	99.72	2,176	184,960	8,596,832	98.47
90	24,178	8,436,050	275	777,177	96.62	99.76	1,901	171,090	8,607,140	98.58
95	21,629	8,457,679	233	777,410	96.87	99.79	1,668	158,460	8,616,139	98.69
100	17,012	8,474,691	174	777,584	97.07	99.81	1,494	149,400	8,624,091	98.78
105	16,374	8,491,065	159	777,743	97.25	99.83	1,335	140,175	8,631,240	98.86
110	15,517	8,506,582	144	777,887	97.43	99.85	1,191	131,010	8,637,592	98.93
115	15,804	8,522,386	140	778,027	97.61	99.87	1,051	120,865	8,643,251	99.00
120	9,894	8,532,280	84	778,111	97.73	99.88	967	116,040	8,648,320	99.06
125	10,786	8,543,066	88	778,199	97.85	99.89	879	109,875	8,652,941	99.11
130	9,097	8,552,163	71	778,270	97.95	99.90	808	105,040	8,657,203	99.16
135	8,517	8,560,680	64	778,334	98.05	99.90	744	100,440	8,661,120	99.20
140	8,408	8,569,088	61	778,395	98.15	99.91	683	95,620	8,664,708	99.24

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = AUGUST

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	31,001	31,001	0.00	3.97	749,599	0	0	0.00
1	12,404	12,404	12,404	43,405	0.16	5.56	737,195	737,195	749,599	9.68
2	42,878	55,282	21,439	64,844	0.71	8.31	715,756	1,431,512	1,486,794	19.19
3	164,583	219,865	54,861	119,705	2.84	15.33	660,895	1,982,685	2,202,550	28.43
4	234,884	454,749	58,721	178,426	5.87	22.86	602,174	2,408,696	2,863,445	36.97
5	299,150	753,899	59,830	238,256	9.73	30.52	542,344	2,711,720	3,465,619	44.74
6	374,538	1,128,437	62,423	300,679	14.57	38.52	479,921	2,879,526	4,007,963	51.74
7	418,334	1,546,771	59,762	360,441	19.97	46.17	420,159	2,941,113	4,487,884	57.94
8	447,352	1,994,123	55,919	416,360	25.74	53.34	364,240	2,913,920	4,908,043	63.36
9	466,542	2,460,665	51,838	468,198	31.77	59.98	312,402	2,811,618	5,272,283	68.06
10	434,950	2,895,615	43,495	511,693	37.38	65.55	268,907	2,689,070	5,584,685	72.10
11	454,003	3,349,618	41,273	552,966	43.24	70.84	227,634	2,503,974	5,853,592	75.57
12	409,884	3,759,502	34,157	587,123	48.53	75.21	193,477	2,321,724	6,081,226	78.51
13	358,397	4,117,899	27,569	614,692	53.16	78.75	165,908	2,156,804	6,274,703	81.00
14	332,318	4,450,217	23,737	638,429	57.45	81.79	142,171	1,990,394	6,440,611	83.15
15	298,380	4,748,597	19,892	658,321	61.30	84.34	122,279	1,834,185	6,582,782	84.98
16	271,904	5,020,501	16,994	675,315	64.81	86.51	105,285	1,684,560	6,705,061	86.56
17	248,778	5,269,279	14,634	689,949	68.02	88.39	90,651	1,541,067	6,810,346	87.92
18	222,732	5,492,011	12,374	702,323	70.90	89.97	78,277	1,408,986	6,900,997	89.09
19	200,659	5,692,670	10,561	712,884	73.49	91.33	67,716	1,286,604	6,979,274	90.10
20	181,000	5,873,670	9,050	721,934	75.83	92.48	58,666	1,173,320	7,046,990	90.97
25	629,017	6,502,687	27,755	749,689	83.95	96.04	30,911	772,775	7,275,462	93.92
30	349,167	6,851,854	12,598	762,287	88.45	97.65	18,313	549,390	7,401,244	95.55
35	209,482	7,061,336	6,401	768,688	91.16	98.47	11,912	416,920	7,478,256	96.54
40	129,394	7,190,730	3,427	772,115	92.83	98.91	8,485	339,400	7,530,130	97.21
45	96,476	7,287,206	2,256	774,371	94.07	99.20	6,229	280,305	7,567,511	97.69
50	70,465	7,357,671	1,472	775,843	94.98	99.39	4,757	237,850	7,595,521	98.06
55	53,942	7,411,613	1,022	776,865	95.68	99.52	3,735	205,425	7,617,038	98.33
60	42,614	7,454,227	736	777,601	96.23	99.62	2,999	179,940	7,634,167	98.55
65	36,417	7,490,644	578	778,179	96.70	99.69	2,421	157,365	7,648,009	98.73
70	30,250	7,520,894	445	778,624	97.09	99.75	1,976	138,320	7,659,214	98.88
75	23,366	7,544,260	320	778,944	97.39	99.79	1,656	124,200	7,668,460	99.00
80	21,756	7,566,016	279	779,223	97.67	99.82	1,377	110,160	7,676,176	99.10
85	16,911	7,582,927	204	779,427	97.89	99.85	1,173	99,705	7,682,632	99.18
90	14,589	7,597,516	166	779,593	98.08	99.87	1,007	90,630	7,688,146	99.25
95	12,337	7,609,853	133	779,726	98.24	99.89	874	83,030	7,692,883	99.31
100	10,856	7,620,709	111	779,837	98.38	99.90	763	76,300	7,697,009	99.37
105	10,188	7,630,897	99	779,936	98.51	99.91	664	69,720	7,700,617	99.41
110	9,827	7,640,724	91	780,027	98.64	99.93	573	63,030	7,703,754	99.45
115	8,255	7,648,979	73	780,100	98.75	99.94	500	57,500	7,706,479	99.49
120	6,139	7,655,118	52	780,152	98.82	99.94	448	53,760	7,708,878	99.52
125	5,146	7,660,264	42	780,194	98.89	99.95	406	50,750	7,711,014	99.55
130	5,116	7,665,380	40	780,234	98.96	99.95	366	47,580	7,712,960	99.57
135	5,184	7,670,564	39	780,273	99.02	99.96	327	44,145	7,714,709	99.59
140	3,460	7,674,024	25	780,298	99.07	99.96	302	42,280	7,716,304	99.61

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-5 CLASS = RESIDENTIAL AREA = ARIZONA PERIOD = AUGUST

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	3,841	7,677,865	27	780,325	99.12	99.96	275	39,875	7,717,740	99.63
150	2,806	7,680,671	19	780,344	99.15	99.97	256	38,400	7,719,071	99.65
155	2,743	7,683,414	18	780,362	99.19	99.97	238	36,890	7,720,304	99.67
160	3,002	7,686,416	19	780,381	99.23	99.97	219	35,040	7,721,456	99.68
165	2,455	7,688,871	15	780,396	99.26	99.97	204	33,660	7,722,531	99.69
170	3,194	7,692,065	19	780,415	99.30	99.98	185	31,450	7,723,515	99.71
175	3,281	7,695,346	19	780,434	99.34	99.98	166	29,050	7,724,396	99.72
180	1,596	7,696,942	9	780,443	99.36	99.98	157	28,260	7,725,202	99.73
185	2,013	7,698,955	11	780,454	99.39	99.98	146	27,010	7,725,965	99.74
190	2,257	7,701,212	12	780,466	99.42	99.98	134	25,460	7,726,672	99.75
195	1,157	7,702,369	6	780,472	99.43	99.98	128	24,960	7,727,329	99.76
200	1,786	7,704,155	9	780,481	99.46	99.98	119	23,800	7,727,955	99.76
999,999	42,029	7,746,184	119	780,600	100.00	100.00	0	0	7,746,184	100.00
TOTAL	7,746,184		780,600							
AVG. USE	9.9									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = SEPTEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	844	844	0.00	2.68	30,620	0	0	0.00
1	526	526	526	1,370	0.16	4.35	30,094	30,094	30,620	9.30
2	1,364	1,890	682	2,052	0.57	6.52	29,412	58,824	60,714	18.45
3	5,244	7,134	1,748	3,800	2.17	12.08	27,664	82,992	90,126	27.39
4	8,224	15,358	2,056	5,856	4.67	18.61	25,608	102,432	117,790	35.79
5	11,145	26,503	2,229	8,085	8.05	25.70	23,379	116,895	143,398	43.58
6	13,254	39,757	2,209	10,294	12.08	32.72	21,170	127,020	166,777	50.68
7	15,148	54,905	2,164	12,458	16.68	39.59	19,006	133,042	187,947	57.11
8	18,184	73,089	2,273	14,731	22.21	46.82	16,733	133,864	206,953	62.89
9	17,559	90,648	1,951	16,682	27.55	53.02	14,782	133,038	223,686	67.97
10	23,520	114,168	2,352	19,034	34.69	60.49	12,430	124,300	238,468	72.46
11	19,008	133,176	1,728	20,762	40.47	65.99	10,702	117,722	250,898	76.24
12	17,616	150,792	1,468	22,230	45.82	70.65	9,234	110,808	261,600	79.49
13	18,057	168,849	1,389	23,619	51.31	75.07	7,845	101,985	270,834	82.30
14	16,324	185,173	1,166	24,785	56.27	78.77	6,679	93,506	278,679	84.68
15	14,205	199,378	947	25,732	60.59	81.78	5,732	85,980	285,358	86.71
16	14,128	213,506	883	26,615	64.88	84.59	4,849	77,584	291,090	88.45
17	11,764	225,270	692	27,307	68.45	86.79	4,157	70,669	295,939	89.93
18	11,448	236,718	636	27,943	71.93	88.81	3,521	63,378	300,096	91.19
19	10,203	246,921	537	28,480	75.03	90.52	2,984	56,696	303,617	92.26
20	8,800	255,721	440	28,920	77.71	91.91	2,544	50,880	306,601	93.17
25	31,451	287,172	1,388	30,308	87.26	96.33	1,156	28,900	316,072	96.05
30	17,728	304,900	640	30,948	92.65	98.36	516	15,480	320,380	97.36
35	8,833	313,733	271	31,219	95.34	99.22	245	8,575	322,308	97.94
40	3,774	317,507	101	31,320	96.48	99.54	144	5,760	323,267	98.23
45	2,446	319,953	57	31,377	97.23	99.72	87	3,915	323,868	98.42
50	1,189	321,142	25	31,402	97.59	99.80	62	3,100	324,242	98.53
55	1,310	322,452	25	31,427	97.99	99.88	37	2,035	324,487	98.60
60	748	323,200	13	31,440	98.21	99.92	24	1,440	324,640	98.65
65	316	323,516	5	31,445	98.31	99.94	19	1,235	324,751	98.68
70	67	323,583	1	31,446	98.33	99.94	18	1,260	324,843	98.71
75	71	323,654	1	31,447	98.35	99.95	17	1,275	324,929	98.74
80	546	324,200	7	31,454	98.52	99.97	10	800	325,000	98.76
85	81	324,281	1	31,455	98.54	99.97	9	765	325,046	98.77
90	0	324,281	0	31,455	98.54	99.97	9	810	325,091	98.79
95	91	324,372	1	31,456	98.57	99.97	8	760	325,132	98.80
100	197	324,569	2	31,458	98.63	99.98	6	600	325,169	98.81
105	102	324,671	1	31,459	98.66	99.98	5	525	325,196	98.82
110	107	324,778	1	31,460	98.69	99.99	4	440	325,218	98.83
115	0	324,778	0	31,460	98.69	99.99	4	460	325,238	98.83
120	0	324,778	0	31,460	98.69	99.99	4	480	325,258	98.84
125	124	324,902	1	31,461	98.73	99.99	3	375	325,277	98.84
130	0	324,902	0	31,461	98.73	99.99	3	390	325,292	98.85
135	132	325,034	1	31,462	98.77	99.99	2	270	325,304	98.85
140	0	325,034	0	31,462	98.77	99.99	2	280	325,314	98.85

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = SEPTEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	325,034	0	31,462	98.77	99.99	2	290	325,324	98.86
150	0	325,034	0	31,462	98.77	99.99	2	300	325,334	98.86
155	0	325,034	0	31,462	98.77	99.99	2	310	325,344	98.86
160	0	325,034	0	31,462	98.77	99.99	2	320	325,354	98.87
165	0	325,034	0	31,462	98.77	99.99	2	330	325,364	98.87
170	0	325,034	0	31,462	98.77	99.99	2	340	325,374	98.87
175	0	325,034	0	31,462	98.77	99.99	2	350	325,384	98.88
180	179	325,213	1	31,463	98.82	100.00	1	180	325,393	98.88
185	0	325,213	0	31,463	98.82	100.00	1	185	325,398	98.88
190	0	325,213	0	31,463	98.82	100.00	1	190	325,403	98.88
195	0	325,213	0	31,463	98.82	100.00	1	195	325,408	98.88
200	0	325,213	0	31,463	98.82	100.00	1	200	325,413	98.88
999,999	3,870	329,083	1	31,464	100.00	100.00	0	0	329,083	100.00
TOTAL	329,083		31,464							

AVG. USE 10.5

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = OCTOBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-10	-10	707	707	-0.00	2.24	30,914	0	-10	-0.00
1	455	445	455	1,162	0.12	3.67	30,459	30,459	30,904	8.67
2	1,234	1,679	617	1,779	0.47	5.63	29,842	59,684	61,363	17.22
3	4,143	5,822	1,381	3,160	1.63	9.99	28,461	85,383	91,205	25.60
4	7,120	12,942	1,780	4,940	3.63	15.62	26,681	106,724	119,666	33.59
5	9,770	22,712	1,954	6,894	6.38	21.80	24,727	123,635	146,347	41.08
6	12,168	34,880	2,028	8,922	9.79	28.22	22,699	136,194	171,074	48.02
7	14,686	49,566	2,098	11,020	13.91	34.85	20,601	144,207	193,773	54.39
8	17,384	66,950	2,173	13,193	18.79	41.72	18,428	147,424	214,374	60.17
9	17,208	84,158	1,912	15,105	23.62	47.77	16,516	148,644	232,802	65.34
10	24,780	108,938	2,478	17,583	30.58	55.61	14,038	140,380	249,318	69.98
11	17,919	126,857	1,629	19,212	35.61	60.76	12,409	136,499	263,356	73.92
12	19,164	146,021	1,597	20,809	40.99	65.81	10,812	129,744	275,765	77.40
13	17,017	163,038	1,309	22,118	45.76	69.95	9,503	123,539	286,577	80.44
14	19,026	182,064	1,359	23,477	51.10	74.24	8,144	114,016	296,080	83.11
15	16,155	198,219	1,077	24,554	55.64	77.65	7,067	106,005	304,224	85.39
16	15,760	213,979	985	25,539	60.06	80.77	6,082	97,312	311,291	87.38
17	15,079	229,058	887	26,426	64.29	83.57	5,195	88,315	317,373	89.08
18	12,888	241,946	716	27,142	67.91	85.84	4,479	80,622	322,568	90.54
19	11,381	253,327	599	27,741	71.11	87.73	3,880	73,720	327,047	91.80
20	11,480	264,807	574	28,315	74.33	89.54	3,306	66,120	330,927	92.89
25	39,961	304,768	1,757	30,072	85.55	95.10	1,549	38,725	343,493	96.41
30	22,059	326,827	796	30,868	91.74	97.62	753	22,590	349,417	98.08
35	12,392	339,219	381	31,249	95.22	98.82	372	13,020	352,239	98.87
40	6,678	345,897	177	31,426	97.09	99.38	195	7,800	353,697	99.28
45	3,245	349,142	76	31,502	98.00	99.62	119	5,355	354,497	99.50
50	2,251	351,393	47	31,549	98.63	99.77	72	3,600	354,993	99.64
55	1,166	352,559	22	31,571	98.96	99.84	50	2,750	355,309	99.73
60	578	353,137	10	31,581	99.12	99.87	40	2,400	355,537	99.80
65	944	354,081	15	31,596	99.39	99.92	25	1,625	355,706	99.84
70	483	354,564	7	31,603	99.52	99.94	18	1,260	355,824	99.88
75	74	354,638	1	31,604	99.54	99.95	17	1,275	355,913	99.90
80	233	354,871	3	31,607	99.61	99.96	14	1,120	355,991	99.92
85	501	355,372	6	31,613	99.75	99.97	8	680	356,052	99.94
90	176	355,548	2	31,615	99.80	99.98	6	540	356,088	99.95
95	184	355,732	2	31,617	99.85	99.99	4	380	356,112	99.96
100	0	355,732	0	31,617	99.85	99.99	4	400	356,132	99.96
105	0	355,732	0	31,617	99.85	99.99	4	420	356,152	99.97
110	106	355,838	1	31,618	99.88	99.99	3	330	356,168	99.97
115	115	355,953	1	31,619	99.91	99.99	2	230	356,183	99.98
120	0	355,953	0	31,619	99.91	99.99	2	240	356,193	99.98
125	0	355,953	0	31,619	99.91	99.99	2	250	356,203	99.98
130	128	356,081	1	31,620	99.95	100.00	1	130	356,211	99.98
135	0	356,081	0	31,620	99.95	100.00	1	135	356,216	99.99
140	0	356,081	0	31,620	99.95	100.00	1	140	356,221	99.99

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = OCTOBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	356,081	0	31,620	99.95	100.00	1	145	356,226	99.99
150	0	356,081	0	31,620	99.95	100.00	1	150	356,231	99.99
155	0	356,081	0	31,620	99.95	100.00	1	155	356,236	99.99
160	0	356,081	0	31,620	99.95	100.00	1	160	356,241	99.99
165	0	356,081	0	31,620	99.95	100.00	1	165	356,246	99.99
170	0	356,081	0	31,620	99.95	100.00	1	170	356,251	100.00
175	0	356,081	0	31,620	99.95	100.00	1	175	356,256	100.00
180	0	356,081	0	31,620	99.95	100.00	1	180	356,261	100.00
185	185	356,266	1	31,621	100.00	100.00	0	0	356,266	100.00
190	0	356,266	0	31,621	100.00	100.00	0	0	356,266	100.00
195	0	356,266	0	31,621	100.00	100.00	0	0	356,266	100.00
200	0	356,266	0	31,621	100.00	100.00	0	0	356,266	100.00
999,999	0	356,266	0	31,621	100.00	100.00	0	0	356,266	100.00
TOTAL	356,266		31,621							
AVG. USE	11.3									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = NOVEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-15	-15	340	340	-0.00	1.08	31,249	0	-15	-0.00
1	238	223	238	578	0.04	1.83	31,011	31,011	31,234	5.30
2	552	775	276	854	0.13	2.70	30,735	61,470	62,245	10.57
3	1,428	2,203	476	1,330	0.37	4.21	30,259	90,777	92,980	15.79
4	2,792	4,995	698	2,028	0.85	6.42	29,561	118,244	123,239	20.93
5	4,695	9,690	939	2,967	1.65	9.39	28,622	143,110	152,800	25.95
6	6,198	15,888	1,033	4,000	2.70	12.66	27,589	165,534	181,422	30.81
7	7,882	23,770	1,126	5,126	4.04	16.23	26,463	185,241	209,011	35.49
8	10,776	34,546	1,347	6,473	5.87	20.49	25,116	200,928	235,474	39.99
9	11,151	45,697	1,239	7,712	7.76	24.41	23,877	214,893	260,590	44.25
10	16,100	61,797	1,610	9,322	10.49	29.51	22,267	222,670	284,467	48.30
11	15,499	77,296	1,409	10,731	13.13	33.97	20,858	229,438	306,734	52.09
12	15,936	93,232	1,328	12,059	15.83	38.17	19,530	234,360	327,592	55.63
13	16,471	109,703	1,267	13,326	18.63	42.19	18,263	237,419	347,122	58.94
14	17,444	127,147	1,246	14,572	21.59	46.13	17,017	238,238	365,385	62.05
15	17,430	144,577	1,162	15,734	24.55	49.81	15,855	237,825	382,402	64.94
16	19,184	163,761	1,199	16,933	27.81	53.60	14,656	234,496	398,257	67.63
17	18,207	181,968	1,071	18,004	30.90	56.99	13,585	230,945	412,913	70.12
18	19,278	201,246	1,071	19,075	34.17	60.38	12,514	225,252	426,498	72.42
19	17,594	218,840	926	20,001	37.16	63.32	11,588	220,172	439,012	74.55
20	18,840	237,680	942	20,943	40.36	66.30	10,646	212,920	450,600	76.52
25	81,125	318,805	3,550	24,493	54.14	77.54	7,096	177,400	496,205	84.26
30	66,551	385,356	2,394	26,887	65.44	85.12	4,702	141,060	526,416	89.39
35	55,257	440,613	1,692	28,579	74.82	90.47	3,010	105,350	545,963	92.71
40	37,047	477,660	980	29,559	81.11	93.57	2,030	81,200	558,860	94.90
45	27,657	505,317	647	30,206	85.81	95.62	1,383	62,235	567,552	96.38
50	21,153	526,470	442	30,648	89.40	97.02	941	47,050	573,520	97.39
55	15,254	541,724	290	30,938	91.99	97.94	651	35,805	577,529	98.07
60	10,929	552,653	189	31,127	93.85	98.54	462	27,720	580,373	98.55
65	8,619	561,272	137	31,264	95.31	98.97	325	21,125	582,397	98.90
70	6,391	567,663	94	31,358	96.39	99.27	231	16,170	583,833	99.14
75	4,082	571,745	56	31,414	97.09	99.45	175	13,125	584,870	99.32
80	3,789	575,534	49	31,463	97.73	99.60	126	10,080	585,614	99.44
85	2,156	577,690	26	31,489	98.10	99.68	100	8,500	586,190	99.54
90	1,232	578,922	14	31,503	98.31	99.73	86	7,740	586,662	99.62
95	2,491	581,413	27	31,530	98.73	99.81	59	5,605	587,018	99.68
100	1,076	582,489	11	31,541	98.91	99.85	48	4,800	587,289	99.73
105	1,126	583,615	11	31,552	99.10	99.88	37	3,885	587,500	99.76
110	982	584,597	9	31,561	99.27	99.91	28	3,080	587,677	99.79
115	684	585,281	6	31,567	99.39	99.93	22	2,530	587,811	99.82
120	597	585,878	5	31,572	99.49	99.95	17	2,040	587,918	99.83
125	488	586,366	4	31,576	99.57	99.96	13	1,625	587,991	99.85
130	127	586,493	1	31,577	99.59	99.96	12	1,560	588,053	99.86
135	0	586,493	0	31,577	99.59	99.96	12	1,620	588,113	99.87
140	0	586,493	0	31,577	99.59	99.96	12	1,680	588,173	99.88

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = NOVEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	428	586,921	3	31,580	99.66	99.97	9	1,305	588,226	99.89
150	299	587,220	2	31,582	99.71	99.98	7	1,050	588,270	99.89
155	0	587,220	0	31,582	99.71	99.98	7	1,085	588,305	99.90
160	0	587,220	0	31,582	99.71	99.98	7	1,120	588,340	99.91
165	161	587,381	1	31,583	99.74	99.98	6	990	588,371	99.91
170	0	587,381	0	31,583	99.74	99.98	6	1,020	588,401	99.92
175	173	587,554	1	31,584	99.77	99.98	5	875	588,429	99.92
180	0	587,554	0	31,584	99.77	99.98	5	900	588,454	99.92
185	0	587,554	0	31,584	99.77	99.98	5	925	588,479	99.93
190	0	587,554	0	31,584	99.77	99.98	5	950	588,504	99.93
195	0	587,554	0	31,584	99.77	99.98	5	975	588,529	99.94
200	0	587,554	0	31,584	99.77	99.98	5	1,000	588,554	99.94
999,999	1,345	588,899	5	31,589	100.00	100.00	0	0	588,899	100.00
TOTAL	588,899		31,589							

AVG. USE 18.6

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = DECEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-1	-1	163	163	-0.00	0.52	31,370	0	-1	-0.00
1	74	73	74	237	0.00	0.75	31,296	31,296	31,369	1.96
2	132	205	66	303	0.01	0.96	31,230	62,460	62,665	3.91
3	321	526	107	410	0.03	1.30	31,123	93,369	93,895	5.85
4	436	962	109	519	0.06	1.65	31,014	124,056	125,018	7.79
5	710	1,672	142	661	0.10	2.10	30,872	154,360	156,032	9.73
6	906	2,578	151	812	0.16	2.58	30,721	184,326	186,904	11.65
7	1,267	3,845	181	993	0.24	3.15	30,540	213,780	217,625	13.56
8	1,632	5,477	204	1,197	0.34	3.80	30,336	242,688	248,165	15.47
9	1,908	7,385	212	1,409	0.46	4.47	30,124	271,116	278,501	17.36
10	3,140	10,525	314	1,723	0.66	5.46	29,810	298,100	308,625	19.24
11	2,860	13,385	260	1,983	0.83	6.29	29,550	325,050	338,435	21.09
12	3,492	16,877	291	2,274	1.05	7.21	29,259	351,108	367,985	22.94
13	4,199	21,076	323	2,597	1.31	8.24	28,936	376,168	397,244	24.76
14	4,410	25,486	315	2,912	1.59	9.23	28,621	400,694	426,180	26.56
15	4,980	30,466	332	3,244	1.90	10.29	28,289	424,335	454,801	28.35
16	5,408	35,874	338	3,582	2.24	11.36	27,951	447,216	483,090	30.11
17	5,253	41,127	309	3,891	2.56	12.34	27,642	469,914	511,041	31.85
18	6,462	47,589	359	4,250	2.97	13.48	27,283	491,094	538,683	33.57
19	7,353	54,942	387	4,637	3.42	14.71	26,896	511,024	565,966	35.28
20	6,960	61,902	348	4,985	3.86	15.81	26,548	530,960	592,862	36.95
25	49,289	111,191	2,139	7,124	6.93	22.59	24,409	610,225	721,416	44.96
30	61,666	172,857	2,199	9,323	10.77	29.57	22,210	666,300	839,157	52.30
35	77,294	250,151	2,344	11,667	15.59	37.00	19,866	695,310	945,461	58.93
40	83,414	333,565	2,198	13,865	20.79	43.97	17,668	706,720	1,040,285	64.84
45	91,117	424,682	2,121	15,986	26.47	50.70	15,547	699,615	1,124,297	70.08
50	94,682	519,364	1,972	17,958	32.37	56.95	13,575	678,750	1,198,114	74.68
55	102,849	622,213	1,945	19,903	38.78	63.12	11,630	639,650	1,261,863	78.65
60	95,750	717,963	1,651	21,554	44.75	68.35	9,979	598,740	1,316,703	82.07
65	90,488	808,451	1,437	22,991	50.39	72.91	8,542	555,230	1,363,681	85.00
70	85,621	894,072	1,259	24,250	55.73	76.90	7,283	509,810	1,403,882	87.50
75	89,301	983,373	1,224	25,474	61.29	80.79	6,059	454,425	1,437,798	89.61
80	75,805	1,059,178	973	26,447	66.02	83.87	5,086	406,880	1,466,058	91.38
85	71,277	1,130,455	860	27,307	70.46	86.60	4,226	359,210	1,489,665	92.85
90	60,916	1,191,371	693	28,000	74.26	88.80	3,533	317,970	1,509,341	94.07
95	54,999	1,246,370	592	28,592	77.68	90.67	2,941	279,395	1,525,765	95.10
100	47,737	1,294,107	488	29,080	80.66	92.22	2,453	245,300	1,539,407	95.95
105	45,225	1,339,332	439	29,519	83.48	93.61	2,014	211,470	1,550,802	96.66
110	37,892	1,377,224	351	29,870	85.84	94.73	1,663	182,930	1,560,154	97.24
115	34,681	1,411,905	307	30,177	88.00	95.70	1,356	155,940	1,567,845	97.72
120	29,105	1,441,010	247	30,424	89.82	96.48	1,109	133,080	1,574,090	98.11
125	23,127	1,464,137	188	30,612	91.26	97.08	921	115,125	1,579,262	98.43
130	20,603	1,484,740	161	30,773	92.54	97.59	760	98,800	1,583,540	98.70
135	20,064	1,504,804	151	30,924	93.79	98.07	609	82,215	1,587,019	98.92
140	15,032	1,519,836	109	31,033	94.73	98.41	500	70,000	1,589,836	99.09

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = DECEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	10,433	1,530,269	73	31,106	95.38	98.65	427	61,915	1,592,184	99.24
150	11,983	1,542,252	81	31,187	96.13	98.90	346	51,900	1,594,152	99.36
155	9,039	1,551,291	59	31,246	96.69	99.09	287	44,485	1,595,776	99.46
160	9,790	1,561,081	62	31,308	97.30	99.29	225	36,000	1,597,081	99.54
165	5,879	1,566,960	36	31,344	97.67	99.40	189	31,185	1,598,145	99.61
170	3,694	1,570,654	22	31,366	97.90	99.47	167	28,390	1,599,044	99.67
175	5,187	1,575,841	30	31,396	98.22	99.57	137	23,975	1,599,816	99.71
180	3,914	1,579,755	22	31,418	98.46	99.64	115	20,700	1,600,455	99.75
185	3,474	1,583,229	19	31,437	98.68	99.70	96	17,760	1,600,989	99.79
190	3,567	1,586,796	19	31,456	98.90	99.76	77	14,630	1,601,426	99.81
195	2,313	1,589,109	12	31,468	99.05	99.79	65	12,675	1,601,784	99.84
200	1,188	1,590,297	6	31,474	99.12	99.81	59	11,800	1,602,097	99.86
999,999	14,121	1,604,418	59	31,533	100.00	100.00	0	0	1,604,418	100.00
TOTAL	1,604,418		31,533							
AVG. USE	50.9									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = JANUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	154	154	0.00	0.49	31,527	0	0	0.00
1	59	59	59	213	0.00	0.67	31,468	31,468	31,527	1.48
2	104	163	52	265	0.01	0.84	31,416	62,832	62,995	2.96
3	204	367	68	333	0.02	1.05	31,348	94,044	94,411	4.44
4	304	671	76	409	0.03	1.29	31,272	125,088	125,759	5.91
5	495	1,166	99	508	0.05	1.60	31,173	155,865	157,031	7.38
6	660	1,826	110	618	0.09	1.95	31,063	186,378	188,204	8.85
7	931	2,757	133	751	0.13	2.37	30,930	216,510	219,267	10.31
8	1,176	3,933	147	898	0.18	2.83	30,783	246,264	250,197	11.76
9	1,359	5,292	151	1,049	0.25	3.31	30,632	275,688	280,980	13.21
10	1,450	6,742	145	1,194	0.32	3.77	30,487	304,870	311,612	14.65
11	2,090	8,832	190	1,384	0.42	4.37	30,297	333,267	342,099	16.08
12	2,004	10,836	167	1,551	0.51	4.90	30,130	361,560	372,396	17.50
13	2,392	13,228	184	1,735	0.62	5.48	29,946	389,298	402,526	18.92
14	2,534	15,762	181	1,916	0.74	6.05	29,765	416,710	432,472	20.33
15	2,895	18,657	193	2,109	0.88	6.66	29,572	443,580	462,237	21.73
16	3,456	22,113	216	2,325	1.04	7.34	29,356	469,696	491,809	23.12
17	3,604	25,717	212	2,537	1.21	8.01	29,144	495,448	521,165	24.50
18	3,870	29,587	215	2,752	1.39	8.69	28,929	520,722	550,309	25.87
19	4,408	33,995	232	2,984	1.60	9.42	28,697	545,243	579,238	27.23
20	5,060	39,055	253	3,237	1.84	10.22	28,444	568,880	607,935	28.58
25	26,054	65,109	1,131	4,368	3.06	13.79	27,313	682,825	747,934	35.16
30	34,559	99,668	1,229	5,597	4.68	17.67	26,084	782,520	882,188	41.47
35	47,298	146,966	1,433	7,030	6.91	22.19	24,651	862,785	1,009,751	47.46
40	60,532	207,498	1,596	8,626	9.75	27.23	23,055	922,200	1,129,698	53.10
45	70,909	278,407	1,650	10,276	13.09	32.44	21,405	963,225	1,241,632	58.36
50	79,823	358,230	1,661	11,937	16.84	37.68	19,744	987,200	1,345,430	63.24
55	95,539	453,769	1,804	13,741	21.33	43.37	17,940	986,700	1,440,469	67.71
60	95,256	549,025	1,643	15,384	25.81	48.56	16,297	977,820	1,526,845	71.77
65	104,243	653,268	1,656	17,040	30.71	53.79	14,641	951,665	1,604,933	75.44
70	107,812	761,080	1,586	18,626	35.78	58.79	13,055	913,850	1,674,930	78.73
75	113,390	874,470	1,552	20,178	41.11	63.69	11,503	862,725	1,737,195	81.66
80	110,078	984,548	1,411	21,589	46.28	68.14	10,092	807,360	1,791,908	84.23
85	106,962	1,091,510	1,290	22,879	51.31	72.22	8,802	748,170	1,839,680	86.48
90	105,838	1,197,348	1,203	24,082	56.28	76.01	7,599	683,910	1,881,258	88.43
95	97,361	1,294,709	1,048	25,130	60.86	79.32	6,551	622,345	1,917,054	90.11
100	93,617	1,388,326	957	26,087	65.26	82.34	5,594	559,400	1,947,726	91.55
105	81,400	1,469,726	791	26,878	69.09	84.84	4,803	504,315	1,974,041	92.79
110	81,435	1,551,161	754	27,632	72.91	87.22	4,049	445,390	1,996,551	93.85
115	64,118	1,615,279	568	28,200	75.93	89.01	3,481	400,315	2,015,594	94.74
120	61,215	1,676,494	519	28,719	78.81	90.65	2,962	355,440	2,031,934	95.51
125	54,379	1,730,873	442	29,161	81.36	92.05	2,520	315,000	2,045,873	96.17
130	46,689	1,777,562	365	29,526	83.56	93.20	2,155	280,150	2,057,712	96.72
135	40,423	1,817,985	304	29,830	85.46	94.16	1,851	249,885	2,067,870	97.20
140	38,381	1,856,366	278	30,108	87.26	95.03	1,573	220,220	2,076,586	97.61

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = JANUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	34,583	1,890,949	242	30,350	88.89	95.80	1,331	192,995	2,083,944	97.96
150	29,594	1,920,543	200	30,550	90.28	96.43	1,131	169,650	2,090,193	98.25
155	26,925	1,947,468	176	30,726	91.54	96.99	955	148,025	2,095,493	98.50
160	20,731	1,968,199	131	30,857	92.52	97.40	824	131,840	2,100,039	98.71
165	22,647	1,990,846	139	30,996	93.58	97.84	685	113,025	2,103,871	98.89
170	17,626	2,008,472	105	31,101	94.41	98.17	580	98,600	2,107,072	99.04
175	16,785	2,025,257	97	31,198	95.20	98.48	483	84,525	2,109,782	99.17
180	13,900	2,039,157	78	31,276	95.85	98.72	405	72,900	2,112,057	99.28
185	12,812	2,051,969	70	31,346	96.45	98.94	335	61,975	2,113,944	99.37
190	7,504	2,059,473	40	31,386	96.81	99.07	295	56,050	2,115,523	99.44
195	7,712	2,067,185	40	31,426	97.17	99.20	255	49,725	2,116,910	99.51
200	7,717	2,074,902	39	31,465	97.53	99.32	216	43,200	2,118,102	99.56
999,999	52,490	2,127,392	216	31,681	100.00	100.00	0	0	2,127,392	100.00
TOTAL	2,127,392		31,681							
AVG. USE	67.2									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = FEBRUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	146	146	0.00	0.46	31,595	0	0	0.00
1	55	55	55	201	0.00	0.63	31,540	31,540	31,595	1.54
2	112	167	56	257	0.01	0.81	31,484	62,968	63,135	3.07
3	198	365	66	323	0.02	1.02	31,418	94,254	94,619	4.60
4	320	685	80	403	0.03	1.27	31,338	125,352	126,037	6.13
5	505	1,190	101	504	0.06	1.59	31,237	156,185	157,375	7.66
6	726	1,916	121	625	0.09	1.97	31,116	186,696	188,612	9.18
7	882	2,798	126	751	0.14	2.37	30,990	216,930	219,728	10.69
8	1,264	4,062	158	909	0.20	2.86	30,832	246,656	250,718	12.20
9	1,503	5,565	167	1,076	0.27	3.39	30,665	275,985	281,550	13.70
10	1,810	7,375	181	1,257	0.36	3.96	30,484	304,840	312,215	15.19
11	2,354	9,729	214	1,471	0.47	4.63	30,270	332,970	342,699	16.67
12	2,484	12,213	207	1,678	0.59	5.29	30,063	360,756	372,969	18.14
13	2,483	14,696	191	1,869	0.71	5.89	29,872	388,336	403,032	19.61
14	2,898	17,594	207	2,076	0.86	6.54	29,665	415,310	432,904	21.06
15	2,775	20,369	185	2,261	0.99	7.12	29,480	442,200	462,569	22.50
16	3,680	24,049	230	2,491	1.17	7.85	29,250	468,000	492,049	23.94
17	3,791	27,840	223	2,714	1.35	8.55	29,027	493,459	521,299	25.36
18	4,104	31,944	228	2,942	1.55	9.27	28,799	518,382	550,326	26.77
19	4,237	36,181	223	3,165	1.76	9.97	28,576	542,944	579,125	28.17
20	4,480	40,661	224	3,389	1.98	10.68	28,352	567,040	607,701	29.56
25	28,569	69,230	1,238	4,627	3.37	14.58	27,114	677,850	747,080	36.34
30	37,453	106,683	1,336	5,963	5.19	18.79	25,778	773,340	880,023	42.81
35	48,818	155,501	1,477	7,440	7.56	23.44	24,301	850,535	1,006,036	48.94
40	60,596	216,097	1,591	9,031	10.51	28.45	22,710	908,400	1,124,497	54.70
45	71,793	287,890	1,670	10,701	14.00	33.71	21,040	946,800	1,234,690	60.06
50	85,903	373,793	1,791	12,492	18.18	39.36	19,249	962,450	1,336,243	65.00
55	96,461	470,254	1,819	14,311	22.88	45.09	17,430	958,650	1,428,904	69.51
60	107,132	577,386	1,848	16,159	28.09	50.91	15,582	934,920	1,512,306	73.57
65	104,911	682,297	1,667	17,826	33.19	56.16	13,915	904,475	1,586,772	77.19
70	110,426	792,723	1,623	19,449	38.56	61.27	12,292	860,440	1,653,163	80.42
75	109,960	902,683	1,507	20,956	43.91	66.02	10,785	808,875	1,711,558	83.26
80	115,381	1,018,064	1,480	22,436	49.52	70.68	9,305	744,400	1,762,464	85.74
85	105,243	1,123,307	1,269	23,705	54.64	74.68	8,036	683,060	1,806,367	87.87
90	95,799	1,219,106	1,089	24,794	59.30	78.11	6,947	625,230	1,844,336	89.72
95	93,118	1,312,224	1,001	25,795	63.83	81.27	5,946	564,870	1,877,094	91.31
100	86,933	1,399,157	888	26,683	68.06	84.06	5,058	505,800	1,904,957	92.67
105	78,017	1,477,174	758	27,441	71.86	86.45	4,300	451,500	1,928,674	93.82
110	71,820	1,548,994	666	28,107	75.35	88.55	3,634	399,740	1,948,734	94.80
115	62,242	1,611,236	551	28,658	78.38	90.29	3,083	354,545	1,965,781	95.63
120	62,274	1,673,510	528	29,186	81.41	91.95	2,555	306,600	1,980,110	96.32
125	48,217	1,721,727	392	29,578	83.76	93.19	2,163	270,375	1,992,102	96.91
130	45,399	1,767,126	355	29,933	85.96	94.30	1,808	235,040	2,002,166	97.40
135	38,703	1,805,829	291	30,224	87.85	95.22	1,517	204,795	2,010,624	97.81
140	36,023	1,841,852	261	30,485	89.60	96.04	1,256	175,840	2,017,692	98.15

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = FEBRUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	29,305	1,871,157	205	30,690	91.02	96.69	1,051	152,395	2,023,552	98.44
150	22,633	1,893,790	153	30,843	92.13	97.17	898	134,700	2,028,490	98.68
155	22,636	1,916,426	148	30,991	93.23	97.64	750	116,250	2,032,676	98.88
160	21,006	1,937,432	133	31,124	94.25	98.06	617	98,720	2,036,152	99.05
165	15,320	1,952,752	94	31,218	94.99	98.35	523	86,295	2,039,047	99.19
170	13,954	1,966,706	83	31,301	95.67	98.61	440	74,800	2,041,506	99.31
175	12,786	1,979,492	74	31,375	96.29	98.85	366	64,050	2,043,542	99.41
180	11,220	1,990,712	63	31,438	96.84	99.05	303	54,540	2,045,252	99.49
185	9,315	2,000,027	51	31,489	97.29	99.21	252	46,620	2,046,647	99.56
190	6,572	2,006,599	35	31,524	97.61	99.32	217	41,230	2,047,829	99.62
195	6,563	2,013,162	34	31,558	97.93	99.42	183	35,685	2,048,847	99.67
200	4,149	2,017,311	21	31,579	98.13	99.49	162	32,400	2,049,711	99.71
999,999	38,358	2,055,669	162	31,741	100.00	100.00	0	0	2,055,669	100.00
TOTAL	2,055,669		31,741							
AVG. USE	64.8									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = MARCH

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	136	136	0.00	0.43	31,485	0	0	0.00
1	87	87	87	223	0.01	0.71	31,398	31,398	31,485	2.12
2	116	203	58	281	0.01	0.89	31,340	62,680	62,883	4.24
3	336	539	112	393	0.04	1.24	31,228	93,684	94,223	6.35
4	448	987	112	505	0.07	1.60	31,116	124,464	125,451	8.45
5	660	1,647	132	637	0.11	2.01	30,984	154,920	156,567	10.55
6	996	2,643	166	803	0.18	2.54	30,818	184,908	187,551	12.63
7	1,239	3,882	177	980	0.26	3.10	30,641	214,487	218,369	14.71
8	1,792	5,674	224	1,204	0.38	3.81	30,417	243,336	249,010	16.77
9	2,178	7,852	242	1,446	0.53	4.57	30,175	271,575	279,427	18.82
10	2,580	10,432	258	1,704	0.70	5.39	29,917	299,170	309,602	20.85
11	4,004	14,436	364	2,068	0.97	6.54	29,553	325,083	339,519	22.87
12	3,864	18,300	322	2,390	1.23	7.56	29,231	350,772	369,072	24.86
13	4,134	22,434	318	2,708	1.51	8.56	28,913	375,869	398,303	26.83
14	4,788	27,222	342	3,050	1.83	9.65	28,571	399,994	427,216	28.77
15	5,520	32,742	368	3,418	2.21	10.81	28,203	423,045	455,787	30.70
16	6,736	39,478	421	3,839	2.66	12.14	27,782	444,512	483,990	32.60
17	7,429	46,907	437	4,276	3.16	13.52	27,345	464,865	511,772	34.47
18	8,136	55,043	452	4,728	3.71	14.95	26,893	484,074	539,117	36.31
19	9,329	64,372	491	5,219	4.34	16.50	26,402	501,638	566,010	38.12
20	9,200	73,572	460	5,679	4.96	17.96	25,942	518,840	592,412	39.90
25	56,597	130,169	2,458	8,137	8.77	25.73	23,484	587,100	717,269	48.31
30	75,553	205,722	2,695	10,832	13.86	34.26	20,789	623,670	829,392	55.86
35	89,860	295,582	2,729	13,561	19.91	42.89	18,060	632,100	927,682	62.48
40	88,869	384,451	2,339	15,900	25.89	50.28	15,721	628,840	1,013,291	68.25
45	93,846	478,297	2,186	18,086	32.21	57.20	13,535	609,075	1,087,372	73.24
50	96,566	574,863	2,015	20,101	38.72	63.57	11,520	576,000	1,150,863	77.51
55	91,728	666,591	1,732	21,833	44.90	69.05	9,788	538,340	1,204,931	81.16
60	91,518	758,109	1,580	23,413	51.06	74.04	8,208	492,480	1,250,589	84.23
65	77,483	835,592	1,232	24,645	56.28	77.94	6,976	453,440	1,289,032	86.82
70	73,953	909,545	1,088	25,733	61.26	81.38	5,888	412,160	1,321,705	89.02
75	71,049	980,594	973	26,706	66.05	84.46	4,915	368,625	1,349,219	90.87
80	62,896	1,043,490	807	27,513	70.28	87.01	4,108	328,640	1,372,130	92.42
85	55,022	1,098,512	664	28,177	73.99	89.11	3,444	292,740	1,391,252	93.71
90	53,558	1,152,070	609	28,786	77.60	91.03	2,835	255,150	1,407,220	94.78
95	45,532	1,197,602	490	29,276	80.66	92.58	2,345	222,775	1,420,377	95.67
100	39,584	1,237,186	405	29,681	83.33	93.86	1,940	194,000	1,431,186	96.39
105	33,934	1,271,120	329	30,010	85.61	94.91	1,611	169,155	1,440,275	97.01
110	32,140	1,303,260	298	30,308	87.78	95.85	1,313	144,430	1,447,690	97.51
115	25,536	1,328,796	226	30,534	89.50	96.56	1,087	125,005	1,453,801	97.92
120	25,839	1,354,635	219	30,753	91.24	97.25	868	104,160	1,458,795	98.25
125	16,600	1,371,235	135	30,888	92.36	97.68	733	91,625	1,462,860	98.53
130	13,582	1,384,817	106	30,994	93.27	98.02	627	81,510	1,466,327	98.76
135	15,006	1,399,823	113	31,107	94.28	98.37	514	69,390	1,469,213	98.96
140	11,022	1,410,845	80	31,187	95.02	98.63	434	60,760	1,471,605	99.12

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = MARCH

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	10,140	1,420,985	71	31,258	95.71	98.85	363	52,635	1,473,620	99.25
150	8,893	1,429,878	60	31,318	96.31	99.04	303	45,450	1,475,328	99.37
155	8,561	1,438,439	56	31,374	96.88	99.22	247	38,285	1,476,724	99.46
160	5,361	1,443,800	34	31,408	97.24	99.33	213	34,080	1,477,880	99.54
165	4,895	1,448,695	30	31,438	97.57	99.42	183	30,195	1,478,890	99.61
170	4,034	1,452,729	24	31,462	97.85	99.50	159	27,030	1,479,759	99.67
175	4,495	1,457,224	26	31,488	98.15	99.58	133	23,275	1,480,499	99.72
180	3,376	1,460,600	19	31,507	98.38	99.64	114	20,520	1,481,120	99.76
185	3,655	1,464,255	20	31,527	98.62	99.70	94	17,390	1,481,645	99.79
190	2,820	1,467,075	15	31,542	98.81	99.75	79	15,010	1,482,085	99.82
195	2,118	1,469,193	11	31,553	98.95	99.78	68	13,260	1,482,453	99.85
200	1,783	1,470,976	9	31,562	99.07	99.81	59	11,800	1,482,776	99.87
999,999	13,738	1,484,714	59	31,621	100.00	100.00	0	0	1,484,714	100.00
TOTAL	1,484,714		31,621							
AVG. USE	47.0									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = APRIL

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	214	214	0.00	0.68	31,199	0	0	0.00
1	185	185	185	399	0.03	1.27	31,014	31,014	31,199	5.00
2	384	569	192	591	0.09	1.88	30,822	61,644	62,213	9.98
3	1,080	1,649	360	951	0.26	3.03	30,462	91,386	93,035	14.92
4	1,972	3,621	493	1,444	0.58	4.60	29,969	119,876	123,497	19.81
5	2,935	6,556	587	2,031	1.05	6.47	29,382	146,910	153,466	24.62
6	4,290	10,846	715	2,746	1.74	8.74	28,667	172,002	182,848	29.33
7	6,440	17,286	920	3,666	2.77	11.67	27,747	194,229	211,515	33.93
8	8,280	25,566	1,035	4,701	4.10	14.97	26,712	213,696	239,262	38.38
9	9,387	34,953	1,043	5,744	5.61	18.29	25,669	231,021	265,974	42.66
10	11,810	46,763	1,181	6,925	7.50	22.05	24,488	244,880	291,643	46.78
11	17,226	63,989	1,566	8,491	10.26	27.03	22,922	252,142	316,131	50.71
12	15,144	79,133	1,262	9,753	12.69	31.05	21,660	259,920	339,053	54.38
13	16,003	95,136	1,231	10,984	15.26	34.97	20,429	265,577	360,713	57.86
14	17,192	112,328	1,228	12,212	18.02	38.88	19,201	268,814	381,142	61.13
15	18,390	130,718	1,226	13,438	20.97	42.78	17,975	269,625	400,343	64.21
16	20,496	151,214	1,281	14,719	24.25	46.86	16,694	267,104	418,318	67.10
17	19,873	171,087	1,169	15,888	27.44	50.58	15,525	263,925	435,012	69.77
18	20,412	191,499	1,134	17,022	30.72	54.19	14,391	259,038	450,537	72.26
19	21,584	213,083	1,136	18,158	34.18	57.80	13,255	251,845	464,928	74.57
20	20,980	234,063	1,049	19,207	37.54	61.14	12,206	244,120	478,183	76.70
25	99,512	333,575	4,342	23,549	53.50	74.97	7,864	196,600	530,175	85.04
30	79,525	413,100	2,857	26,406	66.26	84.06	5,007	150,210	563,310	90.35
35	64,102	477,202	1,956	28,362	76.54	90.29	3,051	106,785	583,987	93.67
40	42,737	519,939	1,128	29,490	83.40	93.88	1,923	76,920	596,859	95.73
45	27,975	547,914	653	30,143	87.88	95.96	1,270	57,150	605,064	97.05
50	20,567	568,481	430	30,573	91.18	97.33	840	42,000	610,481	97.92
55	15,075	583,556	286	30,859	93.60	98.24	554	30,470	614,026	98.49
60	10,433	593,989	180	31,039	95.27	98.81	374	22,440	616,429	98.87
65	6,738	600,727	107	31,146	96.35	99.15	267	17,355	618,082	99.14
70	5,508	606,235	81	31,227	97.24	99.41	186	13,020	619,255	99.33
75	4,165	610,400	57	31,284	97.90	99.59	129	9,675	620,075	99.46
80	2,499	612,899	32	31,316	98.31	99.69	97	7,760	620,659	99.55
85	1,400	614,299	17	31,333	98.53	99.75	80	6,800	621,099	99.62
90	1,494	615,793	17	31,350	98.77	99.80	63	5,670	621,463	99.68
95	746	616,539	8	31,358	98.89	99.82	55	5,225	621,764	99.73
100	1,273	617,812	13	31,371	99.09	99.87	42	4,200	622,012	99.77
105	516	618,328	5	31,376	99.18	99.88	37	3,885	622,213	99.80
110	644	618,972	6	31,382	99.28	99.90	31	3,410	622,382	99.83
115	115	619,087	1	31,383	99.30	99.90	30	3,450	622,537	99.85
120	943	620,030	8	31,391	99.45	99.93	22	2,640	622,670	99.87
125	0	620,030	0	31,391	99.45	99.93	22	2,750	622,780	99.89
130	646	620,676	5	31,396	99.55	99.95	17	2,210	622,886	99.91
135	535	621,211	4	31,400	99.64	99.96	13	1,755	622,966	99.92
140	413	621,624	3	31,403	99.71	99.97	10	1,400	623,024	99.93

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = APRIL

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	144	621,768	1	31,404	99.73	99.97	9	1,305	623,073	99.94
150	0	621,768	0	31,404	99.73	99.97	9	1,350	623,118	99.94
155	308	622,076	2	31,406	99.78	99.98	7	1,085	623,161	99.95
160	0	622,076	0	31,406	99.78	99.98	7	1,120	623,196	99.96
165	163	622,239	1	31,407	99.80	99.98	6	990	623,229	99.96
170	168	622,407	1	31,408	99.83	99.98	5	850	623,257	99.97
175	173	622,580	1	31,409	99.86	99.99	4	700	623,280	99.97
180	0	622,580	0	31,409	99.86	99.99	4	720	623,300	99.97
185	185	622,765	1	31,410	99.89	99.99	3	555	623,320	99.98
190	0	622,765	0	31,410	99.89	99.99	3	570	623,335	99.98
195	0	622,765	0	31,410	99.89	99.99	3	585	623,350	99.98
200	0	622,765	0	31,410	99.89	99.99	3	600	623,365	99.98
999,999	698	623,463	3	31,413	100.00	100.00	0	0	623,463	100.00
TOTAL	623,463		31,413							

AVG. USE 19.8

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = MAY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	-7	-7	396	396	-0.00	1.27	30,687	0	-7	-0.00
1	293	286	293	689	0.06	2.22	30,394	30,394	30,680	6.53
2	672	958	336	1,025	0.20	3.30	30,058	60,116	61,074	13.00
3	1,842	2,800	614	1,639	0.60	5.27	29,444	88,332	91,132	19.40
4	3,856	6,656	964	2,603	1.42	8.37	28,480	113,920	120,576	25.67
5	5,915	12,571	1,183	3,786	2.68	12.18	27,297	136,485	149,056	31.73
6	8,076	20,647	1,346	5,132	4.39	16.51	25,951	155,706	176,353	37.54
7	10,318	30,965	1,474	6,606	6.59	21.25	24,477	171,339	202,304	43.06
8	13,064	44,029	1,633	8,239	9.37	26.51	22,844	182,752	226,781	48.27
9	13,365	57,394	1,485	9,724	12.22	31.28	21,359	192,231	249,625	53.14
10	18,440	75,834	1,844	11,568	16.14	37.22	19,515	195,150	270,984	57.68
11	19,536	95,370	1,776	13,344	20.30	42.93	17,739	195,129	290,499	61.84
12	18,636	114,006	1,553	14,897	24.27	47.93	16,186	194,232	308,238	65.61
13	17,667	131,673	1,359	16,256	28.03	52.30	14,827	192,751	324,424	69.06
14	19,152	150,825	1,368	17,624	32.11	56.70	13,459	188,426	339,251	72.21
15	18,270	169,095	1,218	18,842	35.99	60.62	12,241	183,615	352,710	75.08
16	20,704	189,799	1,294	20,136	40.40	64.78	10,947	175,152	364,951	77.68
17	18,241	208,040	1,073	21,209	44.28	68.23	9,874	167,858	375,898	80.01
18	17,820	225,860	990	22,199	48.08	71.42	8,884	159,912	385,772	82.12
19	18,373	244,233	967	23,166	51.99	74.53	7,917	150,423	394,656	84.01
20	16,480	260,713	824	23,990	55.50	77.18	7,093	141,860	402,573	85.69
25	73,557	334,270	3,222	27,212	71.15	87.55	3,871	96,775	431,045	91.75
30	47,264	381,534	1,702	28,914	81.21	93.02	2,169	65,070	446,604	95.07
35	31,155	412,689	952	29,866	87.85	96.08	1,217	42,595	455,284	96.91
40	19,178	431,867	507	30,373	91.93	97.72	710	28,400	460,267	97.97
45	12,414	444,281	291	30,664	94.57	98.65	419	18,855	463,136	98.58
50	7,105	451,386	149	30,813	96.08	99.13	270	13,500	464,886	98.96
55	4,911	456,297	93	30,906	97.13	99.43	177	9,735	466,032	99.20
60	3,468	459,765	60	30,966	97.87	99.62	117	7,020	466,785	99.36
65	1,749	461,514	28	30,994	98.24	99.71	89	5,785	467,299	99.47
70	1,820	463,334	27	31,021	98.63	99.80	62	4,340	467,674	99.55
75	949	464,283	13	31,034	98.83	99.84	49	3,675	467,958	99.61
80	852	465,135	11	31,045	99.01	99.88	38	3,040	468,175	99.66
85	661	465,796	8	31,053	99.15	99.90	30	2,550	468,346	99.69
90	616	466,412	7	31,060	99.28	99.93	23	2,070	468,482	99.72
95	188	466,600	2	31,062	99.32	99.93	21	1,995	468,595	99.75
100	290	466,890	3	31,065	99.38	99.94	18	1,800	468,690	99.77
105	206	467,096	2	31,067	99.43	99.95	16	1,680	468,776	99.79
110	429	467,525	4	31,071	99.52	99.96	12	1,320	468,845	99.80
115	112	467,637	1	31,072	99.54	99.96	11	1,265	468,902	99.81
120	0	467,637	0	31,072	99.54	99.96	11	1,320	468,957	99.82
125	122	467,759	1	31,073	99.57	99.97	10	1,250	469,009	99.83
130	0	467,759	0	31,073	99.57	99.97	10	1,300	469,059	99.85
135	0	467,759	0	31,073	99.57	99.97	10	1,350	469,109	99.86
140	275	468,034	2	31,075	99.63	99.97	8	1,120	469,154	99.87

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = MAY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	468,034	0	31,075	99.63	99.97	8	1,160	469,194	99.87
150	0	468,034	0	31,075	99.63	99.97	8	1,200	469,234	99.88
155	0	468,034	0	31,075	99.63	99.97	8	1,240	469,274	99.89
160	0	468,034	0	31,075	99.63	99.97	8	1,280	469,314	99.90
165	0	468,034	0	31,075	99.63	99.97	8	1,320	469,354	99.91
170	166	468,200	1	31,076	99.66	99.98	7	1,190	469,390	99.92
175	173	468,373	1	31,077	99.70	99.98	6	1,050	469,423	99.92
180	0	468,373	0	31,077	99.70	99.98	6	1,080	469,453	99.93
185	181	468,554	1	31,078	99.74	99.98	5	925	469,479	99.93
190	0	468,554	0	31,078	99.74	99.98	5	950	469,504	99.94
195	192	468,746	1	31,079	99.78	99.99	4	780	469,526	99.94
200	196	468,942	1	31,080	99.82	99.99	3	600	469,542	99.95
999,999	844	469,786	3	31,083	100.00	100.00	0	0	469,786	100.00
TOTAL	469,786		31,083							

AVG. USE 15.1

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = JUNE

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	569	569	0.00	1.86	29,961	0	0	0.00
1	417	417	417	986	0.11	3.23	29,544	29,544	29,961	7.82
2	908	1,325	454	1,440	0.35	4.72	29,090	58,180	59,505	15.52
3	2,937	4,262	979	2,419	1.11	7.92	28,111	84,333	88,595	23.11
4	5,832	10,094	1,458	3,877	2.63	12.70	26,653	106,612	116,706	30.44
5	8,045	18,139	1,609	5,486	4.73	17.97	25,044	125,220	143,359	37.39
6	10,536	28,675	1,756	7,242	7.48	23.72	23,288	139,728	168,403	43.93
7	12,698	41,373	1,814	9,056	10.79	29.66	21,474	150,318	191,691	50.00
8	15,592	56,965	1,949	11,005	14.86	36.05	19,525	156,200	213,165	55.60
9	15,822	72,787	1,758	12,763	18.99	41.80	17,767	159,903	232,690	60.70
10	16,970	89,757	1,697	14,460	23.41	47.36	16,070	160,700	250,457	65.33
11	22,825	112,582	2,075	16,535	29.37	54.16	13,995	153,945	266,527	69.52
12	18,636	131,218	1,553	18,088	34.23	59.25	12,442	149,304	280,522	73.17
13	18,135	149,353	1,395	19,483	38.96	63.82	11,047	143,611	292,964	76.42
14	18,354	167,707	1,311	20,794	43.75	68.11	9,736	136,304	304,011	79.30
15	17,205	184,912	1,147	21,941	48.23	71.87	8,589	128,835	313,747	81.84
16	17,904	202,816	1,119	23,060	52.90	75.53	7,470	119,520	322,336	84.08
17	16,915	219,731	995	24,055	57.32	78.79	6,475	110,075	329,806	86.03
18	13,968	233,699	776	24,831	60.96	81.33	5,699	102,582	336,281	87.72
19	13,585	247,284	715	25,546	64.50	83.68	4,984	94,696	341,980	89.20
20	12,540	259,824	627	26,173	67.77	85.73	4,357	87,140	346,964	90.50
25	50,410	310,234	2,215	28,388	80.92	92.98	2,142	53,550	363,784	94.89
30	29,807	340,041	1,072	29,460	88.70	96.50	1,070	32,100	372,141	97.07
35	16,008	356,049	489	29,949	92.87	98.10	581	20,335	376,384	98.18
40	9,375	365,424	248	30,197	95.32	98.91	333	13,320	378,744	98.79
45	5,848	371,272	137	30,334	96.85	99.36	196	8,820	380,092	99.15
50	3,330	374,602	70	30,404	97.71	99.59	126	6,300	380,902	99.36
55	2,117	376,719	40	30,444	98.27	99.72	86	4,730	381,449	99.50
60	1,159	377,878	20	30,464	98.57	99.78	66	3,960	381,838	99.60
65	1,004	378,882	16	30,480	98.83	99.84	50	3,250	382,132	99.68
70	883	379,765	13	30,493	99.06	99.88	37	2,590	382,355	99.74
75	734	380,499	10	30,503	99.25	99.91	27	2,025	382,524	99.78
80	470	380,969	6	30,509	99.37	99.93	21	1,680	382,649	99.81
85	250	381,219	3	30,512	99.44	99.94	18	1,530	382,749	99.84
90	174	381,393	2	30,514	99.49	99.95	16	1,440	382,833	99.86
95	280	381,673	3	30,517	99.56	99.96	13	1,235	382,908	99.88
100	199	381,872	2	30,519	99.61	99.96	11	1,100	382,972	99.90
105	306	382,178	3	30,522	99.69	99.97	8	840	383,018	99.91
110	106	382,284	1	30,523	99.72	99.98	7	770	383,054	99.92
115	341	382,625	3	30,526	99.81	99.99	4	460	383,085	99.93
120	0	382,625	0	30,526	99.81	99.99	4	480	383,105	99.93
125	0	382,625	0	30,526	99.81	99.99	4	500	383,125	99.94
130	0	382,625	0	30,526	99.81	99.99	4	520	383,145	99.94
135	0	382,625	0	30,526	99.81	99.99	4	540	383,165	99.95
140	0	382,625	0	30,526	99.81	99.99	4	560	383,185	99.95

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = JUNE

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	382,625	0	30,526	99.81	99.99	4	580	383,205	99.96
150	0	382,625	0	30,526	99.81	99.99	4	600	383,225	99.96
155	0	382,625	0	30,526	99.81	99.99	4	620	383,245	99.97
160	160	382,785	1	30,527	99.85	99.99	3	480	383,265	99.97
165	164	382,949	1	30,528	99.89	99.99	2	330	383,279	99.98
170	0	382,949	0	30,528	99.89	99.99	2	340	383,289	99.98
175	0	382,949	0	30,528	99.89	99.99	2	350	383,299	99.98
180	0	382,949	0	30,528	99.89	99.99	2	360	383,309	99.99
185	0	382,949	0	30,528	99.89	99.99	2	370	383,319	99.99
190	190	383,139	1	30,529	99.94	100.00	1	190	383,329	99.99
195	0	383,139	0	30,529	99.94	100.00	1	195	383,334	99.99
200	0	383,139	0	30,529	99.94	100.00	1	200	383,339	99.99
999,999	227	383,366	1	30,530	100.00	100.00	0	0	383,366	100.00
TOTAL	383,366		30,530							
AVG. USE	12.6									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = JULY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	751	751	0.00	2.51	29,170	0	0	0.00
1	408	408	408	1,159	0.12	3.87	28,762	28,762	29,170	8.74
2	1,156	1,564	578	1,737	0.47	5.81	28,184	56,368	57,932	17.37
3	4,254	5,818	1,418	3,155	1.74	10.54	26,766	80,298	86,116	25.82
4	7,388	13,206	1,847	5,002	3.96	16.72	24,919	99,676	112,882	33.84
5	9,300	22,506	1,860	6,862	6.75	22.93	23,059	115,295	137,801	41.31
6	12,126	34,632	2,021	8,883	10.38	29.69	21,038	126,228	160,860	48.22
7	13,692	48,324	1,956	10,839	14.49	36.23	19,082	133,574	181,898	54.53
8	15,848	64,172	1,981	12,820	19.24	42.85	17,101	136,808	200,980	60.25
9	16,812	80,984	1,868	14,688	24.28	49.09	15,233	137,097	218,081	65.38
10	17,350	98,334	1,735	16,423	29.48	54.89	13,498	134,980	233,314	69.94
11	19,118	117,452	1,738	18,161	35.21	60.70	11,760	129,360	246,812	73.99
12	20,532	137,984	1,711	19,872	41.37	66.41	10,049	120,588	258,572	77.52
13	16,770	154,754	1,290	21,162	46.39	70.73	8,759	113,867	268,621	80.53
14	16,576	171,330	1,184	22,346	51.36	74.68	7,575	106,050	277,380	83.15
15	14,520	185,850	968	23,314	55.71	77.92	6,607	99,105	284,955	85.42
16	14,352	200,202	897	24,211	60.02	80.92	5,710	91,360	291,562	87.40
17	13,413	213,615	789	25,000	64.04	83.55	4,921	83,657	297,272	89.12
18	12,546	226,161	697	25,697	67.80	85.88	4,224	76,032	302,193	90.59
19	11,286	237,447	594	26,291	71.18	87.87	3,630	68,970	306,417	91.86
20	10,460	247,907	523	26,814	74.32	89.62	3,107	62,140	310,047	92.95
25	38,675	286,582	1,704	28,518	85.91	95.31	1,403	35,075	321,657	96.43
30	20,312	306,894	733	29,251	92.00	97.76	670	20,100	326,994	98.03
35	10,798	317,692	329	29,580	95.24	98.86	341	11,935	329,627	98.82
40	5,155	322,847	137	29,717	96.78	99.32	204	8,160	331,007	99.23
45	3,168	326,015	74	29,791	97.73	99.57	130	5,850	331,865	99.49
50	2,304	328,319	48	29,839	98.42	99.73	82	4,100	332,419	99.65
55	1,526	329,845	29	29,868	98.88	99.82	53	2,915	332,760	99.76
60	1,044	330,889	18	29,886	99.19	99.88	35	2,100	332,989	99.82
65	816	331,705	13	29,899	99.44	99.93	22	1,430	333,135	99.87
70	272	331,977	4	29,903	99.52	99.94	18	1,260	333,237	99.90
75	360	332,337	5	29,908	99.63	99.96	13	975	333,312	99.92
80	77	332,414	1	29,909	99.65	99.96	12	960	333,374	99.94
85	334	332,748	4	29,913	99.75	99.97	8	680	333,428	99.96
90	90	332,838	1	29,914	99.78	99.98	7	630	333,468	99.97
95	186	333,024	2	29,916	99.83	99.98	5	475	333,499	99.98
100	98	333,122	1	29,917	99.86	99.99	4	400	333,522	99.98
105	102	333,224	1	29,918	99.89	99.99	3	315	333,539	99.99
110	0	333,224	0	29,918	99.89	99.99	3	330	333,554	99.99
115	223	333,447	2	29,920	99.96	100.00	1	115	333,562	100.00
120	0	333,447	0	29,920	99.96	100.00	1	120	333,567	100.00
125	0	333,447	0	29,920	99.96	100.00	1	125	333,572	100.00
130	129	333,576	1	29,921	100.00	100.00	0	0	333,576	100.00
135	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
140	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = JULY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
150	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
155	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
160	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
165	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
170	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
175	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
180	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
185	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
190	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
195	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
200	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
999,999	0	333,576	0	29,921	100.00	100.00	0	0	333,576	100.00
TOTAL	333,576		29,921							

AVG. USE 11.1

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = AUGUST

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	831	831	0.00	2.70	29,900	0	0	0.00
1	506	506	506	1,337	0.16	4.35	29,394	29,394	29,900	9.65
2	1,518	2,024	759	2,096	0.65	6.82	28,635	57,270	59,294	19.13
3	5,556	7,580	1,852	3,948	2.45	12.85	26,783	80,349	87,929	28.36
4	8,752	16,332	2,188	6,136	5.27	19.97	24,595	98,380	114,712	37.00
5	10,970	27,302	2,194	8,330	8.81	27.11	22,401	112,005	139,307	44.94
6	13,890	41,192	2,315	10,645	13.29	34.64	20,086	120,516	161,708	52.16
7	15,274	56,466	2,182	12,827	18.22	41.74	17,904	125,328	181,794	58.64
8	16,576	73,042	2,072	14,899	23.56	48.48	15,832	126,656	199,698	64.42
9	18,207	91,249	2,023	16,922	29.44	55.06	13,809	124,281	215,530	69.53
10	18,330	109,579	1,833	18,755	35.35	61.03	11,976	119,760	229,339	73.98
11	20,383	129,962	1,853	20,608	41.92	67.06	10,123	111,353	241,315	77.84
12	18,780	148,742	1,565	22,173	47.98	72.15	8,558	102,696	251,438	81.11
13	16,354	165,096	1,258	23,431	53.26	76.25	7,300	94,900	259,996	83.87
14	15,386	180,482	1,099	24,530	58.22	79.82	6,201	86,814	267,296	86.23
15	14,370	194,852	958	25,488	62.86	82.94	5,243	78,645	273,497	88.23
16	13,136	207,988	821	26,309	67.09	85.61	4,422	70,752	278,740	89.92
17	12,325	220,313	725	27,034	71.07	87.97	3,697	62,849	283,162	91.34
18	9,864	230,177	548	27,582	74.25	89.75	3,149	56,682	286,859	92.54
19	8,550	238,727	450	28,032	77.01	91.22	2,699	51,281	290,008	93.55
20	8,940	247,667	447	28,479	79.89	92.67	2,252	45,040	292,707	94.42
25	28,763	276,430	1,270	29,749	89.17	96.80	982	24,550	300,980	97.09
30	13,926	290,356	505	30,254	93.66	98.45	477	14,310	304,666	98.28
35	6,832	297,188	208	30,462	95.87	99.12	269	9,415	306,603	98.91
40	4,037	301,225	107	30,569	97.17	99.47	162	6,480	307,705	99.26
45	2,748	303,973	64	30,633	98.06	99.68	98	4,410	308,383	99.48
50	1,433	305,406	30	30,663	98.52	99.78	68	3,400	308,806	99.62
55	1,312	306,718	25	30,688	98.94	99.86	43	2,365	309,083	99.71
60	704	307,422	12	30,700	99.17	99.90	31	1,860	309,282	99.77
65	569	307,991	9	30,709	99.35	99.93	22	1,430	309,421	99.81
70	342	308,333	5	30,714	99.46	99.94	17	1,190	309,523	99.85
75	287	308,620	4	30,718	99.56	99.96	13	975	309,595	99.87
80	234	308,854	3	30,721	99.63	99.97	10	800	309,654	99.89
85	85	308,939	1	30,722	99.66	99.97	9	765	309,704	99.91
90	88	309,027	1	30,723	99.69	99.97	8	720	309,747	99.92
95	94	309,121	1	30,724	99.72	99.98	7	665	309,786	99.93
100	0	309,121	0	30,724	99.72	99.98	7	700	309,821	99.94
105	0	309,121	0	30,724	99.72	99.98	7	735	309,856	99.96
110	323	309,444	3	30,727	99.82	99.99	4	440	309,884	99.96
115	0	309,444	0	30,727	99.82	99.99	4	460	309,904	99.97
120	119	309,563	1	30,728	99.86	99.99	3	360	309,923	99.98
125	0	309,563	0	30,728	99.86	99.99	3	375	309,938	99.98
130	256	309,819	2	30,730	99.94	100.00	1	130	309,949	99.99
135	0	309,819	0	30,730	99.94	100.00	1	135	309,954	99.99
140	0	309,819	0	30,730	99.94	100.00	1	140	309,959	99.99

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-10 CLASS = LOW INCOME RESIDENTIAL AREA = ARIZONA PERIOD = AUGUST

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	309,819	0	30,730	99.94	100.00	1	145	309,964	99.99
150	0	309,819	0	30,730	99.94	100.00	1	150	309,969	99.99
155	0	309,819	0	30,730	99.94	100.00	1	155	309,974	99.99
160	0	309,819	0	30,730	99.94	100.00	1	160	309,979	99.99
165	0	309,819	0	30,730	99.94	100.00	1	165	309,984	100.00
170	0	309,819	0	30,730	99.94	100.00	1	170	309,989	100.00
175	0	309,819	0	30,730	99.94	100.00	1	175	309,994	100.00
180	176	309,995	1	30,731	100.00	100.00	0	0	309,995	100.00
185	0	309,995	0	30,731	100.00	100.00	0	0	309,995	100.00
190	0	309,995	0	30,731	100.00	100.00	0	0	309,995	100.00
195	0	309,995	0	30,731	100.00	100.00	0	0	309,995	100.00
200	0	309,995	0	30,731	100.00	100.00	0	0	309,995	100.00
999,999	0	309,995	0	30,731	100.00	100.00	0	0	309,995	100.00
TOTAL	309,995		30,731							
AVG. USE	10.1									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = SEPTEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	3	3	0.00	1.89	156	0	0	0.00
1	2	2	2	5	0.01	3.14	154	154	156	0.64
2	0	2	0	5	0.01	3.14	154	308	310	1.28
3	18	20	6	11	0.08	6.92	148	444	464	1.91
4	12	32	3	14	0.13	8.81	145	580	612	2.52
5	15	47	3	17	0.19	10.69	142	710	757	3.11
6	18	65	3	20	0.27	12.58	139	834	899	3.70
7	21	86	3	23	0.35	14.47	136	952	1,038	4.27
8	32	118	4	27	0.49	16.98	132	1,056	1,174	4.83
9	90	208	10	37	0.86	23.27	122	1,098	1,306	5.37
10	50	258	5	42	1.06	26.42	117	1,170	1,428	5.87
11	22	280	2	44	1.15	27.67	115	1,265	1,545	6.36
12	0	280	0	44	1.15	27.67	115	1,380	1,660	6.83
13	52	332	4	48	1.37	30.19	111	1,443	1,775	7.30
14	28	360	2	50	1.48	31.45	109	1,526	1,886	7.76
15	30	390	2	52	1.60	32.70	107	1,605	1,995	8.21
16	80	470	5	57	1.93	35.85	102	1,632	2,102	8.65
17	68	538	4	61	2.21	38.36	98	1,666	2,204	9.07
18	18	556	1	62	2.29	38.99	97	1,746	2,302	9.47
19	57	613	3	65	2.52	40.88	94	1,786	2,399	9.87
20	20	633	1	66	2.60	41.51	93	1,860	2,493	10.25
25	141	774	6	72	3.18	45.28	87	2,175	2,949	12.13
30	57	831	2	74	3.42	46.54	85	2,550	3,381	13.91
35	68	899	2	76	3.70	47.80	83	2,905	3,804	15.65
40	152	1,051	4	80	4.32	50.31	79	3,160	4,211	17.32
45	217	1,268	5	85	5.22	53.46	74	3,330	4,598	18.91
50	149	1,417	3	88	5.83	55.35	71	3,550	4,967	20.43
55	53	1,470	1	89	6.05	55.97	70	3,850	5,320	21.88
60	115	1,585	2	91	6.52	57.23	68	4,080	5,665	23.30
65	0	1,585	0	91	6.52	57.23	68	4,420	6,005	24.70
70	70	1,655	1	92	6.81	57.86	67	4,690	6,345	26.10
75	147	1,802	2	94	7.41	59.12	65	4,875	6,677	27.46
80	156	1,958	2	96	8.05	60.38	63	5,040	6,998	28.79
85	0	1,958	0	96	8.05	60.38	63	5,355	7,313	30.08
90	175	2,133	2	98	8.77	61.64	61	5,490	7,623	31.36
95	185	2,318	2	100	9.53	62.89	59	5,605	7,923	32.59
100	96	2,414	1	101	9.93	63.52	58	5,800	8,214	33.79
105	0	2,414	0	101	9.93	63.52	58	6,090	8,504	34.98
110	0	2,414	0	101	9.93	63.52	58	6,380	8,794	36.17
115	0	2,414	0	101	9.93	63.52	58	6,670	9,084	37.37
120	120	2,534	1	102	10.42	64.15	57	6,840	9,374	38.56
125	124	2,658	1	103	10.93	64.78	56	7,000	9,658	39.73
130	127	2,785	1	104	11.46	65.41	55	7,150	9,935	40.87
135	267	3,052	2	106	12.55	66.67	53	7,155	10,207	41.99
140	277	3,329	2	108	13.69	67.92	51	7,140	10,469	43.06

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = SEPTEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	3,329	0	108	13.69	67.92	51	7,395	10,724	44.11
150	292	3,621	2	110	14.89	69.18	49	7,350	10,971	45.13
155	0	3,621	0	110	14.89	69.18	49	7,595	11,216	46.14
160	160	3,781	1	111	15.55	69.81	48	7,680	11,461	47.14
165	0	3,781	0	111	15.55	69.81	48	7,920	11,701	48.13
170	169	3,950	1	112	16.25	70.44	47	7,990	11,940	49.11
175	346	4,296	2	114	17.67	71.70	45	7,875	12,171	50.06
180	0	4,296	0	114	17.67	71.70	45	8,100	12,396	50.99
185	0	4,296	0	114	17.67	71.70	45	8,325	12,621	51.91
190	0	4,296	0	114	17.67	71.70	45	8,550	12,846	52.84
195	0	4,296	0	114	17.67	71.70	45	8,775	13,071	53.77
200	199	4,495	1	115	18.49	72.33	44	8,800	13,295	54.69
999,999	19,816	24,311	44	159	100.00	100.00	0	0	24,311	100.00
TOTAL	24,311		159							
AVG. USE	152.9									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = OCTOBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	3	3	0.00	1.89	156	0	0	0.00
1	1	1	1	4	0.01	2.52	155	155	156	0.90
2	0	1	0	4	0.01	2.52	155	310	311	1.80
3	12	13	4	8	0.08	5.03	151	453	466	2.70
4	16	29	4	12	0.17	7.55	147	588	617	3.57
5	25	54	5	17	0.31	10.69	142	710	764	4.42
6	12	66	2	19	0.38	11.95	140	840	906	5.24
7	42	108	6	25	0.62	15.72	134	938	1,046	6.05
8	32	140	4	29	0.81	18.24	130	1,040	1,180	6.83
9	27	167	3	32	0.97	20.13	127	1,143	1,310	7.58
10	20	187	2	34	1.08	21.38	125	1,250	1,437	8.31
11	44	231	4	38	1.34	23.90	121	1,331	1,562	9.04
12	60	291	5	43	1.68	27.04	116	1,392	1,683	9.74
13	26	317	2	45	1.83	28.30	114	1,482	1,799	10.41
14	70	387	5	50	2.24	31.45	109	1,526	1,913	11.07
15	30	417	2	52	2.41	32.70	107	1,605	2,022	11.70
16	16	433	1	53	2.50	33.33	106	1,696	2,129	12.31
17	51	484	3	56	2.80	35.22	103	1,751	2,235	12.93
18	54	538	3	59	3.11	37.11	100	1,800	2,338	13.52
19	38	576	2	61	3.33	38.36	98	1,862	2,438	14.10
20	40	616	2	63	3.56	39.62	96	1,920	2,536	14.67
25	230	846	10	73	4.89	45.91	86	2,150	2,996	17.33
30	116	962	4	77	5.56	48.43	82	2,460	3,422	19.79
35	130	1,092	4	81	6.32	50.94	78	2,730	3,822	22.11
40	77	1,169	2	83	6.76	52.20	76	3,040	4,209	24.35
45	128	1,297	3	86	7.50	54.09	73	3,285	4,582	26.50
50	338	1,635	7	93	9.46	58.49	66	3,300	4,935	28.55
55	107	1,742	2	95	10.08	59.75	64	3,520	5,262	30.44
60	57	1,799	1	96	10.41	60.38	63	3,780	5,579	32.27
65	0	1,799	0	96	10.41	60.38	63	4,095	5,894	34.09
70	68	1,867	1	97	10.80	61.01	62	4,340	6,207	35.90
75	289	2,156	4	101	12.47	63.52	58	4,350	6,506	37.63
80	155	2,311	2	103	13.37	64.78	56	4,480	6,791	39.28
85	84	2,395	1	104	13.85	65.41	55	4,675	7,070	40.90
90	89	2,484	1	105	14.37	66.04	54	4,860	7,344	42.48
95	93	2,577	1	106	14.91	66.67	53	5,035	7,612	44.03
100	395	2,972	4	110	17.19	69.18	49	4,900	7,872	45.53
105	204	3,176	2	112	18.37	70.44	47	4,935	8,111	46.92
110	0	3,176	0	112	18.37	70.44	47	5,170	8,346	48.28
115	226	3,402	2	114	19.68	71.70	45	5,175	8,577	49.61
120	234	3,636	2	116	21.03	72.96	43	5,160	8,796	50.88
125	492	4,128	4	120	23.88	75.47	39	4,875	9,003	52.08
130	0	4,128	0	120	23.88	75.47	39	5,070	9,198	53.20
135	131	4,259	1	121	24.64	76.10	38	5,130	9,389	54.31
140	0	4,259	0	121	24.64	76.10	38	5,320	9,579	55.41

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = OCTOBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	284	4,543	2	123	26.28	77.36	36	5,220	9,763	56.47
150	149	4,692	1	124	27.14	77.99	35	5,250	9,942	57.51
155	308	5,000	2	126	28.92	79.25	33	5,115	10,115	58.51
160	318	5,318	2	128	30.76	80.50	31	4,960	10,278	59.45
165	0	5,318	0	128	30.76	80.50	31	5,115	10,433	60.35
170	335	5,653	2	130	32.70	81.76	29	4,930	10,583	61.22
175	175	5,828	1	131	33.71	82.39	28	4,900	10,728	62.05
180	178	6,006	1	132	34.74	83.02	27	4,860	10,866	62.85
185	182	6,188	1	133	35.79	83.65	26	4,810	10,998	63.62
190	373	6,561	2	135	37.95	84.91	24	4,560	11,121	64.33
195	0	6,561	0	135	37.95	84.91	24	4,680	11,241	65.02
200	199	6,760	1	136	39.10	85.53	23	4,600	11,360	65.71
999,999	10,528	17,288	23	159	100.00	100.00	0	0	17,288	100.00
TOTAL	17,288		159							
AVG. USE	108.7									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = NOVEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	2	2	0.00	1.26	157	0	0	0.00
1	1	1	1	3	0.01	1.89	156	156	157	1.34
2	0	1	0	3	0.01	1.89	156	312	313	2.67
3	3	4	1	4	0.03	2.52	155	465	469	4.00
4	8	12	2	6	0.10	3.77	153	612	624	5.32
5	5	17	1	7	0.14	4.40	152	760	777	6.62
6	12	29	2	9	0.25	5.66	150	900	929	7.92
7	0	29	0	9	0.25	5.66	150	1,050	1,079	9.20
8	24	53	3	12	0.45	7.55	147	1,176	1,229	10.48
9	54	107	6	18	0.91	11.32	141	1,269	1,376	11.73
10	20	127	2	20	1.08	12.58	139	1,390	1,517	12.93
11	11	138	1	21	1.18	13.21	138	1,518	1,656	14.12
12	12	150	1	22	1.28	13.84	137	1,644	1,794	15.29
13	78	228	6	28	1.94	17.61	131	1,703	1,931	16.46
14	84	312	6	34	2.66	21.38	125	1,750	2,062	17.58
15	30	342	2	36	2.92	22.64	123	1,845	2,187	18.64
16	48	390	3	39	3.32	24.53	120	1,920	2,310	19.69
17	68	458	4	43	3.90	27.04	116	1,972	2,430	20.72
18	90	548	5	48	4.67	30.19	111	1,998	2,546	21.71
19	38	586	2	50	5.00	31.45	109	2,071	2,657	22.65
20	40	626	2	52	5.34	32.70	107	2,140	2,766	23.58
25	392	1,018	17	69	8.68	43.40	90	2,250	3,268	27.86
30	399	1,417	14	83	12.08	52.20	76	2,280	3,697	31.52
35	162	1,579	5	88	13.46	55.35	71	2,485	4,064	34.65
40	115	1,694	3	91	14.44	57.23	68	2,720	4,414	37.63
45	264	1,958	6	97	16.69	61.01	62	2,790	4,748	40.48
50	188	2,146	4	101	18.29	63.52	58	2,900	5,046	43.02
55	320	2,466	6	107	21.02	67.30	52	2,860	5,326	45.40
60	113	2,579	2	109	21.99	68.55	50	3,000	5,579	47.56
65	191	2,770	3	112	23.61	70.44	47	3,055	5,825	49.66
70	338	3,108	5	117	26.50	73.58	42	2,940	6,048	51.56
75	293	3,401	4	121	28.99	76.10	38	2,850	6,251	53.29
80	152	3,553	2	123	30.29	77.36	36	2,880	6,433	54.84
85	85	3,638	1	124	31.01	77.99	35	2,975	6,613	56.38
90	176	3,814	2	126	32.51	79.25	33	2,970	6,784	57.83
95	277	4,091	3	129	34.88	81.13	30	2,850	6,941	59.17
100	97	4,188	1	130	35.70	81.76	29	2,900	7,088	60.43
105	207	4,395	2	132	37.47	83.02	27	2,835	7,230	61.64
110	0	4,395	0	132	37.47	83.02	27	2,970	7,365	62.79
115	224	4,619	2	134	39.38	84.28	25	2,875	7,494	63.89
120	0	4,619	0	134	39.38	84.28	25	3,000	7,619	64.95
125	124	4,743	1	135	40.43	84.91	24	3,000	7,743	66.01
130	0	4,743	0	135	40.43	84.91	24	3,120	7,863	67.03
135	131	4,874	1	136	41.55	85.53	23	3,105	7,979	68.02
140	0	4,874	0	136	41.55	85.53	23	3,220	8,094	69.00

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = NOVEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	429	5,303	3	139	45.21	87.42	20	2,900	8,203	69.93
150	0	5,303	0	139	45.21	87.42	20	3,000	8,303	70.78
155	154	5,457	1	140	46.52	88.05	19	2,945	8,402	71.63
160	157	5,614	1	141	47.86	88.68	18	2,880	8,494	72.41
165	165	5,779	1	142	49.27	89.31	17	2,805	8,584	73.18
170	0	5,779	0	142	49.27	89.31	17	2,890	8,669	73.90
175	0	5,779	0	142	49.27	89.31	17	2,975	8,754	74.63
180	0	5,779	0	142	49.27	89.31	17	3,060	8,839	75.35
185	0	5,779	0	142	49.27	89.31	17	3,145	8,924	76.08
190	0	5,779	0	142	49.27	89.31	17	3,230	9,009	76.80
195	385	6,164	2	144	52.55	90.57	15	2,925	9,089	77.49
200	397	6,561	2	146	55.93	91.82	13	2,600	9,161	78.10
999,999	5,169	11,730	13	159	100.00	100.00	0	0	11,730	100.00
TOTAL	11,730		159							

AVG. USE 73.8

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = DECEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	2	2	0.00	1.26	157	0	0	0.00
1	0	0	0	2	0.00	1.26	157	157	157	0.75
2	0	0	0	2	0.00	1.26	157	314	314	1.50
3	0	0	0	2	0.00	1.26	157	471	471	2.24
4	0	0	0	2	0.00	1.26	157	628	628	2.99
5	5	5	1	3	0.02	1.89	156	780	785	3.74
6	0	5	0	3	0.02	1.89	156	936	941	4.48
7	0	5	0	3	0.02	1.89	156	1,092	1,097	5.23
8	0	5	0	3	0.02	1.89	156	1,248	1,253	5.97
9	0	5	0	3	0.02	1.89	156	1,404	1,409	6.71
10	10	15	1	4	0.07	2.52	155	1,550	1,565	7.46
11	0	15	0	4	0.07	2.52	155	1,705	1,720	8.20
12	12	27	1	5	0.13	3.14	154	1,848	1,875	8.94
13	0	27	0	5	0.13	3.14	154	2,002	2,029	9.67
14	14	41	1	6	0.20	3.77	153	2,142	2,183	10.40
15	0	41	0	6	0.20	3.77	153	2,295	2,336	11.13
16	16	57	1	7	0.27	4.40	152	2,432	2,489	11.86
17	0	57	0	7	0.27	4.40	152	2,584	2,641	12.59
18	0	57	0	7	0.27	4.40	152	2,736	2,793	13.31
19	0	57	0	7	0.27	4.40	152	2,888	2,945	14.03
20	20	77	1	8	0.37	5.03	151	3,020	3,097	14.76
25	116	193	5	13	0.92	8.18	146	3,650	3,843	18.31
30	231	424	8	21	2.02	13.21	138	4,140	4,564	21.75
35	165	589	5	26	2.81	16.35	133	4,655	5,244	24.99
40	305	894	8	34	4.26	21.38	125	5,000	5,894	28.09
45	340	1,234	8	42	5.88	26.42	117	5,265	6,499	30.97
50	372	1,606	8	50	7.65	31.45	109	5,450	7,056	33.63
55	271	1,877	5	55	8.94	34.59	104	5,720	7,597	36.20
60	174	2,051	3	58	9.77	36.48	101	6,060	8,111	38.65
65	317	2,368	5	63	11.28	39.62	96	6,240	8,608	41.02
70	822	3,190	12	75	15.20	47.17	84	5,880	9,070	43.22
75	441	3,631	6	81	17.30	50.94	78	5,850	9,481	45.18
80	389	4,020	5	86	19.16	54.09	73	5,840	9,860	46.99
85	338	4,358	4	90	20.77	56.60	69	5,865	10,223	48.72
90	437	4,795	5	95	22.85	59.75	64	5,760	10,555	50.30
95	91	4,886	1	96	23.28	60.38	63	5,985	10,871	51.81
100	294	5,180	3	99	24.69	62.26	60	6,000	11,180	53.28
105	618	5,798	6	105	27.63	66.04	54	5,670	11,468	54.65
110	435	6,233	4	109	29.70	68.55	50	5,500	11,733	55.91
115	336	6,569	3	112	31.30	70.44	47	5,405	11,974	57.06
120	0	6,569	0	112	31.30	70.44	47	5,640	12,209	58.18
125	246	6,815	2	114	32.48	71.70	45	5,625	12,440	59.28
130	257	7,072	2	116	33.70	72.96	43	5,590	12,662	60.34
135	927	7,999	7	123	38.12	77.36	36	4,860	12,859	61.28
140	419	8,418	3	126	40.12	79.25	33	4,620	13,038	62.13

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = DECEMBER

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	144	8,562	1	127	40.80	79.87	32	4,640	13,202	62.91
150	0	8,562	0	127	40.80	79.87	32	4,800	13,362	63.68
155	153	8,715	1	128	41.53	80.50	31	4,805	13,520	64.43
160	312	9,027	2	130	43.02	81.76	29	4,640	13,667	65.13
165	0	9,027	0	130	43.02	81.76	29	4,785	13,812	65.82
170	169	9,196	1	131	43.82	82.39	28	4,760	13,956	66.51
175	0	9,196	0	131	43.82	82.39	28	4,900	14,096	67.17
180	178	9,374	1	132	44.67	83.02	27	4,860	14,234	67.83
185	181	9,555	1	133	45.53	83.65	26	4,810	14,365	68.46
190	0	9,555	0	133	45.53	83.65	26	4,940	14,495	69.08
195	192	9,747	1	134	46.45	84.28	25	4,875	14,622	69.68
200	0	9,747	0	134	46.45	84.28	25	5,000	14,747	70.28
999,999	11,237	20,984	25	159	100.00	100.00	0	0	20,984	100.00
TOTAL	20,984		159							
AVG. USE	132.0									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = JANUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	0	0	0.00	0.00	159	0	0	0.00
1	2	2	2	2	0.01	1.26	157	157	159	0.61
2	0	2	0	2	0.01	1.26	157	314	316	1.22
3	0	2	0	2	0.01	1.26	157	471	473	1.83
4	0	2	0	2	0.01	1.26	157	628	630	2.43
5	5	7	1	3	0.03	1.89	156	780	787	3.04
6	0	7	0	3	0.03	1.89	156	936	943	3.64
7	0	7	0	3	0.03	1.89	156	1,092	1,099	4.24
8	0	7	0	3	0.03	1.89	156	1,248	1,255	4.85
9	0	7	0	3	0.03	1.89	156	1,404	1,411	5.45
10	0	7	0	3	0.03	1.89	156	1,560	1,567	6.05
11	0	7	0	3	0.03	1.89	156	1,716	1,723	6.65
12	0	7	0	3	0.03	1.89	156	1,872	1,879	7.25
13	13	20	1	4	0.08	2.52	155	2,015	2,035	7.86
14	14	34	1	5	0.13	3.14	154	2,156	2,190	8.46
15	0	34	0	5	0.13	3.14	154	2,310	2,344	9.05
16	0	34	0	5	0.13	3.14	154	2,464	2,498	9.64
17	0	34	0	5	0.13	3.14	154	2,618	2,652	10.24
18	18	52	1	6	0.20	3.77	153	2,754	2,806	10.83
19	0	52	0	6	0.20	3.77	153	2,907	2,959	11.42
20	0	52	0	6	0.20	3.77	153	3,060	3,112	12.01
25	21	73	1	7	0.28	4.40	152	3,800	3,873	14.95
30	57	130	2	9	0.50	5.66	150	4,500	4,630	17.88
35	101	231	3	12	0.89	7.55	147	5,145	5,376	20.76
40	111	342	3	15	1.32	9.43	144	5,760	6,102	23.56
45	87	429	2	17	1.66	10.69	142	6,390	6,819	26.33
50	284	713	6	23	2.75	14.47	136	6,800	7,513	29.01
55	425	1,138	8	31	4.39	19.50	128	7,040	8,178	31.57
60	237	1,375	4	35	5.31	22.01	124	7,440	8,815	34.03
65	250	1,625	4	39	6.27	24.53	120	7,800	9,425	36.39
70	746	2,371	11	50	9.15	31.45	109	7,630	10,001	38.61
75	215	2,586	3	53	9.98	33.33	106	7,950	10,536	40.68
80	158	2,744	2	55	10.59	34.59	104	8,320	11,064	42.72
85	583	3,327	7	62	12.85	38.99	97	8,245	11,572	44.68
90	350	3,677	4	66	14.20	41.51	93	8,370	12,047	46.51
95	283	3,960	3	69	15.29	43.40	90	8,550	12,510	48.30
100	99	4,059	1	70	15.67	44.03	89	8,900	12,959	50.03
105	513	4,572	5	75	17.65	47.17	84	8,820	13,392	51.70
110	760	5,332	7	82	20.59	51.57	77	8,470	13,802	53.29
115	564	5,896	5	87	22.76	54.72	72	8,280	14,176	54.73
120	476	6,372	4	91	24.60	57.23	68	8,160	14,532	56.11
125	370	6,742	3	94	26.03	59.12	65	8,125	14,867	57.40
130	380	7,122	3	97	27.50	61.01	62	8,060	15,182	58.62
135	665	7,787	5	102	30.06	64.15	57	7,695	15,482	59.77
140	694	8,481	5	107	32.74	67.30	52	7,280	15,761	60.85

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = JANUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	426	8,907	3	110	34.39	69.18	49	7,105	16,012	61.82
150	296	9,203	2	112	35.53	70.44	47	7,050	16,253	62.75
155	153	9,356	1	113	36.12	71.07	46	7,130	16,486	63.65
160	0	9,356	0	113	36.12	71.07	46	7,360	16,716	64.54
165	487	9,843	3	116	38.00	72.96	43	7,095	16,938	65.40
170	336	10,179	2	118	39.30	74.21	41	6,970	17,149	66.21
175	346	10,525	2	120	40.64	75.47	39	6,825	17,350	66.99
180	359	10,884	2	122	42.02	76.73	37	6,660	17,544	67.73
185	0	10,884	0	122	42.02	76.73	37	6,845	17,729	68.45
190	563	11,447	3	125	44.20	78.62	34	6,460	17,907	69.14
195	0	11,447	0	125	44.20	78.62	34	6,630	18,077	69.79
200	790	12,237	4	129	47.25	81.13	30	6,000	18,237	70.41
999,999	13,664	25,901	30	159	100.00	100.00	0	0	25,901	100.00
TOTAL	25,901		159							
AVG. USE	162.9									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = FEBRUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	1	1	0.00	0.63	158	0	0	0.00
1	0	0	0	1	0.00	0.63	158	158	158	0.69
2	0	0	0	1	0.00	0.63	158	316	316	1.38
3	0	0	0	1	0.00	0.63	158	474	474	2.06
4	0	0	0	1	0.00	0.63	158	632	632	2.75
5	5	5	1	2	0.02	1.26	157	785	790	3.44
6	0	5	0	2	0.02	1.26	157	942	947	4.12
7	0	5	0	2	0.02	1.26	157	1,099	1,104	4.81
8	0	5	0	2	0.02	1.26	157	1,256	1,261	5.49
9	0	5	0	2	0.02	1.26	157	1,413	1,418	6.17
10	10	15	1	3	0.07	1.89	156	1,560	1,575	6.86
11	0	15	0	3	0.07	1.89	156	1,716	1,731	7.53
12	12	27	1	4	0.12	2.52	155	1,860	1,887	8.21
13	13	40	1	5	0.17	3.14	154	2,002	2,042	8.89
14	0	40	0	5	0.17	3.14	154	2,156	2,196	9.56
15	0	40	0	5	0.17	3.14	154	2,310	2,350	10.23
16	16	56	1	6	0.24	3.77	153	2,448	2,504	10.90
17	0	56	0	6	0.24	3.77	153	2,601	2,657	11.56
18	0	56	0	6	0.24	3.77	153	2,754	2,810	12.23
19	0	56	0	6	0.24	3.77	153	2,907	2,963	12.90
20	0	56	0	6	0.24	3.77	153	3,060	3,116	13.56
25	47	103	2	8	0.45	5.03	151	3,775	3,878	16.88
30	56	159	2	10	0.69	6.29	149	4,470	4,629	20.15
35	131	290	4	14	1.26	8.81	145	5,075	5,365	23.35
40	154	444	4	18	1.93	11.32	141	5,640	6,084	26.48
45	261	705	6	24	3.07	15.09	135	6,075	6,780	29.51
50	193	898	4	28	3.91	17.61	131	6,550	7,448	32.42
55	158	1,056	3	31	4.60	19.50	128	7,040	8,096	35.24
60	350	1,406	6	37	6.12	23.27	122	7,320	8,726	37.98
65	123	1,529	2	39	6.66	24.53	120	7,800	9,329	40.61
70	477	2,006	7	46	8.73	28.93	113	7,910	9,916	43.16
75	366	2,372	5	51	10.32	32.08	108	8,100	10,472	45.58
80	316	2,688	4	55	11.70	34.59	104	8,320	11,008	47.91
85	328	3,016	4	59	13.13	37.11	100	8,500	11,516	50.12
90	705	3,721	8	67	16.20	42.14	92	8,280	12,001	52.24
95	554	4,275	6	73	18.61	45.91	86	8,170	12,445	54.17
100	681	4,956	7	80	21.57	50.31	79	7,900	12,856	55.96
105	620	5,576	6	86	24.27	54.09	73	7,665	13,241	57.63
110	432	6,008	4	90	26.15	56.60	69	7,590	13,598	59.19
115	113	6,121	1	91	26.64	57.23	68	7,820	13,941	60.68
120	585	6,706	5	96	29.19	60.38	63	7,560	14,266	62.09
125	122	6,828	1	97	29.72	61.01	62	7,750	14,578	63.45
130	255	7,083	2	99	30.83	62.26	60	7,800	14,883	64.78
135	532	7,615	4	103	33.14	64.78	56	7,560	15,175	66.05
140	414	8,029	3	106	34.95	66.67	53	7,420	15,449	67.24

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = FEBRUARY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	423	8,452	3	109	36.79	68.55	50	7,250	15,702	68.34
150	592	9,044	4	113	39.36	71.07	46	6,900	15,944	69.40
155	154	9,198	1	114	40.03	71.70	45	6,975	16,173	70.39
160	472	9,670	3	117	42.09	73.58	42	6,720	16,390	71.34
165	493	10,163	3	120	44.24	75.47	39	6,435	16,598	72.24
170	502	10,665	3	123	46.42	77.36	36	6,120	16,785	73.06
175	174	10,839	1	124	47.18	77.99	35	6,125	16,964	73.84
180	179	11,018	1	125	47.96	78.62	34	6,120	17,138	74.59
185	366	11,384	2	127	49.55	79.87	32	5,920	17,304	75.32
190	187	11,571	1	128	50.36	80.50	31	5,890	17,461	76.00
195	384	11,955	2	130	52.03	81.76	29	5,655	17,610	76.65
200	399	12,354	2	132	53.77	83.02	27	5,400	17,754	77.28
999,999	10,621	22,975	27	159	100.00	100.00	0	0	22,975	100.00
TOTAL	22,975		159							
AVG. USE	144.5									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = MARCH

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	0	0	0.00	0.00	159	0	0	0.00
1	0	0	0	0	0.00	0.00	159	159	159	0.82
2	0	0	0	0	0.00	0.00	159	318	318	1.64
3	0	0	0	0	0.00	0.00	159	477	477	2.46
4	4	4	1	1	0.02	0.63	158	632	636	3.28
5	0	4	0	1	0.02	0.63	158	790	794	4.09
6	0	4	0	1	0.02	0.63	158	948	952	4.90
7	0	4	0	1	0.02	0.63	158	1,106	1,110	5.72
8	16	20	2	3	0.10	1.89	156	1,248	1,268	6.53
9	9	29	1	4	0.15	2.52	155	1,395	1,424	7.33
10	0	29	0	4	0.15	2.52	155	1,550	1,579	8.13
11	0	29	0	4	0.15	2.52	155	1,705	1,734	8.93
12	0	29	0	4	0.15	2.52	155	1,860	1,889	9.73
13	26	55	2	6	0.28	3.77	153	1,989	2,044	10.53
14	0	55	0	6	0.28	3.77	153	2,142	2,197	11.32
15	30	85	2	8	0.44	5.03	151	2,265	2,350	12.10
16	32	117	2	10	0.60	6.29	149	2,384	2,501	12.88
17	0	117	0	10	0.60	6.29	149	2,533	2,650	13.65
18	18	135	1	11	0.70	6.92	148	2,664	2,799	14.42
19	19	154	1	12	0.79	7.55	147	2,793	2,947	15.18
20	0	154	0	12	0.79	7.55	147	2,940	3,094	15.94
25	114	268	5	17	1.38	10.69	142	3,550	3,818	19.66
30	138	406	5	22	2.09	13.84	137	4,110	4,516	23.26
35	231	637	7	29	3.28	18.24	130	4,550	5,187	26.72
40	256	893	7	36	4.60	22.64	123	4,920	5,813	29.94
45	384	1,277	9	45	6.58	28.30	114	5,130	6,407	33.00
50	338	1,615	7	52	8.32	32.70	107	5,350	6,965	35.87
55	267	1,882	5	57	9.69	35.85	102	5,610	7,492	38.59
60	403	2,285	7	64	11.77	40.25	95	5,700	7,985	41.13
65	315	2,600	5	69	13.39	43.40	90	5,850	8,450	43.52
70	407	3,007	6	75	15.49	47.17	84	5,880	8,887	45.77
75	363	3,370	5	80	17.36	50.31	79	5,925	9,295	47.87
80	393	3,763	5	85	19.38	53.46	74	5,920	9,683	49.87
85	333	4,096	4	89	21.10	55.97	70	5,950	10,046	51.74
90	350	4,446	4	93	22.90	58.49	66	5,940	10,386	53.49
95	92	4,538	1	94	23.37	59.12	65	6,175	10,713	55.18
100	391	4,929	4	98	25.39	61.64	61	6,100	11,029	56.80
105	408	5,337	4	102	27.49	64.15	57	5,985	11,322	58.31
110	215	5,552	2	104	28.59	65.41	55	6,050	11,602	59.75
115	670	6,222	6	110	32.05	69.18	49	5,635	11,857	61.07
120	351	6,573	3	113	33.85	71.07	46	5,520	12,093	62.28
125	248	6,821	2	115	35.13	72.33	44	5,500	12,321	63.46
130	511	7,332	4	119	37.76	74.84	40	5,200	12,532	64.54
135	269	7,601	2	121	39.15	76.10	38	5,130	12,731	65.57
140	273	7,874	2	123	40.55	77.36	36	5,040	12,914	66.51

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = MARCH

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	141	8,015	1	124	41.28	77.99	35	5,075	13,090	67.42
150	296	8,311	2	126	42.80	79.25	33	4,950	13,261	68.30
155	0	8,311	0	126	42.80	79.25	33	5,115	13,426	69.15
160	476	8,787	3	129	45.26	81.13	30	4,800	13,587	69.98
165	0	8,787	0	129	45.26	81.13	30	4,950	13,737	70.75
170	337	9,124	2	131	46.99	82.39	28	4,760	13,884	71.51
175	0	9,124	0	131	46.99	82.39	28	4,900	14,024	72.23
180	180	9,304	1	132	47.92	83.02	27	4,860	14,164	72.95
185	362	9,666	2	134	49.78	84.28	25	4,625	14,291	73.60
190	188	9,854	1	135	50.75	84.91	24	4,560	14,414	74.24
195	0	9,854	0	135	50.75	84.91	24	4,680	14,534	74.86
200	398	10,252	2	137	52.80	86.16	22	4,400	14,652	75.46
999,999	9,164	19,416	22	159	100.00	100.00	0	0	19,416	100.00
TOTAL	19,416		159							
AVG. USE	122.1									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = APRIL

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	0	0	0.00	0.00	157	0	0	0.00
1	0	0	0	0	0.00	0.00	157	157	157	1.28
2	4	4	2	2	0.03	1.27	155	310	314	2.56
3	3	7	1	3	0.06	1.91	154	462	469	3.83
4	4	11	1	4	0.09	2.55	153	612	623	5.08
5	10	21	2	6	0.17	3.82	151	755	776	6.33
6	0	21	0	6	0.17	3.82	151	906	927	7.56
7	14	35	2	8	0.29	5.10	149	1,043	1,078	8.79
8	16	51	2	10	0.42	6.37	147	1,176	1,227	10.01
9	54	105	6	16	0.86	10.19	141	1,269	1,374	11.21
10	40	145	4	20	1.18	12.74	137	1,370	1,515	12.36
11	44	189	4	24	1.54	15.29	133	1,463	1,652	13.47
12	36	225	3	27	1.84	17.20	130	1,560	1,785	14.56
13	26	251	2	29	2.05	18.47	128	1,664	1,915	15.62
14	84	335	6	35	2.73	22.29	122	1,708	2,043	16.66
15	30	365	2	37	2.98	23.57	120	1,800	2,165	17.66
16	112	477	7	44	3.89	28.03	113	1,808	2,285	18.64
17	34	511	2	46	4.17	29.30	111	1,887	2,398	19.56
18	18	529	1	47	4.31	29.94	110	1,980	2,509	20.46
19	95	624	5	52	5.09	33.12	105	1,995	2,619	21.36
20	120	744	6	58	6.07	36.94	99	1,980	2,724	22.22
25	227	971	10	68	7.92	43.31	89	2,225	3,196	26.07
30	253	1,224	9	77	9.98	49.04	80	2,400	3,624	29.56
35	165	1,389	5	82	11.33	52.23	75	2,625	4,014	32.74
40	346	1,735	9	91	14.15	57.96	66	2,640	4,375	35.69
45	342	2,077	8	99	16.94	63.06	58	2,610	4,687	38.23
50	292	2,369	6	105	19.32	66.88	52	2,600	4,969	40.53
55	316	2,685	6	111	21.90	70.70	46	2,530	5,215	42.54
60	232	2,917	4	115	23.79	73.25	42	2,520	5,437	44.35
65	0	2,917	0	115	23.79	73.25	42	2,730	5,647	46.06
70	139	3,056	2	117	24.93	74.52	40	2,800	5,856	47.77
75	221	3,277	3	120	26.73	76.43	37	2,775	6,052	49.36
80	235	3,512	3	123	28.65	78.34	34	2,720	6,232	50.83
85	0	3,512	0	123	28.65	78.34	34	2,890	6,402	52.22
90	264	3,776	3	126	30.80	80.25	31	2,790	6,566	53.56
95	187	3,963	2	128	32.32	81.53	29	2,755	6,718	54.80
100	97	4,060	1	129	33.12	82.17	28	2,800	6,860	55.95
105	101	4,161	1	130	33.94	82.80	27	2,835	6,996	57.06
110	108	4,269	1	131	34.82	83.44	26	2,860	7,129	58.15
115	225	4,494	2	133	36.66	84.71	24	2,760	7,254	59.17
120	237	4,731	2	135	38.59	85.99	22	2,640	7,371	60.12
125	0	4,731	0	135	38.59	85.99	22	2,750	7,481	61.02
130	257	4,988	2	137	40.69	87.26	20	2,600	7,588	61.89
135	0	4,988	0	137	40.69	87.26	20	2,700	7,688	62.71
140	0	4,988	0	137	40.69	87.26	20	2,800	7,788	63.52

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = APRIL

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	0	4,988	0	137	40.69	87.26	20	2,900	7,888	64.34
150	0	4,988	0	137	40.69	87.26	20	3,000	7,988	65.15
155	0	4,988	0	137	40.69	87.26	20	3,100	8,088	65.97
160	0	4,988	0	137	40.69	87.26	20	3,200	8,188	66.79
165	0	4,988	0	137	40.69	87.26	20	3,300	8,288	67.60
170	168	5,156	1	138	42.06	87.90	19	3,230	8,386	68.40
175	0	5,156	0	138	42.06	87.90	19	3,325	8,481	69.18
180	0	5,156	0	138	42.06	87.90	19	3,420	8,576	69.95
185	0	5,156	0	138	42.06	87.90	19	3,515	8,671	70.73
190	0	5,156	0	138	42.06	87.90	19	3,610	8,766	71.50
195	193	5,349	1	139	43.63	88.54	18	3,510	8,859	72.26
200	198	5,547	1	140	45.24	89.17	17	3,400	8,947	72.98
999,999	6,713	12,260	17	157	100.00	100.00	0	0	12,260	100.00
TOTAL	12,260		157							
AVG. USE	78.1									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = MAY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	0	0	0.00	0.00	154	0	0	0.00
1	0	0	0	0	0.00	0.00	154	154	154	1.12
2	6	6	3	3	0.04	1.95	151	302	308	2.24
3	3	9	1	4	0.07	2.60	150	450	459	3.34
4	4	13	1	5	0.09	3.25	149	596	609	4.43
5	30	43	6	11	0.31	7.14	143	715	758	5.52
6	24	67	4	15	0.49	9.74	139	834	901	6.56
7	14	81	2	17	0.59	11.04	137	959	1,040	7.57
8	16	97	2	19	0.71	12.34	135	1,080	1,177	8.57
9	27	124	3	22	0.90	14.29	132	1,188	1,312	9.55
10	50	174	5	27	1.27	17.53	127	1,270	1,444	10.51
11	77	251	7	34	1.83	22.08	120	1,320	1,571	11.44
12	48	299	4	38	2.18	24.68	116	1,392	1,691	12.31
13	13	312	1	39	2.27	25.32	115	1,495	1,807	13.16
14	28	340	2	41	2.48	26.62	113	1,582	1,922	13.99
15	15	355	1	42	2.58	27.27	112	1,680	2,035	14.82
16	80	435	5	47	3.17	30.52	107	1,712	2,147	15.63
17	34	469	2	49	3.41	31.82	105	1,785	2,254	16.41
18	90	559	5	54	4.07	35.06	100	1,800	2,359	17.18
19	76	635	4	58	4.62	37.66	96	1,824	2,459	17.90
20	20	655	1	59	4.77	38.31	95	1,900	2,555	18.60
25	115	770	5	64	5.61	41.56	90	2,250	3,020	21.99
30	160	930	6	70	6.77	45.45	84	2,520	3,450	25.12
35	232	1,162	7	77	8.46	50.00	77	2,695	3,857	28.08
40	311	1,473	8	85	10.72	55.19	69	2,760	4,233	30.82
45	167	1,640	4	89	11.94	57.79	65	2,925	4,565	33.24
50	190	1,830	4	93	13.32	60.39	61	3,050	4,880	35.53
55	157	1,987	3	96	14.47	62.34	58	3,190	5,177	37.69
60	293	2,280	5	101	16.60	65.58	53	3,180	5,460	39.75
65	251	2,531	4	105	18.43	68.18	49	3,185	5,716	41.62
70	136	2,667	2	107	19.42	69.48	47	3,290	5,957	43.37
75	293	2,960	4	111	21.55	72.08	43	3,225	6,185	45.03
80	310	3,270	4	115	23.81	74.68	39	3,120	6,390	46.52
85	251	3,521	3	118	25.64	76.62	36	3,060	6,581	47.91
90	266	3,787	3	121	27.57	78.57	33	2,970	6,757	49.20
95	94	3,881	1	122	28.26	79.22	32	3,040	6,921	50.39
100	97	3,978	1	123	28.96	79.87	31	3,100	7,078	51.53
105	0	3,978	0	123	28.96	79.87	31	3,255	7,233	52.66
110	0	3,978	0	123	28.96	79.87	31	3,410	7,388	53.79
115	225	4,203	2	125	30.60	81.17	29	3,335	7,538	54.88
120	116	4,319	1	126	31.45	81.82	28	3,360	7,679	55.91
125	121	4,440	1	127	32.33	82.47	27	3,375	7,815	56.90
130	0	4,440	0	127	32.33	82.47	27	3,510	7,950	57.88
135	264	4,704	2	129	34.25	83.77	25	3,375	8,079	58.82
140	137	4,841	1	130	35.25	84.42	24	3,360	8,201	59.71

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = MAY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	141	4,982	1	131	36.27	85.06	23	3,335	8,317	60.55
150	295	5,277	2	133	38.42	86.36	21	3,150	8,427	61.35
155	0	5,277	0	133	38.42	86.36	21	3,255	8,532	62.12
160	0	5,277	0	133	38.42	86.36	21	3,360	8,637	62.88
165	161	5,438	1	134	39.59	87.01	20	3,300	8,738	63.62
170	166	5,604	1	135	40.80	87.66	19	3,230	8,834	64.32
175	0	5,604	0	135	40.80	87.66	19	3,325	8,929	65.01
180	0	5,604	0	135	40.80	87.66	19	3,420	9,024	65.70
185	182	5,786	1	136	42.13	88.31	18	3,330	9,116	66.37
190	188	5,974	1	137	43.49	88.96	17	3,230	9,204	67.01
195	0	5,974	0	137	43.49	88.96	17	3,315	9,289	67.63
200	0	5,974	0	137	43.49	88.96	17	3,400	9,374	68.25
999,999	7,761	13,735	17	154	100.00	100.00	0	0	13,735	100.00
TOTAL	13,735		154							
AVG. USE	89.2									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = JUNE

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	3	3	0.00	1.94	152	0	0	0.00
1	2	2	2	5	0.01	3.23	150	150	152	0.91
2	0	2	0	5	0.01	3.23	150	300	302	1.82
3	6	8	2	7	0.05	4.52	148	444	452	2.72
4	8	16	2	9	0.10	5.81	146	584	600	3.61
5	15	31	3	12	0.19	7.74	143	715	746	4.49
6	42	73	7	19	0.44	12.26	136	816	889	5.35
7	21	94	3	22	0.57	14.19	133	931	1,025	6.16
8	32	126	4	26	0.76	16.77	129	1,032	1,158	6.96
9	63	189	7	33	1.14	21.29	122	1,098	1,287	7.74
10	50	239	5	38	1.44	24.52	117	1,170	1,409	8.47
11	33	272	3	41	1.64	26.45	114	1,254	1,526	9.18
12	36	308	3	44	1.85	28.39	111	1,332	1,640	9.86
13	26	334	2	46	2.01	29.68	109	1,417	1,751	10.53
14	28	362	2	48	2.18	30.97	107	1,498	1,860	11.19
15	60	422	4	52	2.54	33.55	103	1,545	1,967	11.83
16	64	486	4	56	2.92	36.13	99	1,584	2,070	12.45
17	17	503	1	57	3.03	36.77	98	1,666	2,169	13.05
18	90	593	5	62	3.57	40.00	93	1,674	2,267	13.63
19	38	631	2	64	3.80	41.29	91	1,729	2,360	14.19
20	40	671	2	66	4.04	42.58	89	1,780	2,451	14.74
25	183	854	8	74	5.14	47.74	81	2,025	2,879	17.32
30	82	936	3	77	5.63	49.68	78	2,340	3,276	19.70
35	133	1,069	4	81	6.43	52.26	74	2,590	3,659	22.01
40	111	1,180	3	84	7.10	54.19	71	2,840	4,020	24.18
45	45	1,225	1	85	7.37	54.84	70	3,150	4,375	26.31
50	237	1,462	5	90	8.79	58.06	65	3,250	4,712	28.34
55	265	1,727	5	95	10.39	61.29	60	3,300	5,027	30.23
60	236	1,963	4	99	11.81	63.87	56	3,360	5,323	32.01
65	126	2,089	2	101	12.56	65.16	54	3,510	5,599	33.67
70	66	2,155	1	102	12.96	65.81	53	3,710	5,865	35.27
75	290	2,445	4	106	14.70	68.39	49	3,675	6,120	36.81
80	77	2,522	1	107	15.17	69.03	48	3,840	6,362	38.26
85	245	2,767	3	110	16.64	70.97	45	3,825	6,592	39.65
90	0	2,767	0	110	16.64	70.97	45	4,050	6,817	41.00
95	92	2,859	1	111	17.19	71.61	44	4,180	7,039	42.33
100	195	3,054	2	113	18.37	72.90	42	4,200	7,254	43.63
105	0	3,054	0	113	18.37	72.90	42	4,410	7,464	44.89
110	0	3,054	0	113	18.37	72.90	42	4,620	7,674	46.15
115	0	3,054	0	113	18.37	72.90	42	4,830	7,884	47.42
120	118	3,172	1	114	19.08	73.55	41	4,920	8,092	48.67
125	245	3,417	2	116	20.55	74.84	39	4,875	8,292	49.87
130	258	3,675	2	118	22.10	76.13	37	4,810	8,485	51.03
135	0	3,675	0	118	22.10	76.13	37	4,995	8,670	52.14
140	136	3,811	1	119	22.92	76.77	36	5,040	8,851	53.23

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = JUNE

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	566	4,377	4	123	26.32	79.35	32	4,640	9,017	54.23
150	296	4,673	2	125	28.10	80.65	30	4,500	9,173	55.17
155	308	4,981	2	127	29.96	81.94	28	4,340	9,321	56.06
160	156	5,137	1	128	30.90	82.58	27	4,320	9,457	56.88
165	163	5,300	1	129	31.88	83.23	26	4,290	9,590	57.68
170	168	5,468	1	130	32.89	83.87	25	4,250	9,718	58.45
175	0	5,468	0	130	32.89	83.87	25	4,375	9,843	59.20
180	180	5,648	1	131	33.97	84.52	24	4,320	9,968	59.95
185	0	5,648	0	131	33.97	84.52	24	4,440	10,088	60.67
190	0	5,648	0	131	33.97	84.52	24	4,560	10,208	61.39
195	0	5,648	0	131	33.97	84.52	24	4,680	10,328	62.12
200	0	5,648	0	131	33.97	84.52	24	4,800	10,448	62.84
999,999	10,979	16,627	24	155	100.00	100.00	0	0	16,627	100.00
TOTAL	16,627		155							
AVG. USE	107.3									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = JULY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	3	3	0.00	1.95	151	0	0	0.00
1	3	3	3	6	0.02	3.90	148	148	151	0.77
2	4	7	2	8	0.04	5.19	146	292	299	1.52
3	9	16	3	11	0.08	7.14	143	429	445	2.26
4	24	40	6	17	0.20	11.04	137	548	588	2.98
5	20	60	4	21	0.30	13.64	133	665	725	3.68
6	24	84	4	25	0.43	16.23	129	774	858	4.35
7	14	98	2	27	0.50	17.53	127	889	987	5.01
8	32	130	4	31	0.66	20.13	123	984	1,114	5.65
9	45	175	5	36	0.89	23.38	118	1,062	1,237	6.28
10	30	205	3	39	1.04	25.32	115	1,150	1,355	6.87
11	121	326	11	50	1.65	32.47	104	1,144	1,470	7.46
12	48	374	4	54	1.90	35.06	100	1,200	1,574	7.98
13	65	439	5	59	2.23	38.31	95	1,235	1,674	8.49
14	28	467	2	61	2.37	39.61	93	1,302	1,769	8.97
15	0	467	0	61	2.37	39.61	93	1,395	1,862	9.45
16	32	499	2	63	2.53	40.91	91	1,456	1,955	9.92
17	51	550	3	66	2.79	42.86	88	1,496	2,046	10.38
18	18	568	1	67	2.88	43.51	87	1,566	2,134	10.83
19	19	587	1	68	2.98	44.16	86	1,634	2,221	11.27
20	20	607	1	69	3.08	44.81	85	1,700	2,307	11.70
25	137	744	6	75	3.77	48.70	79	1,975	2,719	13.79
30	148	892	5	80	4.53	51.95	74	2,220	3,112	15.79
35	102	994	3	83	5.04	53.90	71	2,485	3,479	17.65
40	155	1,149	4	87	5.83	56.49	67	2,680	3,829	19.42
45	346	1,495	8	95	7.58	61.69	59	2,655	4,150	21.05
50	48	1,543	1	96	7.83	62.34	58	2,900	4,443	22.54
55	106	1,649	2	98	8.37	63.64	56	3,080	4,729	23.99
60	233	1,882	4	102	9.55	66.23	52	3,120	5,002	25.38
65	64	1,946	1	103	9.87	66.88	51	3,315	5,261	26.69
70	0	1,946	0	103	9.87	66.88	51	3,570	5,516	27.98
75	220	2,166	3	106	10.99	68.83	48	3,600	5,766	29.25
80	0	2,166	0	106	10.99	68.83	48	3,840	6,006	30.47
85	249	2,415	3	109	12.25	70.78	45	3,825	6,240	31.66
90	88	2,503	1	110	12.70	71.43	44	3,960	6,463	32.79
95	0	2,503	0	110	12.70	71.43	44	4,180	6,683	33.90
100	96	2,599	1	111	13.18	72.08	43	4,300	6,899	35.00
105	103	2,702	1	112	13.71	72.73	42	4,410	7,112	36.08
110	106	2,808	1	113	14.25	73.38	41	4,510	7,318	37.12
115	0	2,808	0	113	14.25	73.38	41	4,715	7,523	38.16
120	0	2,808	0	113	14.25	73.38	41	4,920	7,728	39.20
125	242	3,050	2	115	15.47	74.68	39	4,875	7,925	40.20
130	128	3,178	1	116	16.12	75.32	38	4,940	8,118	41.18
135	0	3,178	0	116	16.12	75.32	38	5,130	8,308	42.15
140	0	3,178	0	116	16.12	75.32	38	5,320	8,498	43.11

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = JULY

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	143	3,321	1	117	16.85	75.97	37	5,365	8,686	44.06
150	0	3,321	0	117	16.85	75.97	37	5,550	8,871	45.00
155	0	3,321	0	117	16.85	75.97	37	5,735	9,056	45.94
160	0	3,321	0	117	16.85	75.97	37	5,920	9,241	46.88
165	162	3,483	1	118	17.67	76.62	36	5,940	9,423	47.80
170	336	3,819	2	120	19.37	77.92	34	5,780	9,599	48.70
175	0	3,819	0	120	19.37	77.92	34	5,950	9,769	49.56
180	0	3,819	0	120	19.37	77.92	34	6,120	9,939	50.42
185	182	4,001	1	121	20.30	78.57	33	6,105	10,106	51.27
190	186	4,187	1	122	21.24	79.22	32	6,080	10,267	52.09
195	194	4,381	1	123	22.23	79.87	31	6,045	10,426	52.89
200	396	4,777	2	125	24.23	81.17	29	5,800	10,577	53.66
999,999	14,935	19,712	29	154	100.00	100.00	0	0	19,712	100.00
TOTAL	19,712		154							
AVG. USE	128.0									

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = AUGUST

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
0	0	0	6	6	0.00	3.82	151	0	0	0.00
1	1	1	1	7	0.00	4.46	150	150	151	0.63
2	2	3	1	8	0.01	5.10	149	298	301	1.26
3	9	12	3	11	0.05	7.01	146	438	450	1.88
4	20	32	5	16	0.13	10.19	141	564	596	2.50
5	25	57	5	21	0.24	13.38	136	680	737	3.09
6	18	75	3	24	0.31	15.29	133	798	873	3.66
7	21	96	3	27	0.40	17.20	130	910	1,006	4.21
8	48	144	6	33	0.60	21.02	124	992	1,136	4.76
9	36	180	4	37	0.75	23.57	120	1,080	1,260	5.28
10	80	260	8	45	1.09	28.66	112	1,120	1,380	5.78
11	44	304	4	49	1.27	31.21	108	1,188	1,492	6.25
12	24	328	2	51	1.37	32.48	106	1,272	1,600	6.70
13	39	367	3	54	1.54	34.39	103	1,339	1,706	7.14
14	14	381	1	55	1.60	35.03	102	1,428	1,809	7.57
15	45	426	3	58	1.78	36.94	99	1,485	1,911	8.00
16	0	426	0	58	1.78	36.94	99	1,584	2,010	8.42
17	17	443	1	59	1.85	37.58	98	1,666	2,109	8.83
18	18	461	1	60	1.93	38.22	97	1,746	2,207	9.24
19	38	499	2	62	2.09	39.49	95	1,805	2,304	9.65
20	40	539	2	64	2.26	40.76	93	1,860	2,399	10.05
25	136	675	6	70	2.83	44.59	87	2,175	2,850	11.93
30	27	702	1	71	2.94	45.22	86	2,580	3,282	13.74
35	263	965	8	79	4.04	50.32	78	2,730	3,695	15.47
40	113	1,078	3	82	4.51	52.23	75	3,000	4,078	17.08
45	171	1,249	4	86	5.23	54.78	71	3,195	4,444	18.61
50	185	1,434	4	90	6.00	57.32	67	3,350	4,784	20.03
55	55	1,489	1	91	6.23	57.96	66	3,630	5,119	21.43
60	60	1,549	1	92	6.49	58.60	65	3,900	5,449	22.82
65	61	1,610	1	93	6.74	59.24	64	4,160	5,770	24.16
70	68	1,678	1	94	7.03	59.87	63	4,410	6,088	25.49
75	72	1,750	1	95	7.33	60.51	62	4,650	6,400	26.80
80	77	1,827	1	96	7.65	61.15	61	4,880	6,707	28.08
85	0	1,827	0	96	7.65	61.15	61	5,185	7,012	29.36
90	86	1,913	1	97	8.01	61.78	60	5,400	7,313	30.62
95	93	2,006	1	98	8.40	62.42	59	5,605	7,611	31.87
100	194	2,200	2	100	9.21	63.69	57	5,700	7,900	33.08
105	209	2,409	2	102	10.09	64.97	55	5,775	8,184	34.27
110	0	2,409	0	102	10.09	64.97	55	6,050	8,459	35.42
115	226	2,635	2	104	11.03	66.24	53	6,095	8,730	36.55
120	238	2,873	2	106	12.03	67.52	51	6,120	8,993	37.66
125	122	2,995	1	107	12.54	68.15	50	6,250	9,245	38.71
130	129	3,124	1	108	13.08	68.79	49	6,370	9,494	39.75
135	131	3,255	1	109	13.63	69.43	48	6,480	9,735	40.76
140	0	3,255	0	109	13.63	69.43	48	6,720	9,975	41.77

SOUTHWEST GAS CORPORATION

BILL FREQUENCY ANALYSIS

HISTORICAL TEST YEAR

RATE SCHEDULE = G-15 CLASS = SPECIAL RESIDENTIAL AREA = ARIZONA PERIOD = AUGUST

INTERVAL UPPER LIMIT	THERMS IN INTERVAL	CUMULATIVE THERMS	BILLS IN INTERVAL	CUMULATIVE BILLS	CUMULATIVE USAGE PERCENT	CUMULATIVE BILLS PERCENT	BILLS PASSING INTERVAL UPPER LIMIT	THERMS FROM BILLS PASSING UPPER LIMIT	CONSOLIDATED FACTOR THERMS	CONSOLIDATED FACTOR PERCENT
145	141	3,396	1	110	14.22	70.06	47	6,815	10,211	42.76
150	0	3,396	0	110	14.22	70.06	47	7,050	10,446	43.74
155	155	3,551	1	111	14.87	70.70	46	7,130	10,681	44.72
160	160	3,711	1	112	15.54	71.34	45	7,200	10,911	45.69
165	162	3,873	1	113	16.22	71.97	44	7,260	11,133	46.62
170	0	3,873	0	113	16.22	71.97	44	7,480	11,353	47.54
175	0	3,873	0	113	16.22	71.97	44	7,700	11,573	48.46
180	0	3,873	0	113	16.22	71.97	44	7,920	11,793	49.38
185	0	3,873	0	113	16.22	71.97	44	8,140	12,013	50.30
190	374	4,247	2	115	17.78	73.25	42	7,980	12,227	51.20
195	191	4,438	1	116	18.58	73.89	41	7,995	12,433	52.06
200	0	4,438	0	116	18.58	73.89	41	8,200	12,638	52.92
999,999	19,444	23,882	41	157	100.00	100.00	0	0	23,882	100.00
TOTAL	23,882		157							

AVG. USE 152.1

Southwest Gas Corporation
Docket No. G-01551A-04-0876

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of
Prepared Rejoinder Testimony
of
A. BROOKS CONGDON

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Admitted

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
A. BROOKS CONGDON

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Mr. A. Brooks Congdon. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same A. Brooks Congdon who sponsored prepared direct and rebuttal testimony in this Docket before the Arizona Corporation Commission (Commission) for Southwest Gas Corporation (Southwest or the Company)?

A. 2 Yes, I am.

Q. 3 What is the purpose of your prepared rejoinder testimony?

A. 3 The purpose of my rejoinder testimony is to respond to the surrebuttal testimony presented by the following witnesses: Ms. Marylee Diaz Cortez and Mr. Rodney L. Moore, witnesses for the Residential Utility Consumer Office (RUCO); Messrs. Robert G. Gray and William H. Musgrove, witnesses for the Arizona Corporation Commission Utilities Division Staff (Staff), regarding their recommendations and comments concerning Southwest's test period bills and volumes, proposed rate design, revenue allocation to customer classes, and customer bill format. Furthermore, my rebuttal and rejoinder testimony

may not specifically respond to each issue or argument brought forth by the respective intervening parties in their direct and surrebuttal testimony. My silence should not be taken as acceptance of any intervening party's position, but rather that my previously filed direct and rebuttal testimony adequately supports the Company's position.

Q. 4 Did you prepare exhibits to support your rejoinder testimony?

A. 4 Yes. I prepared the exhibit identified as Rejoinder Exhibit No.___(ABC-1).

Q. 5 Please summarize your rejoinder testimony.

A. 5 My rejoinder testimony will address the following issues:

1. Southwest's proposed residential rate design shields customers from high winter bills.
2. RUCO's and Staff's proposed residential rate designs increase Southwest's risk of not recovering its revenue requirement when usage is declining and, conversely, increase the risk to customers of higher bills during a cold weather event.
3. Southwest's adjusted test period bills and volumes are appropriate.
4. Southwest's margin allocation is appropriate.
5. Southwest's proposed G-25 rates reflect an appropriate balance of movement toward cost-based pricing and gradualism.

. . . . .

SOUTHWEST'S PROPOSED RESIDENTIAL RATE DESIGN SHIELDS CUSTOMERS FROM HIGH WINTER BILLS

Q. 6 Please explain how Southwest's proposed residential rate design is actually more responsive to the concerns about high natural gas prices and the need to reduce customer impacts in the winter than either Staff's or RUCO's proposed residential rate designs.

A. 6 Very simply, Southwest's proposed residential rate design addresses Staff's concerns regarding high gas prices and high winter bills by moving the residential rate design closer to Southwest's cost of providing service and providing customers a more accurate price signal.

Q. 7 Please respond to Staff's attempt to dismiss the significance of the long-term benefits of cost-based pricing by claiming that Southwest is "front-loading cost in the customer charge and first usage block" and that the reason Southwest's residential rate design shifts costs from winter to summer months "is simply because Southwest is proposing such a large increase in the customer charge."

A. 7 First of all, the salience of Southwest's proposed residential rate design should not be characterized as "front-loading costs" but rather making appropriate and, given today's marketplace, necessary movement toward cost-based pricing. In fact, a proper characterization of Southwest's proposal is "unloading." non-cost-of-service-based charges from large volume residential customers and

more fairly distributing the recovery of Southwest's cost of service across all residential customers. Southwest's proposed rate design, by unloading non-cost-of-service-based charges from larger volume residential customers, by itself shields customers from high winter bills as compared to Staff's and RUCO's proposals because the price per therm for incremental customer usage is less under Southwest's proposed rate design.

Q. 8 Have you quantified the effect of Southwest's, Staff's and RUCO's proposed residential rate designs on customers' bills?

A. 8 Yes. Bills for Single-Family and Low-Income Single-Family residential customers under Southwest's, Staff's and RUCO's proposed rate designs, and the resulting dollar differences between rate designs are reflected on my Rejoinder Exhibit No.___(ABC-1). Rejoinder Exhibit No.___ (ABC-1) allows the Commission to assess differences in the rate designs and their respective impacts on single-family and low-income single-family residential customers during winter (January) and summer (August) months.

I have also summarized the differences in the impact on customer's January bills between Southwest's and RUCO's, and Southwest's and Staff's, proposed residential rate designs in the following tables.

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. . . . .

. . . . .

Single-Family Residential

	Therms	SWG less RUCO	SWG less Staff
1st 5% of Bills	11	$ 4.03	$ 4.91
Mid-Point	35	8.12	7.22
Most Bills	60	0.64	(0.85)
Mid-Point	105	(12.82)	(15.40)
95% of Bills	155	(27.78)	(31.56)

Low-Income Single-Family Residential

	Therms	SWG less RUCO	SWG less Staff
1st 5% of Bills	14	$ 3.49	$ 3.05
Mid-Point	35	6.22	5.10
Most Bills	55	1.14	0.19
Mid-Point	100	(10.31)	(10.89)
95% of Bills	145	(21.75)	(21.96)

Based upon the foregoing, it is readily apparent that Southwest's proposed rate design provides relief from high winter bills to large volume residential customers, including Southwest's low-income customers. These are the customers that are the most severely impacted by high winter bills and, therefore, are the customers in need of the greatest degree of relief because they are already paying significantly more in gas costs than Southwest's small volume residential customers.

Q. 9 How should the above information affect the Commission's decision on residential rate design in this proceeding?

A. 9 Future gas prices have already reached all-time sustained high levels, and that was before Hurricane Katrina. With the disruptions caused by Katrina, and now possibly

Hurricane Rita, it is reasonable to expect movement in gas prices alone will be sufficient to cause historically high customer bills, especially winter bills. Given the collective desire to assist customers in paying high winter bills, this is an ideal time for the Commission to implement Southwest's proposed changes to residential rate design because decreases to the second block margin rate will offset increases in the cost of gas, thus the impact of higher gas costs on customers' winter bills will be reduced.

Q. 10 Please discuss Staff's statement that APS' E-12 rate schedule has a declining block rate structure in summer months, and that Southwest opposes such a rate structure.

A. 10 Staff must have intended to state that APS' E-12 rate schedule has an inverted not a declining block summer rate structure. As stated in my rebuttal testimony, Southwest is not opposed to an inverted or declining block rate structure as long as the rate structure reflects the utility's individual cost-of-service. Southwest is strongly opposed to inverted rates for its own natural gas distribution service because inverted rates do not reflect Southwest's cost-of-service.

RUCO'S AND STAFF'S PROPOSED RESIDENTIAL RATE DESIGNS INCREASE RISK TO CUSTOMERS AND SOUTHWEST

Q. 11 Please respond to Ms. Diaz Cortez's assertion that RUCO's proposed residential rate design lessens Southwest's risk of not recovering its revenue requirement when usage is declining.

A. 11 This assertion is not correct. Both RUCO's and Staff's proposed residential rate designs actually increase Southwest's risk of not recovering its revenue requirement and also increase the risk to customers of higher bills during a cold weather event when compared to both Southwest's existing and proposed residential rate designs.

The risk of volatility to Southwest and Southwest's customers is directly related to the price per therm as demonstrated in the following table.

Description	SWG Current	SWG w CMT	SWG no CMT	Staff*	RUCO*
Marginal Price	$.40344	$.25000	$.15000	$.57320	$.54911
10 Therm Change in Use	$4.03	$2.50	$1.50	$5.73	$5.49

* Staff's and RUCO's rates are calculated at Southwest's proposed residential margin.

Accordingly, Ms. Diaz Cortez's statement on page 7 of her surrebuttal testimony that: "This shift in commodity revenue to fixed revenue lessens SWG's risk of not recovering its revenue requirement when usage is declining..." is relative and must be put into context. For instance, with regard to RUCO's and Staff's proposed residential rate designs, any benefit from the proposed increase in the basic service charge is offset by the increased risk to Southwest of having to recover its remaining fixed costs through volumetric rates that are greater than Southwest's currently effective second block

rate. Therefore, relative to Southwest's currently effective residential rates, or Southwest's proposed residential rate designs, RUCO's and Staff's proposed residential rate designs increase volatility in Southwest's revenues and in bills for Southwest's customers.

Q. 12 Do you agree with Ms. Diaz Cortez's statement on page 8, lines 19 and 20 of her surrebuttal testimony that RUCO's recommended rate design comports with Southwest's proposed alternatives to the CMT ostensibly due, in part, to flattening the commodity rate to one block?

A. 12 Absolutely not. As I stated above, it is the price per therm that governs volatility in revenue for Southwest and in bills for Southwest's customers. Southwest's proposed residential rate designs, both with and without the CMT, seek to reduce the marginal commodity price per therm from the current level of $.40344 per therm to either $.25000 per therm or $.15000 per therm, respectively. (As an alternative to margin decoupling, the Public Utilities Commission of Nevada approved marginal commodity rates of approximately $.15000 per therm for Southwest's Northern and Southern Nevada Divisions.) RUCO's and Staff's proposed residential rate designs would increase the marginal commodity price per therm from the current level of $.40344 per therm to either $.54911 per therm or $.57320 per therm respectively. Therefore, RUCO's and Staff's proposed rate

designs actually exacerbate volatility in revenue and consequently, do not adhere to Southwest's proposed alternatives to the CMT.

Q. 13 Have RUCO or Staff provided any quantifiable benefits associated with their proposed residential rate designs?

A. 13 No. RUCO and Staff both recommend moving prices further away from Southwest's marginal cost of providing service while providing no evidence whatsoever of any tangible benefit to Southwest, Southwest's customers, or the state of Arizona.

Q. 14 Does any party contest the fact that Southwest's proposed rate designs promote increased customer rate stability?

A. 14 No. In fact Staff states on page 9, line 15 of Robert Gray's surrebuttal testimony, that Southwest's proposed rate structure provides greater customer rate stability.

SOUTHWEST'S ADJUSTED TEST PERIOD BILLS AND VOLUMES

Q. 15 Please respond to RUCO witness Mr. Rodney L. Moore's continued insistence that RUCO needs to adjust Southwest's recorded test year bills and volumes reflected on Schedule H-2, Sheet 16.

A. 15 RUCO's adjustment to Southwest's recorded test year bills and volumes is unnecessary and contains several fatal errors which result in Mr. Moore's adjusted bills and volumes being unusable.

Q. 16 Please discuss the computational errors made by Mr. Moore in his effort to calculate "...a set of determinants that accurately reflect the size of the test-year customer

base, its usage pattern and generate the test-year recorded revenue." (Moore surrebuttal testimony, Page 6, Lines 15-17)

A. 16 Computational errors discovered by Southwest include, but may not be limited to: 1) improper calculation of Southwest's average test year cost of gas; 2) incorrect pricing of bills and volumes for Southwest's former Black Mountain Gas Company customers; and 3) improperly pricing the gas cost and basic service charge revenue applicable to Schedule Nos. G-60 and G-80.

Q. 17 Please explain how Mr. Moore calculated Southwest's average test year cost of gas used in his analysis.

A. 17 Mr. Moore calculated an average annual gas cost rate of $.47131 per therm by dividing Southwest's test year recorded cost of gas of $327,132,801 (Schedule C-2, Sheet 1, Line 1) by total test year volume, including deliveries to transportation customers of 729,401,553 therms (Schedule H-2, Sheet 16, Line 23), and then multiplying the result by 1.050867.

Q. 18 Please describe why Mr. Moore's calculation of average recorded test year cost of gas is incorrect, and how it has impacted his analysis.

A. 18 As the Commission is fully aware, Southwest's cost of gas changes monthly. Therefore, Mr. Moore should have calculated gas cost by month for each rate schedule. Instead, Mr. Moore incorrectly utilized an annual average cost of gas. As a result, his analysis fails to capture

the relationship between changes in Southwest's monthly cost of gas and changes in monthly sales volumes to each customer class. Mr. Moore also applies the same average cost of gas to all rate schedules, including Schedule Nos. G-60 and G-80. The gas cost included in sales rates for Schedule Nos. G-60 and G-80, as discussed by Staff witness Robert G. Gray in his direct testimony, changes seasonally and is unique to these rate schedules. In addition to applying the wrong cost of gas, Mr. Moore's analysis does not reflect the fact that G-80 customers are not charged a basic service charge during the winter season when most irrigation pumps are idle.

More importantly, Mr. Moore incorrectly used Southwest's recorded cost of purchased gas of $327,132,801, which reflects the amount Southwest paid for gas during the test year. Mr. Moore should have utilized the gas cost amount included in Southwest's recorded revenue, which is the cost of gas included in sales rates, to perform his calculations. Differences between what Southwest actually paid for purchased gas and amounts recovered through sales rates are accounted for in Southwest's Purchased Gas Cost Balancing Account. Mr. Moore further erred, because his divisor of 729,401,553 therms includes transportation volumes. Southwest does not purchase the volumes of gas used by transportation customers. Therefore, by including transportation volumes in the divisor, Mr. Moore understates the average cost of gas.

Aside from his initial misuse of data provided in Southwest's BFA's (see page 25 of my rebuttal testimony), Mr. Moore's incorrect calculation of average test year cost of gas appears to be the next most significant error in his analysis. Focusing on the residential class, the gas cost rate of $.47131 per therm utilized by Mr. Moore is $.02229 per therm less than the properly weighted average annual cost of gas for residential customers of $.49360 per therm. As a result, Mr. Moore understates residential gas cost by $6.0 million and, because in his worksheets, margin is equal to recorded revenue less gas cost, he correspondingly overstates residential margin by the same amount. It is errors of this magnitude that explain why Mr. Moore was unable to recalculate recorded revenues by rate schedule.

Q. 19 Have you prepared an exhibit that corrects Mr. Moore's calculations?

A. 19 Yes. In response to RUCO Data Request 9-1 attached as Rebuttal Exhibit No.___(ABC-4) to my rebuttal testimony, Southwest performed all the calculations necessary to verify the accuracy of Southwest's recorded number of bills and volumes and recorded revenue by rate schedule.

Q. 20 In your opinion what is the value of replicating recorded revenues as Mr. Moore attempted to do, and as Southwest successfully has done in Rebuttal Exhibit No.___(ABC-4)?

A. 20 I believe the value in recasting recorded revenues is confined to serving as a reasonableness check to

determine whether the Company's accounting system is accurate, i.e. recorded bills, volumes and prices do, in fact, produce the correct recorded revenue amounts. Once validated, as Southwest was able to do in Rebuttal Exhibit No.___(ABC-4), recorded test year bills and volumes should be utilized as the starting point to develop adjusted test period bills and volumes by rate schedule, as was done by Southwest.

SOUTHWEST'S MARGIN ALLOCATION

Q. 21 Does testimony presented by Staff and RUCO alter your recommendation that the Commission accept Southwest's proposed allocation of margin to customer classes?

A. 21 No. Southwest, like Staff, is very concerned regarding the effect high gas prices will have on customers. Staff, however, would have the Commission use today's high gas prices as a basis to support Staff's reluctance to move toward cost-based pricing when, in fact, the better long-term solution is to move toward cost-based pricing as much as possible.

Q. 22 Please explain why Staff's position that high gas prices should limit the margin increase allocated to residential customers is ill-founded.

A. 22 Increases in the cost of purchased gas have affected all of Arizona's natural gas (and electric) customers, not just residential customers as Staff's logic would suggest. In fact, large volume customers have been financially impacted more severely than small volume

customers by increases in the cost of gas. Increases in the cost of gas should not be used as an argument to relieve the residential customer classes of paying their fair share of the cost of operating Southwest's distribution system at the expense of Southwest's commercial and industrial customers. This is not a healthy long-term price signal to send when a competitive business sector is crucial in creating new jobs to sustain Arizona's growth.

Q. 23 Please explain why RUCO's testimony that its proposed rate design generates 67.16 percent of margin revenue from the residential class of service is inaccurate.

A. 23 RUCO's proof of its proposed rates is presented by witness Rodney L. Moore in Schedule RLM-16 of his surrebuttal testimony. Schedule RLM-16 reflects total proposed residential margin of $241,370,740 and total recommended margin of $370,818,589. Simple division shows that RUCO's proposed rates recover 65.09 percent of total margin from residential classes, not 67.16 percent as represented by Ms Diaz Cortez. Thus, RUCO's proposed residential rates recover approximately $7.7 million less from residential customers than would be necessary for the residential classes to contribute 67.16 percent of total margin. Putting this discrepancy aside, by simply maintaining the existing allocation of margin between residential and non-residential classes, RUCO's proposal (like Staff's) fails to move pricing closer toward

Southwest's cost of providing service. Therefore, when compared to Southwest's proposed allocation, RUCO's allocation fails to provide the best long-term price signals for Arizona.

SOUTHWEST'S PROPOSED G-25 RATES ARE BALANCED

Q. 24 Do you agree with Staff's assertion that Southwest's proposed G-25 rates move too quickly toward cost-based rates?

A. 24 No. Differences between Staff's and Southwest's proposed general service rate schedules' monthly basic service charges are reflected in the table below.

Proposed Schedule	Staff	SWG	Difference Dollar
Small GS	$24.00	$25.00	$ 1.00
Medium GS	24.00	35.00	11.00
Large GS	105.00	150.00	45.00
Transport Eligible	540.00	750.00	210.00

There is a one-dollar per month difference between Staff's and Southwest's proposed basic service charge for the proposed Small General Service (GS) rate schedule. Furthermore, the differences in proposed basic service charges of $11.00, $45.00, and $210.00 per month for customers on the proposed Medium, Large, and Transport Eligible GS schedules are not excessive. This is especially true to the extent many Small, Medium and Large General Gas Service customers are heat-only customers and do not take service during the summer months. These seasonal customers already contribute less

to Southwest's cost of service on an annual basis simply because they only take service part of the year. The cost of their service is being subsidized by Southwest's year-round customers. Under Staff's proposal, heat-only customers would receive a $1.00, $11.00, or $45.00 per month benefit in the form of lower basic service charges which would further exacerbate the subsidy received by these customers vis-à-vis Southwest's general service rate design proposal.

Q. 25 Does this conclude your prepared rejoinder testimony?

A. 25 Yes, it does.

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
COMPARISON OF RATE DESIGNS AT SWG MARGIN REQUIREMENT
SINGLE-FAMILY RESIDENTIAL GAS SERVICE

Line No.	Description (a)	(Therms) (b)	Total SWG Bill (c)	Total RUCO Bill (d)	Total Staff Bill (e)	SWG less RUCO (f)	SWG less Staff (g)	Percentage of Bills in Interval [1] (h)	Line No.
	January Bills								
1	First 5 Percent of Total Bills	11	$ 28.31	$ 24.28	$ 23.40	$ 4.03	$ 4.91	4.98%	1
2	Mid-Point First Percent and Mode	35	60.94	52.82	53.72	8.12	7.22	16.38%	2
3	Mode Use (Greatest Number of Bills)	60	83.20	82.56	84.05	0.64	(0.85)	24.21%	3
4	Mid-Point Mode and 95 Percent	105	123.25	136.07	138.65	(12.82)	(15.40)	35.40%	4
5	95 Percent of Total Bills	155	167.76	195.54	199.32	(27.78)	(31.56)	13.95%	5
	August Bills								
6	First 5 Percent of Total Bills	1	$ 13.48	$ 12.39	$ 10.76	$ 1.09	$ 2.72	5.52%	6
7	Mid-Point First Percent and Mode	4	17.93	15.96	14.55	1.97	3.38	17.27%	7
8	Mode Use (Greatest Number of Bills)	6	20.90	18.34	17.08	2.56	3.82	15.64%	8
9	Mid-Point Mode and 95 Percent	15	30.10	29.04	28.45	1.06	1.65	45.76%	9
10	95 Percent of Total Bills	25	39.00	40.93	41.08	(1.93)	(2.08)	11.22%	10

Cost of gas and surcharges at $ 0.64017 per therm.

[1] Percent of monthly bills falling in each consumption interval. For example, 35.40% of January bills use between 60 and 105 therms and approximately **54 percent** (35.40 + 13.95 + 5) of residential customers' January bills are less under Southwest's proposed rate design.

SOUTHWEST GAS CORPORATION
ARIZONA DIVISION
COMPARISON OF RATE DESIGNS AT SWG MARGIN REQUIREMENT
LOW-INCOME SINGLE-FAMILY RESIDENTIAL GAS SERVICE

Line No.	Description (a)	(Therms) (b)	Total SWG Bill (c)	Total RUCO Bill (d)	Total Staff Bill (e)	SWG less RUCO (f)	SWG less Staff (g)	Percentage of Bills in Interval [1] (h)	Line No.
	January Bills								
1	First 5 Percent of Total Bills	14	$ 25.90	$ 22.41	$ 22.85	$ 3.49	$ 3.05	4.97%	1
2	Mid-Point First Percent and Mode	35	51.73	45.51	46.63	6.22	5.10	14.49%	2
3	Mode Use (Greatest Number of Bills)	55	68.66	67.52	68.47	1.14	0.19	19.41%	3
4	Mid-Point Mode and 95 Percent	100	106.73	117.04	117.62	(10.31)	(10.89)	40.14%	4
5	95 Percent of Total Bills	145	144.81	166.56	166.77	(21.75)	(21.96)	15.53%	5
	August Bills								
6	First 5 Percent of Total Bills	1	$ 8.35	$ 8.10	$ 8.26	$ 0.25	$ 0.09	4.15%	6
7	Mid-Point First Percent and Mode	4	12.40	11.40	12.03	1.00	0.37	15.69%	7
8	Mode Use (Greatest Number of Bills)	6	15.10	13.60	14.54	1.50	0.56	14.70%	8
9	Mid-Point Mode and 95 Percent	16	24.57	24.61	27.11	(0.04)	(2.54)	51.27%	9
10	95 Percent of Total Bills	25	32.19	34.51	38.42	(2.32)	(6.23)	10.57%	10

Cost of gas and surcharges at $ 0.63365 per therm.

[1] Percent of monthly bills falling in each consumption interval. For example, 40.14% of January bills use between 55 and 100 therms and approximately **60 percent** (40.14 + 15.53 + 5) of low-income residential customers' January bills are less under Southwest's proposed rate design.

Southwest Gas Corporation
Docket No. G-01551A-04-__

EXHIBIT
A-19
Admitted

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony
of
EDWARD B. GIESEKING

Q. 1 Please state your name and business address.

A. 1 My name is Edward B. Gieseking. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom are you employed and in what capacity?

A. 2 I am employed by Southwest Gas Corporation (Southwest or the Company) in the Pricing and Tariffs Department as Director/Pricing and Tariffs.

Q. 3 Please state your educational background and business experience.

A. 3 I received a Bachelor of Arts degree in Business Management from Sonoma State University in 1985 and a Master of Arts degree in Regulatory Economics from New Mexico State University in 1993.

From 1983 through 1993, I was employed by Pacific Gas and Electric Company in various capacities, including the position of Regulatory Analyst in the Revenue Requirements and Rates departments. My responsibilities as a Regulatory Analyst primarily involved the development of pricing structures and supporting rate requests before the California Public Utilities Commission.

In 1993, I began my career with Southwest as a Specialist in the Rates department. I was assigned responsibility for monitoring and participating in California regulatory activity and reporting impacts to Company management. In 1995 I was promoted to Senior Specialist in the Regulatory Affairs department and subsequently promoted to Manager of the department in 1998. In addition to the day-to-day management of the department, my responsibilities included the supervision of regulatory filings to ensure timely and accurate submittals, and serving as the Company liaison with state regulatory agency and state consumer advocate professionals.

In August 2002, I was promoted to the position of Senior Manager of the Pricing and Tariffs department and was subsequently promoted to my current position.

Q. 4 Please state briefly the nature of your present responsibilities and duties with Southwest.

A. 4 I report to the Vice President/Pricing and I am responsible for the development of rate design and tariff proposals for Southwest.

Q. 5 Have you previously testified before any regulatory commissions?

A. 5 Yes, I have testified before the Arizona Corporation Commission (Commission), the Public Utilities Commission of Nevada, and the California Public Utilities Commission.

SUMMARY

Q. 6 What is the purpose of your prepared direct testimony in this proceeding?

A. 6 I am the Company's rate design policy witness. I describe Southwest's rate design goals and explain how Southwest's proposed rate design will achieve those goals.

I am also sponsoring a proposal to implement a ratemaking mechanism to decouple Southwest's recovery of residential authorized non-gas revenue (margin) per customer from the level of sales. Southwest's residential rate design proposal is dependent on whether the Commission authorizes Southwest's residential margin decoupling proposal. Consequently, Southwest is presenting two residential rate design proposals. One proposal should be implemented in association with the proposed decoupling of margin from sales, and if the Commission does not authorize margin decoupling, an alternative proposal that recovers a greater amount of authorized margin from the basic service charge and first block commodity rate is proposed.

Q. 7 What is the overall objective of Southwest's rate design?

A. 7 Southwest's goal is to design rates that improve the Company's opportunity to realize the Commission-authorized margin level. This is accomplished by maximizing, to the extent possible given other rate design considerations, a movement toward cost-based pricing for its gas distribution services.

Q. 8 How does Southwest's existing rate design affect its ability to realize the Commission-authorized margin?

A. 8 To the extent that current rates are designed to recover a significant portion of Southwest's margin through commodity rate components, decreased sales associated with increased efficiency and conservation have prevented Southwest from recovering the Commission-authorized margin levels. This has hindered Southwest's ability to earn its authorized rate of return. In this rate case, Southwest is proposing implementation of a rate design aligned more closely with cost causation factors. This will provide Southwest with an increased opportunity to earn its authorized rate of return.

Q. 9 What relationship does the residential margin decoupling proposal have to Southwest's residential rate design proposal?

A. 9 Southwest's residential rate design proposal is dependent upon the Commission's approval of the residential margin decoupling mechanism. The proposed margin decoupling mechanism will accomplish Southwest's rate design objective of stabilizing margin recovery for the residential classes and allow a more gradual movement towards cost based rates for the residential classes.

Southwest recognizes that a movement to fully cost-based rates for residential customers might interfere with competing rate design considerations. Therefore, Southwest has developed a mechanism that will

accomplish the goal of stabilizing residential margin recovery while making a more gradual shift towards cost-based rates. This mechanism, referred to by Southwest as the Conservation Margin Tracker (CMT), will decouple Southwest's residential margin recovery from the volume of gas delivered in a given month and re-couple residential margin recovery to the number of customers served each month. The true-up of Southwest's actual margin recovery with the authorized per customer margin would lessen Southwest's need for a fully cost-based rate structure to recover its authorized margin.

Q. 10 Why is it appropriate to consider different rate design proposals contingent on the adoption of the CMT?

A. 10 If the Commission approves the proposed CMT, the need for residential margin stabilization through rate design is less urgent. As discussed in the testimonies of Southwest witnesses Messrs. Jeffrey W. Shaw, Theodore K. Wood and Robert A. Mashas, Southwest has been unable to attain its authorized rate of return over a considerable period of time. One of the primary contributing factors is that Southwest has not realized the Commission-authorized margin per customer for a number of general rate case cycles. Southwest has not recovered its authorized margin per customer because a significant portion of Southwest's margin recovery is dependent upon the gas sales volume, and Southwest has been experiencing a steady decline in average use per customer.

If Southwest is denied authority to address the problem of margin recovery through the proposed CMT, Southwest's rate design proposal that provides additional margin stabilization through greater movement toward cost of service rates should be considered.

RATE DESIGN

Q. 11 Why is the principle of cost-based pricing the focus of your rate design?

A. 11 Excluding the cost of gas, virtually all of Southwest's costs of service are "fixed" in nature and do not vary with changes in customer consumption. Because of the steady decline in consumption per customer, Southwest's current rate design has not provided the Company a reasonable opportunity to recover its distribution cost investment and related fixed costs of service. Southwest's proposed rate design, which more closely reflects the fixed nature of Southwest's costs, will provide a more reasonable opportunity for Southwest to recover its authorized margin and earn its authorized rate of return.

The cost of operating Southwest's gas distribution system is comparable, by way of analogy, to the cost associated with the ownership and operation of an automobile. When a consumer contemplates the purchase of an automobile, he or she knows that a large capital outlay will be required. The consumer must fund the fixed cost, whether or not the vehicle is driven one mile or

ten thousand miles. The customer also knows that there are other fixed costs of owning the vehicle, such as scheduled maintenance, insurance and taxes. What the consumer receives for this fixed cost of ownership is the availability of the automobile whenever it is needed. The consumer also knows there is a variable cost of ownership, i.e. the cost of gasoline, and the consumer takes this into consideration when deciding how and when to use the vehicle.

Similar to the concept that the fixed cost of automobile ownership is not a function of how many miles it is driven, Southwest's fixed cost of service is not dependent on how much natural gas is consumed. Southwest's proposed rate design recognizes that the Commission-authorized fixed costs of gas distribution service should be recovered from customers who have the availability of a safe and reliable gas distribution system.

Q. 12 Is there a conflict between conservation goals and your recommendation for a pricing structure that recovers more distribution costs in fixed charges and non-discretionary commodity components?

A. 12 No. Referring again to the automobile analogy, it has been demonstrated that increasing the variable cost of ownership, primarily gasoline prices, affects driving habits. Similarly, when natural gas commodity rates are set at or near the marginal cost of service, consumers

are provided a price signal that encourages the most efficient use of the resource. Even if none of Southwest's distribution costs were recovered in the commodity portion of Southwest's rates, the gas cost component of the commodity rate provides a significant incentive for customers to conserve.

Q. 13 Why doesn't the cost of gas distribution service decrease when gas consumption decreases?

A. 13 Unlike the electric industry, where a significant portion of the margin rate is composed of generation capacity costs, Southwest's gas margin rates only include the costs of distribution service (gas industry capacity costs are recovered as a component of gas cost rates on an equal-cents-per-therm commodity basis through the Purchased Gas Cost Adjustment mechanism). The majority of Southwest's non-gas costs are associated with the addition of customers to the distribution system, not the annual volume of gas consumed.

RESIDENTIAL GAS SERVICE RATE DESIGN

Q. 14 Please describe Southwest's proposed changes to the residential rate schedules.

A. 14 Southwest proposes changes to the residential rate schedules as follows: 1) that its current residential customer class be subdivided into single-family and multi-family classes; 2) that the first block volumes of the commodity rates for those schedules be set to capture approximately 50 percent of total seasonal volume;

3) that the low-income rate discount be incorporated into the residential schedules and the stand-alone low-income schedule be discontinued; and 4) that the Special Residential rate schedules for air-conditioning and electric generation be discontinued.

Q. 15 What is the purpose of subdividing the current residential rate schedule into single- and multi-family?

A. 15 Southwest has determined that there are considerable differences in the cost of service and consumption characteristics between these groups of residential customers. Establishing these classes will allow Southwest to more accurately establish rates that represent the cost of distribution service to these distinct groups.

Q. 16 Why has Southwest adjusted the first block volumes of the commodity rates?

A. 16 When rates were established in Southwest's last general rate case, the number of therms in the first block of residential commodity rates was set approximately equal to the arithmetic average seasonal use per customer. However, only 32 percent of residential customers' consumption exceeds the first block volume. Because a large number of customers' consumption does not exceed the first block volumes, there is a significant reduction in the margin stabilization that this rate design was intended to provide. Setting the first block volumes of the commodity rates for those schedules at a level that

captures approximately 50 percent of total seasonal volume creates a rate design that provides improved margin stabilization for Southwest and cold weather high bill mitigation for customers.

Q. 17 Why has Southwest proposed the change to the low-income residential gas service?

A. 17 Southwest has completed upgrades to its billing system that allows for the low income assistance discount to be calculated on each customer bill, eliminating the need to have a separate rate schedule for this customer class. Customers eligible for the rate discount will now have the total amount of their discount displayed on the bill.

Q. 18 Is Southwest proposing any other changes to the low income discount?

A. 18 Yes. Southwest is very concerned about the impact of a rate increase on financially disadvantaged customers. To mitigate the impact of a rate increase in this proceeding, Southwest proposes that the low income discount be adjusted such that eligible customers receive approximately 25 percent of the average residential rate increase. This mitigation has been accomplished by making adjustments to both the otherwise applicable residential basic service charge and the commodity rates.

Compared to the discount provided under the current Low Income Residential Gas Service rate schedule, eligible customers will receive a greater benefit. Under the current Low Income Residential Gas Service schedule,

customers receive a one-dollar discount on their basic service charge and a 20 percent discount on their commodity rates during the winter months on the first 150 therms. Southwest's proposed low-income rate retains the current low-income basic service charge of $7 and provides 15 percent discount on the commodity rates on all consumption year round.

The proposed discount recognizes that the cost to serve this customer segment has increased since rates were established in the last general rate case, but mitigates the impact of higher utility bills on eligible customers.

If Southwest's proposed increase in margin for the residential class is adjusted in this proceeding, Southwest recommends that the low-income commodity rate discount and low-income basic service charge be adjusted such that the margin increase to low-income customers results in low-income customers receiving approximately 25 percent of the average residential increase.

Q. 19 Why has Southwest discontinued the Special Residential Gas Service schedules?

A. 19 The only difference between the Residential Gas Service rate and the rates for these customers is a lower summer second block rate. This rate differential was designed to reflect expected off-peak use of these customer types and to provide Southwest with the opportunity to encourage off-peak consumption.

However, there are very few customers taking service under Schedule No. G-15, Special Residential Gas Service for Air-conditioning and currently no customers taking service under Schedule No. G-16, Special Residential Gas Service for Electric Generation. Furthermore, an analysis of the consumption characteristics of the few customers served under Schedule No. G-15 shows that there is little difference between these customers and other residential customers. Therefore, Southwest proposes to serve these groups under their otherwise applicable residential rate schedule.

Q. 20 What is the result of moving residential rates to reflect cost of service?

A. 20 Less margin is recovered in the second block commodity rate component. As a result, the basic service charge and the first block commodity rate increases.

Q. 21 You have previously explained the reason for Southwest's proposal for two residential rate designs. What are the similarities and differences between the alternative residential rate designs?

A. 21 Both partially decouple residential margin recovery from sales and re-couple margin recovery to the number of customers by moving to rates based on cost of service. Both proposals assign the same level of margin responsibility and, except for the level of the rates, contain the same tariff provisions. The only difference in the proposals is the extent to which they move toward

cost-based rates.

If the Commission approves the CMT, there is less need to stabilize margin recovery through rate design and, therefore, a more gradual adjustment in the current rate structure towards cost-based rates is appropriate. On the other hand, if the Commission does not authorize the CMT, the alternative rate design moves toward a cost-based structure more rapidly. Generally, a more rapid movement towards cost-based rates requires a greater percentage of cost recovery through fixed rate components and a corresponding reduction of cost recovery through usage sensitive rate components.

Q. 22 How does Southwest's request impact residential customers?

A. 22 If the Commission adopts the rate design that Southwest proposes in conjunction with the CMT, the single-family average summer bill would increase $5.09 and the average winter bill would increase $10.33. The multi-family average summer bill would increase $4.41 and the average winter bill would increase $6.81.

If the Commission adopts Southwest's alternative rate design, the single-family average summer bill would increase $6.86 and the average winter bill would increase $6.38. The multi-family average summer bill would increase $5.66 and the average winter bill would increase $5.40.

. . . . .

GENERAL GAS SERVICE RATE DESIGN

Q. 23 What are Southwest's proposed changes to the general gas service rate schedules?

A. 23 Southwest is proposing an expansion of the general service sub-classes from three to four, and a realignment of the customers by annual consumption as shown in the following table.

Present Rate Schedule	Proposed Rate Schedule
Sm. General (0 - 7,200)	Sm. General (0 - 600)
	Med. General (601 - 7,200)
Med. General (7,201 - 180,000)	Lg. General (7,201 - 180,000)
Lg. General (7,201 - 180,000)	Transportation Eligible (TE) (over 180,000)

Southwest has also revised the billing determinant calculation for the Transportation Eligible General Gas Service customers.

Q. 24 Why has Southwest expanded the general service classes?

A. 24 Approximately 50 percent of the current Small General Gas Service customers use less than 600 therms per year, yet account for less than eight percent of the customer class total annual usage. The disparity in customer size between these smallest of the small and the remaining Small General Gas Service customers was an obstacle to adjusting rates to more closely reflect Southwest's fixed cost of providing service. For that reason, Southwest separated the current Small General Gas Service customers into small and medium classes.

Q. 25 What is the reason for the change in the demand billing determinant calculation?

A. 25 Southwest's current Large General Gas Service rate schedule features a three-part rate structure with approximately 50 percent of the customer class margin recovered through the demand component of the rate structure. An individual customer's monthly demand charge is equal to the product of the demand charge rate multiplied by each customer's coincident peak throughput during the month in which the utility's peak demand is established. This pricing structure is inconsistent with cost of service pricing.

To be consistent with cost of service pricing, these customers' demand billing should be determined on each customer's non-coincident peak throughput.

Q. 26 Why is a non-coincident demand rate more consistent with cost of service pricing?

A. 26 Unlike a gas transmission system, which is generally linear and must be sized to meet the coincident demand of its users, the distribution system is networked and portions of it may reach peak demand when other portions have unused capacity. This is recognized in Southwest's class cost of service study through the allocation of the demand portion of distribution mains on non-coincident peak volumes.

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OTHER RATE DESIGN AND TARIFF CHANGES

Q. 27 What other rate design and tariff changes is Southwest proposing in this filing?

A. 27 Southwest is proposing to: 1) establish a basic service charge for Air-Conditioning Gas Service, rather than charging the otherwise applicable basic service charge; 2) modify the applicability of Schedule No. G-60, Cogeneration Gas Service, to include all electric generation service and change the schedule name to Electric Generation Gas Service; 3) adjust the Service Establishment and Returned Item charges to reflect current costs; 4) incorporate language on Sheet No. 13 describing Southwest's pricing for transportation service and cancel Sheet No. 14, Effective Transportation Rates Applicable to Arizona Schedules; 5) close Schedule No. G-75, Small Essential Agricultural User Gas Service, to new customers, and reclassify current customers to the applicable general service schedule where it benefits the customer; 6) close Schedule No. G-35, Gas Service to Armed Forces, and reclassify current customers to the applicable general service schedule; and 7) make miscellaneous changes to Southwest's Rules to reflect proposed changes in rate schedules and conform Southwest's Arizona Gas Tariff language to current business practice.

Southwest witness A. Brooks Congdon describes these changes and the calculation of rates in his direct testimony.

CONSERVATION MARGIN TRACKER (CMT)

Q. 28 You have previously discussed Southwest's goal of decoupling residential margin recovery from sales. How can this be accomplished?

A. 28 One approach would be to use a straight-fixed-variable (SFV) rate design where fixed demand and customer-related costs are recovered from customers through fixed monthly charges and variable costs are recovered through a volumetric charge. Although this type of rate design is commonly employed by the Federal Energy Regulatory Commission in the setting of rates for natural gas interstate transmission pipelines, it is not widely used to establish local distribution rates. The State of Georgia is the only state that I am currently aware of that has adopted such a rate design. Georgia adopted this rate design in conjunction with its transition to retail competition.

Another approach, the one proposed by Southwest in this filing and previously identified as the Conservation Margin Tracker or CMT, is the establishment of a balancing account that balances actual billed residential margin per customer with the Commission-authorized residential margin per customer. The difference between the authorized margin per customer and the actual amount billed per customer will be recorded in a balancing account and any over-recoveries or under-recoveries will be returned to or recovered from customers through a rate true-up.

The mechanics of the CMT are described in the proposed tariff sheets filed as part of Southwest's Application.

Q. 29 Why has Southwest proposed the CMT over SFV rate design as a means to margin stabilization?

A. 29 Under full SFV rate design, where the annual fixed costs of service are recovered in equal monthly amounts, residential customers would be subject to a monthly charge of $27. Although simple to administer, Southwest recognizes that competing rate design objectives, such as rate change gradualism, limit the ability to adjust residential fixed charges to this degree. As such, Southwest researched the regulatory literature for an alternative methodology that would decouple margin recovery from sales and allow a more gradual movement toward cost-based rates.

Q. 30 What goals did Southwest set out to achieve with the CMT?

A. 30 Southwest identified two primary objectives it wanted its decoupling proposal to accomplish: (1) balance the interest of customers and shareholders by protecting customers from margin over-recovery and Southwest from margin under-recovery due to differences between adopted test year consumption per customer and actual consumption per customer; and (2) remove the inherent utility disincentive to promote energy efficiency and conservation.

Q. 31 How will the CMT achieve the objective of balancing the interest of customers and shareholders?

A. 31 The CMT will balance the interest of customers and shareholders by returning to customers any amounts received by the Company in excess of the authorized margin per customer or recover from customers amounts received that are less than the authorized margin per customer. As discussed in the testimony of Southwest witness Frank J. Hanley, Southwest has recognized the reduction in margin recovery risk through a decrease in the equity component of its proposed cost of capital.

Exhibit No.___(RAM-1), attached to the testimony of Mr. Mashas, shows that Southwest has been able to earn the Commission-authorized rate of return only one year (1998) for the period 1994 to present. It also shows what effect the CMT would have had on the rate of return if it had been in place over this period. Even though the CMT would have had a positive effect, Southwest still would not have achieved its authorized return. In fact, in the one year in which Southwest exceeded its rate of return, the CMT would have resulted in a return of over-recovered margin to customers and a resulting reduction in its realized rate of return.

Q. 32 How will the CMT achieve the objective of reducing disincentives to promote energy efficiency and conservation?

A. 32 The majority of the cost Southwest incurs in the provision of distribution service is incurred as a result of providing customers the availability of safe and

reliable natural gas service. These costs change very little with increases or decreases in customer consumption. When Southwest's costs are recovered in a volumetric pricing structure, Southwest's ability to recover its authorized margin per customer is dependent upon it realizing the sales volume per customer used in the development of rates.

As such, the incentive provided Southwest under this ratemaking scenario is to make every effort to retain the test period consumption levels; lower consumption results in lower margin, which contributes to a lower rate of return. The CMT will eliminate the shareholder penalty that has historically been associated with conservation and remove the inherent disincentive to promote energy efficiency.

Q. 33 Is Southwest active in the promotion of energy efficiency?

A. 33 Yes. In addition to the current Commission-authorized Demand Side Management (DSM) programs discussed by Southwest witness Vivian E. Scott in her prepared direct testimony, Southwest provides a steady stream of conservation and energy efficiency messages to its customers. Attached to my testimony is a sampling of the information Southwest distributes to the community. In the *News to Use* and *Easy Ways to Save Money* publications, periodically provided to customers in their bill statement, Southwest provides conservation tips prior to

each winter heating season.

In partnership with appliance manufacturers who offer rebates for the purchase of Energy Star-rated natural gas appliances, Southwest provides retailers with the rebate information that customers need to claim their rebates. Appliance rebate information is also provided through Southwest's Energy Services phone line or the Southwest Web site, www.swgas.com.

Southwest's Energy Services specialists receive approximately 60,000 calls each year, many concerning customer requests for information on energy efficiency. As a result, customers are provided with detailed energy conservation information, including the *Homeowner's Guide to Weatherization* and *Energy Savers Tips on Saving Energy & Money at Home*.

Q. 34 In your opinion, have these programs contributed to the declining average use?

A. 34 Yes. Southwest's average residential consumption per customer has steadily declined. Southwest firmly believes in the efficient use of natural gas and believes its conservation programs have contributed to those efforts. This is a further reason why the approval of Southwest's proposed CMT is appropriate.

Q. 35 What are the expectations for additional conservation subsequent to establishing rates in this proceeding?

A. 35 Southwest is requesting a substantial expansion to its current budget for purposes of funding expanded

conservation and energy efficiency programs. To the extent the Commission finds these programs in the interest of Southwest's customers and authorizes the funding request, these programs are expected to have a continued and increasing impact on declining average consumption per customer.

It would be unfair to expect Southwest to implement programs that have the potential for increased reductions in margin without some type of margin erosion protection such as the proposed CMT.

Q. 36 Has the concept of a margin true-up been addressed in a prior Commission proceeding?

A. 36 Yes. In Southwest's last general rate case it was suggested that one of the ways for Southwest to reduce variability in its revenue stream due to weather and changes in consumption would be to incorporate a mechanism that decouples margin recovery from sales. In particular, the recommendation was for the Commission to consider the concept of a balancing account to protect against fluctuations in margin due to weather and conservation.

Q. 37 Has there been any recent support for the concept of margin true-ups?

A. 37 Yes. At their recent summer meetings, the National Association of Regulatory Utility Commissioners issued a resolution urging state regulatory commissions to consider regulatory structures, like a margin true-up,

that would ensure that a utility's ability to recover its authorized fixed costs was not dependent upon the level of sales. The CMT will accomplish this.

Q. 38 Will the CMT guarantee Southwest's profitability?

A. 38 No. Southwest's profitability will continue to be dependent upon the difference between the authorized margin per customer and expenses incurred to provide service. The CMT will continue to provide incentive for Southwest to operate efficiently and operating efficiencies will continue to be reflected in Southwest's rates.

Q. 39 Will the adoption of the CMT affect the traditional rate case process?

A. 39 No.

Q. 40 Does this conclude your prepared direct testimony?

A. 40 Yes, it does.

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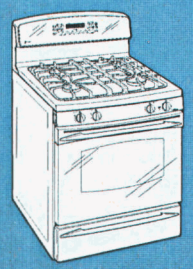
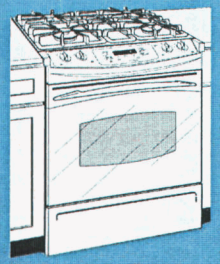
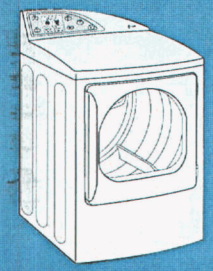
How to find the model and serial numbers on your appliance:



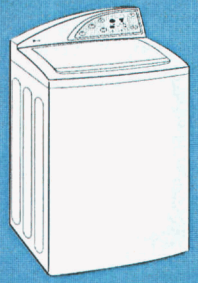
Free-Standing Gas Ranges
Lower left corner
(Open drawer/panel)



Slide-in Gas Ranges
Lower left corner
(Open door)

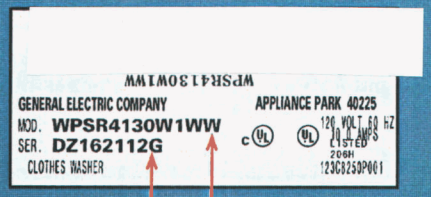


GE Profile Harmony™ Dryer
Upper right corner
(Open door)



GE Profile Harmony™ Washer
Right center on back

Sample model and serial number tag



Any questions locating your model and serial number, please call the Energy Specialists **1-800-654-2765**

$100 Rebate

Gas cooking...ultimate temperature control meets classy style.

$100 Rebate
available on selected Profile™ free-standing and slide-in gas ranges.

$100 Rebate
GE Profile Harmony™ Washer/Dryer offers ultimate clothing care and ultimate savings.

- Energy Star® rated
- 40% less water
- 20% faster drying
- Less drying cost *(according to a leading consumer magazine.)*

Advantage Gas!

$100 Rebate

SOUTHWEST GAS
www.swgas.com

$100 Rebate

Now through February 2, 2004, you can receive $100 cash back from GE when you purchase eligible GE Profile™ appliances from an authorized retail dealer.

The EPA's Energy Star® rating on the Harmony™ washer/dryer pair means high energy efficiency. You'll also **save water** - up to 40% less than a traditional topload machine. And compared to electric drying, the gas dryer will **save time** - about 20% faster drying, and **save money,** an average of 25 cents per load, according to a leading consumer magazine. Your clothing will receive the best of care because the washer communicates directly with the dryer to automatically determine the proper setting. Your clothes will last longer and look better than ever.

Simply have your appliance dealer fill out the **To Be Completed by Retail Dealer** on the next panel. You fill out the **To Be Completed by Consumer** section on the last panel, following the instructions that appear there.

For more information call Southwest Gas Energy Services at **1-800-654-2765** or visit **www.swgas.com** and click on "Special Offers."

SOUTHWEST GAS
www.swgas.com

Receive $100 cash back from GE when you purchase eligible GE Profile™ appliances September 10, 2003, through February 2, 2004 from an authorized retail dealer.

To Be Completed By Retail Dealer **Please Print Or Type**

3017-ZA2-SWG

Store Name

Address

City

State Zip

I represent that on Month Day , a new GE Profile™ appliance (check model number below) was sold to the consumer listed at right for personal use and not for resale, and this is the only GE consumer incentive offer certificate that will be submitted in connection with the purchase of the GE appliance indicated.

Free-Standing Gas Ranges

- ○ JGB920 ..... $100
- ○ JGB915 ..... $100
- ○ JGB905 ..... $100
- ○ JGB900 ..... $100
- ○ J2B915 ..... $100

Slide-In Gas Ranges

- ○ JGSP48 ..... $100
- ○ JGS968 ..... $100
- ○ J2S968 ..... $100

GE Profile Harmony™ Washer and Dryer

- ○ WPGT9350C and DPGT750GC....$100

$100 Rebate

to obtain your $100 cash back, remember to:

- Have the dealer fill out the retailer section of the form
- Complete the consumer section of the form
- Include the serial number(s)
- Include a copy of the invoice or sales receipt showing the model number(s) and date
- Sign the redemption certificate
- Mail the entire form to GE by March 1, 2004

To Be Completed By Consumer

Serial Number

Here's how to get your cash back from GE...

- **Fill in all information on this form.** Incomplete certificates will be returned to the consumer.
- **YOU MUST FILL IN PRODUCT SERIAL NUMBER.**
- Include the **RETAIL INVOICE** or **SALES SLIP** (photocopy acceptable) from the retail dealer, showing the model number and the date purchased.
- Mail no later than March 1, 2004, to: **GE Cash Back Rebate Offer, P.O. Box 7700, Louisville, KY 40257-0700**
- **Allow eight to ten weeks for delivery.** Keep a record of when you mailed this certificate and the 800# to call. If not received after ten weeks, call this toll-free number Monday through Friday from 9:00 AM to 5:00 PM Eastern Time: **1-800-436-6838.**

Consumer's Name

Address

City

State County Zip

Phone

E-Mail Address*

* Please provide your email address to receive, via email, discounts, special offers and other important communications from GE Appliances (GEA).

__ Check here if you do not want to receive communications from GEA's carefully selected partners.

This offer is limited to one rebate on each listed eligible model purchased from an authorized retail dealer September 10, 2003, through February 2, 2004. Offer void where prohibited, taxed, or restricted by law. **CERTIFICATE MUST BE POSTMARKED NO LATER THAN MARCH 1, 2004.**
LATE SUBMISSIONS WILL NOT BE ACCEPTED! This certificate must accompany your request. Omission of sales receipt or any other information will delay processing; we will return all materials to be resubmitted with complete documentation. Please allow eight to ten weeks from the time the redemption form is received for delivery of Cash Back check.

THIS OFFER IS NO LONGER VALID IF CHECK IS NOT CASHED WITHIN 11 MONTHS OF DATE OF CHECK. I/we hereby understand and accept the above requirements for receipt of this Cash Rebate.

Customer Signature _____

Date _____

© 2003 General Electric Company
PC36989

NEWS TO USE
December 2004

Exhibit No.___(EBG-1)
Attachments

WINTER.....

Bill to Reflect Higher Natural Gas Prices

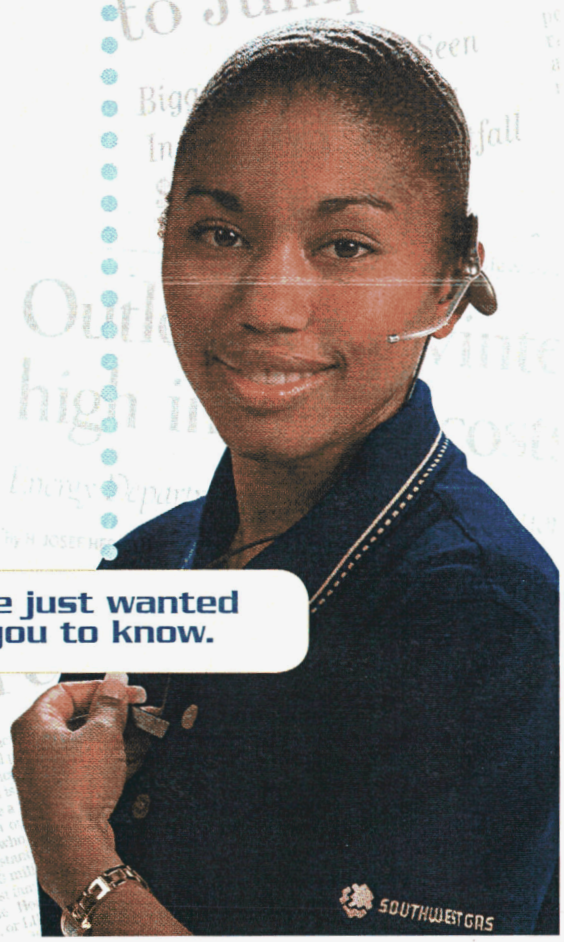
For more than a year, there has been a constant barrage of news about higher energy prices, including the cost of natural gas.

As a Southwest Gas customer, you have already experienced some of these increases through the Purchased Gas Adjustments that appear on your monthly bill. With colder weather, winter bills will reflect not only an increase in usage, but also the higher cost of natural gas.

The natural gas industry started experiencing more volatility in pricing several years ago. To minimize the impact of these price fluctuations, the company purchased about half of its gas supplies for this winter with fixed-priced contracts. Prices for the remainder of the supplies will be determined by the marketplace on a monthly or daily basis.

The reasons for higher prices boil down to one fact: demand for natural gas is increasing faster than supply. We want to reassure customers that we have secured ample supplies of natural gas for this winter. However, the price we paid was higher than last winter.

The price Southwest Gas pays for natural gas is passed on to customers dollar for dollar with no profit allowed.



SOUTHWEST GAS
www.swgas.com

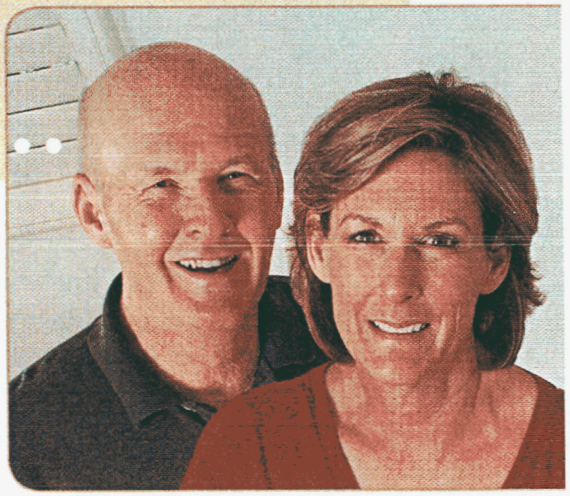
HAVING TROUBLE Paying Your Bills?

We realize that with higher winter heating bills, it may be difficult for some customers to pay their bills. There is help available.

At the first indication that you may have a bill-payment problem, we encourage you to call your local Southwest Gas office. Often times, we can help you make extended payment arrangements.

We're also encouraging customers to enroll in the company's Equal Payment Plan. The program equalizes your gas bill into 12 monthly payments. In addition, Southwest Gas has established a special program, Energy Share, to help customers who have exhausted other forms of financial help. The program is administered by the Salvation Army throughout our service territories.

Southwest Gas representatives can also provide the names and telephone numbers of state agencies that provide energy payment assistance.



PREPARING YOUR HOME For Cold Weather

Get a furnace checkup.
The most important thing you can do for your home is to have your gas furnace checked out by a professional. It can prolong the life of the furnace and decrease energy usage. You may even uncover a potentially dangerous situation such as a cracked heat exchanger or a blocked vent pipe.

You can also call the Southwest Gas Energy Specialists toll-free at **1-800-654-2765**, or visit the Southwest Gas Web site, **www.swgas.com**, for information on how to reduce your energy bills and the names of local contractors who can inspect your furnace.

- **Buy foam gaskets for all of your exterior wall outlets.**
  To keep cool air from entering your home from exterior outlets, install foam gaskets on all light switches and external electric receptacles. Be sure to shut off the electricity at the breaker box during installation.
- **Caulk and weatherstrip.**
  Concentrate on areas around windows and doors where outside air can enter the home. Seal up the larger air leaks in your home – the ones that whistle on windy days.
- **Repair faucets.**
  Save water, fuel, and money by replacing leaking water faucets.
- **Install a programmable thermostat.**
  A programmable thermostat can automatically reduce the temperature setting at night as well as when you are away from home.
- **Use the warmth of the sun.**
  Blinds and drapes can serve as additional insulation in your home. Open them during the day to let the sun help warm your home. And be sure to close them at night to help keep the warmth from escaping through the windows.
- **Insulate pipes and hot air ducts.**
  Insulate any hot water pipes or heating ducts which run through crawlspaces and attics.

SOUTHWEST GAS
www.swgas.com

Easy ways to...

save money

Making a few energy-efficient improvements in your home can make it more comfortable and save you money.

Tips...

1. Adjust the Thermostat

During the heating season, set your thermostat between 68 and 70 degrees, unless otherwise directed by your doctor. If you are away from home for more than eight hours, setting the thermostat four to six degrees lower in the winter or higher in the summer can save you about 7 to 10 percent in heating/cooling costs. Installing an automatic setback thermostat can also help regulate the temperature in your home more efficiently.

2. Replace Filters Regularly

Make it a habit to clean or replace furnace or air conditioning filters monthly. Clogged filters waste energy and make your heating and cooling system work harder than necessary.

Continued on back...

SOUTHWEST GAS®

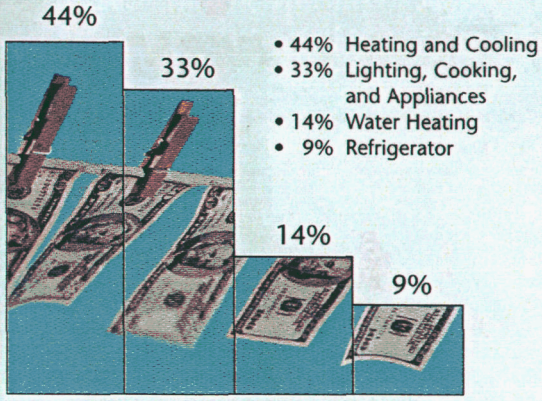
www.swgas.com

Tips *(continued)...*

3. Routine Furnace Inspections
Southwest Gas recommends that qualified contractors inspect your natural gas furnace annually to help ensure that it is operating safely and efficiently. The company's Energy Specialists can refer you to qualified contractors to perform this inspection.

4. Seal the Gaps
Caulking and weather stripping spaces around doors and windows, or installing inexpensive switch-plate gaskets between the outlet and an exterior wall will prevent the loss of precious energy dollars. About 2 percent of the heat loss in your home can occur through switch and plug outlets on exterior walls.

How We Use Energy in Our Homes*



Sources:
** Department of Energy, "Consumer Guide to Home Energy Savings"*

5. Let Nature Help
During the heating season, open shades, blinds, and draperies in rooms that receive direct sunlight to take advantage of the sun's warmth. Be sure to close them before the sun sets to preserve the heat.

6. Close Fireplace Damper When Not In Use
When you're not using your fireplace, make sure you close the damper to keep the warmth of your home from escaping up the chimney. Since most building codes now require damper stops for natural gas fireplaces to prevent them from being fully closed, keep the glass doors on your fireplace closed when it's not in use.

7. Use Household Appliances Efficiently
Washing full loads when using your dishwasher and washing machine saves time, detergent and energy. (An automatic dishwasher uses the same amount of hot water for both small and full loads.) Drying laundry loads one after another dries clothes faster because the dryer doesn't have to reheat after each load. Make sure you clean the lint filter after every load to save energy and speed drying time.

8. Conserve Heat In Your Oven
Preheat your oven only when needed — and never for more than 10 minutes. Arrange the oven racks before you turn on the oven, because an oven loses about 20 percent of its heat every time the door is opened. Using a timer instead of frequently opening the oven door to check on food will also save energy.

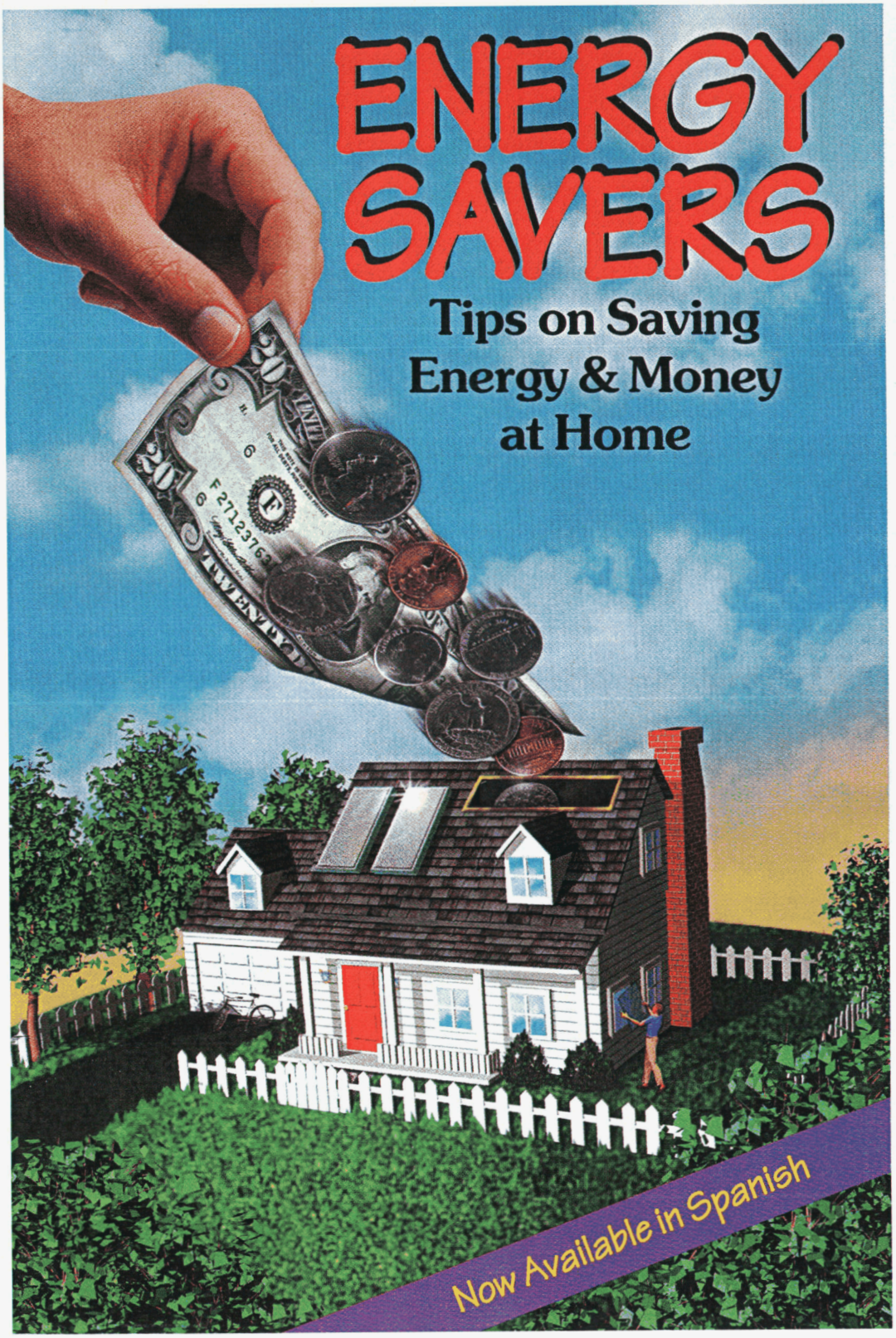
9. Conserve Hot Water
Installing low-flow showerheads and faucets will keep your energy dollars from going down the drain. Using cold-water laundry detergents, along with a warm wash/cool rinse setting, can help you save energy and reduce costs. It's the detergent that brightens whites and kills germs.

10. Limit Use Of Exhaust Fans
In just one hour, exhaust fans in your kitchen or bathroom can pull out a house full of warm or cooled air. Turn fans off as soon as they have completed their job.

11. Repair Leaky Faucets
Leaky faucets can waste gallons of water in a short period of time. Repairing leaky faucets saves energy and a precious resource, too.

12. Don't Forget Your Natural Gas Water Heater
Water heating is the third largest energy user in your home. To reduce your water-heating costs, turn the dial on your water heater and set it to "low" (120˚F), use an approved water heater insulated blanket (unless manufacturer indicates otherwise), and insulate the water pipes at the top of the water heater. If no one is going to be at home for one week or more, turning down the dial of your water heater to the lowest setting can also save energy dollars.

For more information on home energy efficiency or high-efficiency natural gas appliances, please contact the Energy Specialists at 1-800-OK-GAS-OK (654-2765), visit the EnergyStar Web site at *www.energystar.gov*, or call 1-888-STAR-YES (782-7937).


ENERGY SAVERS
Tips on Saving Energy & Money at Home
Now Available in Spanish

The U.S. Department of Energy works to ensure secure, reliable, and affordable energy supplies that support a growing economy and protect the environment. Energy efficiency improvements and tips are easy ways for Americans to help preserve our global environment, reduce air pollution, and conserve our natural resources for future generations to come.

By making just a few energy-efficiency improvements outlined in this Energy Savers booklet, you can make your home more comfortable and yield long-term financial rewards. For example, you can save up 10 to 50 percent on your energy bills, increase the resale value of your home, and qualify for energy-efficiency mortgages.

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To learn more about DOE programs that promote energy efficiency and renewable energy, visit the Office of Building Technology, State and Community Program's web site at: www.eren.doe.gov/buildings

A special thank you to Owens Corning for printing this award-winning booklet and for participating in DOE's Energy Awareness Month Campaign.

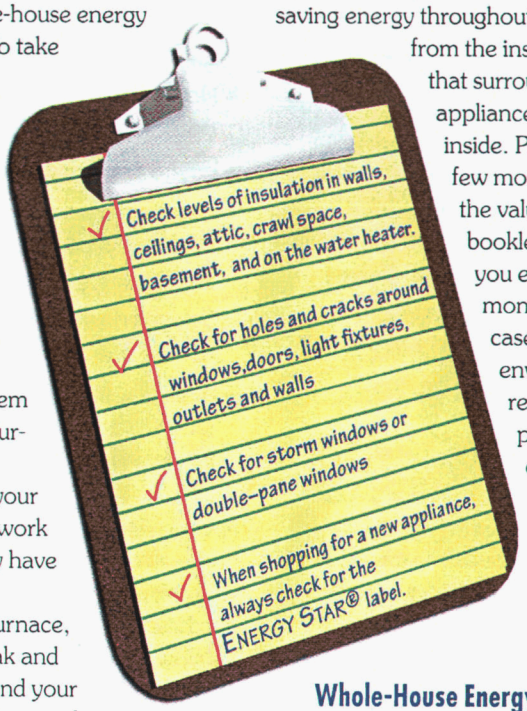
Introduction

Did you know that the typical U.S. family spends close to $1,300 a year on their home's utility bills? Unfortunately, a large portion of that energy is wasted. The amount of energy wasted just through poorly insulated windows and doors is about as much energy as we get from the Alaskan pipeline each year. And electricity generated by fossil fuels for a single home puts more carbon dioxide into the air than two average cars. By using a few inexpensive energy-efficient measures, you can reduce your energy bills by 10% to 50%, and at the same time, help reduce air pollution.

The key to achieving these savings is a whole-house energy efficiency plan. To take a whole-house approach, view your home as an energy system with interdependent parts. For example, your heating system is not just a furnace—it's a heat-delivery system that starts at the furnace and delivers heat throughout your home using a network of ducts. You may have a top-of-the-line, energy-efficient furnace, but if the ducts leak and are uninsulated, and your walls, attic, windows, and doors are uninsulated, your energy bills will remain high. Taking a whole-house approach to saving energy ensures that dollars you invest in energy efficiency are wisely spent.

Energy-efficient improvements not only make your home more comfortable, they can yield long-term financial rewards. Reduced operating costs more than make up for the higher price of energy-efficient appliances and improvements over their lifetimes. Improvements may also qualify you for an energy efficiency mortgage, which allows lenders to use a higher-than-normal debt-to-income ratio to calculate loan potential. In addition, your home will likely have a higher resale value.

This booklet shows you how easy it is to reduce your home energy use. It is a guide to easy, practical solutions for saving energy throughout your home, from the insulating system that surrounds it to the appliances and lights inside. Please, take a few moments to read the valuable tips in this booklet that will save you energy and money and, in many cases, help the environment by reducing pollution and conserving our natural resources.

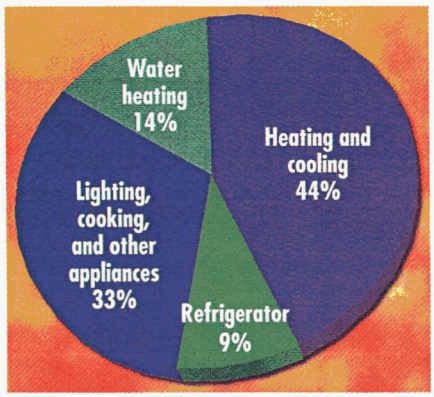


Whole-House Energy Plan

Prioritize your whole-house plan by viewing your home as an energy system with interdependent parts.

Your Home's Energy Use

The first step to taking a whole-house energy efficiency approach is to find out which parts of your house use the most energy. A home energy audit will show you where these are and suggest the most effective measures for reducing your energy costs. You can conduct a simple home energy audit yourself, you can contact your local utility, or you can call an independent energy auditor for a more comprehensive examination.



How We Use Energy In Our Homes (based on national averages)

The largest portion of a utility bill for a typical house is for heating and cooling.

Energy Auditing Tips

- Check the level of insulation in your exterior and basement walls, ceilings, attic, floors, and crawl spaces. Contact your local contractor for advice on how to check your insulation levels.
- Check for holes or cracks around your walls, ceilings, windows, doors, light and plumbing fixtures, switches, and electrical outlets that can leak air into or out of your home.
- Check for open fireplace dampers.
- Make sure your appliances and heating and cooling systems are properly maintained.
- Study your family's lighting needs and use patterns, paying special attention to high-use areas such as the living room, kitchen, and exterior lighting. Look for ways to use daylighting, reduce the time the lights are on, and replace incandescent bulbs and fixtures with compact or standard fluorescent lamps.

Formulating Your Plan

After you have identified places where your home is losing energy, assign priorities to your energy needs by asking yourself a few important questions:

- How much money do you spend on energy?
- Where are your greatest energy losses?
- How long will it take for an investment in energy efficiency to pay for itself in energy savings?
- Can you do the job yourself, or will you need to hire a contractor?
- What is your budget and how much time do you have to spend on maintenance and repair?

Once you assign priorities to your energy needs, you can form a whole-house efficiency plan. Your plan will provide you with a strategy for making smart purchases and home improvements that maximize energy efficiency and save the most money.

Another option is to get the advice of a professional. Many utilities conduct energy audits for free or for a nominal charge. For a fee, a professional contractor will analyze how your home's energy

systems work together as a system and compare the analysis against your utility bills. He or she will use a variety of equipment such as blower doors, infrared cameras, and surface thermometers to find inefficiencies that cannot be detected by a visual inspection. Finally, they will give you a list of recommendations for cost-effective energy improvements and enhanced comfort and safety. A good contractor will also calculate the return on your investment in high efficiency equipment vs. standard equipment.

For more information about home energy audits, contact:

U.S. Department of Energy's (DOE's) Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732
www.eren.doe.gov/askanenergyexpert/

Finding a contractor

When searching for a contractor, you should:

- Ask neighbors and friends if they have worked with a contractor they would recommend
- Look in the Yellow Pages
- Focus on local companies
- Look for licensed, insured contractors
- Get three bids with details in writing
- Ask about previous experience
- Check references
- Inquire with the Better Business Bureau.

Owens Corning Customer Service Hotline, (800) GET-PINK (800-438-7465),
www.owenscorning.com

Cool Hot

Heat Loss from a House

A picture is worth..., in this case, lost heating dollars. This thermal photograph shows heat leaking from a house during those expensive winter heating months. The white, yellow, and red colors show where the heat escapes. The red represents the area of the greatest heat loss.

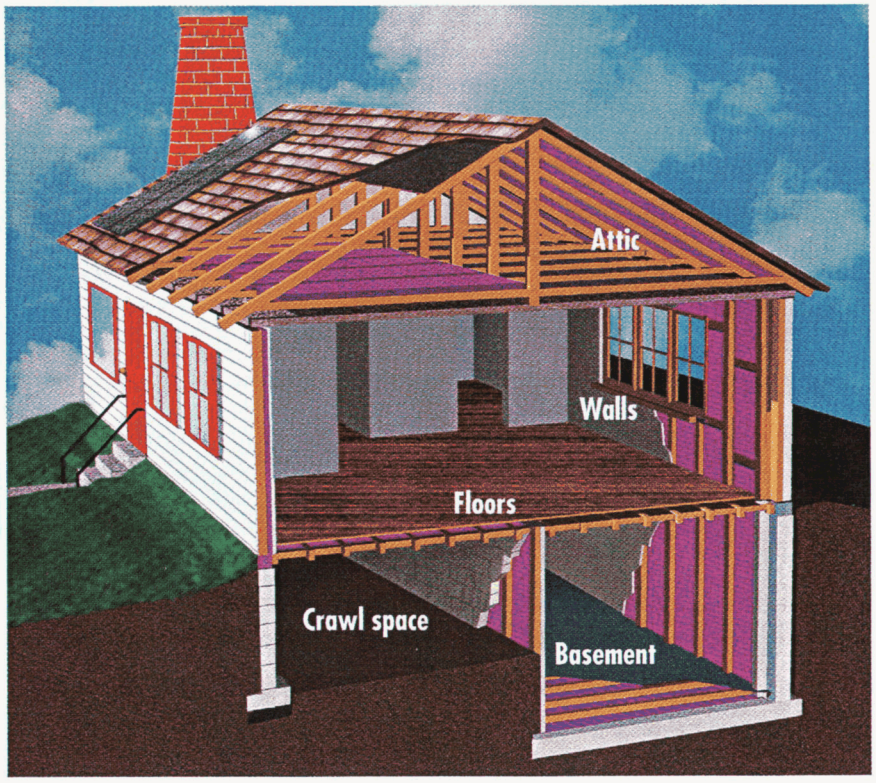
Thermogram/photograph copyright 1997, Infraspection Institute, Inc., Shelburne, VT

Insulation and Weatherization

Checking your home's insulating system is one of the fastest and most cost-efficient ways to use a whole-house approach to reduce energy waste and maximize your energy dollars. A good insulating system includes a combination of products and construction techniques that provide a home with thermal performance, protect it against air infiltration, and control moisture. You can increase the comfort of your home while reducing your heating and cooling needs by up to 30% by investing just a few hundred dollars in proper insulation and weatherization products.

Insulation

First, check the insulation in your attic, ceilings, exterior and basement walls, floors, and crawl spaces to see if it meets the levels recommended for your area. Insulation is measured in R-values—the higher the R-value, the better your walls and roof will resist the transfer of heat. The U.S. Department of Energy (DOE) recommends ranges of R-values based on local heating and cooling costs and climate conditions in different areas of the nation. The map and chart on pages 6 and 7 show the DOE recommendations for your area. State and local codes in



Where to Insulate

Adding insulation in the areas shown here may be the best way to improve your home's energy efficiency.

some parts of the country may require lower R-values than the DOE recommendations, which are based on cost-effectiveness. For more customized insulation recommendations, visit the U.S. Department of Energy's insulation page at www.eren.doe.gov/buildings/wthr_insulating.html. The Zip-Code Insulation Program can tell you the most economic insulation level for your new or existing home.

Although insulation can be made from a variety of materials, it usually comes in four types—batts, rolls, loose-fill, and rigid foam boards. Each type is made to fit in a different part of your house. Batts are made to fit between the studs in your walls or between the joists of your ceilings or floors. Batts are usually made of fiber glass or rock wool. Fiber glass is manufactured from sand and recycled glass, and rock wool is made from basaltic rock and recycled material from steel mill wastes. Rolls or blankets are also usually made of fiber glass and can be laid over the floor in the attic. Loose-fill insulation (usually made of fiber glass, rock wool, or cellulose) is blown into the attic or walls. Cellulose is usually made from recycled newsprint treated with fire-retardant chemicals.

Rigid foam boards are made of polyisocyanurate, extruded polystyrene (XPS or blueboard), expanded polystyrene (EPS or beadboard), or other materials. These boards are lightweight, provide structural support, and generally have an R-value of 4 to 7 per inch. Rigid board insulation is made to be used in confined spaces such as exterior walls, basements, foundation and crawl space walls, concrete slabs, and cathedral ceilings.

Insulation Tips

- Consider factors such as your climate, building design, and budget when selecting insulation R-value for your home.

Should I insulate my home?

The answer is probably "yes" if you:

- Have an older home and haven't added insulation: in a recent survey, only 20% of homes built before 1980 were well insulated
- Are uncomfortably cold in the winter or hot in the summer—adding insulation creates a more uniform temperature and increases comfort
- Build a new house or addition, or install new siding or roofing
- Pay excessive energy bills
- Are bothered by noise from the outdoors—insulation helps to muffle sound
- Are concerned about the effect of energy use on the environment.

- Use higher density insulation, such as rigid foam boards, in cathedral ceilings and on exterior walls.
- Ventilation plays a large role in providing moisture control and reducing summer cooling bills. Attic vents can be installed along the entire ceiling cavity to help ensure proper airflow from the soffit to the attic to make a home more comfortable and energy efficient.
- Recessed light fixtures can be a major source of heat loss, but you need to be careful how close you place insulation next to a fixture unless it is marked "I.C."—designed for direct insulation contact. Check your local building codes for recommendations.
- As specified on the product packaging, follow the product instructions on installation and wear the proper protective gear when installing insulation.

The easiest and most cost-effective way to insulate your home is to add insulation in the attic. To find out if you have enough attic insulation, measure the thickness of insulation. If there is less

than R-22 (7 inches of fiber glass or rock wool or 6 inches of cellulose) you could probably benefit by adding more. Most U.S. homes should have between R-22 and R-49 insulation in the attic.

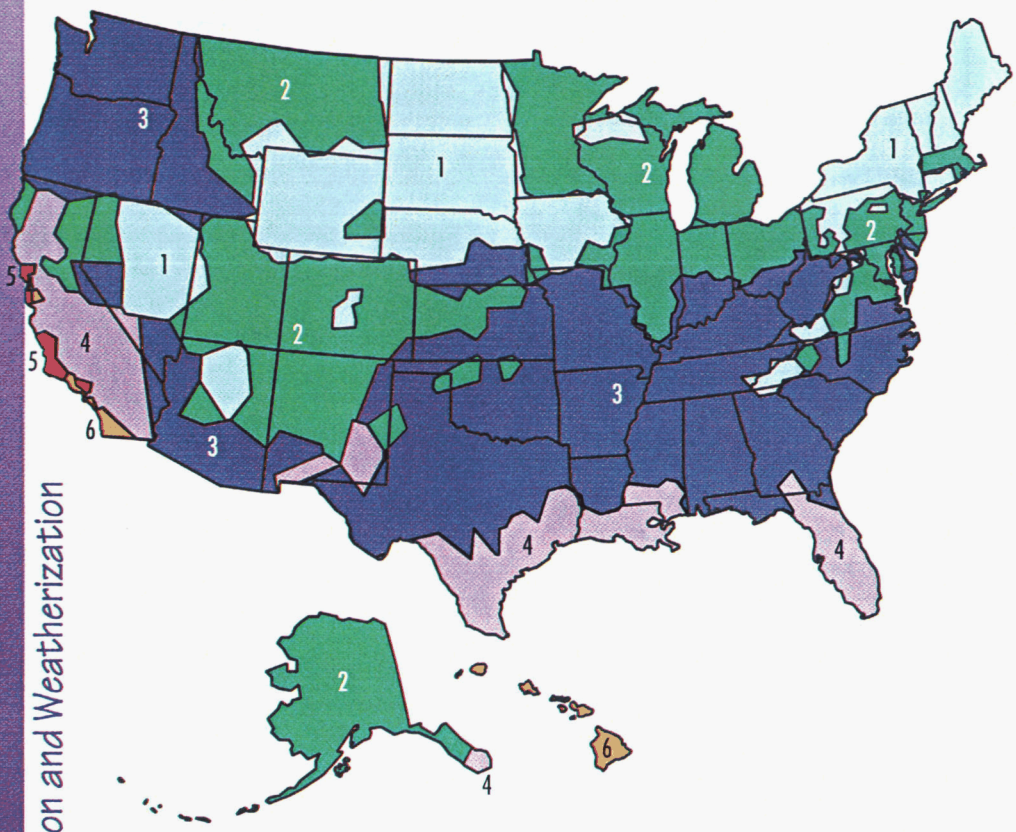
If your attic has ample insulation and your home still feels drafty and cold in the winter or too warm in the summer, chances are you need to add insulation to the exterior walls as well. This is a more expensive measure that usually requires a contractor, but it may be worth the cost if you live in a very hot or cold climate.

You may also need to add insulation to your crawl space. Either the walls or the floor above the crawl space should be insulated.

New Construction

For new construction or home additions, R-11 to R-28 insulation is recommended for exterior walls depending on location (see map below). To meet this recommendation, most homes and additions constructed with 2 in x 4 in walls require a combination of wall cavity

U.S. Department of Energy Recommended* Total R-Values for New Construction Houses in Six Insulation Zones



*These recommendations are cost-effective levels of insulation based on the best available information on local fuel and materials costs and weather conditions. Consequently, the levels may differ from current local building codes. In addition, the apparent fragmentation of the recommendations is an artifact of these data and should not be considered absolute minimum requirements.

insulation, such as batts and insulating sheathing or rigid foam boards. If you live in an area with an insulation recommendation that is greater than R-20, you may want to consider building with 2 in x 6 in framing instead of 2 in x 4 in framing to allow room for thicker wall cavity insulation—R-19 to R-21.

When shopping for insulation watch for the ENERGY STAR® label.

Weatherization

Warm air leaking into your home during the summer and out of your home during the winter can waste a substantial portion of your energy dollars. One of the quickest dollar-saving tasks you can do is caulk, seal, and weatherstrip all seams, cracks, and openings to the outside. You can save 10% or more on your energy bill by reducing the air leaks in your home.

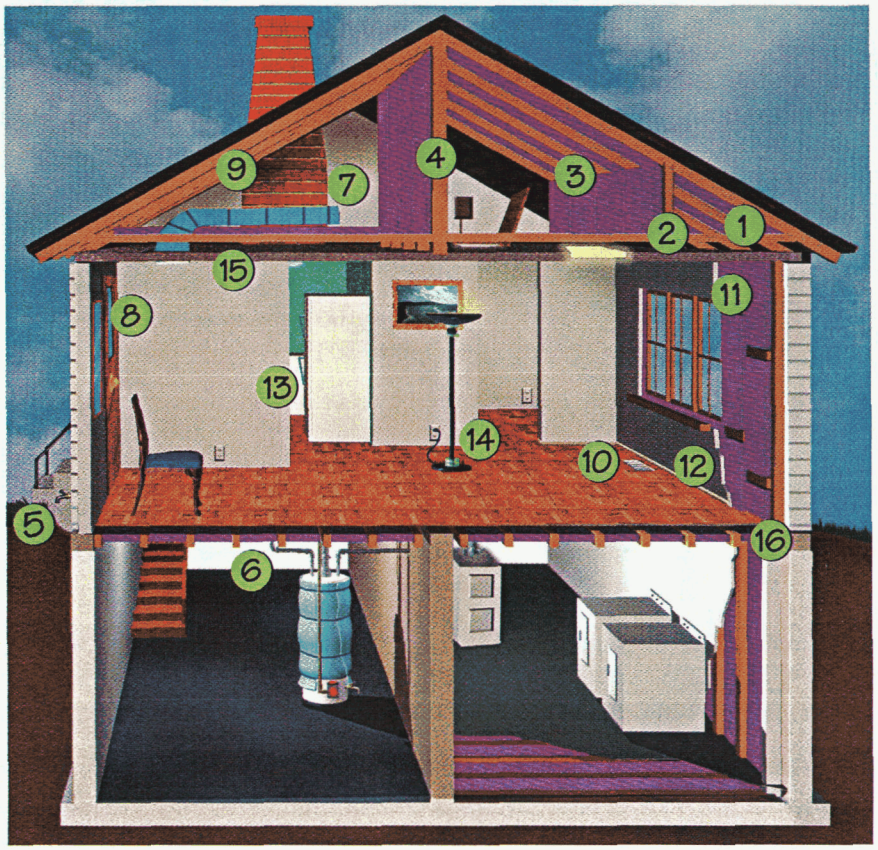
					Ceiling						Basement	
Zone	Gas	Heat pump	Fuel oil	Electric furnace	Attic	Cathederal	Wall (A)	Floor	Crawl space (B)	Slab edge	Interior	Exterior
1	✔	✔	✔		R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
1				✔	R-49	R-60	R-28	R-25	R-19	R-8	R-19	R-15
2	✔	✔	✔		R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
2				✔	R-49	R-38	R-22	R-25	R-19	R-8	R-19	R-15
3	✔	✔	✔	✔	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
4	✔	✔	✔		R-38	R-38	R-13	R-13	R-19	R-4	R-11	R-4
4				✔	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
5	✔				R-38	R-30	R-13	R-11	R-13	R-4	R-11	R-4
5		✔	✔		R-38	R-38	R-13	R-13	R-19	R-4	R-11	R-4
5				✔	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10
6	✔				R-22	R-22	R-11	R-11	R-11	(C)	R-11	R-4
6		✔	✔		R-38	R-30	R-13	R-11	R-13	R-4	R-11	R-4
6				✔	R-49	R-38	R-18	R-25	R-19	R-8	R-11	R-10

(**A**) R-18, R-22, and R-28 exterior wall systems can be achieved by either cavity insulation or cavity insulation with insulating sheathing.
For 2 in x 4 in walls, use either 3-$^1/_2$-in thick R-15 or 3-$^1/_2$-in thick R-13 fiber glass insulation with insulating sheathing.
For 2 in x 6 in walls, use either 5-$^1/_2$-in thick R-21 or 6-$^1/_4$-in thick R-19 fiber glass insulation.

(**B**) Insulate crawl space walls only if the crawl space is dry all year, the floor above is not insulated, and all ventilation to the crawl space is blocked. A vapor retarder (e.g., 4- or 6-mil polyethylene film) should be installed on the ground to reduce moisture migration into the crawl space.

(**C**) No slab edge insulation is recommended.

NOTE: For more information, see: Department of Energy Insulation Fact Sheet (D.O.E./CE-0180). Energy Efficiency and Renewable Energy Clearinghouse, P.O. Box 3048, Merrifield, VA 22116; phone: (800) 363-3732; www.ornl.gov/roofs+walls/insulation/ins_11.html or contact Owens Corning, (800) GET-PINK (800-438-7465), www.owenscorning.com



Sources of Air Leaks in Your Home

Areas that leak air into and out of your home cost you lots of money. Check the culprit areas listed here:

1 Dropped ceiling
2 Recessed light
3 Attic entrance
4 Electric wires and box
5 Plumbing utilities and penetration
6 Water and furnace flues
7 All ducts
8 Door sashes and frames
9 Chimney penetration
10 Warm air register
11 Window sashes and frames
12 Baseboards, coves, and interior trim
13 Plumbing access panel
14 Electrical outlets and switches
15 Light fixtures
16 Sill plates

Weatherization Tips

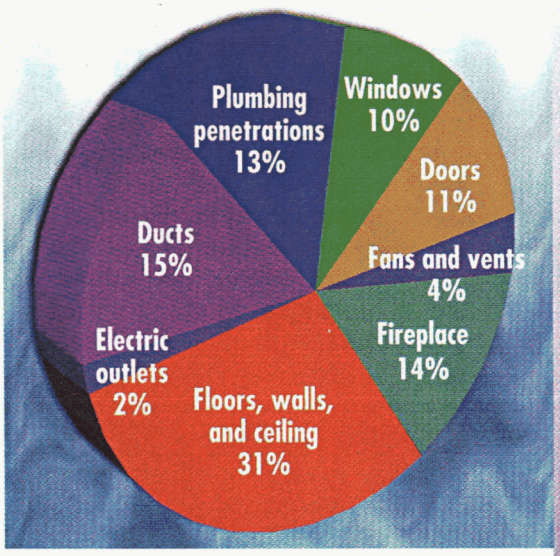
- First, test your home for air tightness. On a windy day, hold a lit incense stick next to your windows, doors, electrical boxes, plumbing fixtures, electrical outlets, ceiling fixtures, attic hatches, and other locations where there is a possible air path to the outside. If the smoke stream travels horizontally, you have located an air leak that may need caulking, sealing, or weatherstripping.
- Caulk and weatherstrip doors and windows that leak air.
- Caulk and seal air leaks where plumbing, ducting, or electrical wiring penetrates through exterior walls, floors, ceilings, and soffits over cabinets.

- Install rubber gaskets behind outlet and switch plates on exterior walls.
- Look for dirty spots in your insulation, which often indicate holes where air leaks into and out of your house. You can seal the holes by stapling sheets of plastic over the holes and caulking the edges of the plastic.
- Install storm windows over single-pane windows or replace them with double-pane windows. Storm windows as much as double the R-value of single-pane windows and they can help reduce drafts, water condensation, and frost formation. As a less costly and less permanent alternative, you can use a heavy-duty, clear plastic sheet on a frame or tape clear plastic film to the inside of your window frames during the cold winter months. Remember, the plastic must be sealed tightly to the frame to help reduce infiltration.
- When the fireplace is not in use, keep the flue damper tightly closed. A chimney is designed specifically for smoke to escape, so until you close it, warm air escapes— 24 hours a day!
- For new construction, reduce exterior wall leaks by either installing house wrap, taping the joints of exterior sheathing, or comprehensively caulking and sealing the exterior walls.

For more information on insulation, weatherization, and ventilation, contact:

Cellulose Insulation Manufacturers Association (CIMA), (937) 222-2462, www.cellulose.org

ENERGY STAR®, (888) STAR-YES (888-782-7937), www.energystar.gov



How Does the Air Escape?

Air infiltrates in and out of your home through every hole, nook, and cranny. About one-third of this air infiltrates through openings in your ceilings, walls, and floors.

Insulation Contractors Association of America (ICAA), (703) 739-0356, www.insulate.org

National Association of Home Builders (NAHB), (800) 368-5242, www.nahb.org

North American Insulation Manufacturers Association (NAIMA), (703) 684-0084, www.naima.org

Owens Corning Customer Service Hotline, (800) GET-PINK (800-438-7465), www.owenscorning.com

Polyisocyanurate Insulation Manufacturers Association (PIMA), (202) 628-6558, www.pima.org

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askanenergyexpert/

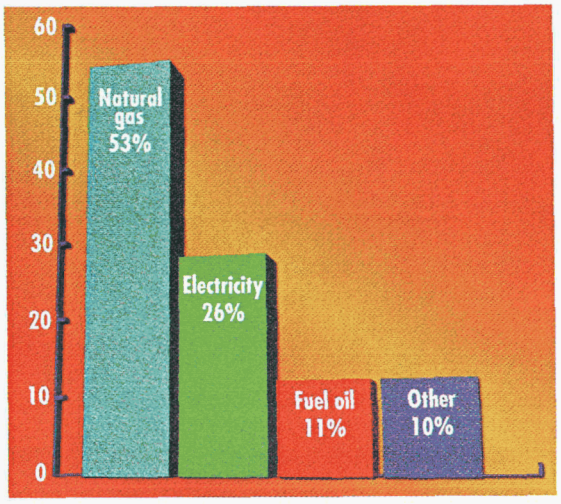
Heating and Cooling

Heating and cooling your home uses more energy and drains more energy dollars than any other system in your home. Typically, 44% of your utility bill goes for heating and cooling. What's more, heating and cooling systems in the United States together emit over a half billion tons of carbon dioxide into the atmosphere each year, adding to global warming. They also generate about 24% of the nation's sulfur dioxide and 12% of the nitrogen oxides, the chief ingredients in acid rain.

No matter what kind of heating, ventilation, and air-conditioning system you have in your house, you can save money and increase comfort by properly maintaining and upgrading your equipment. But remember, an energy-efficient furnace alone will not have as great an impact on your energy bills as using the whole-house approach. By combining proper equipment maintenance and upgrades with appropriate insulation, weatherization, and thermostat settings, you can cut your energy bills and your pollution output in half.

Heating and Cooling Tips

- Set your thermostat as low as is comfortable in the winter and as high as is comfortable in the summer.
- Clean or replace filters on furnaces once a month or as needed.
- Clean warm-air registers, baseboard heaters, and radiators as needed; make sure they're not blocked by furniture, carpeting, or drapes.
- Bleed trapped air from hot-water radiators once or twice a season; if in doubt about how to perform this task, call a professional.



Household Heating Systems

Although there are several different types of fuels available to heat our homes, about half of us use natural gas.

- Place heat-resistant radiator reflectors between exterior walls and the radiators.
- Use kitchen, bath, and other ventilating fans wisely; in just 1 hour, these fans can pull out a houseful of warmed or cooled air. Turn fans off as soon as they have done the job.
- During the heating season, keep the draperies and shades on your south-facing windows open during the day to allow the sunlight to enter your home and closed at night to reduce the chill you may feel from cold windows.

During the cooling season, keep the window coverings closed during the day to prevent solar gain.

- Close an unoccupied room that is isolated from the rest of the house, such as in a corner, and turn down the thermostat or turn off the heating for that room or zone. However, do not turn the heating off if it adversely affects the rest of your system. For example, if you heat your house with a heat pump, do not close the vents—closing the vents could harm the heat pump.
- Select energy-efficient equipment when you buy new heating and cooling equipment. Your contractor should be able to give you energy fact sheets for different types, models, and designs to help you compare energy usage. Look for high Annual Fuel Utilization Efficiency (AFUE) ratings and the Seasonal Energy Efficiency Ratio (SEER). The national minimums are 78% AFUE and 10 SEER.
- Look for the ENERGY STAR® and EnergyGuide labels. ENERGY STAR® is a program of the U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA) designed to help consumers identify energy-efficient appliances and products.

Ducts

One of the most important systems in your home, though it's hidden beneath your feet and over your head, may be wasting a lot of your energy dollars. Your home's duct system, a branching network of tubes in the walls, floors, and ceilings, carries the air from your home's furnace and central air conditioner to each room. Ducts are made of sheet metal, fiber glass, or other materials.

Unfortunately, many duct systems are poorly insulated or not insulated properly. Ducts that leak heated air into unheated spaces can add hundreds of dollars a year to your heating and cooling bills. Insulating ducts that are in unconditioned spaces is usually very cost-effective. If you are buying a new duct system, consider one that comes with insulation already installed.

Sealing your ducts to prevent leaks is even more important if the ducts are located in an unconditioned area such as an attic or vented crawl space. If the supply ducts are leaking, heated or cooled air can be forced out unsealed joints and lost. In addition, unconditioned air can also be drawn into return ducts through unsealed joints. In the summer, hot attic air can be drawn in, increasing the load on the air conditioner. In the winter, your furnace will have to work longer to keep your house comfortable. Either way, your energy losses cost you money.

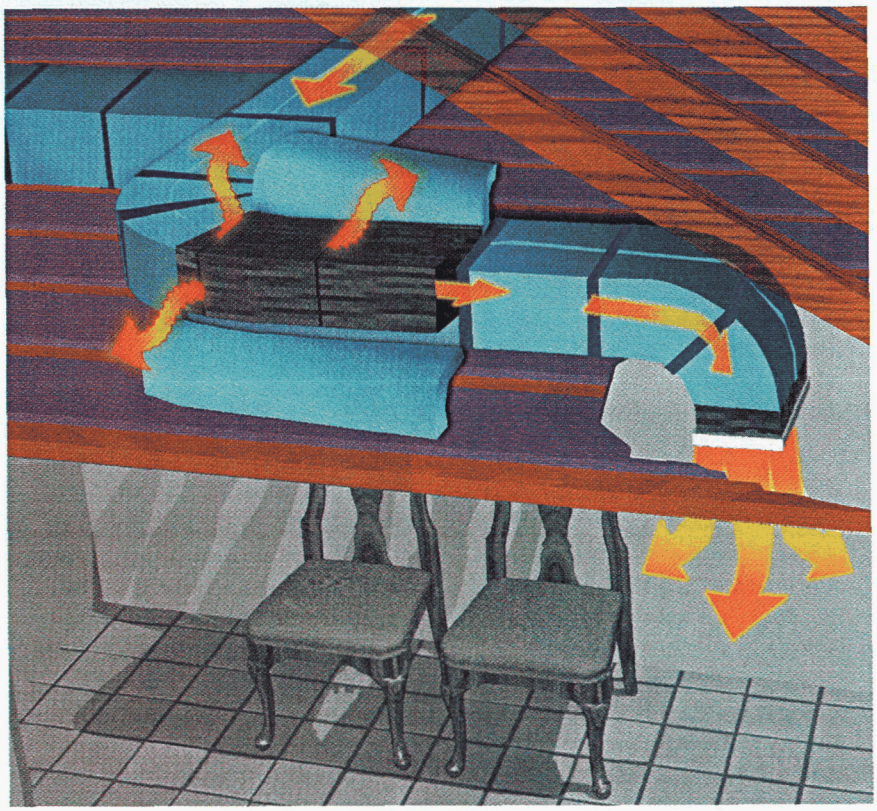
Although minor duct repairs are easy to accomplish, ducts in unconditioned spaces should be sealed and insulated by qualified professionals using the appropriate sealing materials. Here are a few simple tips to help with minor duct repairs.

Duct Tips

- Check your ducts for air leaks. First look for sections that should be joined but have separated and then look for obvious holes.
- If you use duct tape to repair and seal your ducts, look for tape with the Underwriters Laboratories (UL) logo

What's a Btu?

One Btu, or British thermal unit, is roughly equivalent to burning one kitchen match. That may not sound like much, but a typical home consumes about 100 million Btu per year. Approximately 44% of the total is used for space heating.



Ducts—Out-of-Sight, Out-of-Mind

The unsealed ducts in your attics and crawl spaces lose air — uninsulated ducts lose heat, wasting energy and money.

to avoid tape that degrades, cracks, and loses its bond with age.

- Remember that insulating ducts in the basement will make the basement colder. If both the ducts and the basement walls are uninsulated, consider insulating both.*
- If your basement has been converted to a living area, install both supply and return registers in the basement rooms.

* Note: Water pipes and drains in unconditioned spaces could freeze and burst in the space if the heat ducts are fully insulated, because there would be no heat source to prevent the space from freezing in cold weather. However, using an electric heating tape wrap on the pipes can prevent this.

- Be sure a well-sealed vapor barrier exists on the outside of the insulation on cooling ducts to prevent moisture buildup.
- Get a professional to help you insulate and repair all ducts.

Heat Pumps

If you use electricity to heat your home, consider installing an energy-efficient heat pump system. Heat pumps are the most efficient form of electric heating in moderate climates, providing three times more heating than the equivalent amount of energy they consume in electricity. There are three types

of heat pumps: air-to-air, water source, and ground source. They collect heat from the air, water, or ground outside your home and concentrate it for use inside. Heat pumps do double duty as a central air conditioner. They can also cool your home by collecting the heat inside your house and effectively pumping it outside. A heat pump can trim the amount of electricity you use for heating by as much as 30% to 40%.

Heat Pump Tips

- Do not set back the heat pump's thermostat manually if it causes the electric resistance heating to come on. This type of heating, which is often used as a backup to the heat pump, is more expensive.
- Clean or change filters once a month or as needed, and maintain the system according to manufacturer's instructions.

Solar Heating and Cooling

Using passive solar design techniques to heat and cool your home can be both environmentally friendly and cost effective. Passive solar heating techniques include placing larger, insulated windows on south-facing walls and locating thermal mass, such as a concrete slab floor or a heat-absorbing wall, close to the windows. In many cases, you can cut your heating costs by more than 50% compared to the cost of heating the same house that does not include passive solar design.

Passive solar design can also help reduce your cooling costs. Passive solar cooling techniques include carefully designed overhangs, windows with reflective coatings, and the use of reflective coatings on exterior walls and the roof.

However, a passive solar house also requires careful design and site orientation, which depend on the local climate. So, if you are considering passive solar design for new construction or a major remodeling, you should consult an architect familiar with passive solar techniques.

Solar Tips

- Keep all south-facing glass clean.
- Make sure that objects do not block the sunlight shining on concrete slab floors or heat-absorbing walls.
- Consider using insulating curtains to reduce excessive heat loss from large windows at night.

Fireplaces

When you cozy up next to a crackling fire on a cold winter day, you probably don't realize that your fireplace is one of the most inefficient heat sources you can possibly use. It literally sends your energy dollars right up the chimney along with volumes of warm air. A roaring fire can exhaust as much as 24,000 cubic feet of air per hour to the outside, which must be replaced by cold air coming into the house from the outside. Your heating system must warm up this air, which is then exhausted through your chimney. If you use your conventional fireplace while your central heating system is on, these tips can help reduce energy losses.

Fireplace Tips

- If you never use your fireplace, plug and seal the chimney flue.
- Keep your fireplace damper closed unless a fire is going. Keeping the damper open is like keeping a 48-inch window wide open during the winter; it allows warm air to go right up the chimney.
- When you use the fireplace, reduce heat loss by opening dampers in the bottom of the firebox (if provided) or open the nearest window slightly—approximately 1 inch—and close doors leading into the room. Lower

the thermostat setting to between 50° and 55°F.

- Install tempered glass doors and a heat-air exchange system that blows warmed air back into the room.
- Check the seal on the flue damper and make it as snug as possible.
- Add caulking around the fireplace hearth.
- Use grates made of C-shaped metal tubes to draw cool room air into the fireplace and circulate warm air back into the room.

Gas and Oil Heating Systems

If you plan to buy a new heating system, ask your local utility or state energy office for information about the latest technologies available to consumers (for a list of state energy offices visit the National Association of State Energy Officials [NASEO] web site at www.naseo.org/members/states.htm). They can advise you about more efficient systems on the market today. For example, many newer models incorporate designs for burners and heat exchangers that result in higher efficiencies during operation and reduce heat loss when the equipment is off. Check the Shopping Guide in the back of this booklet for additional information on how to understand heating system ratings.

Look for the ENERGY STAR® and Energy Guide labels.

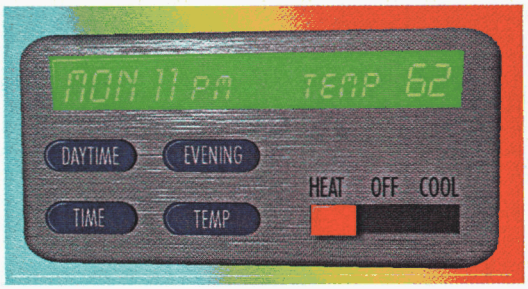
Air Conditioners

It might surprise you to know that buying a bigger room air-conditioning unit won't necessarily make you feel more comfortable during the hot summer months. In fact, a room air conditioner that's too big for the area it is supposed to cool will perform less efficiently and less effectively than a smaller, properly sized unit. This is because room units work better if they run for relatively long periods of time than if they are continually switching off and on. Longer run times allow air conditioners to maintain a more constant room temperature.

Sizing is equally important for central air-conditioning systems, which need to be sized by professionals. If you have a central air system in your home, set the fan to shut off at the same time as the cooling unit (compressor). In other words, don't use the system's central fan to provide circulation, but instead use circulating fans in individual rooms.

Cooling Tips

- Whole-house fans help cool your home by pulling cool air through the house and exhausting warm air through the attic. They are effective when operated at night and when the outside air is cooler than the inside.
- Set your thermostat as high as comfortably possible in the summer. The less difference between the indoor and outdoor temperatures, the lower your overall cooling bill will be.
- Don't set your thermostat at a colder setting than normal when you turn on your air conditioner. It will not cool your home any faster and could result in excessive cooling and, therefore, unnecessary expense.
- Consider using an interior fan in conjunction with your window air conditioner to spread the cooled air more effectively through your home without greatly increasing your power use.
- Don't place lamps or TV sets near your air-conditioning thermostat. The thermostat senses heat from these appliances, which can cause the air conditioner to run longer than necessary.
- Plant trees or shrubs to shade air-conditioning units but not to block the airflow. A unit operating in the shade



Nighttime Heating
Using a programmable thermostat, you can automatically turn down your heat at night or when you are not at home.

Nighttime Cooling
In the summer, you can save money by automatically turning your air-conditioning up at night.

uses as much as 10% less electricity than the same one operating in the sun.

- Look for the ENERGY STAR® and EnergyGuide labels.

The shopping guide in the back of this booklet will help you find the right size unit for your needs.

Programmable Thermostats

You can save as much as 10% a year on your heating and cooling bills by simply turning your thermostat back 10% to 15% for 8 hours. You can do this automatically without sacrificing comfort by installing an automatic setback or programmable thermostat.

Using a programmable thermostat, you can adjust the times you turn on the heating or air-conditioning according to a pre-set schedule. As a result, you don't operate the equipment as much when you are asleep or when the house or part of the house is not occupied. Programmable thermostats can store and repeat multiple daily settings (six or more temperature settings a day) that you can manually override without affecting the rest of the daily or weekly program. When shopping for a programmable thermostat, be sure to look for the ENERGY STAR® label.

For more information on heating and cooling, contact:

Air Conditioning and Refrigeration Institute (ACRI), (703) 524-8800, www.ari.org

ENERGY STAR®, (888) STAR-YES (888-782-7937), www.energystar.gov

Gas Appliance Manufacturers Association, (703) 525-7060, www.gamanet.org

Owens Corning Customer Service Hotline, (800) GET-PINK (800-438-7465), www.owenscorning.com

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askanenergyexpert/

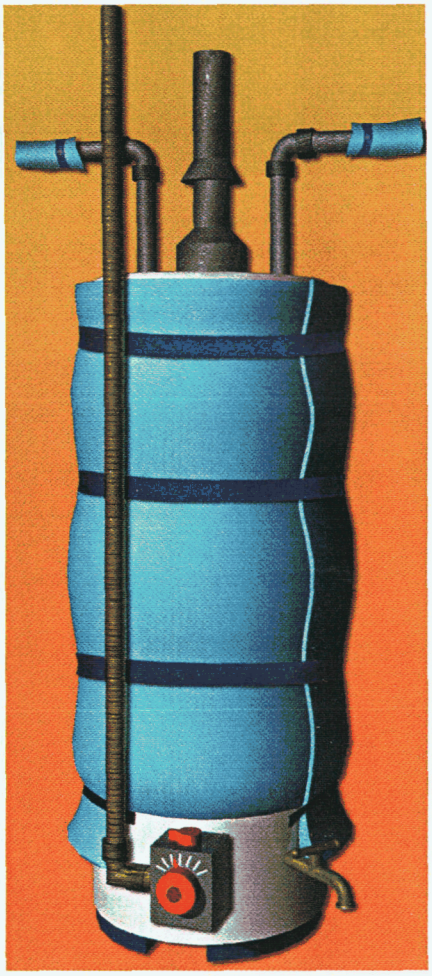
Water Heating

Water heating is the third largest energy expense in your home. It typically accounts for about 14% of your utility bill.

There are four ways to cut your water heating bills: use less hot water, turn down the thermostat on your water heater, insulate your water heater, or buy a new, more efficient water heater. A family of four, each showering for 5 minutes a day, uses 700 gallons of water a week; this is enough for a 3-year supply of drinking water for one person. You can cut that amount in half simply by using low-flow nonaerating showerheads and faucets.

Water Heating Tips

- Repair leaky faucets promptly; a leaky faucet wastes gallons of water in a short period.
- Insulate your electric hot-water storage tank and pipes, but be careful not to cover the thermostat.
- Insulate your gas or oil hot-water storage tank and pipes, but be careful not to cover the water heater's top, bottom, thermostat, or burner compartment; when in doubt, get professional help.
- Install nonaerating, low-flow faucets and showerheads.
- Buy a new energy-efficient water heater. While it may cost more initially than a standard water heater, the energy savings will continue during the lifetime of the appliance.
- Although most water heaters last 10–15 years, it's best to start shopping for a new one if yours is more than 7 years old. Doing some research before your heater fails will enable you to select one that most appropriately meets your needs.
- Lower the thermostat on your water heater; water heaters sometimes come from the factory with high temperature settings, but a setting of 115°F provides comfortable hot water for most uses.



Water Heater

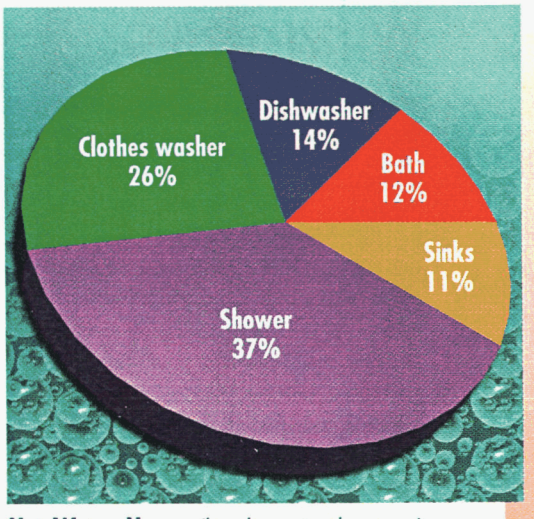
Insulate your water heater to save energy and money.

- Drain a quart of water from your water tank every 3 months to remove sediment that impedes heat transfer and lowers the efficiency of your heater. The type of water tank you have determines the steps to take, so follow the manufacturer's advice.
- If you heat with electricity and live in a warm and sunny climate, consider installing a solar water heater. The solar units are environmentally friendly and can now be installed on your roof to blend with the architecture of your house.
- Take more showers than baths. Bathing uses the most hot water in the average household. You use 15–25 gallons of hot water for a bath, but less than 10 gallons during a 5-minute shower.
- Consider the installation of a drain water waste heat recovery system.
- Look for the FTC EnergyGuide label.

Solar Water Heaters

If you heat with electricity and you have an unshaded, south-facing location (such as a roof) on your property, consider installing a solar water heater. More than 1.5 million homes and businesses in the United States have invested in solar water heating systems and over 94% of these customers consider the systems a good investment. Solar water heating systems are also good for the environment. Solar water heaters avoid the harmful greenhouse gas emissions associated with electricity production. During a 20 year period, one solar water heater can avoid over 50 tons of carbon dioxide emissions.

When shopping for a solar water heater, watch for systems certified by the Solar Rating and Certification Corporation (SRCC) or the Florida Solar Energy Center (FSEC).



Hot Water Usage (based on national averages)
The typical U.S. homeowner's water consumption by place of use.

For more information on how you can save money on your water heating bill, contact:

American Solar Energy Society (ASES), (303) 443-3130, www.ases.org

Florida Solar Energy Center (FSEC), (321) 638-1000, www.fsec.ucf.edu

Gas Appliance Manufacturers Association, (703) 525-7060, www.gamanet.org

Owens Corning Customer Service Hotline, (800) GET-PINK (800-438-7465), www.owenscorning.com

Solar Energy Industries Association (SEIA), (202) 628-7745, www.seia.org

Solar Rating and Certification Corporation (SRCC), (321) 638-1537, www.solar-rating.org

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askanenergyexpert/

Windows

Windows can be one of your home's most attractive features. Windows provide views, daylighting, ventilation, and solar heating in the winter. Unfortunately, they can also account for 10% to 25% of your heating bill. During the summer, sunny windows make your air conditioner work two to three times harder. If you live in the Sun Belt, look into new solar control spectrally selective windows, which can cut the cooling load by more than half.

If your home has single-pane windows, as almost half of U.S. homes do, consider replacing them. New double-pane windows with high-performance glass (e.g., low-e or spectrally selective) are available on the market. In colder climates, select windows that are gas filled with low-emissivity (low-e) coatings on the glass to reduce heat loss. In warmer climates, select windows with spectrally selective coatings to reduce heat gain. If you are building a new home, you can offset some of the cost of installing more efficient windows because doing so allows you to buy smaller, less expensive heating and cooling equipment.

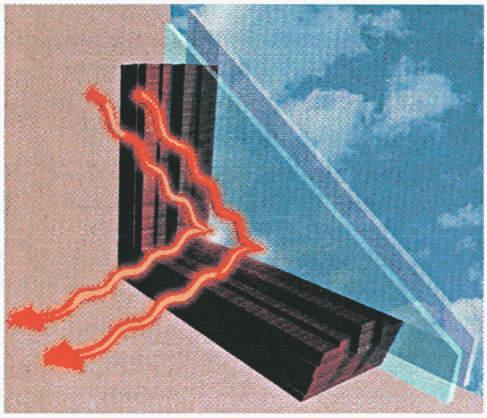
If you decide not to replace your windows, the simpler, less costly measures listed below can improve the performance of your windows.

Cold-Climate Window Tips

- Install exterior or interior storm windows; storm windows can reduce your heat loss through the windows by 25% to 50%. Storm windows should have weather-stripping at all moveable joints; be made of strong, durable materials; and have interlocking or overlapping joints. Low-e storm windows save even more energy.
- Repair and weatherize your current storm windows, if necessary.
- Install tight-fitting, insulating window shades on windows that feel drafty after weatherizing.
- Close your curtains and shades at night; open them during the day.
- Keep windows on the south side of your house clean to maximize solar gain.

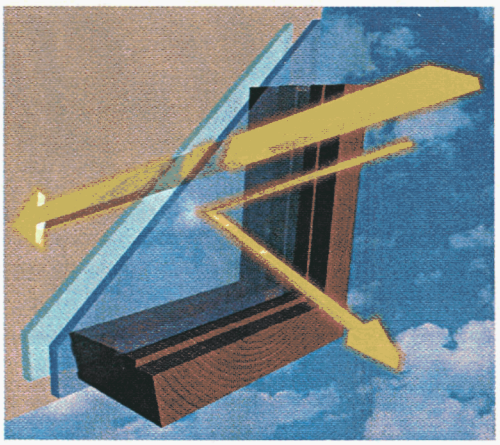
Warm-Climate Window Tips

- Install white window shades, drapes, or blinds to reflect heat away from the house.
- Close curtains on south- and west-facing windows during the day.
- Install awnings on south- and west-facing windows.
- Apply sun-control or other reflective films on south-facing windows to reduce solar gain.



Cold-Climate Windows

Double-pane windows with low-e coating on the glass reflect heat back into the room during the winter months.



Warm-Climate Windows

In the summertime, the sun shining through your windows heats up the room. Windows with spectrally selective coatings on the glass reflect some of the sunlight, keeping your rooms cooler.

Buying New Windows

New windows are long-term investments that have a large impact on your home's energy system. Today, there are many new window technologies available that are worth considering. Glazing materials now come with a variety of selective coatings and other features; frames are available in aluminum, wood, vinyl, fiber glass, or combinations of these materials. Each type of glazing material and frame has advantages and disadvantages.

Shopping Tips

- When you're shopping for new windows, look for the National Fenestration Rating Council (NFRC) label; it means the window's performance is certified.
- Remember, the lower the U-value, the better the insulation. In colder climates, a U-value of 0.35 or below is recommended. These windows have at least double glazing and low-e coating.
- In warm climates, where summertime heat gain is the main concern, look for windows with double glazing and spectrally selective coatings that reduce heat gain.
- Select windows with air leakage ratings of 0.3 cubic feet per minute or less.
- In temperate climates with both heating and cooling seasons, select windows with both low U-values and low solar heat gain coefficiency (SHGC) to maximize energy benefits.
- Look for the ENERGY STAR® and EnergyGuide labels.

For more information about windows, contact:

American Architectural Manufacturers Association (AAMA), (847) 303-5664, www.aamanet.org

Efficient Windows Collaborative (202) 530-2231, www.efficientwindows.org

ENERGY STAR®, (888) STAR-YES (888-782-7937), www.energystar.gov

National Wood Window and Door Association, (800) 223-2301, www.nwwda.org

Owens Corning Customer Service Hotline, (800) GET-PINK (800-438-7465), www.owenscorning.com

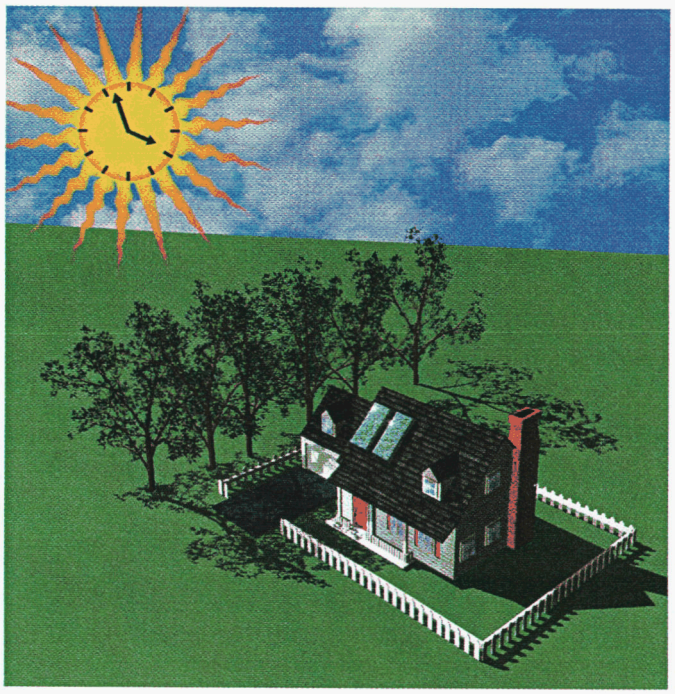
U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askanenergyexpert/

Landscaping

Landscaping is a natural and beautiful way to keep your home more comfortable and reduce your energy bills. In addition to adding aesthetic value and environmental quality to your home, a well-placed tree, shrub, or vine can deliver effective shade, act as a windbreak, and reduce overall energy bills.

Carefully positioned trees can save up to 25% of a typical household's energy used for heating and cooling. Computer models from DOE predict that just three trees, properly placed around the house, can save an average household between $100 and $250 in heating and cooling energy costs annually. During the summer months, the most effective way to keep your home cool is to prevent the heat from building up in the first place. A primary source of heat buildup is sunlight absorbed by your home's roof, walls, and windows. Dark-colored home exteriors absorb 70% to 90% of the radiant energy from the sun that strikes the home's surfaces. Some of this absorbed energy is then transferred into your home by way of conduction, resulting in heat gain inside the house. In contrast, light-colored surfaces effectively reflect most of the heat away from your home. Landscaping can also help block and absorb the sun's energy to help decrease heat buildup in your home by providing shade and evaporative cooling.

Shading and evaporative cooling from trees can reduce the air temperature around your home. Studies conducted by the Lawrence Berkeley National Laboratory found summer daytime air temperatures to be 3° to 6°F cooler in



Buildings and Trees—Natural Partners

Deciduous trees planted on the south and on the west sides will help keep your house cool in the summer and allow sun to shine in the windows in the winter.

tree-shaded neighborhoods than in treeless areas. The energy-conserving landscape strategies you should use for your home depend on the type of climate in which you live.

Landscaping Tips—Dependent on Geographic Area

- Trees that lose their leaves in the fall (i.e., deciduous) are the most effective at reducing heating and cooling energy costs. When selectively placed around a house, they provide excellent protection from the summer sun but permit winter sunlight to reach and warm your house. The height, growth rate, branch spread, and shape are all factors to consider in choosing a tree.
- Vines provide shading and cooling. Grown on trellises, vines can shade windows or the whole side of a house.
- Deflect winter winds by planting evergreen trees and shrubs on the north and west sides of your house; deflect summer winds by planting them on the south and west sides of your house.

Orientation of the house and surrounding landscaping has a large effect on energy consumption. A well-oriented, well-designed home admits low-angle winter sun to reduce heating bills; rejects overhead summer sun to reduce cooling bills; and minimizes the chill effect of winter winds. Fences, walls, other nearby buildings, and rows of trees or shrubs block or channel the wind. Bodies of water moderate temperature but increase humidity and produce glare. Trees provide shade, windbreaks, and wind channels. Pavement reflects or absorbs heat, depending on whether it is light or dark in color.

White Roofs

Just as wearing white clothes reflects the sun's heat from your body, a white or light-colored roof will help reflect the sun's heat away from your home. This strategy works particularly well when trees are located next to the reflecting surface. Not only do trees provide shade, they absorb the reflected sunlight for photosynthesis. In the process, water evaporates from the tree, cooling the air around the house.

Contact your county extension agents, public libraries, local nurseries, landscape architects, landscape contractors, and state and local energy offices for additional information on energy-efficient landscaping and regional plants and their maintenance requirements.

For more information on landscaping for energy efficiency, contact:

American Society of Landscape Architects (ASLA), (202) 898-2444, www.asla.org

National Arbor Day Foundation (NADF), (402) 474-5655, www.arborday.org

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askanenergyexpert/

Lighting

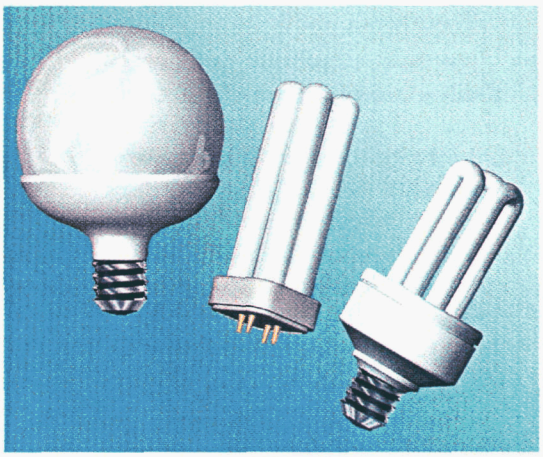
Increasing your lighting efficiency is one of the fastest ways to decrease your energy bills. If you replace 25% of your lights in high-use areas with fluorescents, you can save about 50% of your lighting energy bill.

Indoor Lighting

Use linear fluorescent and energy-efficient compact fluorescent lamps (CFLs) in fixtures throughout your home to provide high-quality and high-efficiency lighting. Fluorescent lamps are much more efficient than incandescent bulbs and last 6 to 10 times longer. Although fluorescent and compact fluorescent lamps are more expensive than incandescent bulbs, they pay for themselves by saving energy over their lifetime.

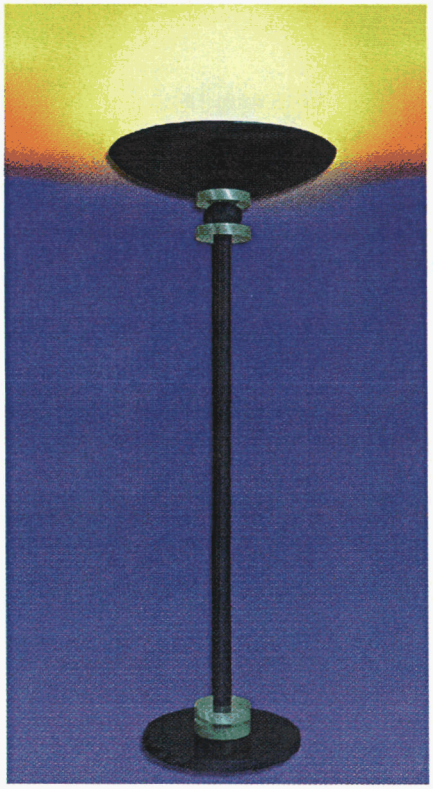
Indoor Lighting Tips

- Turn off the lights in any room you're not using, or consider installing timers, photo cells, or occupancy sensors to reduce the amount of time your lights are on.
- Use task lighting; instead of brightly lighting an entire room, focus the light where you need it. For example, use fluorescent under-cabinet lighting for kitchen sinks and countertops under cabinets.
- Consider three-way lamps; they make it easier to keep lighting levels low when brighter light is not necessary.
- Use 4-foot fluorescent fixtures with reflective backing and electronic ballasts for your workroom, garage, and laundry areas.
- Consider using 4-watt mini-fluorescent or electro-luminescent night lights. Both lights are much more efficient than their incandescent counterparts. The luminescent lights are cool to the touch.
- Use CFLs in all the portable table and floor lamps in your home. Consider carefully the size and fit of these systems when you select them. Some home fixtures may not accommodate some of the larger CFLs.
- When shopping for new light fixtures, consider buying dedicated compact fluorescent fixtures with built-in ballasts that use pin-based replacement bulbs.
- For spot lighting, consider CFLs with reflectors. The lamps range in wattage from 13-watt to 32-watt and provide a very directed light using a reflector and lens system.
- Take advantage of daylight by using light-colored, loose-weave curtains on your windows to allow daylight to penetrate the room while preserving



Compact Fluorescent Bulbs

These compact fluorescent bulbs are four times more energy efficient than incandescent bulbs and provide the same lighting.

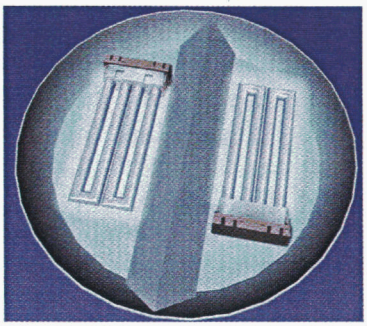


privacy. Also, decorate with lighter colors that reflect daylight.

- If you have torchiere fixtures with halogen lamps, consider replacing them with compact fluorescent torchieres. Compact fluorescent torchieres use 60% to 80% less energy, can produce more light (lumens), and do not get as hot as the halogen torchieres.
- Look for the ENERGY STAR® label when purchasing these products.

Outdoor Lighting

Many homeowners use outdoor lighting for decoration and security. When shopping for outdoor lights, you will find a variety of products, from low-voltage pathway lighting to motion-detector floodlights. Some stores also carry lights powered by small photovoltaic (PV) modules that convert sunlight directly into electricity; consider PV-powered lights for areas that are not close to an existing power supply line.



Torchiere Lamp

Halogen lamps generate excessive heat that can create fire hazards. Use compact fluorescent lamps in your torchiere fixtures. They are safer and use much less energy.

Outdoor Lighting Tips

- Use outdoor lights with a photocell unit or a timer so they will turn off during the day.
- Turn off decorative outdoor gas lamps; just eight gas lamps burning year-round use as much natural gas as it takes to heat an average-size home during an entire winter.
- Exterior lighting is one of the best places to use CFLs because of their long life. If you live in a cold climate, be sure to buy a lamp with a cold-weather ballast.

For more information on energy-efficient lighting, contact:

ENERGY STAR®, (888) STAR-YES (888-782-7937), www.energystar.gov

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askanenergyexpert/

Appliances

Appliances account for about 20% of your household's energy consumption, with refrigerators, clothes washers, and clothes dryers at the top of the consumption list.

What's the Real Cost

Every appliance has two price tags—a purchase price and the operating cost.

When you're shopping for appliances, you can think of two price tags. The first one covers the purchase price—think of it as a down payment. The second price tag is the cost of operating the appliance during its lifetime. You'll be paying on that second price tag every month with your utility bill for the next 10 to 20 years, depending on the appliance. Refrigerators last an average of 20 years; room air conditioners and dishwashers, about 10 years each; clothes washers, about 14 years.

When you do have to shop for a new appliance, look for the ENERGY STAR® label. ENERGY STAR® appliances have been identified by the U.S. Environmental Protection Agency and DOE as being the most energy-efficient products in their classes. They usually exceed minimum federal standards by a substantial amount. The appliance shopping guide on pages 29 and 30 lists some of the major appliances that carry the ENERGY STAR® label and provides helpful information on what to look for when shopping for an appliance.

To help you figure out whether an appliance is energy efficient, the federal government requires most appliances to display the bright yellow and black EnergyGuide label. Although these labels will not tell you which appliance is the most efficient, they will tell you the annual energy consumption and operating cost for each appliance so you can compare them yourself.

Dishwashers

Most of the energy used by a dishwasher is for water heating. The EnergyGuide label estimates how much power is needed per year to run the appliance and to heat the water based on the yearly cost of gas and electric water heating.

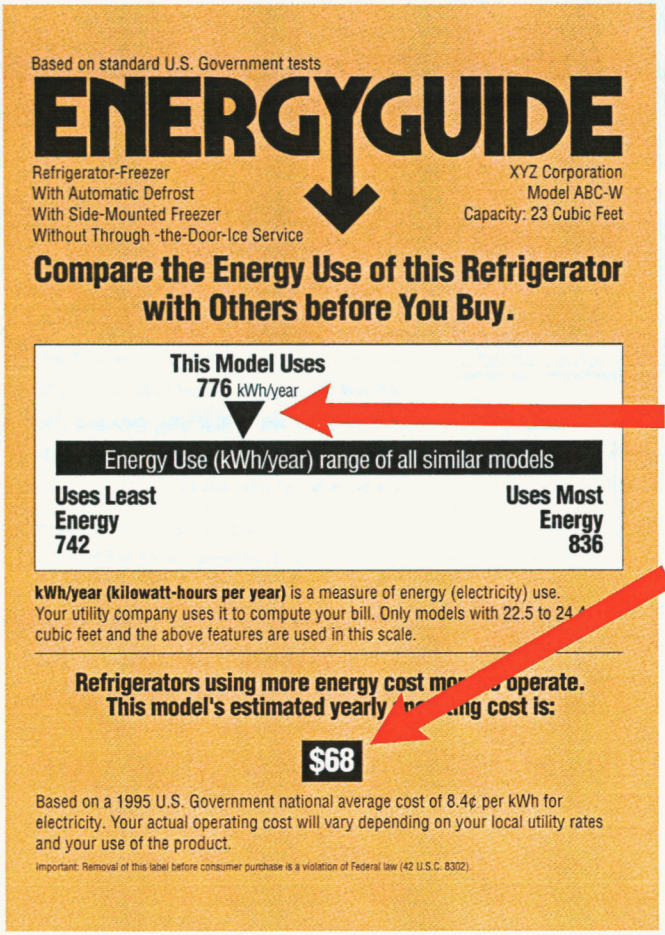
Dishwasher Tips

- Check the manual that came with your dishwasher for the manufacturer's recommendations on water temperature; many have internal heating elements that allow you to set the water heater in your home to a lower temperature (115°F).
- Scrape, don't rinse, off large food pieces and bones. Soaking or prewashing is generally only recommended in cases of burned-on or dried-on food.
- Be sure your dishwasher is full, but not overloaded.
- Don't use the "rinse hold" on your machine for just a few soiled dishes. It uses 3 to 7 gallons of hot water each time you use it.

- Let your dishes air dry; if you don't have an automatic air-dry switch, turn off the control knob after the final rinse and prop the door open a little so the dishes will dry faster.
- When shopping for a new dishwasher, look for the ENERGY STAR® label. ENERGY STAR® dishwashers use less water and energy and must exceed minimum federal standards by at least 13%.

What's a kilowatt?

When you cook a pot of rice for 1 hour, you use 1000 watt hours of electricity! One thousand watt hours equals 1 kilowatt-hour, or 1 kWh. Your utility bill usually shows what you are charged for the kilowatt-hours you use. The average residential rate is 8.3 cents per kWh. A typical U.S. household consumes about 10,000 kWh per year, costing an average of $830 annually.



How to Read the EnergyGuide Label

The EnergyGuide label gives you two important pieces of information you can use for comparison of different brands and models when shopping for a new refrigerator:

- Estimated energy consumption on a scale showing a range for similar models
- Estimated yearly operating cost based on the national average cost of electricity.

Refrigerator Choices

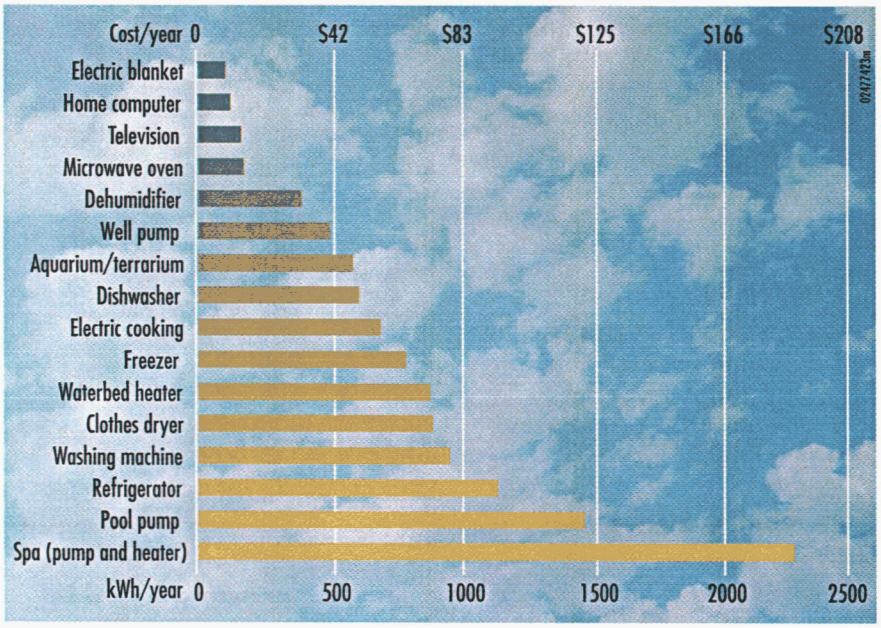
Refrigerators with the freezer on top are more efficient than those with freezers on the side.

Refrigerators

The EnergyGuide label on new refrigerators will tell you how much electricity in kilowatt-hours (kWh) a particular model uses in one year. The smaller the number, the less energy the refrigerator uses and the less it will cost you to operate. In addition to the EnergyGuide label, don't forget to look for the ENERGY STAR® label. A new refrigerator with an ENERGY STAR® label will save you between $35 and $70 a year compared to the models designed 15 years ago. This adds up to between $525 and $1,050 during the average 15-year life of the unit.

Refrigerator/Freezer Energy Tips

- Look for a refrigerator with automatic moisture control. Models with this feature have been engineered to prevent moisture accumulation on the cabinet exterior without the addition of a heater. This is not the same thing as an "anti-sweat" heater. Models with an anti-sweat heater will consume 5% to 10% more energy than models without this feature.
- Don't keep your refrigerator or freezer too cold. Recommended temperatures are 37° to 40°F for the fresh food compartment of the refrigerator and 5°F for the freezer section. If you have a separate freezer for long-term storage, it should be kept at 0°F.
- To check refrigerator temperature, place an appliance thermometer in a glass of water in the center of the refrigerator. Read it after 24 hours. To check the freezer temperature, place a thermometer between frozen packages. Read it after 24 hours.
- Regularly defrost manual-defrost refrigerators and freezers; frost buildup decreases the energy efficiency of the unit. Don't allow frost to build up more than one-quarter of an inch.
- Make sure your refrigerator door seals are airtight. Test them by closing the door over a piece of paper or a dollar bill so it is half in and half out of the refrigerator. If you can pull the paper or bill out easily, the latch may need adjustment or the seal may need replacing.



How Much Electricity Do Appliances Use?

This chart shows how much energy a typical appliance uses per year and its corresponding cost based on national averages. For example, a refrigerator uses almost five times the electricity the average television uses.

- Cover liquids and wrap foods stored in the refrigerator. Uncovered foods release moisture and make the compressor work harder.
- Move your refrigerator out from the wall and vacuum its condenser coils once a year unless you have a no-clean condenser model. Your refrigerator will run for shorter periods with clean coils.

Other Energy-Saving Kitchen Tips

- Be sure to place the faucet lever on the kitchen sink in the cold position when using small amounts of water; placing the lever in the hot position uses energy to heat the water even though it may never reach the faucet.
- If you need to purchase a gas oven or range, look for one with an automatic, electric ignition system. An electric ignition saves gas because a pilot light is not burning continuously.
- In gas appliances, look for blue flames; yellow flames indicate the gas is burning inefficiently and an adjustment may be needed. Consult the manufacturer or your local utility.
- Keep range-top burners and reflectors clean; they will reflect the heat better, and you will save energy.
- Use a covered kettle or pan to boil water; it's faster and it uses less energy.
- Match the size of the pan to the heating element.
- If you cook with electricity, turn the stovetop burners off several minutes before the allotted cooking time. The

heating element will stay hot long enough to finish the cooking without using more electricity. The same principle applies to oven cooking.

- Use small electric pans or toaster ovens for small meals rather than your large stove or oven. A toaster oven uses a third to half as much energy as a full-sized oven.
- Use pressure cookers and microwave ovens whenever it is convenient to do so. They can save energy by significantly reducing cooking time.

Laundry

About 80% to 85% of the energy used for washing clothes is for heating the water. There are two ways to reduce the amount of energy used for washing clothes—use less water and use cooler water. Unless you're dealing with oily stains, the warm or cold water setting on your machine will generally do a good job of cleaning your clothes. Switching your temperature setting from hot to warm can cut a load's energy use in half.

When shopping for a new washer, look for an ENERGY STAR® machine. These machines may cost more to buy but use about a third of the energy and less water than typical machines. You'll also save more on clothes drying, because most remove more water from your clothes during the spin cycle.

When shopping for a new clothes dryer, look for one with a moisture sensor that automatically shuts off the machine when your clothes are dry. Not only will this save energy, it will save wear and tear on your clothes caused by over-drying. Keep in mind that gas dryers are less expensive to operate than electric dryers. The cost of drying a typical load of laundry in an electric dryer is 30 to 40 cents compared to 15 to 25 cents in a gas dryer.

Laundry Tips

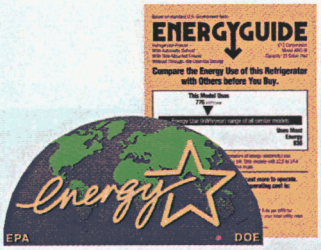
- Wash your clothes in cold water using cold-water detergents whenever possible.
- Wash and dry full loads. If you are washing a small load, use the appropriate water-level setting.
- Dry towels and heavier cottons in a separate load from lighter-weight clothes.
- Don't over-dry your clothes. If your machine has a moisture sensor, use it.
- Clean the lint filter in the dryer after every load to improve air circulation.
- Use the cool-down cycle to allow the clothes to finish drying with the residual heat in the dryer.
- Periodically inspect your dryer vent to ensure it is not blocked. This will save energy and may prevent a fire. Manufacturers recommend using rigid venting material, not plastic vents that may collapse and cause blockages.
- Look for the ENERGY STAR® and EnergyGuide labels.

For more information on energy-efficient appliances, contact:

Association of Home Appliance Manufacturers, (202) 872-5955, www.aham.org

ENERGY STAR®, (888) STAR-YES (888-782-7937), www.energystar.gov

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), (800) DOE-3732 www.eren.doe.gov/askcaen.energyexpert/



Major Appliance Shopping Guide

This easy-to-read guide may help you understand how appliances are rated for efficiency, what the ratings mean, and what to look for while shopping for new appliances.

Appliances	Rating	Special Considerations
Natural Gas and Oil Systems	Look for the **FTC** (Federal Trade Commission) EnergyGuide label with an **AFUE** (Annual Fuel Utilization Efficiency) rating for gas- and oil-fired furnaces and boilers. The AFUE measures the seasonal or annual efficiency. ENERGY STAR® furnaces have a 90 AFUE or greater.	Bigger is not always better! Too large a system costs more and operates inefficiently. Have a professional assess your needs and recommend the type and size of system you should purchase.
Air-Source Heat Pumps	Look for the EnergyGuide label that contains the **SEER** (Seasonal Energy Efficiency Ratio) and **HSPF** (Heating Seasonal Performance Factor) for heat pumps. The SEER measures the energy efficiency during the cooling season and HSPF measures the efficiency during the heating season. The ENERGY STAR® minimum efficiency level is 12 SEER or higher.	If you live in a cool climate, look for a heat pump with a high HSPF. If you purchase an ENERGY STAR® heat pump, you are getting a product that is in the top 25% for efficiency. Contact a professional for advice on purchasing a heat pump.
Central Air Conditioners	Look for the EnergyGuide label with a **SEER** for central air conditioners. The ENERGY STAR® minimum efficiency level is 12 SEER. ENERGY STAR® central air conditioners exceed federal standards by at least 20%.	Air conditioners that bear the ENERGY STAR® label may be twice as efficient as some existing systems. Contact a professional for advice on sizing a central air system.
Room Air Conditioners	Look for the EnergyGuide label with an **EER** (Energy Efficiency Ratio) for room air conditioners. The higher the EER, the more efficient the unit is. ENERGY STAR® units exceed federal standards by at least 10%.	**What size to buy?** Area in square feet / Btu/hour 100 to 150 — 5,000 150 to 250 — 6,000 250 to 350 — 7,000 350 to 400 — 9,000 400 to 450 — 10,000 450 to 550 — 12,000 550 to 700 — 14,000 700 to 1,000 — 18,000 Two major decisions should guide your purchase. Buy a correctly sized unit. Buy an energy-efficient unit. If the room is very sunny, increase capacity by 10%. If the unit is for a kitchen, increase the capacity by 4,000 Btu per hour.

The ENERGY STAR® label is the government's seal of approval. It was created by the U.S. Department of Energy and the U.S. Environmental Protection Agency. These agencies set the criteria to help shoppers for large and small home appliances identify the most energy-efficient products on the market. ENERGY STAR®-labeled appliances exceed existing federal efficiency standards, typically, by 13% to 20%, and as much as 110% for some appliances. Customers can be assured that the appliance being purchased is a high-performance product which will reduce the operating cost of that appliance or product every month during the course of its lifetime.

Appliances	Rating	Special Considerations
Programmable Thermostats	For minimum ENERGY STAR® efficiency, thermostats should have at least two programs, four temperature settings each, a hold feature that allows users to temporarily override settings, and the ability to maintain room temperature within 2°F of desired temperature.	Look for a thermostat that allows you to easily use two separate programs; an "advanced recovery" feature that can be programmed to reach the desired temperature at a specific time; a hold feature that temporarily overrides the setting without deleting preset programs; and the ENERGY STAR® label.
Water Heaters	Look for the EnergyGuide label that tells how much energy the water heater uses in one year. Also, look for the **FHR** (First Hour Rating) of the water heater, which measures the maximum hot water the heater will deliver in the first hour of use.	If you typically need a lot of hot water at once, the FHR will be important to you. Sizing is important—call your local utility for advice.
Windows	Look for the **NFRC** (National Fenestration Rating Council) label that provides U-values and **SHGC** (solar heat gain coefficient) values. The lower the U-value, the better the insulation.	Look at the Climate Region Map on the ENERGY STAR® label to be sure that the window, door, or skylight you have selected is appropriate for where you live.
Refrigerators and Freezers	Look for the EnergyGuide label that tells how much electricity, in kilowatt-hours (kWh), the refrigerator or freezer will use in one year. The smaller the number, the less energy it uses. ENERGY STAR® labeled units exceed July 1, 2001, federal standards by at least 10%.	Look for energy-efficient refrigerators and freezers. Refrigerators with freezers on top are more efficient than those with freezers on the side. Also look for heavy door hinges that create a good door seal.
Dishwashers	Look for the EnergyGuide label that tells how much electricity, in kilowatt-hours (kWh), the dishwasher will use in one year. The smaller the number, the less energy it uses. ENERGY STAR® dishwashers exceed federal standards by at least 25%.	Look for features that will reduce water use, such as booster heaters and smart controls. Ask how many gallons of water the dishwasher uses during different cycles. Dishwashers that use the least amount of water will cost the least to operate.
Clothes Washers	Look for the EnergyGuide label that tells how much electricity, in kilowatt-hours (kWh), the clothes washer will use in one year. The smaller the number, the less energy it uses. ENERGY STAR® clothes washers use less than 50% of the energy used by standard washers.	Look for the following design features that help clothes washers cut water usage: water level controls, "suds-saver" features, spin cycle adjustment, and large capacity. For double the efficiency, buy an ENERGY STAR® unit.

Source List

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www.ase.org

American Architectural Manufacturers Association (AAMA)
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Fax: (847) 303-5774
www.aamanet.org

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Publications: (202) 429-0063
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American Society of Landscape Architects (ASLA)
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American Solar Energy Society (ASES)
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Cellulose Insulation Manufacturers Association (CIMA)
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www.cellulose.org

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Federal Trade Commission
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Florida Solar Energy Center (FSEC)
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Insulation Contractors Association of America (ICAA)
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National Arbor Day Foundation (NADF)
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Phone: (402) 474-5655
www.arborday.org

National Association of Home Builders (NAHB)
1201 15th Street, NW
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E-mail: info@nahb.com
www.nahb.org

National Association of State Energy Officials (NASEO)
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E-mail: information@naseo.org
www.naseo.org

National Insulation Association
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Phone: (703) 683-6422
Fax: (703) 549-4838
www.insulation.org

National Wood Window and Door Association
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www.nwwda.org

North American Insulation Manufacturers Association (NAIMA)
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www.rmi.org

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www.seia.org

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E-mail: srcc@fsec.ucf.edu
Fax: (407) 638-1010
www.solar-rating.org

References

U.S. Department of Energy's
Energy Efficiency and Renewable
Energy Clearinghouse (EREC)
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E-mail: doe.erec@nciinc.com
www.eren.doe.gov/askanenergyexpert/

U.S. Department of Energy's
Building Technologies Program, EE41
1000 Independence Ave. SW
Washington, D.C. 20585
www.eren.doe.gov/buildings

Association of Home Appliance Manufacturers, 1111 19th St., NW, Ste. 402 Washington, DC 20036 (202) 872-5955

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Energy Efficiency and Renewable
Energy Clearinghouse Fact Sheets,
P.O. Box 3048, Merrifield, VA 22116,
(800) DOE-EREC (800-363-3732).
www.eren.doe.gov/askanenergyexpert/
www.ornl.gov/roofs+walls/insulation/
ins_11.html

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Energy Savers: Tips on Saving Energy & Money at Home is available online at www.eren.doe.gov/consumerinfo/energy_savers

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

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of
Prepared Rebuttal Testimony
of
EDWARD B. GIESEKING

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
EDWARD B. GIESEKING

INTRODUCTION/BACKGROUND

Q. 1 Please state your name and business address.

A. 1 My name is Edward B. Gieseking. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom are you employed and in what capacity?

A. 2 I am employed by Southwest Gas Corporation (Southwest or Company) in the Pricing and Tariffs Department as Director/Pricing and Tariffs.

Q. 3 Did you sponsor prepared direct testimony in this proceeding?

A. 3 Yes, I did.

Q. 4 What is the purpose of your rebuttal testimony?

A. 4 The purpose of my testimony is to respond to the direct testimonies of Mr. William Musgrove and Mr. Robert Gray, witnesses for the Arizona Corporation Commission Utilities Division Staff (Staff), the direct testimony of Ms. Marylee Diaz Cortez, witness for the Residential Utility Consumer Office (RUCO), and the direct testimony of Mr. Jeff Schlegel, witness for the Southwest Energy Efficiency Project and Natural Resources Defense Council (SWEEP/NRDC), regarding their recommendations concerning

Southwest's margin decoupling mechanism (Conservation Margin Tracker or CMT) and residential rate design.

Q. 5 Please summarize your testimony.

A. 5 My rebuttal testimony addresses the following issues:

- Staff's assertion that it is inappropriate to make tariff changes in the instant proceeding.
- The fallacy of Staff's and RUCO's assertion that limiting the application of the CMT to the residential class of customers is biased or unfair.
- Staff's mischaracterization of my testimony with regard to Southwest's experience of declining average residential consumption.
- RUCO's and Staff's conclusions regarding Public Utility Commission of Nevada's (PUCN) Decision on Southwest's proposed Nevada margin decoupling mechanism.
- Why RUCO's assertion that the CMT would have customers pay for something they did not consume is in error.
- Staff's incorrect assertion that Southwest failed to recognize that the Joint Resolution of the American Gas Association and the National Resources Defense Counsel recognizes there may be solutions other than a CMT-like mechanisms when considering the dilemma between promoting energy efficiency and protecting utilities from margin erosion.

- SWEEP/NRDC's recommendation for a review and an evaluation of mechanisms that remove a utility's financial disincentive for supporting energy efficiency.
- Why Southwest's proposed rate design will not discourage conservation, contrary to both Staff's and RUCO's proposed rate designs.

THIS PROCEEDING IS THE PROPER VENUE FOR ADDRESSING SOUTHWEST'S PROPOSED RECOVERY OF AUTHORIZED MARGIN

Q. 6 Has any party challenged the appropriateness of addressing Southwest's proposals for margin recovery in this proceeding?

A. 6 No. Staff opines that the correct venue to consider rate design proposals of the significance Southwest is proposing in this case is within the "boundaries of full discovery and the evidentiary processes that are integral parts of formal rate case proceedings."[1/] There is no better time for the Commission to consider these issues than during a general rate case, wherein the parties can propound discovery requests and fully debate the issues.

Q. 7 Have Staff and other parties been accorded the opportunity to perform full discovery during this proceeding?

A. 7 Yes. The Administrative Law Judge established a procedural schedule that provided interveners approximately 25 weeks from the date of the Procedural

1/ Direct Testimony of W.H. Musgrove, p. 4, l. 23 through p. 5, l. 2

Order[2/] to propound discovery, prepare their direct cases, and file testimony. It is my understanding that every party's questions have been responded to on a timely basis throughout the discovery process. There has been ample opportunity to develop a full evidentiary record during the processing of the instant filing.

Q. 8 Contrary to their earlier testimony, stating a rate case is the proper venue to consider Southwest's ratemaking proposals, Staff claims it is "totally inappropriate" for Southwest to develop tariff language that describes its CMT proposal.[3/] Is it appropriate for Southwest to propose alternate margin recovery and tariff language that describes its proposals in this general rate case filing?

A. 8 Yes. Contrary to Staff's assertions, this general rate case is the proper time for Southwest to propose cost recovery mechanisms that differ from current mechanisms. Staff is wrong to assert that it is improper for Southwest to propose anything different from what was authorized in the last general rate case. Southwest has presented ample evidence and justification to support a change in the existing rate structure for the recovery of authorized margin.

2/ Approximately 33 weeks elapsed between the December 9 filing date and the July 26 Staff and Intervenor direct testimony filing date. There are approximately 25 weeks between the February 7 issuance of the ALJ Procedural Order and the testimony filing date.

3/ Direct Testimony of W. H. Musgrove, p. 6, ll. 19-23

APPLICATION OF THE PROPOSED CMT TO THE RESIDENTIAL CUSTOMER CLASSES IS APPROPRIATE

Q. 9 Why does Southwest propose that the CMT be applied to only the residential customer classes?

A. 9 The margin decoupling proposed by Southwest in the CMT is more appropriate to customer classes that: 1) have a large number of customers within the class and 2) possess homogeneous cost of service characteristics. The majority of Southwest's customers are classified residential and the customers in the residential class have a relatively narrow range of cost of service characteristics. On the other hand, there are far fewer customers in the general service classes and their costs of service characteristics are not as homogeneous as the residential class. As such, Southwest determined that the CMT would be more appropriate for the residential classes than Southwest's other customer classes.

Q. 10 Are there any other reasons that Southwest limited the applicability of the proposed CMT to the residential customer classes?

A. 10 Yes. In response to a Staff data request which inquired about the decline in non-residential customer class average consumption and why Southwest only proposed the CMT for the residential class, Southwest presented data demonstrating that from the 1999 rate case through the Company's present rate case filing that the decline in annual consumption per customer for the residential

classes is approximately four to five times greater than the decline in annual consumption for the small-general and medium-general customers.[4/] Furthermore, Southwest has been unable to identify a discernible trend of declining consumption per customer for its other customer classes.

This data demonstrates that the declining annual usage per customer experienced by the Company is primarily associated with the residential customer classes. Because the CMT is principally designed to mitigate the effects of declining usage and weather variations, applying the CMT to classes of customers that are not experiencing declining usage provides minimum benefit to the Company or its customers. In addition, it is more appropriate to assess the unrecovered cost of service associated with declining usage to the class of customers whose usage is declining.

Ultimately, Southwest determined that it would accept the risk of recovering its non-residential authorized margin in order to simplify its CMT proposal. Contrary to Staff/RUCO's contentions, the Company's acceptance of this risk in no way presents a bias, unfairness, or any burden to residential customers. In the event Southwest is unable to recover its non-residential authorized margin level, it will not impact the residential classes in any way.

4/ Response to Staff Data Request No. BGG-7-5

Q. 11 Is it proper to employ cost recovery techniques to recover non-residential customer class margin that differ from those used to recover authorized margin from residential customers?

A. 11 Yes. It is proper to employ rate design or cost recovery techniques that are different for different classes of service. Rate design for each class should be structured to fit the unique characteristics of that class. For example, proposed monthly fixed charges applicable to the general service classes are higher than Southwest's proposed residential basic service charges. Southwest's proposed small-general basic service charge is more than double Southwest's proposed residential basic service charge associated with the implementation of the CMT. For the largest general service class, Southwest has requested the continuation of a demand billing rate, in addition to a higher basic service charge.

Q. 12 Does the CMT provide any benefit to residential customers?

A. 12 Yes. In the event Southwest recovers more than the authorized margin level, which would likely occur if Arizona were to experience a colder than normal month or season, Southwest would credit the CMT balancing account with all margin amounts recovered that exceed the authorized levels to the residential customers; whereas, this would not be applicable to non-residential customers.

Q. 13 Could the CMT be made applicable to non-residential customer classes?

A. 13 Yes. If the Commission prefers that the proposed CMT apply to all customer classes, Southwest would be willing to apply it to all customer classes.

CUSTOMER EFFICIENCY IMPROVEMENTS FROM BOTH NEW AND VINTAGE RESIDENTIAL CUSTOMERS HAVE IMPACTED SOUTHWEST'S EARNED RATE OF RETURN

Q. 14 Please respond to Staff's claim that Southwest incorrectly asserts that its total residential sales have decreased?[5/]

A. 14 Staff reached an incorrect conclusion regarding the evidence Southwest presented on the issue of declining residential sales. Southwest does not claim that total residential sales decreased but provides evidence that the consumption per customer has decreased. One of the underlying themes in Southwest's filing is that its residential costs of service are essentially fixed and do not change considerably with changes in customer consumption, and that Southwest has struggled to recover its fixed costs of service due to the volumetric recovery of these fixed costs in an environment of declining consumption per customer. This underlying theme is addressed in Southwest's Application and testimonies of several witnesses, including Mr. Shaw, Mr. Fetter,

5/ Direct Testimony of W. H. Musgrove, p.6, ll. 5-6

Mr. Cattanach, Mr. Congdon, and my direct testimony.[6/]

Q. 15 Both Staff and RUCO have acknowledged that Southwest has, for the past several years, experienced the phenomenon of declining residential use per customer and have not disputed Southwest's contention that the trend is likely to continue. Yet both have presented rate design proposals that exacerbate Southwest's ability to recover its authorized margin levels by designing an even greater amount of its margin recovery in the volumetric portion of its rates. What can be concluded from these recommendations?

A. 15 If costs are designed to be recovered in a volumetric rate and the empirical evidence suggests there is little expectation that all of the volumes will actually be sold, the result of these proposals is to acknowledge that Southwest will not be afforded an opportunity to recover its fixed costs. This violates one of the fundamental rate design goals, which is to give the company a fair opportunity to realize its authorized rate of return.[7/]

Q. 16 Is Staff's conclusion that declining average use per residential customer is dominated by increases in the number of new customers correct? [8/]

A. 16 No. The empirical evidence is overwhelming that Southwest

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6/ Direct Testimony of E.B. Gieseking p. 5, ll. 26-27; p. 6, ll. 10-11; p.21, ll. 16-19

7/ Direct Testimony of M. D. Cortez, p. 3, ll. 11-18

8/ Direct Testimony of W. H. Musgrove, p. 15, ll. 4-7

has not recovered its authorized margin per customer because a significant portion of Southwest's margin recovery is dependent upon the volumes of gas sold, and Southwest has been experiencing a steady decline in average use per customer for both new and vintage customers.

Staff has not properly interpreted the evidence presented in the filed case and the information presented to Staff in discovery. For instance, Company witness James L. Cattanach presented evidence in his direct testimony that annual consumption per customer in Southwest's last general rate case (with a test period ended December 1999) was 388 therms per customer and in response to Staff Data Request BGG-7-18, Southwest indicated that current test period annual use per customer for vintage customers prior to 1999 was 346 therms per customer. A simple comparison of these annual per customer consumption levels shows that vintage customer annual consumption has declined 42 therms over this four- to five-year period.

Although Staff is accurate in its observation that new customers generally have an annual consumption level lower than vintage customers, its conclusion that Southwest's declining consumption per customer is dominated by the addition of new more efficient customers is contrary to the evidence.

Q. 17 Regardless of the reason for the decline in average

residential consumption, is there any dispute that the decline will have a negative impact on Southwest's ability to recover the fixed costs associated with serving its customers?

A. 17 No. Southwest has presented uncontradicted evidence that the cost to serve its customers is essentially fixed and does not vary with changes in customer consumption. Simply put, when costs are constant and revenue declines due to declining consumption, Southwest will not recover its cost of service. Invariably, this will have a negative impact on earned rates of return.

Q. 18 Staff infers that the increase in Southwest's total residential sales over time, due to the growth in customers (although admitting that usage per customer has declined), should have a positive effect on Southwest's rate of return.[9/] Is this a logical conclusion given the facts in this case?

A. 18 No. Staff has failed to recognize that the addition of customers requires a corresponding addition of distribution facilities and expenses to serve those customers. The uncontested facts in this case are that Southwest's cost of providing service are essentially fixed, Southwest's use per customer is declining, and fixed cost recovery through volumetric rates has led, and will continue to lead, to an under-recovery of fixed

9/ Direct Testimony of W. H. Musgrove, p. 8, ll. 12-14

costs. Providing service to a customer, whether vintage or new, where the revenue stream is not sufficient to support the cost of service will lead to erosion in the experienced rate of return.

THE PUBLIC UTILITIES COMMISSION OF NEVADA ADOPTED ALTERNATIVES TO SOUTHWEST'S PROPOSED RESIDENTIAL MARGIN DECOUPLING MECHANISM

Q. 19 Staff and RUCO cite the PUCN Order in Southwest's last Nevada general rate case where the PUCN denied Southwest's request to establish a margin decoupling mechanism. Staff and RUCO urge the Commission to similarly reject Southwest's request to implement the CMT, but neglect to address how the PUCN addressed Southwest's alternative margin stabilization efforts. How did the PUCN address the issue of Southwest's inability to recover its authorized margin in light of declining average residential consumption?

A. 19 Similar to Southwest's presentation of declining use per customer and possible solutions in this proceeding, in its Nevada filing Southwest requested rate design changes and/or a margin decoupling mechanism. In denying the proposed margin decoupling mechanism, the PUCN stated that "Southwest can re-evaluate the statutory authority and the need for an MCB [margin decoupling mechanism] approach after the benefits of these alternatives are experienced and evaluated."[10/] The PUCN further stated: "Southwest is experiencing problems achieving revenue and

10/ PUCN Docket No. 04-3011, p. 77

income stability due to declining average residential customer usage, and that Southwest's declining block rates are designed to help correct these problems."

Accordingly, in lieu of a margin decoupling mechanism, the PUCN granted an increase in the monthly basic service charge, but more importantly, it authorized the implementation of a rate design that provides for recovery of a significant portion of Southwest's fixed costs in the first consumption block in its declining block rate design.[11/] Additionally, the PUCN recognized the benefit of weather normalization and ordered Southwest to file a weather normalization plan in its next general rate case.

Q. 20 What margin stabilization alternatives should the Commission consider if it determines that implementation of the CMT is not appropriate?

A 20 In addition to the CMT, Southwest has presented the Commission with two alternatives to address fixed cost recovery: (1) increased fixed charges and (2) a block rate structure that recovers a significant amount of fixed costs in the first block and establishes the second block rate closer to the marginal cost of providing service. Similar to the PUCN, if the Commission is not prepared to embrace Southwest's decoupling mechanism

11/ PUCN Docket No. 04-3011, p. 83 "The Commission also believes that Staff's proposed minor modification [to Southwest's proposed rate design] to capture Southwest's percent usage in both summer and winter periods are appropriate and encapsulate Southwest's same rate design, which recovers a significant portion of its fixed costs in the first block."

(CMT), the Commission should address the issue through other rate design options.

Q. 21 Did the California Public Utilities Commission (CPUC) provide any rationale when it approved Southwest's request for margin decoupling in California?

A. 21 Yes. The CPUC stated: "this decision adopts a revenue balancing account that protects ratepayers against over-collections, and Southwest against under-collections due to differences between forecasted sales and actual sales." Clearly the CPUC recognized the balancing of interests between customers and shareholders and acted accordingly. Furthermore, contrary to Staff's assertions, the adoption of the margin balancing mechanism in California was not simply a rubber stamp procedure by the CPUC.[12/]

THE CMT WILL NEITHER CHARGE CUSTOMERS FOR A PREDETERMINED LEVEL OF GAS SERVICE NOR HAVE CUSTOMERS PAY FOR THERMS THEY DO NOT CONSUME

Q. 22 What is the fallacy in RUCO's assertion that the CMT would require customers to pay for a predetermined level of gas service regardless of whether that level was actually used?

A. 22 RUCO's belief is based upon the incorrect presumption that a customer's "level of service" for gas distribution is dependent upon the volume of gas that the customer consumes. This is simply not true. As Mr. Shaw stated in his prepared direct testimony, "Virtually everything

12/ Direct Testimony of W. H. Musgrove, p. 10, ll. 1-5

Southwest does in the natural gas distribution business centers on assuring the availability of safe and reliable natural gas service and, accordingly, substantially all of its costs (excluding the cost of gas itself, which is recovered through the Purchased Gas Adjustment mechanism with no profit) are fixed."[13/]

Whether a customer consumes 10 therms or 100 therms, Southwest provides the same level of distribution service. From a purely economic pricing perspective, an argument could be made that the appropriate price for this level of distribution service should be a fixed monthly charge (Straight Fixed/Variable or SFV rates). This pricing structure, which would price all gas consumption at the marginal cost of production (i.e. the cost of gas or actual variable cost), would result in the most economically efficient use of the gas, allow Southwest the best opportunity to recover its fixed cost of service, and would require customers to pay for only the gas they consumed.

However, as I stated in my direct testimony, in consideration of other ratemaking goals, Southwest proposed the CMT, as one of a number of alternatives, to minimize the problem associated with a volumetric rate design and to permit Southwest a better opportunity to recover the fixed costs of service that have been

13/ Direct Testimony of J. W. Shaw, p. 10, ll. 2-8

approved by the Commission in this proceeding. Simply put, customers will not pay for a single therm of gas they do not consume.

Q. 23 What evidence has RUCO presented to support its contention that the CMT would be counterproductive, especially when coupled with increased conservation efforts?

A. 23 None. RUCO's contention appears to be based on a presumption that customers will not benefit monetarily for their efficiency efforts due to the potential CMT balancing account deferrals. This is simply not true. As previously discussed, customers will benefit immediately if they reduce their gas consumption because they will save gas costs.

Q. 24 What is your reaction to RUCO's characterizations that the CMT is "conceptually unacceptable" and "an extreme and unprecedented resolution to a routine rate design issue"?[14/]

A. 24 It is important to not lose sight of what is presumably the rate design goal of all parties to this case, to wit, a revenue recovery mechanism that will provide Southwest a realistic opportunity to recover the cost of providing service. Although establishing cost recovery in a general rate case to recover the authorized costs of service is seemingly a routine rate design issue, Southwest's

14/ Direct Testimony of M. D. Cortez, p. 31, ll. 4-6

recovery of its actual costs has been anything but a routine event. It cannot be over emphasized that Southwest has presented uncontradicted evidence that the cost to serve its customers is virtually fixed and therefore does not vary with changes in customer consumption. Further, average consumption has steadily declined after each rate case for the past 18 years. Yet, despite these important and undisputed facts, the rate designs proposed by the parties in this case rely significantly on the volumetric recovery of costs. The evidence is overwhelming that this type of cost recovery simply does not work!

Although the concept of a margin decoupling mechanism for gas distribution companies is unprecedented in the state of Arizona, there should be no rush to judgment that such a mechanism is conceptually unacceptable. Other regulatory jurisdictions have incorporated the concept of margin decoupling in their regulatory constructs,[15/] and Arizonians have already experienced a form of margin/sales decoupling in other services; telephone, cable, and garbage disposal services are examples of services that are usually a fixed price for a set amount or unlimited consumption of the service provided.[16/]

Furthermore, any cost recovery structure that does

15/ Response to Staff Data Request No. BGG-7-3

16/ In response to Staff Data Request No. BGG-7-3, Southwest listed eleven gas utilities which have or have requested a form of margin decoupling.

not produce revenue sufficient to recover the cost of providing service should be considered an unacceptable design.

Q. 25 Has Southwest quantified the increase in margin recovery risk associated with the various residential rate design proposals?

A. 25 Yes. Southwest has calculated the margin decrease that would occur with an average reduction in usage of 10 therms per customer. This is demonstrated in the rebuttal testimony of Company witness Mr. Brooks Congdon. The results of his analysis demonstrate the effect on Southwest's margin recovery under Southwest's, Staff's and RUCO's rate designs. This table compares the difference in margin recovery for each of the rate designs if Southwest's average residential consumption decreased by 10 therms per customer subsequent to establishing rates in this proceeding.[17/]

With the CMT in place, there is no change in Southwest's margin recovery with a decrease in sales per customer. The difference, or under-recovery, that would occur with the Staff and RUCO rate designs would be $4.95 million and $4.55 million, respectively. Southwest's proposed alternate rates, which are designed to enhance the opportunity of fixed cost recovery if the CMT is not implemented, would moderate the under-recovery

17/ Rebuttal Testimony of A. B. Congdon, p. 17

to $2.31 million if average residential sales decrease subsequent to the setting of rates in this proceeding.

Mr. Congdon's analysis also shows that under Southwest's current rate design, the under-recovery associated with a 10 therm average reduction in residential consumption would be $3.51 million.

A comparison of these hypothetical margin losses demonstrate that the Staff and RUCO proposed rate designs put Southwest at greater risk of collecting authorized levels of margin.

Q. 26 Please respond to RUCO's assertion that the CMT violates a myriad of ratemaking principles.[18]

A. 26 The National Association of Regulatory Utility Commissioners Board of Directors recently issued a Resolution on Gas and Electric Energy Efficiency that encourages state commissions to review and consider such recommendations.[19/] It is highly doubtful the regulatory commissioner's association would promote a ratemaking concept that violated a myriad of ratemaking principles.

CONSIDERATION OF THE JOINT STATEMENT OF THE AMERICAN GAS ASSOCIATION AND THE NATURAL RESOURCES DEFENSE COUNCIL ADDRESSING INHERENT UTILITY DISINCENTIVES

Q. 27 Please respond to Staff's assertion that Southwest narrowly focused on certain points in the AGA/NRDC Joint Statement in order to manufacture a link between the

18/ Direct Testimony of M. D. Cortez, p. 27, ll. 7-20
19/ Direct Testimony of S. M. Fetter, Exhibit No.___(SMF-3)

Joint Statement and Southwest's CMT Proposal.[20/]

A. 27 Contrary to Staff's assertion, Southwest has taken great care in this case to explain that a CMT-like mechanism is but one approach to decouple the recovery of margin from the level of sales and therefore eliminates or minimizes the inherent utility disincentive to encourage energy efficiency. For Staff to infer that Southwest focused on the innovative programs referenced in the Joint Statement, and ignored the Joint Statement in regards to a recommendation for "utility rate proposals" as another equally viable alternative to help utilities recover authorized fixed costs, shows a lack of understanding of the total Southwest cost of service recovery proposal. In fact, Southwest proposed a margin decoupling mechanism as well as a rate structure that is more closely aligned with the cost of service.

REVIEW AND EVALUATION OF MECHANISMS FOR REMOVING THE FINANCIAL DISINCENTIVE FOR SUPPORTING ENERGY EFFICIENCY

Q. 28 Have there been any recent developments that address the issue of removing the utility financial disincentive to implement energy efficiency programs?

A. 28 Yes. The recently enacted National Energy Policy Act of 2005 (Act) addresses this issue directly. Section 139 of the Act requires the Secretary of Energy, in consultation with NARUC and the National Association of State Energy Officials to conduct a study of energy reduction and

20/ Direct Testimony of W. H. Musgrove, p. 14, ll. 5-24

energy efficiency policies. The Act states that the Secretary shall take into consideration methods of: a) removing disincentives for utilities to implement energy efficiency programs; b) encouraging utilities to undertake voluntary energy efficiency programs; and c) ensuring appropriate returns on energy efficiency programs.

Q. 29 Why is it important for the Commission to take notice of this recent development in this proceeding?

A. 29 Incorporation of Section 139 into the National Energy Policy Act provides evidence that the issue of reducing or eliminating the utility financial disincentive to energy efficiency is a national issue, not an issue fabricated by Southwest to sell its margin recovery proposals.

Q. 30 Does Southwest concur with the SWEEP/NRDC witness' recommendation that the gas utility financial disincentive issue and a full analysis of mechanisms for removing the disincentive be reviewed and evaluated prior to adoption of a specific mechanism?

A. 30 Yes. Southwest agrees and encourages the Commission to do so in this proceeding. However, SWEEP/NRDC indicate that in the event the Commission decides not to address the issue in the instant proceeding, it would be appropriate to conduct this review and analysis subsequent to the issuance of an order in this proceeding; yet they encourage the Commission to expand the package of

efficiency measures Southwest has proposed. Southwest developed its recommendation of efficiency programs as a package of interrelated proposals, including recommendations for the CMT and rate relief. Southwest tied these together in recognition that successful efficiency programs would have a further detrimental effect on Southwest's ability to recover its cost of service if fixed costs are recovered in volumetric rates.

Q. 31 If the Commission does not address the gas utility financial disincentive issue, how does this affect Southwest's support of its proposed efficiency measures?

A. 31 Southwest proposed new and expanded efficiency programs because it believes the conservation of and efficient use of natural gas is the right thing to do, and will ultimately benefit its customers. However, in addition to its obligation to its customers to provide safe and reliable gas distribution service at reasonable prices, Southwest has an obligation to its shareholders to provide a return on their investment. The efficiency programs together with the CMT and proposed rate design are designed to balance these interests.

No party has opposed Southwest's efficiency programs; however, Staff and RUCO oppose Southwest's CMT and rate design proposals. SWEEP/NRDC also opposes Southwest's rate design but suggests the decoupling issue could be addressed after the implementation of expanded efficiency programs. These proposals do not provide for

regulatory equity.

The testimony filed in this case has not altered Southwest's belief that implementing programs that improve energy efficiency is beneficial for its customers and is the right thing to do. However, Southwest cannot, in good faith, support implementation of new and expanded efficiency programs, unless or until the interests of customers and shareholders are in balance. As such, Southwest requests that the new and expanded efficiency programs, if approved, not be implemented until such time as an appropriate mechanism removing the financial disincentive has been decided upon and approved by the Commission.

Q. 32 Are there any steps the Commission can take to bridge Southwest's concern about margin erosion associated with enhanced efficiency programs and the SWEEP/NRDC desire to conduct a more thorough review of mechanisms that address the utility financial disincentive?

A. 32 Yes. If the Commission is hesitant about approving the proposed CMT, Southwest encourages the Commission to consider a modified CMT or some other decoupling mechanism in conjunction with the new and expanded efficiency programs.

Q. 33 Please describe what you mean.

A. 33 The Commission could address specific objections to the CMT and make adjustments to Southwest's proposal or propose other decoupling mechanisms.

Southwest submits that the issues that have been raised by various parties in this proceeding can be addressed through simple adjustments to Southwest's CMT proposal or through other potential decoupling mechanisms that Southwest would be willing to consider. For instance, simply deleting paragraph three of Southwest's proposed Tariff Sheet 98 would accomplish the elimination of the interest component of Southwest's proposal.

SOUTHWEST'S PROPOSED RATE DESIGN WILL NOT DISCOURAGE CONSERVATION, WHEREAS STAFF'S AND RUCO'S PROPOSED RATE DESIGNS COULD INCREASE GAS CONSUMPTION

Q. 34 Have Staff and RUCO provided evidence supporting their claim that Southwest's proposed declining block rate structure will discourage conservation?

A. 34 No. The likely reason they have not is because there is no such evidence. In fact, the evidence is overwhelming that a declining block distribution rate does not discourage conservation. Mr. Cattanach, in his prepared direct testimony, presented evidence that shows since the implementation of declining block rates in Southwest's 1996 general rate case, average annual weather normalized residential consumption has declined from 409 therms per year to 347 therms per year in this case. The difference of 62 therms is a measure of the conservation that has taken place since the implementation of declining block rates in Arizona.

Southwest has also seen this same phenomenon in its

Nevada distribution service territory.

Q. 35 Why doesn't customers' gas use increase as the cost of distribution decreases?

A. 35 While this concept may seem counterintuitive, the answer is very simple. The cost of distribution is only one component of the bill customers receive. The total of a customer's bill contains both the distribution charges as well as the cost of the gas itself. At the present time, the gas cost portion of a residential customer's bill is approximately 50 percent of the total bill. Regardless of the distribution pricing structure, 100 percent fixed monthly charge, 50 percent fixed/volumetric with a flat volumetric charge, 50 percent fixed/volumetric with a declining volumetric charge, or any other combination of fixed and volumetric components, customers will continue to conserve because the gas cost portion of their bill sends a strong price signal.

Simply put, the more gas a customer uses, the more the customer will pay. This is true regardless of the distribution pricing structure. The empirical evidence shows that even if the second block of the distribution rate decreases, the simple fact a customer has a lower gas bill if he/she conserves is a strong incentive to conserve.

Q. 36 Why not extract as much conservation as possible by distorting the marginal price of gas through heavily loaded volumetric rates?

A. 36 As previously explained, this unfairly increases Southwest's risk of not being able to recover the cost of providing distribution service to it customers, and would be harmful to both the Company and the Company's customers. Moreover, the inappropriate pricing of natural gas could, over the long-term, lead to customer choices that actually increase overall gas consumption. Mr. Congdon discusses this very important consideration in his rebuttal testimony.

Q. 37 Please recap the rate strategy Southwest is proposing in this proceeding.

A. 37 Southwest has proposed a "package" of proposals that: 1) recognize deficiencies in Southwest's current rate structure given the conditions under which Southwest operates; 2) expand upon Southwest's efforts to promote the conservation of natural gas; and 3) protect Southwest's shareholders from successful conservation efforts. Southwest's proposals may not be traditional rate design recommendations; however, Southwest believes its approach to addressing the issues outlined in its prepared direct case warrant careful consideration by the Commission. Southwest is confident that if its proposals are carefully scrutinized for their intent and potential outcomes, they will be seen as improvements for both customers and shareholders. It is important to recognize that the proposals are closely interrelated and adjustments to any one of them should not be viewed in

isolation, but should be considered in terms of their effect on the entire package.

Q. 39 Does this conclude your prepared rebuttal testimony?

A. 39 Yes, it does.

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of
Prepared Rejoinder Testimony
of
EDWARD B. GIESEKING

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BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
EDWARD B. GIESEKING

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Edward B. Gieseking. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same Edward B. Gieseking who sponsored prepared direct and rebuttal testimony in this Docket before the Arizona Corporation Commission (Commission) for Southwest Gas Corporation (Southwest or the Company)?

A. 2 Yes, I am.

Q. 3 What is the purpose of your prepared rejoinder testimony?

A. 3 The purpose of my rejoinder testimony is to respond to the surrebuttal testimonies of the Arizona Corporation Commission Utilities Division Staff (Staff), the Residential Utility Consumer Office (RUCO) and the Southwest Energy Efficiency Project/National Resources Defense Council (SWEEP/NRDC). My rebuttal and rejoinder testimonies may not specifically respond to each issue or argument brought forth by the respective intervening parties in their direct and surrebuttal testimonies. My silence should not be taken as acceptance of any intervening party's position, but rather that my

previously filed direct and rebuttal testimonies adequately support the Company's position.

RATE DESIGN POLICY AND GOALS

Q. 4 Southwest has stated that its rate design goals are to stabilize the recovery of revenue and reduce customer bill volatility. Why are these policy goals central to Southwest's case?

A. 4 In order for Southwest to have an opportunity to earn its authorized rate of return, it must recover the revenue authorized by the Commission. Due to circumstances beyond Southwest's control, it has been unable to recover the margin levels authorized by the Commission, and this has eroded Southwest's earned rate of return. Changing the way Southwest's costs of providing service are recovered from its customers can increase the stability of revenue recovery and Southwest's earnings.

Additionally, a rate design that is more closely aligned with the cost of service will decrease customers' bill volatility by decreasing customers' exposure to cold weather consumption.

Southwest's recommended rate designs reduce the risk of recovering authorized costs, reduces the volatility in customer bills, and eliminates the inherent disincentive to support conservation programs. Whereas, neither Staff's nor RUCO's proposed rate designs accomplish these objectives.

Q. 5 Please describe Southwest's stabilization efforts?

A. 5 Southwest proposes to stabilize the recovery of the cost-of-service and customer bills through a package of rate design changes and a mechanism that will true-up actual cost recovery to Commission-authorized costs.

Staff has not criticized Southwest's goal of increasing revenue stability. Although Staff recognizes that the "ultimate" stability would be achieved by recovering all fixed costs through a fixed customer charge, it fails to provide a rate design alternative that matches the stability of Southwest's proposed rate structure. In fact, Staff's rate design places Southwest at more risk than it currently is under its currently effective rates.

Q. 6 How have Staff, RUCO and SWEEP/NRDC addressed Southwest's efforts to stabilize the recovery of the residential cost-of-service?

A. 6 Neither Staff, RUCO nor SWEEP/NRDC dispute the facts that:

1) The cost to serve Southwest's customers is virtually fixed and, therefore, does not vary with changes in customer consumption;

2) The residential rate design for Southwest relies significantly on a volumetric rate to recover fixed costs;

3) Average residential consumption per customer has steadily declined after each rate case for the past 18 years; and

4) Southwest is routinely unable to recover the entire cost of providing service from its customers.

Yet, Staff, RUCO and SWEEP/NRDC reject Southwest's attempts to address this issue and propose no solutions of their own.

To the contrary, all three of these parties support rate design recommendations that would worsen the inequity that currently exists with Southwest's risk of fixed cost recovery.

Mr. Congdon, in his rejoinder testimony, addresses the revenue stability associated with the parties' rate designs and clearly shows that Staff's and RUCO's residential rate designs increase the risk of not recovering costs, while Southwest's recommended rate design reduces the risk of recovering authorized costs, reduces the volatility in customer bills, and reduces the inherent disincentive for Southwest to support conservation programs.

Q. 7 Although Staff proposed a declining block volumetric rate design, it does not oppose a flat rate structure. If the Commission concurs with Southwest's goal of stabilizing revenue recovery, but wanted to explore a flat volumetric rate structure, how should the flat volumetric rate be established?

A. 7 The exposure to fixed cost recovery is determined in the price established for the incremental unit of consumption. This would be the price per therm for the

second block of a two block declining rate or the single flat volumetric price. To limit the level of cost recovery risk to an amount no greater than Southwest's current level of risk, a flat volumetric rate should be no higher than Southwest's current second block rate.

Q. 8 Staff dismisses Southwest's concerns regarding decreasing sales and rate of return with the statement "Staff believes Southwest can always file a subsequent rate case, should the need arise to do so." Is this the cure for Southwest's fixed cost recovery dilemma?

A. 8 No. If the rates established in this case do not adequately provide Southwest with the opportunity to recover the cost of service established in this proceeding, even under the best of circumstances, Southwest would operate approximately one and one-half years before rates could be adjusted. Therefore, absent colder than normal weather, Southwest would not recover its cost of service for an 18-month period.

CONSERVATION MARGIN TRACKER (CMT)

Q. 9 Please respond to Staff's and RUCO's continued objection to Southwest's proposal to limit the applicability of the proposed Conservation Margin Tracking (CMT) mechanism to the residential classes?

A. 9 I pointed out in my rebuttal testimony that various cost recovery techniques can be applied to different classes of customers, depending upon the cost characteristics of each class. For example, basic service charges differ

between customer classes, demand rates are applicable to some classes and not others, and certain rate adjustments are applicable to some classes and not others.

As such, the CMT is simply a cost recovery technique and its application to only the residential class is not improper, and is consistent with how other cost recovery techniques vary among customer classes.

Q. 10 Please address RUCO's continued assertion that the CMT requires customers to pay for therms they do not use.

A. 10 First, to understand the foundation for the CMT, it is important to understand that Southwest's cost of providing service to a residential customer does not change appreciably from month-to-month, or even year-to-year, with variations in customer usage. Rather, Southwest provides the same level of service irrespective of how much gas a customer actually uses. Southwest agrees that a customer should not pay for services not used and that customers should be entitled to any cost reduction or savings that Southwest experiences as a result of customer behavior. However, the only cost savings Southwest experiences when a customer reduces their usage of gas is the cost of the gas itself, and the customer saves the entire cost of the gas not used.

The customer should be responsible for the cost of having natural gas available 24 hours a day, 365 days a year. The CMT is designed to simply earmark the distribution cost-of-service component of the price per

therm in a customer's bill, so that if customer usage is less than what was authorized by the Commission in this proceeding, Southwest will recover its authorized cost of service.

Q. 11 Is the CMT truly a new ratemaking process, or are there existing mechanisms that function similar to the CMT that are already in place in Arizona?

A. 11 Putting aside the fact that the CMT itself is new, the concept is not. The CMT functions similar to Southwest's Purchased Gas Cost Adjustment Provision (PGA).

Q. 12 Please explain how the CMT is similar to Southwest's existing PGA.

A. 12 The PGA balances Southwest's authorized cost of purchased gas with the amount of revenue actually derived through rates to recover those costs. The CMT will balance Southwest's authorized cost of providing distribution service to its residential customers with the amount of revenue actually derived through rates to recover those costs. Furthermore, similar to how the PGA protects Southwest and its customers against changes in the cost of purchased gas, which are beyond the Company's ability to control, the CMT will protect Southwest and its customers against changes in average use per customer, which are also beyond the Company's control.

Q. 13 To the extent the fundamental objection to Southwest's proposal is the balancing nature of Southwest's proposal, are there other methods to achieve a true-up of actual

margin to authorized amounts?

A. 13 Yes. Examples of mechanisms adopted by other regulatory bodies include the Northwest Natural Gas mechanism adopted by the Oregon Public Utilities Commission and the Baltimore Gas and Electric (BG&E) mechanism adopted by the Maryland Public Service Commission. These mechanisms utilize a current month adjustment and do not defer costs for later recovery.

Q. 14 Would a mechanism such as the one adopted for BG&E provide the level of fixed cost recovery stability sought by Southwest?

A. 14 Yes, it would.

Q. 15 Notwithstanding your position that the CMT would only recover the cost of providing service and not charge for services not rendered, what impact would the CMT have on customers if Southwest were to experience a ten therm decline in average consumption subsequent to rates established in this proceeding?

A. 15 Contrary to RUCO's expressed concern that the CMT would charge customers for therms they did not use, if consumption per customer declined ten therms in a year, customers would save money on their gas bill. Using the number calculated by Mr. Congdon that demonstrates the effect of a ten therm decline in average consumption, and dividing that per customer amount by annual per customer sales of 337 therms (347 therms test period average annual residential consumption minus 10 therm per

customer decline = 337 therms), the quotient is the CMT recovery rate that would be applicable to the fixed cost under-recovery. The CMT recovery rate is reflected below.

10 Therm Change @ $0.25/therm	$2.50
CMT Recovery Rate	$0.00742

As such, if the Commission adopted Southwest's CMT rate design proposal, and consumption per customer declined ten therms, customers would save on average $2.50 plus the cost of gas (which is approximately $6.40 at current rates), for an initial average savings of $8.90 in year one. The CMT surcharge of $.00742 per therm would then be applied to permit Southwest to recover the fixed costs that were associated with the decrease in consumption.

Of course some customers may conserve more than others, while some may not conserve at all or actually increase their consumption. If a customer consumed the average during the test period, then conserved twice the average in the hypothetical 10 therm average reduction, they would save $17.80 in the first year ($5.00 margin plus $12.80 gas cost) and then $15.37 in the subsequent year if they sustain their conservation ($17.80 less CMT recovery of $2.43).

ENERGY EFFICIENCY PROGRAM IMPLEMENTATION

Q. 16 What is Southwest's position on the SWEEP/NRDC energy efficiency program expansion and implementation proposal?

A. 16 Successful energy efficiency programs will result in an under-recovery of the fixed costs of providing

distribution service and an erosion of the experienced rate-of-return. Southwest can only support the implementation of expanded energy efficiency programs in conjunction with the decoupling of fixed cost recovery from sales. Southwest cannot, in good faith, support implementation of new and expanded efficiency programs, until the interests of customers and shareholders are in balance.

A basic tenet of utility rate design is that the established rates are expected to accurately reflect the cost-of-service for the rate period. This presumes that the margin recovered from customers will recover the cost-of-service. It is not appropriate to establish a rate structure that is not expected to recover the cost of service during the period rates are expected to be in place. This is exactly what will likely occur in this proceeding if energy efficiency programs are approved and implemented prior to the decoupling of margin recovery from rates.

PURCHASED GAS ADJUSTOR

Q. 17 Staff opposes Southwest's recommendation to increase the $0.10 band on the PGA adjustment rate to $0.13 per therm. Does Southwest have any modifications to its recommendation?

A. 17 Yes. Given recent changes in the gas markets, including the effects of hurricane activity in the Gulf Coast, it appears that the cost of gas supplies will remain at

elevated levels for a considerable period. As these higher costs are incorporated into the "rolling 12-month average" used to establish the gas cost component of rates, the $0.10 band will hinder the adjustment of gas rates to reflect the calculated 12-month average cost. This will result in additional deferrals to the gas cost balancing account, additional interest costs to customers and even higher rates in a future period.

Southwest estimates that by January 2006, its rolling 12-month average cost will exceed the $0.10 upper band. Southwest recommends that a suspension of the band be implemented to allow the gas cost rate to gradually be adjusted to actual market costs. In the alternative, Southwest proposes an increase in the band to $0.20 per therm (allowing an additional $0.10 increase over the current amount). Although this will not prevent increases in the gas cost balancing account, it will mitigate the amount of deferred cost and minimize the accrued interest that customers will have to pay. In the event purchased gas costs decline over time, this proposal would also allow the gas cost rate to be adjusted downward without the hindrance of the $0.10 lower band.

Q. 18 Does this conclude your prepared rejoinder testimony?

A. 18 Yes.

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Southwest Gas Corporation
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BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
WILLIAM M. MOODY

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is William N. Moody. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom are you employed and in what capacity?

A. 2 I am employed by Southwest Gas Corporation (Southwest or Company) as the Vice President/Gas Resources.

Q. 3 Did you provide direct testimony in this proceeding on behalf of Southwest?

A. 3 No.

Q. 4 Please state your educational background and business experience.

A. 4 I received a Bachelor of Science degree in Business Administration with a major in Accounting from the University of Nevada, Reno in 1978. I have been employed at Southwest since 1979 in various positions of responsibility.

Q. 5 Have you previously testified before any regulatory commissions?

A. 5 Yes. I have testified before the Arizona Corporation Commission (Commission or ACC) and the Public Utilities

Commission of Nevada.

Q. 6 What is the purpose of your prepared rebuttal testimony?

A. 6 The purpose of my rebuttal testimony is to respond to specific aspects of the direct testimony of Staff witness William Gehlen, witness for the Arizona Corporation Commission's Utilities Division Staff (Staff), pertaining to natural gas procurement.

Q. 7 Please summarize your rebuttal testimony.

A. 7 My rebuttal testimony will address the following issues:

- Staff's recommendations that Southwest accepts and will implement as proposed;
- Staff's recommendation that the Company conduct, through an impartial third-party, a best practice review of fuel procurement and planning functions and explain the potential difficulties with the results of such a study;
- Staff's recommendation that the Company upgrade its portfolio evaluation software;
- Staff's recommendation that Company employees should be precluded from owning stock or some other financial interest in any supplier or class of supplier with whom Southwest conducts business;
- The current status of reviewing the use of financial instruments in Southwest's Arizona Gas Portfolio; and
- Staff's recommendation that an officer certify the information in the purchased gas adjustor (PGA) report.

STAFF RECOMMENDATIONS ACCEPTED BY SOUTHWEST

Q. 8 Are there recommendations that Mr. Gehlen has made that Southwest Gas can accept and implement without discussion?

A. 8 Yes. Southwest will implement the following recommendations as soon as practicable and submit written notification to Staff of these changes within 60 days of an order in this case.

- Eliminate the use of cellular phones during fuel bidding and negotiating activities.
- Record all fuel bidding and negotiating activities conducted on the telephone.
- Separate invoice approval authority from the contract award authority by designating an invoice approval authority other than the Vice President/Gas Resources.

BEST PRACTICES REVIEW OF FUEL PROCUREMENT AND PLANNING FUNCTIONS

Q. 9 Please comment on Staff's recommendation to conduct, through an impartial third party, a best practice review of fuel procurement and planning functions.

A. 9 Southwest is willing to conduct a best practices review and convey the results to Staff by June 30, 2006. However, while Southwest supports benchmarking of functions throughout the Company, which is evidenced by our participation in the American Gas Association Best Practice activities, gas procurement and planning functions are typically very specific to individual companies, their regulatory environment, and their respective policies

regarding the goal of the portfolio. Furthermore, each utility's planning and procurement function may differ and LDCs across the country have different circumstances that could affect the planning and procurement process. Some LDCs have multiple pipeline choices; others have market area storage or other gas supply services available. All of these factors will affect gas planning and purchasing practices. Consequently, Southwest's concern with conducting a best practices review is that the practices, processes and measures of success will likely vary due to the circumstances described above. As such, Southwest would also suggest that Staff and the Company work together to determine the scope of this study to ensure the study is done economically and that the study produces results that may be meaningful to this recommendation.

Q. 10 Do you have any other comments regarding Southwest's fuel procurement function mentioned in Mr. Gehlen's testimony?

A. 10 Yes. Staff mentions that Southwest needs to add additional checks and balances to its procurement and planning processes and decisions. Southwest agrees with some of the proposals to change its internal processes to strengthen the controls in place for portfolio activities, as described by Mr. Gehlen in his Questions and Answers on Pages 6 and 7 of his direct testimony. In addition, Southwest anticipates that statement preparation and validation will be reported to the Accounting Department by mid-year 2006. On the other hand, some of the

recommendations for the separation of authority and independent third-party observation already exist. For example, the Systems planning department, which reports to the Vice President of Regulatory Affairs and Systems Planning and the Gas Supply Department, which reports to me, are both present during the awarding of the Arizona Price Stability Program contracts, and the bids are received and independently verified by members of each department. Further, the procedures provide that as the Vice President awarding the contract, I am not aware of the name or affiliation of the bidders until after the contract has been awarded. This "blind award" process provides an excellent control. Southwest will implement similar changes for next month's bids, which will use accounting personnel to validate bids. As stated above, these changes will be implemented within the next 12 months.

PORTFOLIO EVALUATION SOFTWARE

Q. 11 Please comment on Staff's recommendation that the Company upgrade its portfolio evaluation software?

A. 11 Southwest will perform a review of available portfolio evaluation software. Upon completion of this review, Southwest will meet with Staff to discuss the results. The timing for this review will extend into 2006, as the portfolio evaluation software is not required until July 2006 for the 2006/2007 portfolio.

. . . . .

. . . . .

EMPLOYEE FINANCIAL INTEREST IN SUPPLIERS

Q. 12 Does Southwest share Staff's concern about the possibility of conflicts?

A. 12 Yes. This is why Southwest has a Code of Business Conduct & Ethics. Southwest's Code of Business Conduct & Ethics provides in part that no employee shall own "substantial stock or other financial interest in any competitor, supplier, contractor or vendor or other organization with which an employee is engaged in a business relationship." Southwest submits that this standard is an adequate guide for avoiding conflicts of interest. To impose restrictions that are proposed by Staff, for instance, the prohibition of stock ownership or other financial interest with any supplier with whom Southwest conducts business, would be overly broad and unduly burdensome on its employees. In addition, the portfolio design and controls that are in place for the Company further address the objective of ensuring that contracting and buying decisions cannot be manipulated.

HEDGING WITH FINANCIAL INSTRUMENTS

Q. 13 What is Southwest's position regarding hedging utilizing financial instruments?

A. 13 As a result of the recently issued FERC Order 2004-C, it is now possible for Southwest to utilize financial instruments for hedging a portion of the projected annual demand of Southwest's on-system, state-regulated, retail sales customers. The Company is currently engaged in a project to

evaluate the use of these instruments, the cost of control/tracking systems, and organizational changes necessary to implement their use. The Company will keep Staff and the Commission apprised of the status of this project.

OFFICER CERTIFICATION

Q. 14 Does Southwest oppose Staff's proposal that an officer certify that all information provided in the PGA report is true and accurate to the best of his or her information and belief?

A. 14 Yes. Southwest respectfully submits that officer certification for the PGA report is simply not necessary. Southwest's current practice is to have the person most knowledgeable regarding the PGA report, sign the report. Southwest submits that Staff has presented no evidence of a need for officer certification, let alone evidence that would justify a change in Southwest's current practice.

Q. 15 Does this conclude your prepared rebuttal testimony?

A. 15 Yes, it does.

Southwest Gas Corporation
Docket No. G-01551A-04-0876

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Admitted

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of
WILLIAM N. MOODY

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
WILLIAM N. MOODY

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is William N. Moody. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same William N. Moody that sponsored rebuttal testimony on behalf of Southwest Gas Corporation (Southwest or the Company)?

A. 2 Yes, I am.

Q. 3 What is the purpose of your prepared rejoinder testimony?

A. 3 I am responding to the surrebuttal testimonies of the Arizona Corporation Commission Utilities Division Staff (Staff) witnesses Mr. William Gehlen and Mr. Bob Gray. Specifically, in terms of Mr. Gehlen's testimony, I am providing a response to his recommendations that Southwest: (1) provide a recommended scope of work regarding the benchmarking study and the evaluation of portfolio software; and (2) preclude certain employees from any stock ownership or other financial interest with any supplier, or class of

suppliers, with whom they conduct business. In terms of Mr. Gray's testimony, I am responding to his recommendation that Southwest pursue opportunities to build its own laterals or acquire El Paso Natural Gas Company (El Paso) laterals to reduce El Paso's monopoly position in Arizona. My rebuttal and rejoinder testimony may not specifically respond to each issue or argument brought forth by the respective intervening parties in their direct and surrebuttal testimony. My silence should not be taken as acceptance of any intervening party's position, but rather that my previously filed rebuttal testimony adequately supports the Company's position.

SOUTHWEST'S RESPONSE TO MR. GEHLEN'S RECOMMENDATIONS

Q. 4 Did Southwest agree to any of the Staff recommendations contained in Mr. Gehlen's direct testimony?

A. 4 Yes. Southwest agreed to: (1) conduct a best practices review of the fuel procurement and planning functions by an impartial outside organization and review non-gas commodity hedging; (2) provide a check and balance in the fuel procurement process that would separate contract award authority from invoice approval authority; (3) eliminate the use of cell phones during term fuel bidding and negotiating activities and ensure all discussions are recorded and bidding and negotiation activities are observed by neutral

personnel; and (4) perform a review of available portfolio evaluation software.

Q. 5 Were there any Staff recommendations in Mr. Gehlen's direct testimony that Southwest did not respond to?

A. 5 Yes, there was one. Mr. Gehlen recommended that Southwest investigate how other peer utilities address commodity price hedging, with an emphasis on steel, and file a report in Docket Control by June 30, 2006.

Q. 6 Does Southwest accept that recommendation?

A. 6 Yes.

Q. 7 Does Southwest have any concerns regarding the 30-day deadline for filing a scope of work with Docket Control pertaining to the best practices review of the fuel procurement and planning functions?

A. 7 Yes. Southwest does not believe that a comprehensive and complete scope of work, covering multiple functions can be adequately developed in a 30-day period. Accordingly, Southwest requests that it be allowed 60 days from the date of a Commission decision in this matter to file the proposed scope of work with the Commission's Docket Control office. At the end of that same 60-day period, Southwest would also provide the scope of work for portfolio evaluation software and non-gas commodity price hedging, with an emphasis on steel.

Q. 8 Does Southwest oppose Mr. Gehlen's recommendation that Southwest employees be precluded from owning any stock

or having any other financial interest with any supplier or class of suppliers with whom they conduct business?

A. 8 No. Southwest shares Staff's concerns regarding potential conflicts of interest. Southwest's concerns are exemplified by Southwest's existing Code of Business Conduct & Ethics (Code of Ethics); and the Employee Handbook (which is provided to every employee), which further reiterates Southwest's position on potential conflicts of interest. In fact, a condition of employment at Southwest is that every director, officer and exempt employee is required to complete and sign annually a Conflict of Interest Form. A copy of the relevant pages of the Employee Handbook and the Conflict of Interest Form are included as an attachment to this testimony as Rejoinder Exhibit No.__(WNM-1). Aside from the Code of Ethics and Employee Handbook, Southwest maintains written procedures that have been developed to insure accuracy and independent review of procurement transactions.

Although, Mr. Gehlen provides no evidence that this combination of policies and procedures at Southwest is inadequate to control potential conflicts of interest in Southwest's procurement activities, he requests that the Commission mandate further restrictions.

Notwithstanding, Southwest is willing to develop and implement standard practices and procedures that define or establish measurement criteria for what constitutes substantial stock or other financial interest, and that will apply to individuals within the purchasing and gas procurement departments.

SOUTHWEST'S RESPONSE TO MR. GRAY'S RECOMMENDATIONS

Q. 10 Please respond to Mr. Gray's recommendations regarding El Paso laterals?

A. 10 Mr. Gray's recommendations are duly noted by Southwest. Southwest, as a general practice, builds needed laterals for its distribution system when it is cost-effective and reasonable to do so. Southwest also investigates opportunities to acquire El Paso laterals, and would consider purchasing laterals when there is sound business justification for doing so and when the conditions are beneficial to Southwest's customers. Southwest intends to continue its current practice.

Q. 11 Does that conclude your prepared rejoinder testimony?

A. 11 Yes, it does.

CONFLICTS OF INTEREST AND OUTSIDE BUSINESSES

Southwest Gas has earned and maintained a strong reputation for honesty and integrity. This outstanding reputation can only be maintained if you and all other employees are committed individually to honesty and integrity in all business relationships—with fellow employees, customers, shareholders, suppliers, contractors, government units, and all other members of the communities we serve and the groups with which we interact. This means conducting business in a manner that is in accord not only with all legal requirements, but also with the highest ethical standards.

You are required to avoid any situation that involves—or may appear to involve—a ***conflict of interest between your personal interests and the interests of the Company.*** One condition of employment is the completing and signing of a ***Conflicts of Interest Form*** *(No. 759.2 10/93)*. All directors, officers and exempt employees are expected to update their forms annually. Human Resources administers this program.

If you have any doubt about whether or not a potential course of action could be considered to involve a conflict of interest between yourself and the Company, you should discuss the matter fully with your supervisor or a Human Resources representative before taking action.

The Company does not intend to infringe on your right to engage in outside business or other activities which do not conflict with your obligations to Southwest Gas. The following situations, however, would be in conflict with your duties and contrary to Company policy:

A. Serving as an official, director or employee of another company which is a present or prospective Southwest Gas competitor, customer or supplier, without the prior written approval of the appropriate vice president or the vice president/Human Resources;

B. Engaging in any business activity which impairs the overall job performance expected from you; or

C. Holding any **substantial stock or other financial interest** in any competitor or supplier or other organization with which you are engaged in a business relationship. (An exception would be if you own any widely-held securities where the amount you hold is insignificant to the total amount of publicly-held securities of that company.)

COPYRIGHT COMPLIANCE

The Company is committed to the support of intellectual property rights and the protection of copyrighted information. Copyrightable works include the following categories: literary works; musical works, including any accompanying words; dramatic works, including any accompanying music; pantomimes and choreographic works; pictorial, graphic and sculptural works; motion pictures and other audiovisual works; sound recordings; and architectural works.

These categories should be viewed broadly. Maps and architectural plans would be included under pictorial, graphic and sculptural works; computer programs and/or software are included as part of literary works. Original works of authorship are automatically protected by federal copyright law from the moment of their creation. **Unauthorized duplication of original works of authorship constitute copyright infringement regardless of whether it is done for sale, for free distribution or for personal use. Employees are liable for copyright infringement whether or not they knowingly violated the federal copyright law. Violation of this rule will result in disciplinary action up to and including termination.**

To assist the Company with compliance under Federal copyright law, Southwest maintains a photocopy license with Copyright Clearance Center, Inc. (CCC), a non-profit royalty fee remittance organization that represents thousands of domestic and foreign publishers and their publications. This license gives Company employees the right to photocopy a portion of over 1.75 million registered publications **for internal purposes only on a limited basis.**

The license does **not** allow employees: to photocopy all or substantially all of a work (except where a work is a portion of a larger work, i.e., one article in a journal issue containing many articles); to request or receive photocopies from

SOUTHWEST GAS CORPORATION

CONFLICTS OF INTEREST

I have reviewed the statement of Company policy regarding conflicts of interest in the Employee Handbook and understand it.

To the best of my knowledge and belief neither I nor any member of my immediate family has any interest in or any connection with or has within the last year engaged in any activity which might conflict with the Company's interest.

Check One:

☐ The foregoing statement is true, without exception.
☐ The foregoing statement is true, with the following exception(s):

(use a separate sheet if required)

_____
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_____
_____

Employee's Name *(please print)*

Employee's Signature **Date Signed**

Job Title

When changes occur that impact the accuracy of a previously completed Conflicts of Interest statement, the **employee has the responsibility** of completing an updated statement reflecting the correct facts.

EXHIBIT
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Southwest Gas Corporation
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BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
MARTI MAREK

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Marti Marek. I work at Southwest Gas Corporation (Southwest or the Company). My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Please state your job title and describe your responsibilities at Southwest?

A. 2 I am the Director of Engineering and Project Support Staff. My current responsibilities include the management of a number of corporate engineering support activities: electronic mapping, rights-of-way, product evaluation, material investigations, pipeline security, and transmission integrity management. I am also part of the oversight committees of a number of technical projects that cross department functional lines, including work management system, operations documents, and leak repair mapping.

Q. 3 What other activities have you been responsible for during your career at the Company?

A. 3 During my 20 years at the Company, I have at various

times had responsibility for state and federal code compliance, operations training, operations policies and procedures, emergency response policies and procedures, and personnel safety.

Q. 4 Did you file prepared direct testimony in this proceeding?

A. 4 No, I did not.

Q. 5 What is the purpose of your rebuttal testimony?

A. 5 The purpose of my rebuttal testimony is to respond to the direct testimony presented by Mr. Robert G. Gray, witness for the Arizona Corporation Commission (ACC or the Commission), Utilities Division (Staff), regarding his recommendations concerning the funding of natural gas research and, more specifically, the funding of the Gas Technology Institute (GTI).

NATURAL GAS RESEARCH AND DEVELOPMENT FUNDING

Q. 6 What is Staff's recommendation regarding the funding of natural gas research?

A. 6 Staff's recommendation is that Southwest fund research at GTI in two specific programs, the Operations Technology Development (OTD) program and the Utilization Technology Development (UTD) program, at a total anticipated annual level of $681,712 (based on test year meter data) and that the costs of this funding be recovered on a per therm basis from all of Southwest's sales customers, excluding Schedule G-30 and B-1 customers.

Q. 7 Does Southwest support the funding of natural gas research?

A. 7 Yes, the Company does support funding natural gas research and commends Staff for recognizing the need for (and gap in) industry-wide funding. As Staff has testified, since the curtailment of FERC-mandated surcharges, GTI has sought voluntary funding for its activities. Indeed, the Company has invested in GTI-sponsored research on a project-specific basis.

Q. 8 Does Southwest support the funding of GTI?

A. 8 The Company has been pleased with the projects it has participated in with GTI and believes it is a qualified research organization; however, it does not support the Staff's recommendation to direct all of its research funding solely to GTI, at the exclusion of other equally competent research organizations.

Q. 9 Can you please give some examples of other qualified organizations and their natural gas-related research projects?

A. 9 Yes. Some examples include:

1) The Pipeline Research Council International (PRCI). It is a non-profit organization that focuses on research associated with transmission-related issues such as pipeline integrity, welding procedures, and internal corrosion.

2) NYSEARCH. The non-profit research arm of the Northeast Gas Association has over 50 projects available for co-funding, including purged gas recovery devices, inspection tools for unpiggable

mains, remote gas pipeline monitors, and remote laser natural gas detection.

3) Southwest Research Institute (SWRI). A non-profit organization that has current projects which include real time monitoring of pipelines for third-party contact and sensors for detection of mechanical damage.

4) The Edison Welding Institute (EWI). A non-profit organization working on tools to inspect fusion joints in plastic pipe.

5) Battelle. A non-profit organization working on in-line inspection technologies.

6) Sandia National Laboratory. This organization is working to develop an airborne, remote-sensing device for leak detection.

Q. 10 Do these organizations "compete" with GTI?

A. 10 Yes. The organizations listed above compete for available research funding. Many have projects underway that are researching similar technologies to address common issues. While these research organizations frequently pool their resources and work together on projects (many with GTI), they also have independent projects for which they seek industry co-funding. Natural gas distribution companies, such as Southwest, should evaluate the available projects and use their available research dollars to achieve the maximum benefit on behalf of their customers and the general public.

Q. 11 Are there other opportunities for investment in natural gas research?

A. 11 Yes. In addition to private enterprises like GTI, PRCI, NYSEARCH, etc., the Department of Transportation, the Department of Energy, the Environmental Protection Agency, and other federal agencies have funding for natural gas-related research and development for which they seek co-funding from the natural gas industry. Also, there are specific manufacturers that seek co-funding for developing improved technologies for underground line location, natural gas detection and other safety-related equipment.

Q. 12 Do you agree with Staff's recommendation that Arizona customers fund natural gas research activities? If so, why?

A. 12 Yes. As Staff has stated, there are a wide variety of research efforts in progress that address important areas where improved technology, methods and processes can help provide for safer and more efficient production, distribution, and consumption of natural gas. Staff also recognizes that many states are currently allowing their local gas distribution companies to fund such research. By setting aside funds in Arizona, it allows those dollars to be directed specifically to research projects that directly affect Arizona customers. Some examples of Arizona-specific issues might include:

1) <u>Third-party damage</u>. Arizona's rapid growth and

active construction industry create many more opportunities for third-party damage to pipelines than in most other states.

2) Plastic pipe. Many other states may want to focus on research that deals with cast iron pipe. However, very little cast iron pipe is installed in Arizona, and Southwest has none.

3) Pipeline integrity. As Staff points out, Arizona may be more concerned about the reliability of transmission/supply lines than other states since there is a dearth of commercially available in-state supplies of natural gas.

CONCLUSION

Q. 13 What are Southwest's recommendations regarding the funding of natural gas research?

A. 13 The Company recommends following the model that many states have established by dedicating such funds generically to natural gas-related research, without designating a specific research organization with which to invest the funds. This will allow the Company, with Commission oversight, to determine which research organization or project provides the greatest benefits for its customers on a case-by-case basis. The GTI programs noted by Staff may well be the best investment in research at this time; however, by designating these funds as generically natural gas-related, it does not lock Southwest's customers into a single provider of research.

Q. 14 Do you have any further recommendations regarding the funding of natural gas-related research?

A. 14 Yes. Southwest concurs with Staff's recommended level of funding for natural gas research and proposal to recover costs on a per therm basis from all of Southwest's sales customers, excluding G-30 and B-1 customers. Furthermore, Southwest agrees that it is appropriate for Southwest to annually submit, with Docket Control, a short description of each program Southwest intends to fund in order to give the Commission an opportunity to provide input on the choice of programs. However, in contrast to Staff, Southwest proposes that the funded programs may be operated by organizations other than GTI. Southwest's recommendations regarding the rate mechanism for funding research will be covered in more detail in Mr. A. Brooks Congdon's rebuttal testimony.

Q. 15 Do you have any other comments concerning natural gas-related research?

Q. 15 Yes. I would like to reiterate that Southwest has had a long and successful relationship with GTI, as well as its predecessor, the FERC surcharge-funded Gas Research Institute (GRI). I served on the GRI Distribution Pipeline Advisory Group for a number of years, helping to determine which research projects the FERC funds should support. Many of the experienced GRI research staff are still in place at GTI, and as noted previously, Southwest has been pleased with the projects the Company has

participated in. Indeed, the GTI laboratory is on the list that Southwest provided to the Commission Pipeline Safety Staff as recommended for use when third-party materials testing is required. Southwest's recommendations for how natural gas-related research funds should be designated should not be construed to imply that the Company has any concerns about the research capabilities of GTI or the viability of the OTD and UTD programs.

Q. 17 Does this conclude your prepared rebuttal testimony?

A. 17 Yes, it does.

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MARTI MAREK

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BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
MARTI MAREK

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Marti Marek. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same Marti Marek who sponsored rebuttal testimony in this proceeding?

A. 2 Yes.

Q. 3 What is the purpose of your rejoinder testimony?

A. 3 The purpose of my rejoinder testimony is to respond to the recommendation in Staff witness Robert G. Gray's surrebuttal testimony that Southwest provide in this proceeding a list, along with background information, the potential entities other than the Gas Technology Institute (GTI) to which research funds might be directed. My rebuttal and rejoinder testimony may not specifically respond to each issue or argument brought forth by the respective intervening parties in their direct and surrebuttal testimonies. My silence should

not be taken as acceptance of any intervening party's position, but rather that my previously filed rebuttal testimony adequately supports the Company's position.

LIST OF RESEARCH ENTITIES

Q. 4 What is Southwest's response to Staff's request for background information on research entities other than GTI?

A. 4 In my rebuttal testimony I provided a list of private, non-profit and governmental organizations that compete with GTI for research funding, along with some examples of the types of projects they are working on or have worked on in the past.

Below I have provided the home page web sites for each of these entities, followed by the web site address for more specific research information:

1) The Pipeline Research Council International (PRCI)
http://www.prci.org/
http://www.prci.org/current research/DCO/project index.cfm

2) NYSEARCH
http://www.northeastgas.org/nysearch/
http://www.nygas.org/main.html

3) Southwest Research Institute (SWRI)
http://www.swri.org/swri.htm
http://www.swri.org/4org/d18/mechflu/flomeas/home.htm

4) The Edison Welding Institute (EWI)
http://www.ewi.org/
http://www.ewi.org/membership/crp.asp

5) Battelle
http://www.battelle.org/default.stm
http://www.battelle.org/pipetechnology/http://www.battelle.org/environment/whatwedo.stm

6) Sandia National Laboratory
http://www.sandia.gov/
http://www.ca.sandia.gov/industry partner/sensors1.html

7) U.S. Department of Transportation (DOT)
http://primis.phmsa.dot.gov/rd/
http://primis.phmsa.dot.gov/matrix/

8) U.S. Department of Energy - National Energy Technology Lab(DOE-NETL)
http://www.netl.doe.gov/scngo/index.html
http://www.netl.doe.gov/scngo/NaturalGas/index.html

9) U.S. Environmental Protection Agency(EPA)
http://www.epa.gov/ord/htm/aboutord.htm
http://www.epa.gov/nrmrl/pubs/600r01066/600r01066.htm

Q. 5 Does this conclude your prepared rejoinder testimony?

A. 5 Yes, it does.

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ROBERT M. JOHNSON

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Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
ROBERT M. JOHNSON

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Robert M. Johnson, and my business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom and in what capacity are you employed?

A. 2 I am employed by Southwest Gas Corporation (Southwest or Company) as Assistant General Counsel.

Q. 3 Did you sponsor direct testimony on behalf of Southwest in this proceeding?

A. 3 No, I did not.

Q. 4 Please state your educational background and briefly describe your business experience.

A. 4 I graduated from Oregon State University in 1970 with a Bachelor of Science degree in political science. I received my Juris Doctor degree from the University of Denver in 1972. I am licensed to practice law in Arizona, Nevada and Oregon.

After graduating from the University of Denver, I worked for the Federal Power Commission, the predecessor of the Federal Energy Regulatory Commission, as a staff lawyer in the hydro-electric licensing department. After

three years in that position, I joined the Oregon Attorney General's Office, as an assistant attorney general representing the Oregon Public Utilities Commissioner. In 1979, I went to work for Northwest Natural Gas Company, as an associate, and later assistant general counsel, representing the company in regulatory proceedings in Oregon and Washington. In 1990, I joined Southwest as an associate general counsel representing the Company in regulatory proceedings in Arizona, California, and Nevada.

In addition to my legal responsibilities with Southwest, I am responsible for the Company's contract administration department and the Company's insurance program. In this latter capacity, I have been involved in the last four renewal cycles for the various insurance policies secured by the Company.

Q. 5 What is the purpose of your prepared rebuttal testimony?

A. 5 The purpose of my testimony is to clarify apparent misunderstandings in Staff's case, specifically in Mr. James J. Dorf's testimony regarding the Company's general liability insurance coverage, to address the increasing costs the Company experienced in securing liability insurance during the test year, and to provide Mr. Dorf with additional information that should be sufficient for him to reconsider his position on this issue as he suggests on page 20, lines 1-4 of his direct testimony. Southwest witness Robert A. Mashas is also

submitting rebuttal testimony on this issue.

STAFF'S PROPOSED INSURANCE DISALLOWANCE IS UNFOUNDED

Q. 6 Please clarify Staff's misunderstanding of the Company's test year general liability insurance coverage.

A. 6 Mr. Dorf inaccurately concludes that the Company is self-insured for up to $10 million for each occurrence under its general liability insurance coverage, at which point insurance would assume coverage. To the contrary, the Company secured insurance coverage with a $1 million retention per occurrence during a 12-month period, with the assumption of the first $10 million worth of exposure over the retention level (supplemental retention). The coverage the Company secured can be further explained through the following examples:

- Incident #1 results in a claim for $10 million. The Company would be responsible for the first $1 million (the retention) and the remaining $9 million of the claim (supplemental retention).
- Incident #2 results in a claim for $10 million. The Company would be responsible for the first $1 million (the retention) and the next $1 million (the remaining amount of the supplemental retention), with the remaining $8 million to be paid by the insurance company.
- Incident #3 results in a claim for $10 million. The Company would be responsible for the first $1 million (the retention), with the remaining $9 million to be paid by the insurance company.

Further, the Company secured the $1 million retention with no supplemental retention for its vehicles and its employment practices coverage under its general liability coverage.

Q. 7 Are there any other misunderstandings in Staff's case regarding the Company's general liability coverage?

A. 7 Yes. Mr. Dorf also incorrectly assumes that the Company could not obtain insurance for the first $10 million of each occurrence. To the contrary, and as outlined above, the Company did obtain such insurance with the $10 million supplemental retention. The Company also considered the following options at the time it renewed its general liability insurance during the test year. The options and the cost of each are as follows:

Coverage	Annual Cost
$1M Retention, with $5M Plus Aggregate	$7,471,740
$5M Retention	5,872,019
$1M Retention, with $10M Plus Aggregate	4,417,727

In addition, the Company also considered other insurance products to cover the additional exposure. These products included: (1) creating a captive insurance company, with the opportunity to access the reinsurance market, and (2) the use of a finite risk product that would allow the Company to fund this additional exposure over a period of time. However, uncertainties regarding accounting and tax consequences of these products led the Company to defer adoption of either option.

Q. 8 What insurance option did the Company select?

A. 8 The Company selected what it believed to be the most efficient means to manage costs and the option with the lowest premium which, when coupled with the Company's self-insurance costs, ultimately results in the lowest cost to customers. The cost of each one of the options considered by the Company are shown on Rebuttal Exhibit No.___(RMJ-1) and resulted in an annual savings to customers of approximately $460,000.

Q. 9 Based upon these misunderstandings of the Company's general liability insurance, Staff concluded that customers should not bear the cost of the Company's poor claims experience. Is Staff's conclusion correct?

A. 9 No. Mr. Dorf's statement negatively implies that the Company has an abnormal or high number of claims. To the contrary, the Company has experienced increases in the cost of its general liability insurance as a result of market conditions and the Company's actual claims experience (which is not abnormal or high). Furthermore, Mr. Dorf's conclusion regarding the Company's claims experience is also inconsistent with Staff's own testimony, specifically Mr. Dorf on page 19, lines 18-25, and Robert E. Miller regarding the Company's safety practices and is inconsistent with the steps the Company has implemented to manage risk.

Claims experience is the result of both the number of incidents and the consequences associated with each

incident. The Company asked its insurance brokers, McGriff, Siebels & Williams, Inc. (McGriff), to do a blind comparison of the Company's claims experience with comparable local distribution companies for which they provide brokerage services. Rebuttal Exhibit No.___(RMJ-2) provides a general description of McGriff and the breadth of its brokerage representation in the energy industry. The comparison McGriff prepared is presented in Rebuttal Exhibit No.___(RMJ-3) and illustrates the Company's claims history with other comparable local distribution companies over the last five- and ten-year periods. As noted in Rebuttal Exhibit No.___(RMJ-3), the number of reportable losses and losses in excess of $1 million for the Company are at the low-end of the scale. This exhibit also shows that the total amount of claims paid by the Company during these periods parallels that experienced by other local distribution companies.

A utility can positively impact the number of claims it experiences through its construction and safety practices (which Mr. Dorf and Mr. Miller acknowledge are without fault). However, the consequences of any one claim are beyond the Company's control. There are simply too many independent variables that affect the magnitude of any one claim, and this uncertainty is the basis or justification for securing insurance.

Q. 10 You have commented on Staff's adjustment associated with Mr. Dorf's perception of the Company's claims experience.

Does this account for all of the insurance cost disallowances recommended by Staff?

A. 10 No. Mr. Dorf is also recommending that the remaining liability insurance adjustments proposed by the Company be disallowed. This adjustment results in an additional $786,206 disallowance that is not in any way tied to the Company's claims experience. Approximately $460,000 of this amount is related to increases in premiums the Company experienced in its second and third layers of excess general liability insurance. The pricing for both layers reflect increases due to Southwest coming off multi-year contracts, at premium levels based on market conditions in the late 1990s, adjusted to reflect current market conditions (which includes reserve requirements, the cost of reinsurance, overheads and expected returns in the financial markets). The remaining adjustments proposed by the Company also reflect increases in premiums based solely on market conditions at the time the policies were renewed. There were no Company claims paid during this last renewal cycle with respect to any one of these policies.

Q. 11 Does Staff provide support in its case for the disallowance of the Company's self-insured retention normalization?

A. 11 No. Mr. Dorf appears to base his recommendation for disallowing this adjustment solely on his perception that the Company has "poor" claims experience. The Company's

claims experience as shown on Rebuttal Exhibit No.___(RMJ-2), is not "poor" or "abnormal." Rather, it can best be characterized as "typical" or "consistent" in relation to other local distribution companies.

As pointed out in Mr. Mashas' direct testimony at pages 15-19, this proposed adjustment is based on actual costs of claims experienced by the Company over the last 14 years. With the change in retention levels for the initial layer of the Company's general liability insurance, these costs will no longer be reflected in the insurance premiums the Company pays. Such costs reflected in the 14-year average, however, will still be incurred and will be the direct responsibility of the Company.

CONCLUSION

Q. 12 Are you recommending any changes to the insurance pro forma adjustments proposed by the Company based on Staff's case?

A. 12 No. The pro forma adjustments proposed by the Company to its liability insurance expense are reasonable and necessary, and they result in a recognition of actual expense expected to be incurred during the time the rates to be established in this proceeding are in effect.

Q. 13 Does this conclude your prepared rebuttal testimony?

A. 13 Yes, it does.

Rebuttal Testimony
Exhibit No. ___(RMJ-1)

COST ASSESSMENT
2004 AEGIS GL RENEWAL

Retention	Annual Premium	Total Claims Paid	14 year Avg Retained Losses	Total Cost
@ 5MM Each Occ.	$ 5,872,019	$ 41,105,191	$ 2,936,085	$ 8,808,104
@ 1MM w/$10MM PA	$ 4,417,727	$ 54,905,191	$ 3,921,799	$ 8,339,526
@ 1MM w/$5MM PA	$ 7,471,740	$ 41,105,191	$ 2,936,085	$ 10,407,825

McGriff, Seibels & Williams (MSW)...

MSW was founded in 1886 and is now the 6th largest brokerage firm in the country following the merger with BB&T Insurance Services (BBIS). BBIS is a subsidiary of Branch Banking & Trust (BB&T) of Raleigh, North Carolina. MSW, in turn, operates as a wholly owned subsidiary of BBIS and has over 800 employees in six major offices:

- Birmingham, Alabama
- Atlanta, Georgia
- Houston, Texas
- Dallas, Texas
- Irvine, California
- St. Louis, Missouri

MSW has:

- A reputation for technical skills & creative solutions
- A Fortune 1000 client base
- A 100+ year history of service
- A flat organizational structure that supports its client focus
- A +300% growth rate over the last 10 years, without acquisitions
- Received honors as the highest performing sales and service organization in the country
- Backing of the 10th largest financial holding company with $100 billion in assets

MSW is a full service broker featuring seven divisions based on specific industry sectors. This specific industry approach makes us qualified identifiers of risk and ultimately better business partners for risk managers. Our current corporate divisions include:

- Energy and Marine Division
- Financial Services Division
- Construction Risk Services
- Health Care Services
- Surety Risk Services
- Employee Benefit Services
- Commercial Accounts Division

BB&T Corporation (BB&T)...

With over a century of service and growth, BB&T is one of the soundest financial institutions in the nation. BB&T began its banking operations shortly after the Civil War with the establishment of Branch & Company. With early legislation regarding banking and trusts constantly evolving, the company also progressed by adapting with the times. By 1923, BB&T had already exceeded $4 million in assets and opened 4 new offices. In the catastrophic stock market crash of 1929, many banking institutions failed, yet BB&T grew from five branches to eleven and increased assets to $13.7 million.

BB&T Corporation is:

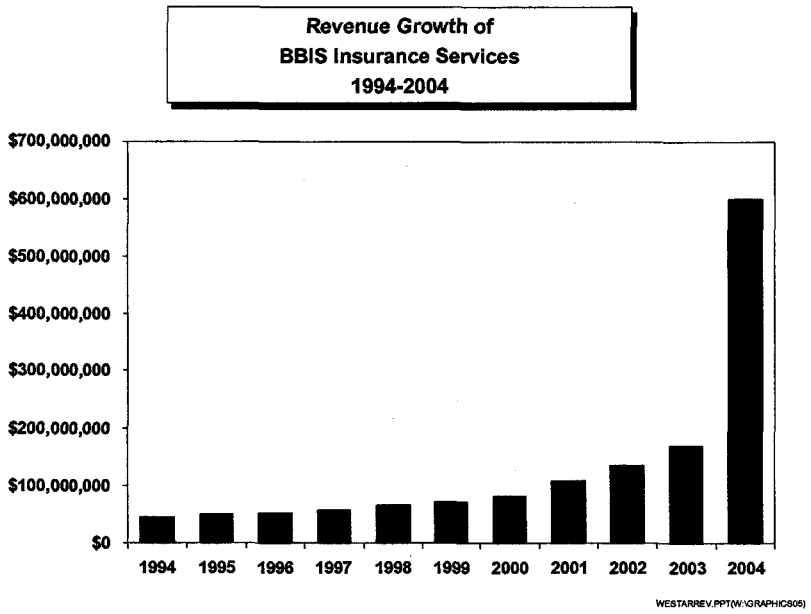
- A century old financial services company, offering:
  - Full-service banking,
  - Investments,
  - Corporate finance,
  - Leasing; and
  - Trust.
- Profitable, efficient and financially sound
- The 10th largest financial holding company, with $100 billion in assets
- One of the "Best Big Companies" from the Forbes Platinum 400
- A "Small Business Friendly" institution
- 1,400 banking offices throughout the East Coast and Southeastern United States

As it continued to grow, BB&T steadily climbed the ranks in key measures of operating performance such as profitability, efficiency and credit quality. In the 1960s, BB&T enjoyed unprecedented growth, opening new branches and acquiring others through mergers and acquisitions. Throughout the 70s and 80s the trend continued, with assets reaching $10.5 billion by 1994. With several major mergers in the 1990s and 2000s, BB&T developed into the 10th largest -- and one of the top performing -- financial holding companies in the nation. BB&T has been named to the Forbes Platinum 400 list of America's "Best Big Companies" for four years in a row, and is one of the top two "Small Business Friendly" institutions. With $100 billion in assets, BB&T serves customers from over 1,400 offices throughout the northeast and southeastern U.S., offering full-service banking, investments, corporate finance, leasing, trust and insurance.

BB&T Insurance Services, Inc. (BBIS)

BB&T entered the insurance business in Wilson, NC in 1922. Combining strong organic growth and steady acquisitions, the evolution of BB&T Insurance Services mirrored the growth of its parent company. With the acquisition of MSW in February, 2004 (which is by far the largest acquisition it has completed to-date), BBIS is now the 6th largest insurance broker in the U.S., and 7th largest worldwide. The company operates over 72 brokerage offices in 18 states, with revenues surpassing the $600 million mark in 2004.

Consistent with its culture of efficiency and profitability, BBIS's productivity has kept pace with the company's growth.



Energy/Utility Experience...

As the largest independent energy broker in the U.S., MSW has earned its reputation by operating as a "niche" player within the Energy and Marine industry.

We serve as the broker/risk consultant to a wide array of major energy companies, which currently include the following types of operations:

- Natural Gas Distribution Companies
- Combination Gas and Electrics
- Natural Gas Transmission Operations
- Energy Service Companies
- Electric Generation, Transmission and Distribution Companies
- Independent Power Producers (IPP's)
- Liquefied Petroleum Gas Distribution Companies
- Water and Waste Water Treatment Companies
- Refining and Product Terminaling Operations
- Telecommunication Companies
- Construction Contractors

In particular, we are proud to be brokers and risk consultants to our clients that represent:

- Approximately 300,000 megawatts of generating capacity providing power to over 75 Million people
- 5 of the top 10 and 11 of the top 25, electric generation companies in the U.S.
- 8 of the 13 utilities on the Dow Jones Utilities Average
- Over 50 utility clients
- The nation's first for-profit independent electric transmission company
- 40% of the natural gas pipeline transportation and storage facilities in the U.S.
- Distribution of natural gas to over 40% of the U.S. population
- 50% of the transportation and storage facilities of refined petroleum in the U.S.
- The Strategic Petroleum Reserve
- 40% of the Offshore Drilling Fleet

As is represented by the following partial client listing, and due in part to our highly specialized market focus, we manage and service one of the largest energy and marine books of business within the United States.

Birmingham/Atlanta Energy Clients – Partial Listing

Category	MSW Clients	Property	Liability	Workers' Compensation	Executive Risk*
Electric Utility/IPP	American Electric Power (AEP)	X	X	X	X
Electric Utility/IPP	Black Hills Corp.	X	X	X	X
Combination Gas & Electric	Cinergy				X
Electric Utility/IPP	Constellation Energy Group		X	X	X
Electric Utility/IPP	Dominion Resources, Inc.	X	X	X	X
Gas Utility/E&P	Energen	X	X	X	X
Combination Gas & Electric	Enron Corp.	X	X	X	X
Gas Utility	Energy South	X	X		X
Combination Gas & Electric	Entergy Corporation	X	X	X	X
Gas Utility	Equitable Resources, Inc.		X	X	
Combination Gas & Electric	Exelon		X	X	X
Electric	Florida Public Utilities	X	X		X
Gas Utility	Laclede Group	X	X	X	X
Electric Utility/IPP	Louisville Gas & Electric	X	X	X	
IPP	Mirant Corporation	X	X	X	X
Electric Utility	National Grid USA	X	X	X	X
Combination Gas & Electric	NiSource, Inc.		X	X	X
Combination Gas & Electric	Pacific Gas & Electric (PG&E)	X			
Electric Utility	Portland General Electric Company	X	X	X	X
Electric Utility	Progress Energy, Inc.		X	X	X
Electric Utility & Water Supplier	Salt River Project		X	X	X
Combination Gas & Electric	SCANA Corporation	X	X	X	X
Electric Utility	Sierra Pacific Resources	X	X	X	X
Electric Utility/IPP	Southern Company	X	X	X	X
Gas Utility and Transmission	Southern Union Company	X	X	X	X
Gas Utility	Southwest Gas	X	X	X	X
Electric Utility	TXU Energy	X			X
Gas Utility	WGL Group	X		X	X
Gas Transmission	Williams	X	X	X	X
Electric Utility/IPP	Wisconsin Energy Corporation	X			

*Includes D&O, Fiduciary, Crime and K&R.

CITIZENSGASCLIENT(WG)GRAPHICS05)

Our expertise involves managing all lines of coverage for utility clients, including but not limited to:

- Property
- Excess Liability
- Primary Liabilities (Auto, Workers' Compensation, etc.)
- Directors and Officers Liability (Crime, Employment Practices Liability, etc.)
- Employee Benefits
- Alternative Risk Solutions
- Captives
- Finite Risk
- Mergers & Acquisitions Products
  - Environmental Liability

Specific team member expertise (Account Managers/Account Executives) includes management of the following utilities:

- Black Hills Corporation
- Cinergy (FSD)
- Energen
- EnergySouth
- Equitable Resources, Inc.
- Florida Public Utilities
- Laclede Group
- Louisville Gas and Electric
- NiSource (FSD)
- Pacific Gas and Electric
- Southwest Gas Corporation
- WGL Group

Rebuttal Testimony
Exhibit No. ___(RMJ-3)

McGRIFF, SEIBELS & WILLIAMS, INC.

INSURANCE BROKERS

August 5, 2005

Bob Johnson
Assistant General Counsel
South West Gas Corporation
5241 Spring Mountain Road
Las Vegas, Nevada 89150-0002

Dear Bob:

Per your request, we pulled the claims history on the peer group of companies that we represent for excess liability coverage and provided a 5 and 10 year benchmark review (attached below). These companies represent those that are most like southwest Gas in operation profile and customer size. Should you have any questions, please call.

10 Year History

Company	# Losses	Total Incurred Loss	Excess $1M	# Losses	Excess $5M	# Losses
A	0	$0	$0	0	$0	0
B	27	$20,503,678	$12,067,599	6	$0	0
SWG	10	$19,116,198	$18,442,954	3	$14,500,000	1
C	23	$25,360,357	$23,249,699	3	$9,500,000	1
D	16	$29,373,391	$24,630,294	5	$16,714,817	1
E	13	$37,869,661	$35,998,523	7	$28,628,954	2

5 Year History

Company	# Losses	Total Incurred Loss	Excess $1M	# Losses	Excess $5M	# Losses
A	0	$0	$0	0	$0	0
E	3	$2,090,073	$1,152,691	1	$0	0
D	17	$8,510,161	$6,035,976	3	$0	0
B	12	$9,672,358	$5,211,690	2	$0	0
C	19	$14,696,189	$13,559,056	2	$9,500,000	1
SWG	5	$14,599,387	$14,500,000	1	$14,500,000	1

Regards,

Stuart Adam
Senior Vice President
McGriff, Seibels and Williams

2211 7th Avenue South / Birmingham, Alabama 35233
P.O. Box 10265 / Birmingham, Alabama 35202-0265
TEL—(205) 252-9871 FAX—(205) 581-9293
www.mcgriff.com

Southwest Gas Corporation
Docket No. G-01551A-04-0876

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of
Prepared Rebuttal Testimony
of
LISA E. MOSES

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
LISA E. MOSES

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Lisa E. Moses, and my business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom and in what capacity are you employed?

A. 2 I am employed by Southwest Gas Corporation (Southwest or Company) as Director/Tax.

Q. 3 Did you present direct testimony on behalf of Southwest in this proceeding?

A. 3 No, I did not.

Q. 4 Please state your educational background and business experience.

A. 4 I am a graduate of the University of California at Los Angeles having received a Bachelor of Arts degree in Economics/Business in 1987. In 1991, I earned a Masters in Business Taxation from the University of Southern California. In 1987, I joined the tax department of Deloitte and Touche LLP (formerly Deloitte, Haskins & Sells) in Los Angeles. In 1989, I transferred to the Long Beach office. In 1992, I joined the Las Vegas office, and was promoted to Manager in 1993 and to Senior Manager in

1995. In 1996, I joined Southwest as Director/Tax. I have been licensed as a Certified Public Accountant by the state of California since 1990 and have been a member of the American Institute of Certified Public Accountants since that year. In 1993, I was also licensed by the state of Nevada.

Q. 5 Please state briefly the nature of your present responsibilities and duties with Southwest.

A. 5 As Director/Tax, I am responsible for all phases of Southwest's taxes, including preparing federal, state and local tax returns and tax provisions, researching tax matters, and preparing tax-related testimony and exhibits for various proceedings, including rate cases.

Q. 6 Have you previously testified before any regulatory commissions?

A. 6 Yes, I have previously testified before the Public Utilities Commission of Nevada, the California Public Utilities Commission, and the Federal Energy Regulatory Commission.

Q. 7 What is the purpose of your prepared rebuttal testimony in this proceeding?

A. 7 The purpose of my prepared rebuttal testimony is to respond to specific aspects of the direct testimony of Dennis R. Rogers, witness for Arizona Corporation Commission Utilities Division Staff (Staff), and Marylee Diaz Cortez and Rodney L. Moore, witnesses for the Residential Utility Consumer Office (RUCO), regarding their recommendations and comments concerning income tax

lag, and post-test period legislative changes.

Q. 8 Did you prepare exhibits to support your rebuttal?

A. 8 Yes. I prepared an exhibit identified as Rebuttal Exhibit No.___(LEM-1).

Q. 9 Please summarize your rebuttal testimony.

A. 9 My rebuttal testimony will address the following issues:

- RUCO's proposed increase to the Company's income tax lag days.
- RUCO's and Staff's utilization of legislation enacted and effective after the test period to adjust the Company's property tax expense.
- Southwest's proposed change to rate base as the result of legislation enacted in 2005.

RUCO'S RECOMMENDED TAX LAG DAYS

Q. 10 What was Ms. Diaz Cortez's recommendation concerning the appropriate income tax lag days?

A. 10 Initially, Ms. Diaz Cortez recommended an increase in Southwest's proposed income tax lag days from 37 to 59.55 days. Ms. Diaz Cortez acknowledged an inadvertent error in her calculation and subsequently reduced the number of tax lag days to 37.5 in response to Southwest's Second Set of Data Requests No. 5. Based upon RUCO's response to Southwest's data request and Southwest's understanding that Ms. Diaz Cortez is going to revise her testimony to reflect this change in the number of income tax lag days, Southwest does not dispute RUCO's revised proposed calculation of 37.5 days.

STAFF'S AND RUCO'S PROPERTY TAX ADJUSTMENTS

Q. 11 Did Staff and RUCO propose a reduction to property tax expense as a result of legislation enacted after the end of the test period?

A. 11 Yes, both Staff and RUCO made two adjustments to the property tax expense amount requested by the Company.

Q. 12 What is the nature of the two proposed adjustments?

A. 12 The first adjustment taken by both Staff and RUCO is to eliminate the recovery of property tax expense on Contributions in Aid of Construction (CIAC). The second is to reduce the applicable assessment ratio.

Q. 13 With respect to the property taxes on CIAC, was Southwest paying and accruing property taxes on CIAC at the time that it filed its application for new rates in Arizona?

A. 13 Yes. During the test period and at the time that Southwest filed its application for new rates, Southwest was required to accrue and remit property taxes on CIAC.

Q. 14 Was legislation enacted subsequent to the test period that changed the property tax treatment for CIAC for periods beyond the test period?

A. 14 Yes. Arizona House Bill 2056 (signed into law in 2005) clarified that CIAC would not be subject to property tax expense for periods beginning in 2005.

Q. 15 With respect to the Arizona property tax assessment ratio, was Southwest paying and accruing property taxes at the legally required 25 percent assessment ratio at the time of filing its application to adjust general rates in Arizona?

A. 15 Yes. As required by law, Southwest was accruing and remitting property taxes to Arizona based upon the enacted 25 percent assessment ratio during the test period and at the time it filed its general rate case.

Q. 16 Was legislation enacted subsequent to the test period, that changed the Arizona property tax assessment ratio for periods beyond the test period?

A. 16 Yes. Arizona House Bill 2779 (signed into law in 2005) provides for a gradual reduction in the assessment ratio for periods subsequent to the test period. The assessment ratio is scheduled to decrease one-half percent a year commencing in 2006 for 10 years, to an effective rate of 20 percent in 2015.

Q. 17 Does the Company propose updating its property tax expense annualization in light of these developments?

A. 17 Yes. Since the updated definition of plant (to exclude CIAC) is effective January 1, 2005, the effect of the change is known and measurable. The Company believes that in order to be consistent with its other proposed post-test year adjustments, such as the 2005 wage increase and within-grade adjustment, the Company should also exclude CIAC from its property tax calculation. The Company submits that there should be consistency with how post-test year adjustments (including impacts of new state or federal laws) are treated in this proceeding.

Q. 18 Does the Company recommend updating the assessment ratio used to calculate its annualized property tax expense?

A. 18 Yes. The Company accepts RUCO's recommendation to use the 24.5 percent property tax assessment ratio effective January 1, 2006, because the effective date of that assessment ratio is before rates in this proceeding are expected to go into effect. However, the Company recommends the Commission reject Staff's proposal to use the 2007 assessment rate of 24 percent. While the property tax assessment ratio is known and measurable for 2006 through 2015, the tax rate itself is not. Therefore, the Company's property tax expense for 2007 and beyond is not known and measurable with any reasonable certainty. Further, the effective date of the 2007 property tax assessment ratio is beyond the date that new rates are expected to be effective as a result of this proceeding.

Q. 19 Are you aware of other legislative changes that have occurred beyond the test period that are also effective for 2005 (or subsequent years) that would result in a change in Southwest's requested revenue requirement?

A. 19 Yes. The Internal Revenue Service issued regulations on August 3, 2005, and a revenue ruling relating to the capitalization of costs under two simplified methods contained in previously-issued regulations under Code Sec. 263A uniform capitalization (UNICAP) rules. With respect to Southwest, the regulations are effective for calendar year 2005 [Rebuttal Exhibit No.___(LEM-1)].

Q. 20 What is the effect of the recent UNICAP regulations to Southwest?

A. 20 As a result of the recently issued new UNICAP regulations, Southwest will be required to include in income in 2005 and 2006 the cumulative tax deduction taken under the old UNICAP regulations with respect to the Simplified Service Cost Method (SSCM). Please see my Rebuttal Exhibit No.___(LEM-2) for the quantification of the impact of this change. As such, if the Commission accepts the proposal to include post-test period enacted legislative changes, which also have an effective date post-test period for property tax adjustments related to CIAC (2005 effective date) and the property tax assessment ratio (2006 effective date), then it should give equal consideration to federal SSCM UNICAP legislation effective for Southwest on January 1, 2005.

Q. 21 What adjustment(s) does Southwest propose to reflect the recent changes in the federal SSCM UNICAP legislation?

A. 21 An adjustment to rate base would be necessary in order to be consistent with all applicable tax legislation enacted and effective after the test period. Accordingly, if all such adjustments are made, I am recommending a reduction in deferred income taxes and an increase in rate base of $21,120,694 because the plant-related deferred taxes as of August 31, 2004 will have been overstated by $21,120,694 if the proposed CIAC and the property tax assessment ratio adjustments are accepted by the Commission and the adjustment to rate base is not.

Q. 22 Does this conclude your prepared rebuttal testimony?

A. 22 Yes, it does.

[4830-01-p] Published August 3, 2005

DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

TD 9217

RIN 1545-BE61

SUBJECT: *Guidance Regarding the Simplified Service Cost Method and the Simplified Production Method*

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Final and temporary regulations.

SUMMARY: This document contains final and temporary regulations relating to the capitalization of costs under the simplified service cost method and the simplified production method provided by the Income Tax Regulations. The regulations affect taxpayers that use the simplified service cost method or the simplified production method for self-constructed assets that are produced on a routine and repetitive basis in the ordinary course of their businesses. The text of the temporary regulations also serves as the text of the proposed regulations set forth in the notice of proposed rulemaking on this subject in the Proposed Rules section in this issue of the **Federal Register**. The portions of this rule that are final regulations provide necessary cross-references to the temporary regulations.

DATES: Effective Date: These regulations are effective August 2, 2005.

Applicability Date: These regulations apply to taxable years ending on or after August 2, 2005. See §§1.263A-1T(l) and 1.263A-2T(f).

FOR FURTHER INFORMATION CONTACT: Scott Rabinowitz, (202) 622-4970 (not a toll-free number).

SUPPLEMENTARY INFORMATION:

Background

Under section 263A of the Internal Revenue Code (Code), producers of real or tangible personal property and resellers of real or personal property must capitalize the direct costs and a proper share of the indirect costs of such property. Indirect costs include indirect labor costs, overhead, and service costs. Service costs are indirect costs that can be identified specifically with an administrative or support department. Service costs consist of capitalizable service costs, deductible service costs, and mixed service costs. Capitalizable service costs are service costs that directly benefit, or are incurred by reason of, a production or resale activity. Deductible service costs are service costs that do not directly benefit, or are not incurred by reason of, a production or resale activity. Mixed service costs are service costs that are partially allocable to production or resale activities and partially allocable to non-production or non-resale activities.

Although section 263A requires capitalization of indirect costs, the statute generally does not set forth methods for allocating indirect costs, including mixed service costs. Instead, in accordance with the legislative history of the section, the regulations under section 263A generally provide that indirect costs are to be allocated to property using detailed or specific (facts-and-circumstances) cost allocation methods, including a specific identification method, the standard cost method, and methods using burden rates. The regulations further provide that allocations of mixed service costs are

to be made on the basis of a factor or relationship that reasonably relates such costs with the benefit provided. To alleviate the administrative burdens of using these detailed or specific methods, the Treasury Department and the Internal Revenue Service developed simplified methods. In particular, the simplified production method provided by §1.263A-2(b) determines aggregate amounts of additional section 263A costs allocable to produced "eligible property." Additional section 263A costs are those costs, other than interest, that were not capitalized under a taxpayer's method of accounting immediately prior to the effective date of section 263A, but that are required to be capitalized under section 263A. In addition, the final regulations provide a simplified method, the simplified service cost method provided by §1.263A-1(h), for determining capitalizable mixed service costs incurred during the taxable year with respect to "eligible property."

On March 30, 1987, temporary regulations under section 263A were published in the **Federal Register** (TD 8131, 1987-1 C.B. 98, [52 FR 10052]). The temporary regulations limited the availability of the simplified production method and the simplified service cost method to two types of "eligible property": stock in trade or other property properly includible in the inventory of the taxpayer and non-inventory property held by a taxpayer primarily for sale to customers in the ordinary course of the taxpayer's trade or business. The preamble to the temporary regulations indicates that this limitation was prescribed because the simplified production method is not appropriate to account for the casual or occasional production of property (*i.e.*, property that is not mass-produced on a repetitive and routine basis and that does not have a high "turnover" rate.)

Similarly, the simplified service cost method is not appropriate to account for the casual or occasional production of property.

On August 22, 1988, the IRS published Notice 88-86 (1988-2 C.B. 401). Notice 88-86 states that forthcoming regulations will expand the categories of property eligible for the simplified production method and simplified service cost method to other types of property that share characteristics that are appropriate for application of the methods. In particular, the notice indicates that the regulations will provide that the simplified production method and the simplified service cost method are available to (1) self-constructed assets substantially identical in nature to, and produced in the same manner as, inventory property or other property held primarily for sale to customers in the ordinary course of the taxpayer's trade or business, and (2) self-constructed assets produced by the taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's production activities.

On August 9, 1993, final regulations under section 263A were published in the **Federal Register** (TD 8482, 1993-2 C.B. 77, [58 FR 42198]). The final regulations follow Notice 88-86 and expand the categories of eligible property for the simplified production method and the simplified service cost method.

Notice 2003-36 (2003-1 C.B. 992), as modified by Notice 2003-59 (2003-59 C.B. 429), indicates that the Treasury Department and the IRS are aware that uncertainty exists as to what types of property constitute "eligible property" under §§1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D) for purposes of the simplified service cost method and the simplified production method. These sections provide that self-constructed

assets produced by a taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's trade or business are "eligible property."

To provide guidance as to what types of property constitute "eligible property" under the final regulations, Rev. Rul. 2005-53 (2005-35 I.R.B.)(dated August 29, 2005), holds that a taxpayer's production of property will be considered "routine and repetitive" for purposes of §§1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D) only if the property is mass-produced (*i.e.*, numerous identical goods are manufactured using standardized designs and assembly line techniques) or the produced property has a high degree of turnover (*i.e.*, the costs of production are recovered over a relatively short amount of time).

Explanation of Provisions

Upon further consideration of the simplified service cost method and the simplified production method under §§1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D), the Treasury Department and the IRS believe that, to minimize the distortion of income that may arise from the use of those methods, a taxpayer's production of property is considered "routine and repetitive" for purposes of those sections only if the property is mass-produced and has a high degree of turnover. Accordingly, the temporary regulations provide that self-constructed property is considered produced on a routine and repetitive basis for purposes of the simplified service cost method and the simplified production method only if numerous substantially identical units of tangible personal property are produced within a taxable year using standardized designs and assembly line techniques and the applicable recovery period of the assets under §168(c) is not longer than 3 years.

A change in a taxpayer's treatment of mixed service costs or additional section 263A costs to comply with these temporary regulations is a change in method of accounting to which the provisions of sections 446 and 481 and the regulations thereunder apply. For the taxpayer's first taxable year ending on or after August 2, 2005, the taxpayer is granted the consent of the Commissioner to change its method of accounting to comply with these temporary regulations, provided the taxpayer follows the applicable administrative procedures for obtaining the Commissioner's automatic consent to a change in accounting method (for further guidance, for example, see Rev. Proc. 2002-9 (2002-1 C.B. 327), as modified and clarified by Announcement 2002-17 (2002-1 C.B. 561), modified and amplified by Rev. Proc. 2002-19 (2002-1 C.B. 696), and amplified, clarified, and modified by Rev. Proc. 2002-54 (2002-2 C.B. 432)). For purposes of Form 3115, "Application for Change in Accounting Method", the designated number for the automatic accounting method change authorized by this regulation is "95." If Form 3115 is revised or renumbered, any reference in this section to that form is treated as a reference to the revised or renumbered form. For the taxpayer's second and subsequent taxable years ending on or after August 2, 2005, requests to secure the consent of the Commissioner must be made under the administrative procedures for obtaining the Commissioner's advance consent to a change in accounting method (for further guidance, for example, see Rev. Proc. 97-27 (1997-1 C.B. 680), as modified and amplified by Rev. Proc. 2002-19 (2002-1 C.B. 696), as amplified and clarified by Rev. Proc. 2002-54 (2002-2 C.B. 432)). However, notwithstanding section 5.04(1) of Rev. Proc. 2002-9 and section 5.02(3)(a) of Rev. Proc. 97-27, the section 481(a) adjustment

period is two taxable years for a net positive adjustment for an accounting method change that is made to conform to these temporary regulations.

Special Analyses

It has been determined that this Treasury decision is not a significant regulatory action as defined in Executive Order 12866. Therefore, a regulatory assessment is not required. It also has been determined that section 553(b) of the Administrative Procedure Act (5 U.S.C. chapter 5) does not apply to these regulations. Please refer to the cross-reference notice of proposed rulemaking published elsewhere in this issue of the **Federal Register** for applicability of the Regulatory Flexibility Act (5 U.S.C. chapter 6). Pursuant to section 7805(f) of the Code, these temporary regulations will be submitted to the Chief Counsel for Advocacy of the Small Business Administration for comment on their impact on small business.

Drafting Information

The principal author of these regulations is Scott Rabinowitz of the Office of Associate Chief Counsel (Income Tax and Accounting). However, other personnel from the IRS and the Treasury Department participated in their development.

List of Subjects in 26 CFR Part 1

Income taxes, Reporting and recordkeeping requirements.

Amendments to the Regulations

Accordingly, 26 CFR part 1 is amended as follows:

PART 1--INCOME TAXES

Paragraph 1. The authority citation for part 1 continues to read, in part, as follows:

Authority: 26 U.S.C. 7805 * * *

Par. 2. Section 1.263A-1 is amended by revising paragraph (h)(2)(i)(D) and adding paragraphs (k) and (l) to read as follows:

§1.263A-1 Uniform capitalization of costs.

* * * * *

(h) * * *

(2) * * *

(i) * * *

(D) [Reserved]. For further guidance, see §1.263A-1T(h)(2)(i)(D).

* * * * *

(k) and (l) [Reserved]. For further guidance, see §1.263A-1T(k) and (l).

Par 3. Section 1.263A-1T is added to read as follows:

§1.263A-1T Uniform capitalization of costs (temporary).

(a) through (h)(2)(i)(C) [Reserved]. For further guidance, see §1.263A-1(a) through (h)(2)(i)(C).

(D) Self-constructed tangible personal property produced on a routine and repetitive basis–(1) In general. Self-constructed tangible personal property produced by the taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's trade or business. Self-constructed tangible personal property is produced by the taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's trade or business when units of tangible personal property (as defined in §1.263A-10(c)) are mass-produced, *i.e.*, numerous substantially identical assets are manufactured within a taxable year using standardized designs and assembly line techniques, and the applicable recovery period of the property determined under section 168(c) is not longer

than 3 years. For purposes of this paragraph, the applicable recovery period of the assets will be determined at the end of the taxable year in which the assets are placed in service for purposes of §1.46-3(d). Subsequent changes to the applicable recovery period after the assets are placed in service will not affect the determination of whether the assets are produced on a routine and repetitive basis for purposes of this paragraph.

(2) Examples. The following examples illustrate this paragraph (h)(2)(i)(D):

Example 1. Y is a manufacturer of automobiles. During the taxable year Y produces numerous substantially identical dies and molds using standardized designs and assembly line techniques. The dies and molds have a 3-year applicable recovery period for purposes of section 168(c). Y uses the dies and molds to produce or process particular automobile components and does not hold them for sale. The dies and molds are produced on a routine and repetitive basis in the ordinary course of Y's business for purposes of this paragraph because the dies and molds are both mass-produced and have a recovery period of not longer than 3 years.

Example 2. Z is an electric utility that regularly manufactures and installs identical poles that are used in transmitting and distributing electricity. The poles have a 20-year applicable recovery period for purposes of section 168(c). The poles are not produced on a routine and repetitive basis in the ordinary course of Z's business for purposes of this paragraph because the poles have an applicable recovery period that is longer than 3 years.

(h)(2)(ii) through (j) [Reserved]. For further guidance, see §1.263A-1(h)(2)(ii) through (j).

(k) Change in method of accounting--(1) In general. A change in a taxpayer's treatment of mixed service costs to comply with these temporary regulations is a change in method of accounting to which the provisions of sections 446 and 481 and the regulations thereunder apply. See §1.263A-7. For a taxpayer's first taxable year ending on or after August 2, 2005, the taxpayer is granted the consent of the Commissioner to change its method of accounting to comply with these temporary

regulations, provided the taxpayer follows the administrative procedures, as modified by paragraphs (k)(2) through (4) of this section, issued under §1.446-1(e)(3)(ii) for obtaining the Commissioner's automatic consent to a change in accounting method (for further guidance, for example, see Rev. Proc. 2002-9 (2002-1 C.B. 327), as modified and clarified by Announcement 2002-17 (2002-1 C.B. 561), modified and amplified by Rev. Proc. 2002-19 (2002-1 C.B. 696), and amplified, clarified, and modified by Rev. Proc. 2002- 54 (2002-2 C.B. 432), and §601.601(d)(2)(ii)(b) of this chapter). For purposes of Form 3115, "Application for Change in Accounting Method," the designated number for the automatic accounting method change authorized by this paragraph (k) is "95." If Form 3115 is revised or renumbered, any reference in this section to that form is treated as a reference to the revised or renumbered form. For the taxpayer's second and subsequent taxable years ending on or after August 2, 2005, requests to secure the consent of the Commissioner must be made under the administrative procedures, as modified by paragraphs (k)(2) through (4) of this section, for obtaining the Commissioner's advance consent to a change in accounting method (for further guidance, for example, see Rev. Proc. 97-27 (1997-1 C.B. 680), as modified and amplified by Rev. Proc. 2002-19 (2002-1 C.B. 696), as amplified and clarified by Rev. Proc. 2002-54 (2002-2 C.B. 432), and §601.601(d)(2)(ii)(b) of this chapter).

(2) Scope limitations. Any limitations on obtaining the automatic consent of the Commissioner do not apply to a taxpayer seeking to change its method of accounting to comply with this section for its first taxable year ending on or after August 2, 2005.

(3) Audit protection. A taxpayer that changes its method of accounting in accordance with this paragraph (k) to comply with these temporary regulations does not receive

audit protection if its method of accounting for mixed service costs is an issue under consideration at the time the application is filed with the national office.

(4) Section 481(a) adjustment. A change in method of accounting to conform to these temporary regulations requires a section 481(a) adjustment. The section 481(a) adjustment period is two taxable years for a net positive adjustment for an accounting method change that is made to conform to these temporary regulations.

(l) Effective date. This section applies for taxable years ending on or after August 2, 2005.

Par. 4. Section 1.263A-2 is amended by revising paragraph (b)(2)(i)(D) and adding paragraphs (e) and (f) to read as follows:

§1.263A-2 Rules relating to property produced by the taxpayer.

* * * * *

(b) * * *

(2) * * *

(i) * * *

(D) [Reserved]. For further guidance, see §1.263A-2T(b)(2)(i)(D).

* * * * *

(e) and (f) [Reserved]. For further guidance, see §1.263A-2T(e) and (f).

Par. 5. Section 1.263A-2T is added to read as follows:

§263A-2T Rules relating to property produced by the taxpayer (temporary).

(a) through (b)(2)(i)(C) [Reserved]. For further guidance, see §1.263A-2(a) through (b)(2)(i)(C).

(D) Self-constructed tangible personal property produced on a routine and repetitive basis--(1) In general. Self-constructed tangible personal property produced by the taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's trade or business. Self-constructed tangible personal property is produced by the taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's trade or business when units of tangible personal property (as defined in §1.263A-10(c)) are mass-produced, *i.e.*, numerous substantially identical assets are manufactured within a taxable year using standardized designs and assembly line techniques, and the applicable recovery period of the property determined under section 168(c) is not longer than 3 years. For purposes of this paragraph, the applicable recovery period of the assets will be determined at the end of the taxable year in which the assets are placed in service for purposes of §1.46-3(d). Subsequent changes to the applicable recovery period after the assets are placed in service will not affect the determination of whether the assets are produced on a routine and repetitive basis for purposes of this paragraph.

(2) Examples. The following examples illustrate this paragraph (D):

Example 1. Y is a manufacturer of automobiles. During the taxable year Y produces numerous substantially identical dies and molds using standardized designs and assembly line techniques. The dies and molds have a 3-year applicable recovery period for purposes of section 168(c). Y uses the dies and molds to produce or process particular automobile components and does not hold them for sale. The dies and molds are produced on a routine and repetitive basis in the ordinary course of Y's business for purposes of this paragraph because the dies and molds are both mass-produced and have an applicable recovery period of not longer than 3 years.

Example 2. Z is an electric utility that regularly manufactures and installs identical poles that are used in transmitting and distributing electricity. The poles have a 20-year applicable recovery period for purposes of section 168(a). The poles are not produced on a routine and repetitive basis in the ordinary course of Z's business for purposes of

this paragraph because the poles have an applicable recovery period that is longer than 3 years.

(b)(2)(ii) through (d) [Reserved]. For further guidance, see §1.263A-2(b)(2)(ii) though (d).

(e) Change in method of accounting- -(1) In general. A change in a taxpayer's treatment of additional section 263A costs to comply with these temporary regulations is a change in method of accounting to which the provisions of sections 446 and 481 and the regulations thereunder apply. See §1.263A-7. For a taxpayer's first taxable year ending on or after August 2, 2005, the taxpayer is granted the consent of the Commissioner to change its method of accounting to comply with these temporary regulations, provided the taxpayer follows the administrative procedures, as modified by paragraphs (e)(2) through (4) of this section, issued under §1.446-1(e)(3)(ii) for obtaining the Commissioner's automatic consent to a change in accounting method (for further guidance, for example, see Rev. Proc. 2002-9 (2002-1 C.B. 327), as modified and clarified by Announcement 2002-17 (2002-1 C.B. 561), modified and amplified by Rev. Proc. 2002-19 (2002-1 C.B. 696), and amplified, clarified, and modified by Rev. Proc. 2002- 54 (2002-2 C.B. 432), and §601.601(d)(2)(ii)(b) of this chapter). For purposes of Form 3115, "Application for Change in Accounting Method," the designated number for the automatic accounting method change authorized by this paragraph (e) is "95." If Form 3115 is revised or renumbered, any reference in this section to that form is treated as a reference to the revised or renumbered form. For the taxpayer's second and subsequent taxable years ending on or after August 2, 2005, requests to secure the consent of the Commissioner must be made under the administrative procedures, as modified by paragraphs (e)(2) through (4) of this section, for obtaining the

Commissioner's advance consent to a change in accounting method (for further guidance, for example, see Rev. Proc. 97-27 (1997-1 C.B. 680), as modified and amplified by Rev. Proc. 2002-19 (2002-1 C.B. 696), as amplified and clarified by Rev. Proc. 2002-54 (2002-2 C.B. 432), and §601.601(d)92)(ii)(b) of this chapter).

(2) Scope limitations. Any limitations on obtaining the automatic consent of the Commissioner do not apply to a taxpayer seeking to change its method of accounting to comply with this section for its first taxable year ending on or after August 2, 2005.

(3) Audit protection. A taxpayer that changes its method of accounting in accordance with this paragraph (e) to comply with these temporary regulations does not receive audit protection if its method of accounting for additional section 263A costs is an issue under consideration at the time the application is filed with the national office.

(4) Section 481(a) adjustment. A change in method of accounting to conform to these temporary regulations requires a section 481(a) adjustment. The section 481(a) adjustment period is two taxable years for a net positive adjustment for an accounting method change that is made to conform to these temporary regulations.

(f) Effective date. This section applies for taxable years ending on or after August 2, 2005.

Deputy Commissioner for Services and Enforcement.

Approved: July 14, 2005

Acting Deputy Assistant Secretary of the Treasury.

[4830-01-p] Published August 3, 2005

DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

REG-121584-05

RIN 1545-BE57

SUBJECT: Guidance Regarding the Simplified Service Cost Method and the Simplified Production Method

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Notice of proposed rulemaking by cross-reference to temporary regulations.

SUMMARY: In the Rules and Regulations section of this issue of the **Federal Register**, the IRS is issuing temporary regulations relating to the capitalization of costs under the simplified service cost method and the simplified production method provided by the Income Tax Regulations. The regulations affect taxpayers that use the simplified service cost method or the simplified production method for self-constructed assets that are constructed on a routine and repetitive basis in the ordinary course of their businesses. The text of those regulations also serves as the text of these proposed regulations.

DATES: Written or electronic comments must be received by November 1, 2005.

ADDRESSES: Send submissions to: CC:PA:LPD:PR (REG-121584-05), room 5203, Internal Revenue Service, POB 7604, Ben Franklin Station, Washington, DC 20044. Submissions may be hand delivered Monday through Friday between the hours of 8 a.m. and 4 p.m. to CC:PA:LPD:PR (REG-121584-05), Courier's Desk, Internal Revenue Service, 1111 Constitution Avenue NW., Washington, DC, or sent electronically via the

IRS Internet site at www.irs.gov/regs or the Federal eRulemaking Portal at http://www.regulations.gov (IRS and REG-121584-05 or RIN-1545-BE57).

FOR FURTHER INFORMATION CONTACT: Concerning the proposed regulations, Scott Rabinowitz, (202) 622-4970; concerning submission of comments and/or requests for a public hearing, LaNita VanDyke, (202) 622-7180 (not toll-free numbers).

SUPPLEMENTARY INFORMATION:

Background and Explanation of Provisions

Temporary regulations in the Rules and Regulations section of this issue of the **Federal Register** amend the Income Tax Regulations (26 CFR part 1) relating to section 263A of the Internal Revenue Code (Code). The temporary regulations provide that self-constructed property is considered produced on a routine and repetitive basis for purposes of the simplified service cost method and the simplified production method when numerous units of tangible personal property are mass-produced, *i.e.*, substantially identical assets are manufactured within a taxable year using standardized designs and assembly line techniques, and the recovery period of the assets under section 168(c) is not longer than 3 years. The text of those regulations also serves as the text of these proposed regulations. The preamble to the temporary regulations explains the amendments.

Special Analyses

It has been determined that this notice of proposed rulemaking is not a significant regulatory action as defined in Executive Order 12866. Therefore, a regulatory assessment is not required. It also has been determined that section 553(b) of the Administrative Procedure Act (5 U.S.C. chapter 5) does not apply to these regulations,

and, because the regulations do not impose a collection of information on small entities, the Regulatory Flexibility Act (5 U.S.C. chapter 6) does not apply. Pursuant to section 7805(f) of the Code, this notice of proposed rulemaking will be submitted to the Chief Counsel for Advocacy of the Small Business Administration for comment on its impact on small business.

Comments and Requests for a Public Hearing

Before these proposed regulations are adopted as final regulations, consideration will be given to any written comments (a signed original and eight (8) copies) or electronic comments that are submitted timely to the IRS. The IRS and the Treasury Department specifically request comments on the clarity of the proposed rules and how they can be made easier to understand. All comments will be available for public inspection and copying. The IRS and the Treasury Department also request comments on whether additional simplified methods should be made available to taxpayers in certain industries. A public hearing will be scheduled if requested in writing by any person that timely submits written comments. If a public hearing is scheduled, notice of the date, time and place for the hearing will be published in the **Federal Register**.

Drafting Information

The principal author of these regulations is Scott Rabinowitz of the Office of Associate Chief Counsel (Income Tax & Accounting). However other personnel from the IRS and Treasury Department participated in their development.

List of Subjects in 26 CFR Part 1

Income taxes, Reporting and recordkeeping requirements.

Proposed Amendments to the Regulations

Accordingly, 26 CFR part 1 is proposed to be amended as follows:

PART 1--INCOME TAXES

Paragraph 1. The authority citation for part 1 continues to read, in part, as follows:

Authority: 26 USC 7805 * * *

Par 2. Section 1.263A-1 is amended by revising paragraph (h)(2)(i)(D) and adding paragraphs (k) and (l) to read as follows:

§1.263A-1 Uniform capitalization of costs.

* * * * *

(h) * * *

(2) * * *

(i) * * *

(D) [The text of this proposed paragraph (h)(2)(i)(D) is the same as the text of §1.263A-1T(h)(2)(i)(D) published elsewhere in this issue of the **Federal Register**.]

* * * * *

(k) [The text of this proposed paragraph (k) is the same as the text of §1.263A-1T(k) published elsewhere in this issue of the **Federal Register**.]

(l) [The text of this proposed paragraph (l) is the same as the text of §1.263A-1T(l) published elsewhere in this issue of the **Federal Register**.]

Par 3. Section 1.263A-2 is amended by revising paragraph (b)(2)(i)(D) and adding paragraphs (e) and (f) to read as follows:

§1.263A-2 Rules relating to property produced by the taxpayer.

* * * * *

(b) * * *

(2) * * *

(i) * * *

(D) [The text of this proposed paragraph (b)(2)(i)(D) is the same as the text of §1.263A-2T(b)(2)(i)(D) published elsewhere in this issue of the **Federal Register**.]

* * * * *

(e) The text of this proposed paragraph (e) is the same as the text of §1.263A-2T(e) published elsewhere in this issue of the **Federal Register**.]

(f) The text of this proposed paragraph (f) is the same as the text of §1.263A-2T(f) published elsewhere in this issue of the **Federal Register**.]

Deputy Commissioner for Services and Enforcement.

Part I

Section 263A.—Capitalization and Inclusion in Inventory Costs of Certain Expenses

26 CFR 1.263A-1: Uniform capitalization of costs
(Also: § 1.263A-2)

Rev. Rul. 2005-53

BACKGROUND

In Notice 2003-36, 2003-1 C.B. 992, modified by Notice 2003-59, 2003-2 C.B. 429, the Treasury Department and the Internal Revenue Service indicate that they are aware that uncertainty exists as to what types of property constitute "eligible property" under §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D) of the Income Tax Regulations for which qualifying taxpayers may use the simplified service cost and simplified production methods. In particular, there is uncertainty about the proper interpretation and application of the term "routine and repetitive." The notice indicates that the Treasury Department and the Service plan to publish guidance that will clarify the types of property that qualify as eligible property under those sections and address the interpretation and application of the term "routine and repetitive." This revenue ruling

clarifies the types of property that qualify as eligible property for purposes of §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D) and how the term "routine and repetitive" is interpreted for this purpose.

ISSUE

Under what circumstances are a taxpayer's self-constructed assets produced on a routine and repetitive basis in the ordinary course of its trade or business for purposes of the simplified service cost method and the simplified production method (the "simplified methods") under §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D) of the Income Tax Regulations?

FACTS

Situation 1. U, a manufacturer of office equipment, produces numerous identical copiers during the year using assembly line techniques. U leases the copiers and does not hold them for sale.

Situation 2. V, a manufacturer of automobiles, regularly produces molds that are specifically designed for the production of particular automobile parts. The molds cannot be adapted for a further or different use after changes or improvements are made to the particular part that is produced by the mold. The molds generally are used for one to three years. Accordingly, the molds have a high degree of turnover.

Situation 3. W, a telephone company, manufactures numerous identical poles using standardized designs and assembly line techniques for use in its business.

Situation 4. X, an electric utility, regularly purchases identical meters and installs them on its customers' properties. The meters measure the amount of electric current

used by X's customers. X does not manufacture meters. Meters are included in asset class 49.14 under Rev. Proc. 87-56, 1987-2 C.B. 674, as clarified and modified by Rev. Proc. 88-22, 1988-1 C.B. 785, and have a class life of 30 years.

Situation 5. Y, an electric utility, constructs from various components substations that it uses in transmitting and distributing electricity. Substations and their components are facilities built on land that house an assembly of equipment designed for switching, changing, or regulating the voltage of electricity. Each substation is intended to operate for an extended length of time, is specifically custom designed for a specific geographic site, and serves a particular function within Y's electrical grid.

Situation 6. Z, a company that owns and operates a national chain of restaurants, continually constructs new restaurants each year. Z generally uses a standardized design when constructing new restaurants. However, local zoning laws and the physical characteristics of the specific construction site require Z to modify the design for each new restaurant.

LAW AND ANALYSIS

Section 263A of the Internal Revenue Code provides that producers of real or tangible personal property must capitalize the direct costs and a proper share of the indirect costs of such property.

Section 1.263A-1(e)(3) provides that indirect costs include service costs. For this purpose, § 1.263A-1(e)(4) states that service costs are a type of indirect costs that can be identified specifically with an administrative or support department or function. Service costs include capitalizable service costs, deductible service costs, and mixed

service costs. Under § 1.263A-1(e)(4)(ii)(C), mixed service costs include service costs that are partially allocable to production activities and partially allocable to non-production activities.

Section 1.263A-1(g)(3) provides that indirect costs are generally allocated to intermediate cost objectives such as departments or activities *prior to the allocation* of such costs to property produced. This section further provides that taxpayers are required to allocate indirect costs using either a specific identification method, a standard cost method, a burden rate method, or any other reasonable allocation method (as defined under the principles of § 1.263A-1(f)(4)).

Section 1.263A-2(b) allows producers to use the simplified production method to determine the additional § 263A costs properly allocable to ending inventories of property produced and other "eligible" property on hand at the end of the taxable year. Section 1.263A-2(b)(3)(i)(A) generally provides that the amount of additional § 263A costs that is allocable to eligible property remaining on hand at the close of the taxable year under the simplified production method is computed by multiplying the § 471 costs on hand at the end of the year by an absorption ratio. Section 1.263A-2(b)(3)(ii)(A) provides that the absorption ratio generally is equal to the additional § 263A costs incurred during the year divided by the § 471 costs incurred during the year.

Additional § 263A costs are the costs, other than interest, that were not capitalized under the taxpayer's method of accounting immediately prior to the effective date of § 263A, but that are required to be capitalized under § 263A. See § 1.263A-1(d)(3). Section 471 costs generally are the costs, other than interest, that the taxpayer

capitalized under its method of accounting immediately prior to the effective date of § 263A. See § 1.263A-1(d)(2).

Section 1.263A-2(b)(2)(i) provides that a taxpayer electing to use the simplified production method generally must use the method for all production activities associated with the following categories of eligible property:

1. Inventory property. Stock in trade or other property properly includible in the inventory of the taxpayer. See § 1.263A-2(b)(2)(i)(A).

2. Non-inventory property held for sale. Non-inventory property held by a taxpayer primarily for sale to customers in the ordinary course of the taxpayer's trade or business. See § 1.263A-2(b)(2)(i)(B).

3. Certain self-constructed assets. Self-constructed assets substantially identical in nature to, and produced in the same manner as, inventory property produced by the taxpayer or other property produced by the taxpayer and held primarily for sale to customers in the ordinary course of the taxpayer's trade or business. See § 1.263A-2(b)(2)(i)(C).

4. Self-constructed assets produced on a repetitive basis. Self-constructed assets produced by the taxpayer on a routine and repetitive basis in the ordinary course of the taxpayer's trade or business. See § 1.263A-2(b)(2)(i)(D).

Section 1.263A-1(g)(4) generally requires taxpayers to allocate mixed service costs to property produced using reasonable factors or relationships under a direct reallocation method (as defined in § 1.263A-1(g)(4)(iii)(A)), a step-allocation method (as defined in § 1.263A-1(g)(4)(iii)(B)), or any other reasonable allocation method (as defined under the principles of § 1.263A-1(f)(4)).

Section 1.263A-1(h) permits taxpayers to use the simplified service cost method to determine the aggregate portion of mixed service costs incurred during the taxable year that are properly allocable to "eligible property." The categories of eligible property

provided by the simplified service cost method are identical to the four categories of eligible property provided by the simplified production method. Compare § 1.263A-1(h)(2)(i) with § 1.263A-2(b)(2)(i).

Section 1.263A-1(h)(3)(i) provides that under the simplified service cost method, a taxpayer computes its capitalizable mixed service costs by multiplying its total mixed service costs by an allocation ratio. The allocation ratio can be either the labor-based or production-based ratio. See §§ 1.263A-1(h)(4) and (5).

The four categories of eligible property in §§ 1.263A-1(h)(2)(i) and 1.263A-2(b)(2)(i) all share common characteristics that make application of the simplified methods appropriate. Prior to the issuance of the final § 263A regulations, the temporary § 263A regulations, issued under T.D. 8131, 1987-1 C.B. 98, and published in the Federal Register on March 30, 1987, limited the availability of the simplified methods to two categories of property: inventory and non-inventory property held by a taxpayer primarily for sale to customers in the ordinary course of the taxpayer's trade or business. The preamble to the temporary § 263A regulations indicates that this limitation was prescribed because the simplified methods are not appropriate to account for the casual or occasional production of property. Instead, the simplified methods were "designed to alleviate the administrative burdens of complying with the new capitalization rules in situations where mass production of assets occurs on a repetitive and routine basis, with a typically high 'turnover' rate for the produced assets." See T.D. 8131, 1987-1 C.B. 98, 102. The final regulations retain these two categories of

eligible property in §§ 1.263A-1(h)(2)(i)(A) and (B) and 1.263A-2(b)(2)(i)(A) and (B). See T.D. 8482, 1993-2 C.B. 77, published in the Federal Register on August 9, 1993.

Commentators to the temporary regulations suggested that the categories of property eligible for the simplified methods be expanded to other types of property that share the characteristics that are appropriate for application of the methods. In response, Notice 88-86, 1988-2 C.B. 401, published on August 5, 1988, expanded the availability of the simplified methods to:

> (1) property constructed by a taxpayer for use in its trade or business if the taxpayer is also producing, in the ordinary course of its business, inventory property (or any other property with respect to which the use of the simplified production method is permitted under the present regulations), and the property constructed by the taxpayer for use in its trade or business is substantially identical in nature to, and is produced in the same manner as, the inventory property (or such other property) produced by the taxpayer, and
>
> (2) property constructed by a taxpayer for use in its trade or business if, in the ordinary course of its production activities, the taxpayer produces such property on a routine and repetitive basis (i.e., the taxpayer produces numerous items of such property within a taxable year.)

The final regulations follow Notice 88-86 and expand the categories of produced property eligible for the simplified methods by adding §§ 1.263A-1(h)(2)(i)(C) and (D) and 1.263A-2(b)(2)(i)(C) and (D).

The simplified methods are predicated on the assumption that it is appropriate to allocate production costs on a ratable basis when assets are either mass-produced (*i.e.*, numerous identical goods are manufactured using standardized designs and assembly line techniques) or have a high degree of turnover. In contrast, it is not appropriate to

allocate production costs on a ratable basis when assets are neither mass-produced nor have a high degree of turnover.

The first three categories of eligible property provided in §§ 1.263A-1(h)(2)(i)(A)-(C) and 1.263A-2(b)(2)(i)(A)-(C) are either mass-produced and/or have a high degree of turnover or are identical to assets that are mass-produced and/or have a high degree of turnover. The fourth category of eligible property, self-constructed assets produced on a routine and repetitive basis, is similar to these first three categories. It was intended that the fourth category of eligible property provided by the simplified methods, §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D), possess the same characteristics shared by all of the preceding categories of eligible property. Therefore, to be eligible under the fourth category, the property also must be either mass-produced (numerous identical goods are manufactured using standardized designs and assembly line techniques) or have a high degree of turnover (in this case have a relatively short useful life). Mass production does not include all the terms provided by § 263A(g) and § 1.263A-2(a)(1) (for example, install, develop, and improve). Instead property is mass-produced only if it is *manufactured* numerous times during the year using standardized designs and assembly line techniques.

For example, the fourth category of eligible property provided by the simplified methods, §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D), includes property mass-produced by a vertically integrated business for use in its own business that would have been properly included in inventory of a third party if mass-produced for sale by the third party. Thus, if a telephone company mass-produces its own poles for use in its

business, the poles would be eligible property for purposes of §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D).

In Situation 1, U is producing copiers on a routine and repetitive basis for purposes of the simplified methods because the copiers are mass-produced.

In Situation 2, V is producing molds on a routine and repetitive basis for purposes of the simplified methods because the molds have a high degree of turnover.

In Situation 3, W is producing poles on a routine and repetitive basis for purposes of the simplified methods because the poles are mass-produced.

In Situation 4, X is not producing meters on a routine and repetitive basis for purposes of the simplified methods because the meters are neither mass-produced by X nor have a high degree of turnover. Mass production does not include installation of meters and meters do not have a short useful life.

In Situation 5, Y is not producing substations on a routine and repetitive basis for purposes of the simplified methods because the substations are neither mass-produced nor have a high degree of turnover.

In Situation 6, Z is not producing restaurants on a routine and repetitive basis for purposes of the simplified methods because the restaurants are neither mass-produced nor have a high degree of turnover.

HOLDING

For purposes of the simplified methods under §§ 1.263A-1(h)(2)(i)(D) and 1.263A-2(b)(2)(i)(D), a taxpayer's self-constructed assets are produced on a routine and repetitive basis in the ordinary course of its trade or business if the assets are either

mass-produced (numerous identical goods are manufactured using standardized designs and assembly line techniques) or have a high degree of turnover.

DRAFTING INFORMATION

The principal author of this revenue ruling is Scott H. Rabinowitz of the Office of Associate Chief Counsel (Income Tax & Accounting). For further information regarding this revenue ruling, contact Mr. Rabinowitz on (202) 622-4970 (not a toll-free call).

Southwest Gas Corporation
Calculation of Change in Plant-Related Deferred Tax Balance
As a Result of Federal Legislation Effective January 1, 2005

Line No.	Description (a)	Ref. (b)	1/02-8/04 (c)	Cumulative Through 12/01 Difference (d)	Cumulative Through 8/04 (e)	Line No.
1	Simplified Service Cost Method - Cen AZ	Company Rec.	$ 16,249,089	$ 24,867,339	$ 41,116,428	1
2	Simplified Service Cost Method - So AZ	Company Rec.	4,202,687	9,178,165	13,380,852	2
3	Without Simplified Method - Cen AZ	Company Rec.	(666,667)	0	(666,667)	3
4	Without Simplified Method - So AZ	Company Rec.	(400,000)	0	(400,000)	4
5	481 Adjustment Effective 1/1/05 - Cen AZ	Ln 1 + Ln 3	$ 15,582,422	$ 24,867,339	$ 40,449,761	5
6	481 Adjustment Effective 1/1/05 - So AZ	Ln 2 + Ln 4	$ 3,802,687	$ 9,178,165	$ 12,980,852	6
7	481 Adjustment - Total AZ	Ln 5 + Ln 6	$ 19,385,109	$ 34,045,504	$ 53,430,613	7
8	Federal Income Tax Rate				35%	8
9	Federal Deferred Income Tax Liability - Arizona	Ln 7 x Ln 8			$ 18,700,715	9
10	Federal Deferred Income Tax Liability - Common				0	10
11	State Deferred Income Tax Liability	Ln 15 col (e)			2,419,979	11
12	Total Deferred Tax Tax Liability Adjustment	Ln 9 + Ln 11			$ 21,120,694	12
13	481 Adjustment - Total AZ	Ln 7 col (e)			$ 53,430,613	13
14	Arizona Income Tax Rate net of Federal Benefit				4.53%	14
15	State Deferred Income Tax Liability	Ln 13 x Ln 14			$ 2,419,979	15

Rebuttal Testimony
Exhibit No. ___(LEM-2)

Southwest Gas Corporation
Docket No. G-01551A-04-0876

EXHIBIT
A-28
admitted

Table of Contents
of
Prepared Rejoinder Testimony
of
LISA E. MOSES

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BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rejoinder Testimony
of
LISA E. MOSES

INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Lisa E. Moses. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 Are you the same Lisa E. Moses who previously sponsored rebuttal testimony for Southwest Gas Corporation (Southwest or Company) with respect to this docket?

A. 2 Yes, I am.

Q. 3 What is the purpose of your rejoinder testimony?

A. 3 The purpose of my rejoinder testimony is to provide additional edification regarding Southwest's position with respect to adjustments proposed by the Residential Utility Consumer Office (RUCO) and Arizona Corporation Commission Utilities Division Staff (Staff) with respect to legislative changes occurring after the test period, but effective before new rates are in place. Specifically, my rejoinder testimony

further supports a rate base adjustment necessitated by federal legislative changes that became effective for Southwest in 2005. My rebuttal and rejoinder testimony may not specifically respond to each issue or argument brought forth by the respective intervening parties in their direct and surrebuttal testimony. My silence should not be taken as acceptance of any intervening party's position, but rather that my previously filed rebuttal testimony adequately supports the Company's position.

RUCO AND STAFF'S RECOMMENDED ADJUSTMENTS WITH RESPECT TO LEGISLATIVE CHANGES

Q. 4 Please respond to the RUCO and the Staff direct and surrebuttal testimony pertaining to the elimination of the recovery of property taxes with respect to Contributions in Aid of Construction (CIAC) and a property tax assessment ratio of 24.5 percent?

A. 4 RUCO in its direct testimony with respect to both issues, and Staff in its direct testimony for CIAC and its surrebuttal testimony with respect to the assessment ratio, recommend no recovery for property taxes on CIAC and a 24.5 percent assessment ratio for property taxes. Purportedly, the RUCO and the Staff rationale for the non-recovery of property taxes with

respect to CIAC and utilizing an assessment ratio of 24.5 percent is to comply with two post-test period legislative changes (one of which would be effective for 2005 and the other for 2006). Southwest is not opposed to recognizing the effect of these two legislative changes, as long as other legislative changes affecting test period items are treated consistently. Specifically, as fully discussed in my rebuttal testimony and in Rebuttal Exhibit No.__(LEM-2), Southwest does not oppose excluding CIAC in the property tax base and the utilization of an assessment ratio of 24.5 percent, as long as there is an increase in rate base of $21,120,694. Southwest asserts that it is only appropriate to make all three changes precipitated by legislative changes. All three changes are effective post-test year, but before new rates go into effect. Furthermore, all three changes are known and measurable before new rates go into effect.

Q. 5 Are Staff and RUCO treating all legislative changes consistently?

A. 5 No. At the time of their direct testimonies, Staff and RUCO could not have been aware of the federal legislative changes with respect to the Simplified Service Cost Method (SSCM) for self-constructed

assets. However, in Southwest's rebuttal testimony both Staff and RUCO were provided with copies of the SSCM federal legislation, a discussion of the legislation and its effect on Account No. 282 plant-related deferred taxes and rate base, and an exhibit computing the change in the plant-related deferred taxes as a result of the legislative change. RUCO continues to ignore the effects of the federal legislative change and only considers the legislative changes with respect to property taxes. Staff takes no position regarding the proposed rate base adjustment. Rather, Staff indicates in its surrebuttal testimony that it requires more detailed information regarding the Company's rate base adjustment, and that it will be requesting more information in the future.

Q. 6 Have you received any data requests or other inquiries regarding the proposed rate base adjustment?

A. 6 No, not at this time.

Q. 7 Do you believe that Southwest has provided adequate support describing the federal legislative change, the effect on plant-related deferred taxes which are utilized in calculating rate base, and the appropriateness of making this adjustment?

A. 7 Yes. Southwest provided copies of the regulations and Revenue Ruling as part of its rebuttal testimony on the applicability of post-test period legislative changes. Southwest also described the rationale why it is appropriate to include all known and measurable adjustments that occur post-test period, but prior to new rates being in effect. Also, Southwest provided the actual calculation supporting the $21,120,694 rate base adjustment. Given the federal legislative change regarding the SSCM for self-constructed assets, it is clear to Southwest that the plant-related deferred taxes with respect to the SSCM provided in the original filing are overstated. This overstatement causes the rate base provided in the original rate case filing to be understated (as related to this item) if no adjustment is made for the federal legislative change.

SUPPORT FOR PLANT-RELATED DEFERRED TAX ADJUSTMENT

Q. 8 Can you supply additional schedules that provide additional support for the $21,120,694 rate base adjustment including evidence of amounts reported in tax returns and the general ledger?

A. 8 Yes. I have attached Rejoinder Exhibit No.__LEM-1), Schedules 1 through 10, as additional documentation

supporting the $21,120,694 rate base adjustment.

Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, summarizes the calculation of the $21,120,694 adjustment (Line 16, col (e)). As of August 31, 2004, the balance of the Company's Account No. 282 plant-related deferred income tax liability included deferred taxes associated with temporary differences created by the Company's election to utilize the SSCM for self-constructed property.

Line 1 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provides the allocation to various jurisdictions of the $87,360,477 IRC Section 481 adjustment reported as a deduction on the Company's 2002 federal income tax return. Line 2 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provides the allocation to various jurisdictions of the $20,930,748 IRC Section 263A adjustment reported on the Company's 2002 federal income tax return.

A copy of page one of the 2002 federal income tax return is also included as Rejoinder Exhibit No.__(LEM-1), Schedule 2 of 10. A statement of other deductions attached to the tax return is also included as Rejoinder Exhibit No.__(LEM-1), Schedule 3 of 10. This Schedule documents that the $87,360,477 and

$20,930,748 were deducted on the 2002 tax return for the IRC Section 481 adjustment and the IRC Section 263A adjustment, respectively. Both these deductions are reflected in the Account No. 282 plant-related deferred tax balance at August 31, 2004.

Line 3 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provides the allocation to various jurisdictions of the $21,500,000 accrued IRC Section 263A adjustment recorded for the calendar year ended December 31, 2003. Rejoinder Exhibit No.__(LEM-1), Schedules 4 through 6 of 10, are copies of the Company's internal tax accrual workpapers documenting the entry of the $21,500,000 into the Account No. 282 deferred income tax liability. Schedule 4 of 10 calculates the 2003 total temporary difference associated with the Account No. 282 deferred income tax liability ($106,591,948), which includes the $21,500,000. Schedule 5 of 10 adds the 2003 total to the prior balance to provide the Account No. 282 deferred income tax liability account cumulative temporary differences of $792,387,498 at December 31, 2003. Schedule 6 of 10 illustrates the conversion of the cumulative temporary differences to the deferred tax income tax liability balances reflected on the

general ledger at December 31, 2003. These schedules demonstrate that the $21,500,000 deduction was included in the deferred tax liability at August 31, 2004.

Line 4 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provides the allocation to the various jurisdictions of the $14,333,334 accrued IRC Section 263A adjustment recorded for the period from January 1, 2004 through August 31, 2004. Rejoinder Exhibit No.__(LEM-1), Schedules 7 through 9 of 10, are copies of the Company's internal tax accrual workpapers recording the entry of the $14,333,334 into the Account No. 282 deferred tax. Schedule 7 of 10 calculates the 2004 total temporary differences associated with the Account No. 282 ($14,177,848), which includes the $14,333,334. Schedule 8 of 10 adds the 2004 total to the prior balance to sum to the Account No. 282 cumulative temporary differences of $709,066,789 at August 31, 2004. Schedule 9 of 10 provides the conversion of the cumulative temporary differences to the deferred tax income tax liability balances reflected in the general ledger at August 31, 2004. These schedules demonstrate that the $14,333,334

deduction was included in the plant-related deferred tax liability at August 31, 2004.

Line 5 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provides the total temporary differences associated with the SSCM that are included in the balance of the Arizona Account No. 282 at August 31, 2004.

Lines 7 through 9 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provide the estimated temporary differences that are associated with IRC Section 263A after the application of the new income tax regulations. None of the IRC Section 481 adjustment would be allowed and the Company estimates that approximately $1,000,000 per year would be allowed as an IRC Section 263A adjustment. This estimate is based on the 2001 calculation of IRC Section 263A, which was the last year before the SSCM was adopted. Rejoinder Exhibit No.__(LEM-1), Schedule 10 of 10, is a copy of the Company's tax workpapers providing the calculation and allocation of the $945,754 IRC Section 263A adjustment deducted on the 2001 federal income tax return.

Line 10 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, provides the total temporary

differences associated with the SSCM that should be included in the balance of the Arizona Account No. 282 plant-related deferred taxes at August 31, 2004 after applying the new income tax regulations.

Line 11 of Rejoinder Exhibit No.__(LEM-1), Schedule 1 of 10, illustrates the change in the Arizona temporary differences caused by the new tax regulations. A total of $53,430,613 of temporary differences included in the Account No. 282 deferred tax balance at August 31, 2004 should be eliminated. This represents $18,700,715 of federal deferred income tax liability, utilizing a 35 percent federal income tax rate. Applying a 4.53 percent state income tax rate produces a state deferred income tax liability of $2,419,979, which should also be eliminated from the Account No. 282 plant-related deferred taxes. The sum of $18,700,715 and $2,419,979 equals the proposed adjustment to rate base of $21,120,694.

Q. 9 Does this conclude your prepared rejoinder testimony?

A. 9 Yes, it does.

Southwest Gas Corporation
Calculation of Change in Plant-Related Deferred Tax Balance
As a Result of Federal Legislation Effective January 1, 2005

Line No.	Description (a)	Ref (b)	California (c)	Nevada (d)	Arizona (e)	Total Southwest Gas (f)	Other (g)	Total (h)	Line No.
	Temporary Differences Before Tax Law Change								
1	481(a) Adjustment Per 2002 Tax Return	Company Rec.	$ 14,444,096	$ 39,649,259	$ 34,045,504	$ 88,138,859	$ (778,382)	$ 87,360,477	1
2	263A Adjustment Per 2002 Tax Return	Company Rec.	3,779,551	9,817,246	7,118,442	20,715,239	215,509	20,930,748	2
3	Currrent Year 263A Adjustment - 2003 Accrual	Company Rec.	3,500,000	10,000,000	8,000,000	21,500,000			3
4	Currrent Year 263A Adjustment - 1/1/04-8/31/04 Accrual	Company Rec.	2,333,333	6,666,667	5,333,334	14,333,334			4
5	Total Before Tax Law Change	Sum Ln 1 thru Ln 4			$ 54,497,280				5
	Estimated Temporary Differences After Tax Law Change								
6	481(a) Adjustment		$ 0	$ 0	$ 0	$ 0			6
7	Currrent Year 263A Adjustment - 2002		150,000	450,000	400,000	1,000,000			7
8	Currrent Year 263A Adjustment - 2003		150,000	450,000	400,000	1,000,000			8
9	Currrent Year 263A Adjustment - 1/1/04-8/31/04		100,000	300,000	266,667	666,667			9
10	Total After Tax Law Change	Sum Ln 6 thru Ln 9			$ 1,066,667				10
11	Difference Due to Tax Law Change	Ln 5 minus Ln 10			$ 53,430,613				11
12	Federal Income Tax Rate				35%				12
13	Federal Deferred Income Tax Liability - Arizona	Ln 11 x Ln 12			$ 18,700,715				13
14	Federal Deferred Income Tax Liability - Common				0				14
15	State Deferred Income Tax Liability	Ln 19			2,419,979				15
16	Total Deferred Tax Liability Adjustment	Ln 13 + Ln 14 + Ln 15			$ 21,120,694				16
17	481 Adjustment - Total AZ				$ 53,430,613				17
18	Arizona Income Tax Rate net of Federal Benefit				4.53%				18
19	State Deferred Income Tax Liability	Ln 17 x Ln 18			$ 2,419,979				19

Rejoinder Testimony
Exhibit No. __(LEM-1)
Schedule 1 of 10

Rejoinder Testimony
Exhibit No.__(LEM-1)
Schedule 2 of 10

Form **1120**
Department of the Treasury
Internal Revenue Service

U.S. Corporation Income Tax Return

For calendar year 2002 or tax year beginning _____, 2002, ending _____

▶ Instructions are separate. See page 20 for Paperwork Reduction Act Notice.

OMB No. 1545-0123
2002

A Check if a:
1 Consolidated return (attach Form 851) [X]
2 Personal holding co. (attach Sch. PH) [ ]
3 Personal service corp. (as defined in Regulations sec. 1.441-3(c) - see instructions) [ ]

Name: SOUTHWEST GAS CORPORATION AND SUBSIDIARIES

Number, street, and room or suite no. (If a P.O. box, see page 7 of instructions.): P.O. BOX 98510 (5241 SPRING MOUNTAIN ROAD)

City or town, state, and ZIP code: LAS VEGAS, NV 89193-8510

B Employer identification number: [redacted]

C Date incorporated: 3/10/1931

D Total assets (see page 8 of instructions): $ 2,370,308,644.

E Check applicable boxes: (1) [ ] Initial return (2) [ ] Final return (3) [ ] Name change (4) [ ] Address change

Income	1a Gross receipts or sales: 1,332,783,638. b Less returns and allowances:		c Bal ▶	1c	1,332,783,638.
	2 Cost of goods sold (Schedule A, line 8)			2	804,958,468.
	3 Gross profit. Subtract line 2 from line 1c			3	527,825,170.
	4 Dividends (Schedule C, line 19)			4	1,700,000.
	5 Interest SEE STATEMENT 6			5	4,129,529.
	6 Gross rents			6	
	7 Gross royalties			7	
	8 Capital gain net income (attach Schedule D (Form 1120))			8	6,538,433.
	9 Net gain or (loss) from Form 4797, Part II, line 18 (attach Form 4797)			9	4,739,236.
	10 Other income (see page 9 of instructions - attach schedule) SEE STATEMENT 6			10	1,423,017.
	11 **Total income.** Add lines 3 through 10 ▶			11	546,355,385.
Deductions (See instructions for limitations on deductions.)	12 Compensation of officers (Schedule E, line 4)			12	9,043,545.
	13 Salaries and wages (less employment credits)			13	37,365,651.
	14 Repairs and maintenance			14	10,501,411.
	15 Bad debts			15	3,888,915.
	16 Rents			16	26,826,806.
	17 Taxes and licenses SEE STATEMENT 8			17	35,516,200.
	18 Interest			18	86,058,553.
	19 Charitable contributions (see page 11 of instructions for 10% limitation) SEE STATEMENT 11			19	NONE
	20 Depreciation (attach Form 4562)	20	207,606,637.		
	21 Less depreciation claimed on Schedule A and elsewhere on return	21a		21b	207,606,637.
	22 Depletion			22	
	23 Advertising			23	2,608.
	24 Pension, profit-sharing, etc., plans			24	11,744,592.
	25 Employee benefit programs			25	19,168,243.
	26 Other deductions (attach schedule) SEE STATEMENT 12			26	163,532,198.
	27 **Total deductions.** Add lines 12 through 26 ▶			27	611,255,359.
	28 Taxable income before net operating loss deduction and special deductions. Subtract line 27 from line 11			28	-64,899,974.
	29 Less: a Net operating loss (NOL) deduction (see page 13 of instructions) STMT 15	29a			
	b Special deductions (Schedule C, line 20)	29b	1,700,000.	29c	1,700,000.
	30 **Taxable income.** Subtract line 29c from line 28			30	-66,599,974.
	31 **Total tax** (Schedule J, line 11)			31	NONE
Tax and Payments	32 Payments: a 2001 overpayment credited to 2002	32a	13,568,468.		
	b 2002 estimated tax payments	32b			
	c Less 2002 refund applied for on Form 4466	32c	( )	d Bal ▶ 32d	13,568,468.
	e Tax deposited with Form 7004			32e	
	f Credit for tax paid on undistributed capital gains (attach Form 2439)			32f	
	g Credit for Federal tax on fuels (attach Form 4136). See instructions			32g	90,291.
				32h	13,658,759.
	33 Estimated tax penalty (see page 14 of instructions). Check if Form 2220 is attached ▶ [ ]			33	
	34 **Tax due.** If line 32h is smaller than the total of lines 31 and 33, enter amount owed			34	
	35 **Overpayment.** If line 32h is larger than the total of lines 31 and 33, enter amount overpaid			35	13,658,759.
	36 Enter amount of line 35 you want: **Credited to 2003 estimated tax** ▶ **Refunded** ▶			36	13,658,759.

Sign Here

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

▶ Signature of officer: [signature] Date: 9/15/03 ▶ Title: VP/CONTROLLER/CAO

May the IRS discuss this return with the preparer shown below (see instructions)? [ ] Yes [X] No

Paid Preparer's Use Only

Preparer's signature ▶ [signature] Date: 9/8/03 Check if self-employed [ ] Preparer's SSN or PTIN: [redacted]

Firm's name (or yours if self-employed), address, and ZIP code ▶ PriceWaterhouseCoopers LLP, 400 South Hope Street, Los Angeles, CA 90071-2889

EIN: [redacted]

Phone no. 213-236-3000

SA
C1110 2.000

1120 PAGE 1 DETAIL

LINE 19 - CURRENT YEAR CONTRIBUTIONS

SOUTHWEST GAS CORPORATION

CONTRIBUTIONS & DONATIONS	484,768.
SUBTOTAL	484,768.

NORTHERN PIPELINE CONSTRUCTION

CONTRIBUTIONS	2,900.
SUBTOTAL	2,900.
TOTAL LINE 19 - CURRENT YEAR CONTRIBUTIONS	487,668.

LINE 26 - OTHER DEDUCTIONS

SOUTHWEST GAS CORPORATION

AMORTIZATION	2,607,755.
COMPANY OWNED LIFE INSURANCE	2,691,675.
OTHER DEDUCTIONS	2,957,873.
INSURANCE	3,809,222.
REMOVAL COSTS	3,396,663.
SECTION 481 ADJUSTMENT 263A CHANGE IN ACCT METHOD	87,360,477.
263A ADJUSTMENT	20,930,748.
TRAINING	80,743.
CLEAN FUEL DEDUCTION	262,000.
SECTION 174 RESEARCH EXPENSES	3,690,101.
PROMOTIONAL-MARKETING/SALES EX	235,079.
SECTION 481 ADJ IDRB CHANGE IN ACCT. METHOD	2,426,800.
CORPORATE DEVELOPMENT	4,196,323.
OFFICE SUPPLIES	9,409,717.
SAFETY EDUCATION	594,635.
OUTSIDE SERVICES	8,178,341.
SUBTOTAL	152,828,152.

NORTHERN PIPELINE CONSTRUCTION

UTILITIES EXPENSE	144,869.
AUDIT EXPENSE	121,020.

CONTINUED ON NEXT PAGE

SOUTHWEST GAS CORPORATION
CUMULATIVE DIFFERENCES

WP	M-1 TYPE	ACCOUNT	CALIFORNIA	NEVADA	ARIZONA	COMMON	TOTAL UTILITY
			CURRENT YEAR 2003	CURRENT YEAR 2003	CURRENT YEAR 2003	CURRENT YEAR 2003	CURRENT YEAR 2003
ACCOUNT 282 - NONCURRENT PLANT							
	TOTAL 282.0 ITEMS NOT BROKEN OUT						
	RELOCATIONS	1010-0001	350,000	4,250,000	5,500,000	0	10,100,000
	UNIFORM CAP ADJ - 263A - PRC	1010-0001	3,500,000	10,000,000	8,000,000	0	21,500,000
	CIAC	1010-0001	(435,500)	(1,440,000)	(1,775,000)	0	(3,650,500)
	DEPRECIATION	1080-0001	4,774,344	28,265,253	33,793,316	11,809,535	78,642,448
	TOTAL 282.0 - NONCURRENT - PLANT		**8,188,844**	**41,075,253**	**45,518,316**	**11,809,535**	**106,591,948**

SOUTHWEST GAS CORPORATION
SUMMARY OF TEMPORARY DIFFERENCES

	CALIFORNIA	NEVADA	ARIZONA	COMMON	TOTAL UTILITY
SUMMARY OF 282.0 (NONCURRENT) TEMP DIFF					
CUMULATIVE 282.0 BALANCE AT 12/31/2001	17,506,616	159,196,381	287,518,617	31,225,308	495,446,922
TOTAL Plant FOR 2002	25,845,866	85,176,529	80,243,323	(917,090)	190,348,628
CUMULATIVE Plant BALANCE AT 12/31/2002	43,352,482	244,372,910	367,761,940	30,308,218	685,795,550
TOTAL Plant FOR 2003	8,188,844	41,075,253	45,518,316	11,809,535	106,591,948
CUMULATIVE BAL AT 12/31/2003	51,541,326	285,448,163	413,280,256	42,117,753	792,387,498

SOUTHWEST GAS CORPORATION
SUMMARY OF DEFERRED TAXES
AT 12/31/03

	CUMULATIVE TEMPORARY DIFFERENCES AT 12/31/03 ASSET (LIAB)	FEDERAL DEFERRED TAX ASSET (LIABILITY)
UTILITY		
ACCOUNT 282 - UTILITY - PLANT		
CALIFORNIA	(51,541,326)	(17,934,394)
NEVADA	(285,448,163)	(97,079,087)
ARIZONA	(413,280,256)	(141,377,537)
COMMON	(42,117,753)	(14,739,297)
TOTAL ACCOUNT 282 - UTILITY	(792,387,498)	(271,130,315)

Rejoinder Testimony
Exhibit No.__(LEM-1)
Schedule 6 of 10

SOUTHWEST GAS CORPORATION
CUMULATIVE DIFFERENCES

WP	M-1 TYPE	ACCOUNT	CALIFORNIA	NEVADA	ARIZONA	COMMON	TOTAL UTILITY
			CURRENT YEAR 2004	CURRENT YEAR 2004	CURRENT YEAR 2004	CURRENT YEAR 2004	CURRENT YEAR 2004
ACCOUNT 282 - NONCURRENT PLANT							
TOTAL 282.0 ITEMS NOT BROKEN OUT							
RELOCATIONS		1010-0001	233,334	2,833,333	3,666,667	0	6,733,334
UNIFORM CAP ADJ - 263A - PRC		1010-0001	2,333,333	6,666,667	5,333,334	0	14,333,334
CIAC		1010-0001	(290,333)	(960,000)	(1,183,334)	0	(2,433,667)
DEPRECIATION		1080-0001	3,439,007	2,262,517	33,758,833	(1,054,451)	38,405,906
NOL adjustment			(7,135,972)	(13,487,640)	(51,909,695)	1,316,552	(71,216,755)
TOTAL 282.0 - NONCURRENT - PLANT			**(1,420,631)**	**(2,685,123)**	**(10,334,195)**	**262,101**	**(14,177,848)**

SOUTHWEST GAS CORPORATION
SUMMARY OF TEMPORARY DIFFERENCES

	CALIFORNIA	NEVADA	ARIZONA	COMMON	TOTAL UTILITY
SUMMARY OF 282.0 (NONCURRENT) TEMP DIFF					
CUMULATIVE 282.0 BALANCE AT 12/31/2002	43,352,482	244,372,910	367,761,940	30,308,218	685,795,550
TOTAL Plant FOR 2003	2,876,997	14,431,023	15,992,009	4,149,059	37,449,088
CUMULATIVE Plant BALANCE AT 12/31/2003	46,229,479	258,803,933	383,753,949	34,457,277	723,244,638
TOTAL Plant FOR 2004	(1,420,631)	(2,685,123)	(10,334,195)	262,101	(14,177,848)
CUMULATIVE BAL AT 8/31/2004	**44,808,848**	**256,118,810**	**373,419,754**	**34,719,377**	**709,066,789**

Rejoinder Testimony
Exhibit No.__(LEM-1)
Schedule 8 of 10

SOUTHWEST GAS CORPORATION
SUMMARY OF CUMULATIVE TEMPORARY DIFFERENCES AND DEFERRED TAX BALANCES

DESCRIPTION	ACCOUNT NUMBER	JURISDICTION	DEFRD TAX ACCT 282/283	CUMULATIVE TRUED-UP BALANCE AT 12/31/03	2004 ACCRUAL	WP REF ->	CUMULATIVE BALANCE AT 8/31/04 PER G/L
PLANT							
PLANT BALANCES PER ACUFILE		CALIFORNIA	282.0	46,229,479	(1,420,631)		44,808,848
PLANT BALANCES PER ACUFILE		NEVADA	282.0	258,803,934	(2,685,123)		256,118,811
PLANT BALANCES PER ACUFILE		ARIZONA	282.0	383,753,950	(10,334,195)		373,419,755
PLANT BALANCES PER ACUFILE		COMMON	282.0	34,457,275	262,101		34,719,376
PLANT BALANCES PER ACUFILE		NON-RATE BASE	283.0	10,422,303	302,334		10,724,637
PLANT BALANCES PER ACUFILE		NON-UTILITY	283.0	(12,262,158)	730,199		(11,531,959)
PLANT BALANCES PER ACUFILE - TOTAL				721,404,783	(13,145,315)		708,259,468
TOTAL TEMPORARY DIFFERENCES		UTILITY-PER ACUFILE		723,244,639	(14,177,848)		709,066,790
FEDERAL TAX RATE				34%	32%		34%
TOTAL DEFERRED TAX ASSET (LIAB)		UTILITY-PER ACUFILE	282.0	(246,930,313)	4,571,611		(242,358,703)
TOTAL DEFERRED TAX ASSET (LIAB)		UTILITY-PER ACUFILE - CA	282.0	(16,075,248)	470,759		(15,604,489)
TOTAL DEFERRED TAX ASSET (LIAB)		UTILITY-PER ACUFILE - NV	282.0	(87,753,606)	769,029		(86,984,577)
TOTAL DEFERRED TAX ASSET (LIAB)		UTILITY-PER ACUFILE - SO AZ	282.0	(131,043,330)	3,423,559		(127,619,771)
TOTAL DEFERRED TAX ASSET (LIAB)		UTILITY-PER ACUFILE - COMMON	282.0	(12,058,130)	(91,735)		(12,149,865)

SOUTHWEST GAS/PAIUTE PIPELINE
SECTION 263A CAPITALIZATION SUMMARY - CONSTRUCTED PROPERTY
FOR THE YEAR ENDED DECEMBER 31, 2001

SCHEDULE M ADJUSTMENTS:

	Southwest Gas	Paiute	Total
General and Administrative Expenses	1,209,102	8,261	1,217,363
Depreciation	(263,349)	(20,615)	(283,963)
Total Current Year Sec. 263A Adjustment Favorable/(Unfavorable)	**945,754**	**(12,354)**	**933,400**

ALLOCATION BY JURISDICTION

JURISDICTION	ALLOCATED M-1
So. California	22,622
No. California	44,027
So. Nevada	423,056
No. Nevada	86,934
So. Arizona	105,243
CE. Arizona	225,869
Common	38,003
TOTAL SWG	945,754

EXHIBIT
A-29
Admitted

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of
Prepared Direct Testimony
of
RANDI L. ALDRIDGE

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Southwest Gas Corporation
Docket No. G-01551A-04-__

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Direct Testimony
of
RANDI L. ALDRIDGE

INTRODUCTION/BACKGROUND

Q. 1 Please state your name and business address.

A. 1 My name is Ms. Randi L. Aldridge. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002.

Q. 2 By whom are you employed and in what capacity?

A. 2 I am employed by Southwest Gas Corporation (Southwest or the Company) in the Revenue Requirements department. My title is Senior Specialist/Revenue Requirements.

Q. 3 Please state your educational background and business experience.

A. 3 I graduated from the University of Washington in Seattle, Washington with a Bachelor of Arts in Business Administration, Accounting. My areas of concentration were accounting and finance. I graduated from the University of Nevada, Las Vegas with a Masters in Business Administration (MBA), with Beta Gamma Sigma honors. I am a Certified Management Accountant (CMA) and a member of the Institute of Management Accountants.

One year before completing my bachelor's degree, I accepted employment at Washington Mutual Savings Bank in Seattle, Washington as an Asset/Liability Management

intern. Upon graduation in 1993, I accepted a full-time position as a Financial Analyst Trainee in the Financial Forecasting department. In 1994, I was promoted to Financial Analyst I. My responsibilities included assisting in the budget and forecasting process, and various financial analyses.

In February 1995, I accepted a position as a Budget Analyst in the Budget and Forecasting department at PriMerit Bank (at that time a subsidiary of Southwest) in Las Vegas, Nevada. In April 1996, I transferred to Southwest as a Corporate Accountant I in the Accounting Control department. In January 1998, I was promoted to Analyst I/ Accounting. In February 1998, I transferred to the Revenue Requirements department as an Analyst. In January 2001, I was promoted to Specialist, and in July 2003, I was promoted to my present position.

During my time at Southwest, I have attended several training and technical conferences related to utility ratemaking and regulatory issues, as well as accounting issues. In addition, I have taught the Cost of Service Problem for "The Basics" conference presented by the Center for Public Utilities at New Mexico State University and the National Association of Regulatory Utility Commissioners on several occasions.

Q. 4 Please summarize the nature of your present responsibilities and duties with Southwest.

A. 4 I am responsible for assisting in the preparation of

general rate case filings for state and federal jurisdictions, the preparation of written and oral expert testimony, the research, preparation, and presentation of various financial analyses, studies, and reports, as well as other special projects.

Q. 5 Have you previously testified before any regulatory commission?

A. 5 Yes, I have previously testified before the California Public Utilities Commission (CPUC) and the Public Utilities Commission of Nevada (PUCN).

Q. 6 What is the purpose of your prepared direct testimony in this proceeding?

A. 6 I will sponsor and present testimony describing the Company's natural gas operations, together with a description of the cost responsibility and allocations of capital and expense costs.

I also sponsor and present testimony with respect to the following schedules and supporting workpapers (WP) included in this rate application:

(a) Rate Base: Schedule B-1, Adjusted Original Cost and RCND Rate Base; Schedule B-2, Summary Cost of Gas Plant (excluding Adjustment Nos. 11 and 21); Schedule B-3, Summary RCND Cost of Gas Plant; Schedule B-4, Reconstructed Cost of Gas Plant; Schedule B-5, Summary of Working Capital; and Schedule B-6, Other Rate Base Items;

(b) Operating Income: Schedule C-1, Adjusted Test Year

Income Statement (excluding Sheet 2); Schedule C-2, Summary of Operating Income Adjustments (excluding Adjustment Nos. 1, 2, and 10-12); and Schedule C-3, Computation of Gross Revenue Conversion Factor;

(c) Financial Statements and Statistical Schedules: Schedules E-1 through E-9;

(d) Projections and Forecasts: Schedules F-1 through F-4; and

(e) System Allocable Depreciation Study: Schedule I.

DESCRIPTION OF SOUTHWEST'S NATURAL GAS UTILITY OPERATIONS

Q. 7 Please describe Southwest's natural gas operations.

A. 7 Southwest is primarily a natural gas local distribution company, providing service to over 1.5 million customers in three states. At the end of the test year, Southwest served over 843,000 customers in Arizona, or over 55 percent of its total customer base. Southwest consists of six ratemaking jurisdictions subject to the regulation of the Arizona Corporation Commission (Commission), the PUCN, the CPUC, and the Federal Energy Regulatory Commission (FERC). Southwest is separated into five operating divisions, two each in Arizona and Nevada, and one in California. Each division operates independently of the others. All divisions are supported by staff located at the Corporate Headquarters in Las Vegas, Nevada. Paiute Pipeline Company (Paiute), a wholly-owned subsidiary of Southwest, operates and maintains transmission and storage facilities that are used to

deliver natural gas to local distribution companies (including Southwest) and other end-users in northern Nevada. Paiute is operated and staffed out of Southwest's Northern Nevada Division. Southwest Gas Transmission Company (SGTC) provides gas transportation service through an eight-mile transmission facility, and is regulated by the FERC. For retail ratemaking purposes at the state level, Southwest's retail gas utility operations are divided into five rate jurisdictions: Arizona, Southern Nevada, Northern Nevada, Southern California, and Northern California.

COST RESPONSIBILITY AND ALLOCATIONS

Q. 8 Briefly describe how costs associated with Southwest's natural gas operations are treated in this rate application.

A. 8 Costs, both capital and expense, are incurred either directly at the division level or at the corporate level. Costs incurred at the division level are charged directly to the ratemaking jurisdiction incurring the costs. Costs at the corporate level are either charged directly to the specific rate jurisdiction, if the cost was incurred on its behalf, or allocated to the rate jurisdiction if the cost is common or beneficial to all of the Company's rate jurisdictions. The costs that are charged directly to a rate jurisdiction are referred to as Corporate Direct costs. The costs that are common to all rate jurisdictions are referred to as Common or System Allocable costs.

Q. 9 What do System Allocable costs consist of?

A. 9 System Allocable costs are primarily corporate administrative and general (A&G) expenses, and the costs associated with the intangible and general plant used to support the corporate administrative staff.

Q. 10 How does the Company allocate these Common costs among its various rate jurisdictions?

A. 10 System Allocable amounts are first allocated to Paiute using the Modified Massachusetts Formula (MMF), a FERC-authorized methodology, and through a rental charge for use of intangible and general plant. Second, A&G expenses are allocated to SGTC, also based on the MMF. Finally, the remaining System Allocable costs are allocated amongst the Company's retail ratemaking jurisdictions using the 4-Factor Allocation Methodology (4-Factor).

Q. 11 Please provide additional detail concerning how System Allocable costs are charged to Paiute and SGTC.

A. 11 System Allocable costs are allocated and charged to Paiute through the use of the MMF, with the exception of Account 924 (Property Insurance), which is allocated using an insurable property factor. The MMF, as shown in Schedule C-1, Sheet 19 is the arithmetic average of three equally weighted components: direct operating labor, margin, and gross plant. In addition to Paiute and SGTC, it includes all of the Company's retail rate jurisdictions. WP Schedule C-2, Adjustment No. 9, Sheets 3

and 4, provide the development of the property insurance allocation factor. A new MMF percentage is calculated annually, together with a new property insurance factor, for use throughout the following calendar year. System Allocable costs allocated and charged to Paiute are transferred to and recorded on Paiute's books monthly. Consequently, System Allocable A&G expenses that are shown on Southwest's books are net of the allocations to Paiute.

Southwest also charges Paiute a rental charge for its allocated share of System Allocable intangible and general plant. The rental revenue received from Paiute is allocated and recorded to each rate jurisdiction based on the 4-Factor methodology. The rental revenue is recorded in Account 493 (Rent from Gas Property).

Southwest also allocates A&G expenses to SGTC via use of the MMF, as shown in Schedule C-1, Sheet 19. This MMF consists of the same three equally weighted components as those used for Paiute. It includes the costs for SGTC, all of Southwest's natural gas operations, and those of Paiute. This methodology was approved by the FERC in SGTC's last general rate application (RP-01-73-000). Unlike Paiute (because the amounts are so small), a separate allocator is not used for Property Insurance. This calculation is also done annually and is charged to SGTC on an annual basis in December of each year. The amount determined to be

allocable to SGTC is credited to Account 930.2 (Miscellaneous General Expense) on Southwest's books. The allocator for SGTC is applied to not only the A&G expenses, but also to the components that make up the rental charge described above for Paiute (see Statement N, Sheet 12). Therefore, a separate rental calculation is not required for SGTC.

For this rate application, the MMF, property insurance allocator, and the Paiute rental charge were calculated using end of test year data.

Q. 12 Although not technically an allocation, how does Southwest charge its non-utility subsidiaries for administration or other activities that are undertaken on their behalf?

A. 12 Labor charges of Company administrative personnel are charged directly to its non-utility subsidiaries as incurred. Facilities and administrative loadings are added to all labor charged to non-utility subsidiaries. Incremental costs incurred by Southwest are also charged to non-utility subsidiaries if the cost was incurred on their behalf. The costs of Board of Directors' meetings are charged based upon an average cost per director and the average amount of time spent in the meeting.

Q. 13 Please explain the 4-Factor Allocation Methodology.

A. 13 The 4-Factor is based on the average of four equally-weighted components. Those components are: (a) direct operating expense; (b) average gross plant;

(c) direct operating labor; and (d) average number of customers. The 4-Factor has been used for ratemaking purposes by Southwest since the 1950s, and has been accepted and approved by each of Southwest's jurisdictional state regulatory commissions. Schedule C-1, Sheet 18 provides the development of the 4-Factor allocation percentages for the test year, which in this case is the 12 months ended August 31, 2004.

RATE BASE

Q. 14 What is the amount of rate base Southwest is requesting be approved by the Commission in this proceeding?

A. 14 Southwest has proposed and will support a fair value rate base of $1,171,427,301. The fair value rate base was determined by giving equal weight (50/50) to the original cost rate base of $925,212,447 and the reconstruction cost new rate base of $1,417,642,156.

Q. 15 Please describe and explain Southwest's Schedule B-1.

A. 15 Schedule B-1 is a high-level summary of the various components that comprise rate base. Rate base is presented on this Schedule at original cost, reconstruction cost new, and at fair value. All measurements were performed for the 12 months ended August 31, 2004. Details of the various rate base components can be found in Schedules B-2 through B-6.

Q. 16 Please describe and explain Southwest's Schedule B-2.

A. 16 Schedule B-2 is a summary of the Company's gas plant in service (GPIS), at original cost, together with the

related accumulated amortization and depreciation reserve (accumulated reserve). As noted earlier, all measurements were done for the 12 months ended August 31, 2004. The schedule contains the recorded amounts for both direct and System Allocable GPIS and the related accumulated reserve, the adjustments necessary to accurately reflect the Company's investment needed to serve test year customers, the associated adjusted balances, the allocation of System Allocable amounts to the Arizona rate jurisdiction, and, finally, the test year balances as adjusted and allocated to Arizona.

There are three rate base adjustments reflected in this schedule. First, there is an adjustment (Adjustment No. 20) to reflect the addition of amounts of non-revenue producing completed construction not classified (CCNC) that technically existed in construction work-in-progress (CWIP) at the end of the test year, along with an adjustment to System Allocable Miscellaneous Intangible Plant to add projects in CWIP expected to close to plant in service (to synchronize the plant with the adjustment to System Allocable amortization expense in Adjustment No. 17). Second, there is the adjustment (Adjustment No. 11) to remove a portion of plant related to specific pipe replacement programs. Third, an adjustment (Adjustment No. 21) was made to remove amounts from the cost of service related to the Phoenix Light Rail project. Company witness Robert A. Mashas will discuss Adjustment

Nos. 11 and 21 in his prepared direct testimony.

Q. 17 What is the amount of the CCNC/CWIP adjustment requested by the Company?

A. 17 In total the CCNC/CWIP adjustment (Adjustment No. 20) results in an increase of $2,789,294 in plant in service. This consists of two components: a direct Arizona component of $1,819,949 and a System Allocable component (after 4-Factor) of $969,345.

Q. 18 Please explain why the adjustment made to reflect the inclusion of non-revenue producing CCNC in rate base should be accepted by the Commission.

A. 18 The gas plant included in the CCNC portion of this adjustment reflects construction expenditures made before the end of the test year. There are no expenditures for tangible plant included in the adjustment that were incurred after August 31, 2004. The tangible plant represented by these expenditures was either in-service at the end of the test year or shortly thereafter. However, the actual closing to GPIS was made after the end of the test year, largely due to delays in the field in entering the required information into the Company's computer systems.

The plant requested to be included in rate base is non-revenue producing plant. In other words, it represents plant that was constructed to improve service or enhance reliability and safety for existing customers, and not constructed to serve new customers. Southwest

will not realize any incremental operating revenues from the construction and addition of this plant. Examples of the plant included in the adjustment include: replacement mains, franchise requirements, pressure reinforcements, measuring and regulating station equipment, and general plant.

Customers existing in Southwest's system at the end of the test year are the primary beneficiaries of these construction expenditures. Consequently, the inclusion of this non-revenue producing plant in rate base more accurately matches the Company's investment needed to serve the customers in its system at the end of the test year, and should be allowed by the Commission.

Q. 19 Please explain why the Commission should accept Southwest's adjustment to include in rate base the non-revenue producing System Allocable Miscellaneous Intangible Plant CWIP.

A. 19 In Decision No. 64172, the Commission allowed an adjustment proposed by Staff and the Residential Utility Consumer Office (RUCO) that removed several software projects that became fully amortized shortly after the end of the test year. In that proceeding, the Company pointed out that the Staff and RUCO did not propose to include amortizations for new projects that commenced during the same post-test year period. The Commission believed that Staff and RUCO struck the correct balance by removing these fully amortized projects since the

Commission allowed the Work Management System (WMS) Phase I project in rate base, together with its associated amortization expense. In this proceeding, the Company does not have the equivalent of a WMS Phase I project to serve as a "balance." Therefore, it is equitable to propose removing from amortization expense those software projects that will be fully amortized by December 31, 2004. Furthermore, it is proper to add to rate base the estimated plant in service and to add the related amortization expense for those projects in CWIP that are estimated to be closed to plant prior to December 31, 2004. This is a conservative adjustment because many small software projects spend a relatively short time in CWIP. This adjustment strikes a fair balance between project amortizations that will expire shortly after the end of the test year, and projects commencing amortization and serving customers approximately one year prior to rates from this proceeding going into effect.

Q. 20 Please describe and explain Southwest's Schedules B-3 and B-4.

A. 20 Schedule B-3 is a summary of the reconstruction cost new study. The schedule contains both the Direct and System Allocable plant assigned to Arizona. The development of the reconstruction cost new data is utilized to develop the fair value rate base as traditionally calculated by the Commission. The detail supporting Schedule B-3 is

contained in Schedule B-4. Schedule B-4 contains the Handy-Whitman indices that were used to trend original cost plant to obtain the reconstruction cost new data, and the reconstruction cost new data by vintage year, and by FERC account.

Q. 21 Please describe and explain Southwest's Schedule B-5.

A. 21 Schedule B-5 presents a summary of the Company's calculation of its requested working capital allowance for the test year ended August 31, 2004. The working capital allowance is made up of three components: (1) cash working capital, (2) materials and supplies, and (3) prepayments. Southwest is requesting a working capital allowance of $881,148.

Cash working capital was determined through a comprehensive lead-lag study. In performing the lead-lag study, Southwest examined every non-gas invoice over $10,000 that was processed during the test year and examined every gas invoice processed during the test year. As a result, approximately 85 percent of total adjusted operating expenses were reviewed to determine the net lag attributable to operating expenses. The lead-lag study produced a negative cash working capital amount of $11,082,156.

The materials and supplies balance requested by the Company, based on a 13-month average, is $9,222,489. The prepayments balance requested by the Company, based on a 13-month average balance is $2,740,815. The use of

13-month average balances for materials and supplies, prepayments, and miscellaneous rate base items in Schedule B-6 has been accepted by this Commission in prior rate proceedings.

Q. 22 Please describe and explain Southwest's Schedule B-6.

A. 22 Schedule B-6 contains the pages that support the calculation of three miscellaneous rate base items. Those items are: (1) the 13-month average balance of customer advances for construction, (2) the 13-month average balance of customer deposits, and (3) accumulated deferred income taxes. Each of these items reduces rate base, and all are calculated for the test year ended August 31, 2004. The total adjusted rate base reduction for these three items is $167,630,841.

OPERATING INCOME

Q. 23 Please describe Schedule C-1.

A. 23 Schedule C-1 provides a test year operating income statement as recorded and as adjusted. It also contains detailed supporting data by account for each functional area listed on the income statement.

Q. 24 Please describe Schedule C-2.

A. 24 Schedule C-2 contains a summary schedule of operating income adjustments and individual sheets detailing the adjustments proposed in this proceeding.

Q. 25 Please list the operating income adjustments you are supporting.

A. 25 I am supporting the following operating income

adjustments:

Adjustment No.	Description
3	Labor/Loading Annualization
4	Customer Billing Annualization
5	Uncollectible Accounts Normalization
6	Promotional Expenses
7	American Gas Association (AGA) Dues
8	Sarbanes-Oxley Section 404 Compliance
9	Paiute/SGTC Allocation
13	Rate Case Expense
14	Miscellaneous Adjustments
15	Employee Vehicle Compensation
16	Out-of-Period Expenses
17	Annualized Depreciation and Amortization
18	Property Tax Annualization
19	Interest on Customer Deposits

Q. 26 Who is supporting the adjustments to operating income in Adjustment No. 10, Self-Insurance, Adjustment No. 11, Pipe Replacement, Leak Survey and Repair, and Adjustment No. 12, Transmission Integrity Management Program (TRIMP)?

A. 26 Company witness Mr. Mashas is supporting Adjustment Nos. 10 through 12.

Q. 27 Please describe Adjustment No. 3, Labor and Labor Loading Annualization.

A. 27 Adjustment No. 3 annualizes the labor and related labor loadings of Arizona and corporate staff employees employed by the Company at August 31, 2004.

The labor and labor loading annualization adjustment includes three separate components. First, a salary annualization is made for all Arizona and corporate staff employees at salaries in effect at the end of the last pay period prior to August 31, 2004.

Secondly, it annualizes labor loadings at the end of the test year. Finally, the labor adjustment reflects an assumed two percent general wage increase that will be effective in June 2005, along with an approximate one percent increase in wages as a result of within-grade wage movement during the 12 months subsequent to the end of the test year (i.e. through August 2005).

Q. 28 Please define labor loadings.

A. 28 Labor loadings represent pensions, benefits and payroll taxes paid by the Company. Pensions, benefits (including paid time-off), and payroll taxes are accumulated at the corporate level and distributed among the various jurisdictions through a labor loading process. For each labor dollar charged to an account, an additional amount (i.e. labor loading) is charged to that account to distribute the cost of pensions, benefits, and payroll taxes.

Q 29 How are labor loadings for Arizona and corporate staff employees annualized?

A. 29 For most benefits, total Company recorded test year costs were used as the basis for the labor loading annualization. However, for pensions, post employment benefits other than pension (PBOP), and Supplemental Executive Retirement Plan (SERP), Southwest's most recent actuarial studies were used as the basis for the labor loading annualization. In addition, payroll taxes and indirect time were adjusted for the impact of annualizing

payroll and overtime.

There are two methods used to allocate labor loading costs to each jurisdiction. First, the cost of pensions, PBOP, SERP and executive deferred compensation, and employee investment plan (401k) are allocated based on each jurisdiction's labor cost as a percentage of total Company labor. Second, for the remaining benefits, a cost per employee was calculated based on recorded cost divided by the average number of total Company employees during the test year. This cost per employee is then multiplied by the number of jurisdictional employees at the end of the test year to determine an annualized amount.

Q. 30 Were there any adjustments made to labor loadings where the cost was based on recorded test year data?

A. 30 Yes. An adjustment was made to remove several Miscellaneous Benefits from the cost of service. These items relate to gifts for employees and retirees, employee events and awards, and other costs that the Commission has disallowed in prior rate cases. This adjustment was made consistent with Decision No. 64172.

Q. 31 Once the annualized labor and labor loadings were calculated, how was the adjustment determined?

A. 31 The annualized labor and labor loadings were assigned to each account based on the historical test year relationships. For example, during the test year, approximately 81 percent of Arizona direct labor and

labor loadings were charged to operations and maintenance (O&M) accounts. Therefore, 81 percent of the annualized Arizona direct labor and labor loadings were assigned to operations and maintenance accounts. The difference between the annualized labor and labor loadings assigned to the O&M accounts and recorded labor and labor loadings is the adjustment for that account. As approximately 81 percent of the annualized Arizona direct labor and labor loadings were assigned to O&M, the remaining 19 percent was assigned to capital and deferred accounts, and does not impact the revenue requirement requested in this rate application. A similar assignment is performed for corporate staff annualized labor and labor loadings to determine the adjustment required.

Q. 32 Why is it appropriate to adjust labor expense for the 2005 wage increase and within-grade movement?

A. 32 Under current Commission guidelines for processing major rate applications, it is expected that the hearing in this proceeding will be conducted after June 2005. Historically, the Company has granted general wage increases effective each June. Therefore, the year 2005 wage increase will be known and measurable prior to the hearing in this proceeding, and Staff and other intervenors will have an opportunity to verify the actual amount of any increase.

Q. 33 Does this post-test year adjustment distort the sanctity of the test year?

A. 33 No. This adjustment only applies to employees on the payroll at August 31, 2004, the end of the test year. It does not apply to any employees hired after August 31, 2004 to meet customer growth, changes to work requirements, etc. Therefore, the number of employees at the end of the test year is synchronized with test year customers that they are serving. This adjustment simply recognizes the fact that by the time the rates from this docket become effective, test year customers will be served by test year-end employees who, on average, will be paid over three percent more than the wages in effect at the end of the test year.

Q. 34 Have previous Commission rulings in the Company's rate applications addressed this adjustment?

A. 34 Yes. Since the 1990s, the Company has made five filings for general rate changes to its Arizona rates. In no case were post-test year wage increases rejected by the Commission.

Q. 35 Please explain Adjustment No. 4, Customer Billing Annualization.

A. 35 Adjustment No. 4, Customer Billing Annualization, annualizes the incremental costs associated with the customer billing function. These incremental costs include: bill stock, toner, envelopes, postage, etc. The incremental cost was applied to the difference between recorded and annualized bills.

Q. 36 Please explain Adjustment No. 5, Uncollectible Accounts

Annualization.

A. 36 Adjustment No. 5, Uncollectible Accounts Annualization, annualizes uncollectible accounts expense (Account 904) to reflect the test year net closing bill write-offs as a percentage of gross revenues. The write-off percent applied to present revenues determines the annualized amount, which is then compared to recorded uncollectible expense to determine the adjustment amount.

Q. 37 Please explain Adjustment No. 6, Promotional Expenses.

A. 37 Adjustment No. 6, Promotional Expenses, removes expenses related to promotional marketing and advertising programs from the cost of service that have not been allowed to be recovered from customers in previous rate applications.

Q. 38 Please explain Adjustment No. 7, American Gas Association (AGA) Dues.

A. 38 Adjustment No. 7, AGA Dues, removes the portion of the Company's dues to the AGA that has been identified as promotional in nature. This adjustment is consistent with previous Commission decisions not allowing the recovery of the promotional portion of the Company's AGA dues.

Q. 39 Please explain Adjustment No. 8, Sarbanes-Oxley Section 404 Compliance (Section 404 Compliance).

A. 39 Adjustment No. 8, Section 404 Compliance, consists of two parts. The first part removes incremental, non-recurring expenses related to the initial assessment and review of internal controls recorded during the test year. This assessment and review was necessary in order to comply

with the requirements in Section 404 of the Sarbanes-Oxley Act of 2002 (the Act). The Company requests that this amount, together with related additional post-test year expenses required to fully implement the Act, be classified as a regulatory asset, giving the Company the opportunity to recover these costs via a regulatory amortization over a three-year period. These costs consist of fees paid to outside consultants the Company engaged to assist it in meeting the compliance requirements of the Act. The requested regulatory amortization is fully calculated in Adjustment No. 17, Annualized Depreciation and Amortization.

The second part of this adjustment adds expected incremental and recurring Section 404 Compliance costs, related to increased annual audit fees, to test year expenses. Section 404 Compliance requires the Company's independent auditors to attest to the adequacy of the Company's internal controls on an annual basis. This increase is estimated to be $400,000-$500,000. As a result, the mid-point of this range, $450,000 was used for this portion of the adjustment. The actual amount will be known and measurable prior to the hearing in this proceeding.

Q. 40 Please explain Adjustment No. 9, Paiute and SGTC Allocation.

A. 40 Adjustment No. 9, Paiute and SGTC Allocation, annualizes the A&G amounts allocated to Paiute and SGTC through the

MMF allocation methodology. The annualization utilizes a MMF rate calculated as of August 31, 2004. This adjustment is consistent with the methodology accepted by the Commission in each of the Company's last seven general rate cases.

Q. 41 Please explain Adjustment No. 13, Rate Case Expense.

A. 41 The Company estimated the incremental costs that would be incurred to process this general rate case, and divided this amount by a three-year period (roughly equal to one rate case cycle) to calculate an annual amortization to Account 928. The adjustment is the difference between this new amortization amount and the amount of rate case expense amortized on the Company's books during the test year.

Q. 42 Please explain Adjustment No. 14, Miscellaneous Adjustments.

A. 42 Adjustment No. 14, Miscellaneous Adjustments, removes certain costs from test year expenses that the Company is not requesting recovery of in this proceeding, such as amounts paid to chambers of commerce and expenses for gym memberships, donations, and various meals.

Q. 43 Please explain Adjustment No. 15, Employee Vehicle Compensation.

A. 43 Adjustment No. 15, Employee Vehicle Compensation, removes from test year expenses the amounts included in employee income for the personal use of Company vehicles that fall under Category D in the Company's Standard Practice (SP)

No. 100.1. This amount is a proxy for the amounts the Company incurred for gasoline and maintenance costs for personal use of Category D vehicles during the test year.

Q. 44 Please define Category D vehicles.

A. 44 Category D vehicles are those vehicles treated as used entirely for personal business. The employees who drive these vehicles are typically officers, directors, and managers. The employee must substantiate the total and business miles on a monthly basis; otherwise, the entire value of the availability of a Category D vehicle will be included in the employee's gross income. Properly documented business miles are not included in the employee's gross income.

Q. 45 Why were expenses removed for only Category D vehicles, and not for Category B vehicles?

A. 45 The Company requires certain employees to use Company vehicles for commuting. Commuting is the only personal use allowed. This category of Company vehicles is referred to in SP 100.1 as Category B. The recent implementation of mobile computing has allowed certain employees to start and end their work days from home (employees participating in the Company's "Start Work from Home" program), saving commuting time to the Company's facilities and getting more service orders completed in a day; thus, increasing the productivity of these employees. This clearly benefits customers since this practice <u>saves time</u> by allowing more work to be done

by each participating employee, and saves money by delaying the need for the Company to hire additional employees. In addition, there is a societal benefit of less traffic and pollution resulting from reduced commuting miles. The Company believes that the nominal amount ($3 per regular work day) attributed to personal use of these vehicles is more than offset by the increased productivity of these employees; therefore, it has not included personal use related to Category B vehicles in this adjustment.

Q. 46 Please explain Adjustment No. 16, Out-of-Period Expenses.

A. 46 Adjustment No. 16, Out-of-Period Expenses, adjusts test year expenses for two items. One item paid one month prior to the test year for a September 2004 rental payment was adjusted into the test year so the test year would contain 12 rental payments. The second item was removed from test year expenses to eliminate two annual payments for the same item during the test year.

Q. 47 Which transactions were reviewed for this adjustment?

A. 47 All Arizona jurisdictional expenses exceeding $50,000 were evaluated to determine whether an adjustment was necessary. This threshold was selected to evaluate only the transactions that would have a material impact on the cost of service.

Q. 48 What is the Company requesting for its annual depreciation and amortization expense?

A. 48 Southwest recorded $73,461,654 of depreciation and

amortization expense for Arizona in the test year. This amount consisted of $64,380,219 of direct expense and $8,194,311 of System Allocable expense (amount after the 4-Factor allocation to Arizona), and $887,124 of regulatory amortizations. In this proceeding, the Company is requesting an annual depreciation and amortization expense of $75,949,648 made up of a direct component of $67,338,861, and a System Allocable component of $7,062,583, and $1,548,204 of regulations amortizations. Consequently, the total adjustment proposed by the Company for depreciation and amortization expense is $2,487,994.

Q. 49 What is included in the Company's adjustment to its depreciation and amortization expense?

A. 49 Adjustment No. 17 consists of all of the adjustments to test period depreciation and amortization expense, including regulatory amortizations. This adjustment annualizes depreciation and amortization expense based on plant existing at the end of the test year, after adjustments. In addition, the Company proposes new System Allocable depreciation rates based on a current depreciation study. Finally, adjustments have been made to remove the expiring regulatory amortization for the Service Investigation program which will end October 2005, and to add regulatory amortizations related to Sarbanes-Oxley Section 404 incremental compliance costs and TRIMP costs.

Q. 50 Please explain the portion of the depreciation and amortization adjustment related to the System Allocable depreciation study.

A. 50 In 2003, the Company commissioned a depreciation study for its Nevada jurisdictions and its System Allocable plant based on plant balances as of December 31, 2002. Southwest is required to file a depreciation study once every four years in accordance with Nevada Administrative Code 703.276, as are all similarly situated public utilities in the State of Nevada. The Company's depreciation study was undertaken and conducted by AUS Consultants - Weber Fick and Wilson Division. On or about March 8, 2004, the depreciation study was filed with the PUCN under Docket No. 04-3011. On August 30, 2004, the PUCN accepted and adopted the System Allocable depreciation rates proposed by Southwest, effective September 1, 2004.

System Allocable plant, as previously noted, represents that intangible and general plant that is used to support overall Company operations and provides benefits to all rate jurisdictions. Consequently, the plant, and its related expense, is allocated to all rate jurisdictions via use of the 4-Factor Methodology. The use of different depreciation rates in each state for System Allocable plant, which is common to all of the Company's rate jurisdictions, would create an administrative burden for the Company, and may also

contribute to unintended ratemaking problems (e.g., cost-shifting and/or auditing difficulties). In addition, the depreciation study undertaken represents a relatively current analysis of the Company's System Allocable plant, as it takes into consideration the rapid changes in computing and communications technology and declining salvage values from obsolescence, as well as the Company's more recent experience regarding retirements and removals. As a result, Southwest requests the Commission approve the proposed System Allocable depreciation rates that are contained in the depreciation study, and that were recently approved by the PUCN. The System Allocable depreciation study, which I support and sponsor, is included in Southwest's rate application in Volume II, Supporting Schedules under Tab I. The adjustment necessary to adopt the proposed System Allocable depreciation rates results in a decrease to Arizona depreciation expense of $818,528 (after 4-Factor allocation).

Q. 51 What are the major changes to depreciation rates contained in the System Allocable depreciation study?

A. 51 Different rates are proposed for all general plant accounts; however, there are only three that have a significant impact on depreciation and amortization expense. Two of the three have proposed depreciation and amortization rates significantly lower than those authorized today. Only one account is proposed to have a

depreciation rate significantly higher than that currently authorized.

Office Furniture and Equipment (Account 391) is proposed to increase from a 3.99 percent depreciation rate to an 8.16 percent depreciation rate. The effect on the Arizona jurisdictional revenue requirement is an increase of $186,222. Computer Hardware and Software (Account 391.1) is proposed to decrease from a current depreciation rate of 30.01 percent to a rate of 16.15 percent. The effect on the Arizona jurisdictional revenue requirement is a decrease of $1,083,243. Finally, while not technically part of the depreciation study itself, since it is non-depreciable plant, the PUCN approved the Company's request for a 15-year amortization of its WMS rather than a 10-year amortization. WMS is recorded in Miscellaneous Intangible Plant (Account 303). The effect on the Arizona jurisdictional revenue requirement is a decrease of $601,001.

Q. 52 Please explain the adjustment necessary to annualize depreciation and amortization expense for the test year.

A. 52 This adjustment is necessary to synchronize the depreciation and amortization expense with the plant in service at the end of the test year, as adjusted. Like many utilities, Southwest employs a depreciation convention based on the month the plant is actually placed in service. Southwest begins depreciation on plant the month subsequent to the month it is first placed in

service, and, in turn, takes a full month's depreciation in the month it is removed or retired from service. As a result, plant that is placed in service or retired after the beginning of the year (e.g. June 2004) only has a partial year's depreciation expense recorded on the books of the Company. To allow Southwest the opportunity to recover its reasonable and necessary operating expenses, and to avoid charging ratepayers for assets removed or retired from service, depreciation and amortization must be annualized based on end of test year plant balances, as adjusted. The annualization adjustment proposed by Southwest accomplishes these objectives.

Q. 53 What is the revenue requirement impact from the proposed adjustment to annualize depreciation and amortization expense?

A. 53 Southwest's depreciation and amortization annualization was calculated for two separate component parts. For plant that directly and physically serves the Arizona jurisdiction (Arizona direct), the annualization adjustment results in an increase of depreciation and amortization expense of $2,958,642, and an increase of $661,080 for regulatory amortizations. For System Allocable plant, the necessary annualization adjustment (with the proposed depreciation and amortization rates and after 4-Factor allocation) results in a decrease in depreciation and amortization expense of $1,131,728 allocated to Arizona. The total proposed depreciation and

amortization adjustment is an increase of $2,487,994.

Q. 54 Please explain Adjustment No. 18, Property Tax.

A. 54 Adjustment No. 18, Property Tax, annualizes property taxes on the Company's adjusted investment in plant and materials as of the end of the test year. For Arizona properties, the Company determines an estimated full cash value by using adjusted net plant in service at August 31, 2004, adding customer CIAC and materials and supplies, and subtracting transportation equipment and land rights. The estimated full cash value is then multiplied by the statutorily required assessment rate to determine the assessed value. The assessed value is then multiplied by the 2004 property tax rate, as adjusted, to determine an annualized property tax expense.

Q. 55 How was the 2004 property tax rate adjusted?

A. 55 There were two bond issues that were recently passed by Arizona voters, they are: 1) Maricopa Community College; and 2) Community College in Yuma County. As a result of these two bond issues, the Arizona property tax rate increased from 12.63 percent of assessed value to 12.77 percent of assessed value to reflect the impact of these two bond issues.

Q. 56 Please explain Adjustment No. 19, Interest on Customer Deposits.

A. 56 Adjustment No. 19, Interest on Customer Deposits, synchronizes interest expense on customer deposits with the amount of customer deposits used as a rate base

deduction. The Company is proposing an interest rate of three percent to calculate annualized interest expense, versus the currently authorized rate of six percent. Interest expense is treated as an above-the-line expense pursuant to prior Commission orders.

Q. 57 How was the proposed three percent interest rate on customer deposits determined?

A. 57 Three percent is roughly equal to the three-year Constant Maturity Treasury Rate in October 2004, which is proposed to correspond with the rate case cycle which is approximately three years.

Q. 58 Please describe Schedule C-3.

A. 58 Schedule C-3, Sheet 1 provides the computation of the gross revenue conversion factor. The gross revenue conversion factor represents the ratio of gross revenue required to produce a $1 change in test year net operating income. Sheet 2 of Schedule C-3 provides the computation of the effective state and federal income tax rates utilized in the application.

Q. 59 Does this conclude your prepared direct testimony?

A. 59 Yes, it does.

Southwest Gas Corporation
Docket No. G-01551A-04-0876

EXHIBIT
A-30
Admitted

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of
Prepared Rebuttal Testimony
of
RANDI L. ALDRIDGE

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Southwest Gas Corporation
Docket No. G-01551A-04-0876

BEFORE THE ARIZONA CORPORATION COMMISSION

Prepared Rebuttal Testimony
of
RANDI L. ALDRIDGE

INTRODUCTION/BACKGROUND

Q. 1 Please state your name, business address, and position.

A. 1 My name is Ms. Randi L. Aldridge. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150-0002. I am employed by Southwest Gas Corporation (Southwest or the Company) in the Revenue Requirements department. My title is Senior Specialist/Revenue Requirements.

Q. 2 Did you sponsor direct testimony on behalf of Southwest in this proceeding?

A. 2 Yes, I did.

Q. 3 What is the purpose of your prepared rebuttal testimony?

A. 3 The purpose of my rebuttal testimony is to respond to specific aspects of the direct testimony presented by Mr. James J. Dorf and Mr. Dennis R. Rogers, witnesses for the Arizona Corporation Commission (ACC) Utilities Division Staff (Staff), and Ms. Marylee Diaz Cortez and Mr. Rodney L. Moore, witnesses for the Residential Utility Consumer Office (RUCO), regarding their recommendations and comments concerning operating expenses and rate base. Company witness, Robert A. Mashas, will address certain operating expense and rate base items, including the Transmission

Integrity Management Program, Pipe Replacement, Management Incentive Plan, Supplemental Employee Retirement Plan, and Injuries and Damages. Company witness Lisa E. Moses will address tax issues. I will address all other operating expense and rate base issues.

Q. 4 Did you prepare exhibits to support your rebuttal testimony?

A. 4 Yes. I prepared the exhibits identified as Rebuttal Exhibit No.___(RLA-1) through Rebuttal Exhibit No.___(RLA-8).

Q. 5 Please summarize your rebuttal testimony.

A. 5 My rebuttal testimony will address pro forma adjustments related to the following issues:

- Labor Annualization: Staff and RUCO's proposed disallowance of within-grade wage movement, and RUCO's proposal to disallow the entire June 2005 wage increase.
- Elimination of the Compensation of 37 Southwest Employees from the Cost of Service: RUCO's recommendation that the total compensation of 37 Southwest employees be disallowed.
- Sarbanes-Oxley (SOX): RUCO's and Staff's adjustment to update estimated SOX costs to actual costs, and Staff's proposed disallowance.
- American Gas Association (AGA) Dues: RUCO's recommendation that additional categories of AGA dues be disallowed in this case.

- Interest on Customer Deposits: The relationship between the rate approved for interest on customer deposits and the Company's revenue requirement.
- Miscellaneous Expenses: RUCO's disallowance of items alleged to be similar to the items the Company removed in Adjustment No. 14.
- Intangible Plant Construction Work-in-Progress (CWIP): Staff's and RUCO's adjustments: to remove an intangible project from CWIP and to update the estimated costs of intangible plant projects in CWIP; and RUCO's adjustment to the accumulated provision for depreciation.
- Completed Construction Not Classified (CCNC): RUCO's conclusion that there should be an adjustment for CCNC projects not placed in service during the test period should not be allowed, and RUCO's adjustment to rate base for CCNC-related retirement work orders.

LABOR ANNUALIZATION

Q. 6 Why did the Company include a labor annualization adjustment for the June 2005 wage adjustment in this rate case?

A. 6 As it has in virtually every rate case filed over the past 20 years or more, the Company prepared a labor annualization adjustment in this rate case to more accurately reflect the true annual cost of serving customers during the time that rates set in this proceeding will be in effect, thus minimizing regulatory

lag. There is a period of approximately 18 months between the end of the test period and the date that rates from this proceeding are expected to become effective. This adjustment attempts to mitigate the impact of regulatory lag by updating the wages of only those employees on the payroll at the end of the test period (August 31, 2004) to the wage expense the Company will be incurring when rates from this proceeding go into effect. This adjustment maintains the integrity of the matching principle, matching the expenses of test year employees with test year customers because the annualization does not apply to any employees hired after August 31, 2004, to meet customer growth or other changes in work requirements. The wage increase adjustment more accurately reflects the true annual cost of serving customers during the time that rates set in this proceeding will be in effect.

Q. 7 Is the labor annualization adjustment only a partial solution to the effects of regulatory lag?

A. 7 Yes. Typically, the Company's rate case cycle is approximately three to four years. The Company expects it will announce a wage increase effective June 2006 and will continue to experience additional wage increases between rate cases due to within-grade movement of its employees. Since the Company will not recover these additional increases in labor expense until its next general rate case, the labor annualization adjustment is

only a partial solution to regulatory lag.

Q. 8 Has the Company prepared its labor annualization adjustment consistent with prior general rate cases in Arizona?

A. 8 Yes. The Company has used a consistent methodology to annualize labor in this proceeding, including a post-test year general wage increase and a post-test year within-grade movement increase. In the Company's three most recently litigated general rate cases, the ACC has accepted the Company's labor annualization methodology. Most recently, in Decision No. 64172, the Commission allowed the post-test year wage increases, because they were known and measurable and should be allowed.

Q. 9 Can you provide evidence to counter any argument that the Company's proposed post test period wage increases are not known and measurable and that the Company's estimates were reasonable?

A. 9 Yes. I prepared Rebuttal Exhibit No.___(RLA-1), Sheet 1, which shows the recorded within-grade movement from September 1, 2004 through August 7, 2005 (the most recent date available, which is just a few weeks short of the entire year of increases projected in the Company's filing), along with the actual general wage increases granted on June 27, 2005. Only those employees on the Company's payroll at the end of the test period were included in this exhibit. Line 9 of this exhibit shows that the actual percentage for post-test year wage

increases was 3.30 percent for Arizona and 3.74 percent for Corporate, compared to the percentages of 3.35 percent and 2.29 percent, respectively, projected by the Company on Line 10.

Q. 10 If the actual wage increases for the 2005 general wage increase and the within-grade movement were substituted for the percentages the Company projected in its filing, what would the impact be on the revenue requirement?

A. 10 As shown in Rebuttal Exhibit No.___(RLA-1), Sheet 2, using the actual percentages calculated in Rebuttal Exhibit No.___(RLA-1), Sheet 1, which are now known and measurable, would increase the Company's revenue requirement by $256,740.

Q. 11 Will you be addressing RUCO's proposed adjustment to remove 37 employees from the cost of service?

A. 11 Yes. I will address the bulk of this issue later in my testimony in the section "Elimination of the Compensation of 37 Southwest Employees from the Cost of Service."

Q. 12 Please comment on the impact of RUCO's proposed adjustment on the Company's overtime expense if the Commission removes these 37 employees from the cost of service.

A. 12 RUCO's assertion that the Company's calculation of its overtime percentage would result in an overstatement of overtime labor expense would only be correct if those employees were eligible to earn overtime. Since these 37

employees are exempt,[1/] RUCO's assertion is incorrect. If exempt employees were to be removed from the cost of service, as RUCO is recommending in this case, the overtime percentage would have to be recalculated in order to ensure the Company is made whole and is allowed to recover all of its overtime expense. As such, should the Commission accept RUCO's adjustment to remove 37 employees from the cost of service, it should not make any adjustment to the Company's requested overtime expense.

Q. 13 What is your recommendation to the Commission regarding Staff's and RUCO's labor annualization recommendation?

A. 13 The post-test year wage increases that have been proposed by Southwest, including the within-grade increase, are reasonable and should be allowed in rates. Staff's recommendation to deny the Company's post-test year within-grade increase and RUCO's recommendation to deny both the within-grade increase and the post-test year general wage increase are unfounded and unreasonable. Both Staff and RUCO have failed to present any sound justification for their respective disallowances and, therefore, they should be rejected.

ELIMINATION OF THE COMPENSATION OF 37 SOUTHWEST EMPLOYEES FROM THE COST OF SERVICE

Q. 14 What is RUCO proposing with respect to the elimination of

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1/ The term Exempt employee or job refers to a qualification for an exemption of overtime requirements under the Fair Labor Standards Act. As such, Exempt employees are not eligible to earn additional pay for working overtime.

the compensation of 37 Southwest employees?

A. 14 RUCO purportedly reviewed the Company's annualized payroll run and then removed any employee who received compensation under the Sales Incentive Plan (SIP).

Q. 15 Did RUCO request a description of the primary responsibilities of the 37 employees it proposes to eliminate during the discovery process?

A. 15 No. It appears RUCO relied solely on the SIP document, which was provided in response to a data request requesting information about the Company's incentive programs, to justify its adjustment.

Q. 16 Does the SIP document provide a description of the primary responsibilities of the 37 employees RUCO recommends to disallow?

A. 16 No. The SIP document merely sets forth the requirements that each eligible employee must meet in order to earn compensation from that program. The SIP represents only a part of the eligible employee's total compensation and the program document does not describe the duties and responsibilities of the various employees who are eligible to earn compensation under that program. As such, RUCO's proposed disallowance is unwarranted.

Q. 16 What are the duties and responsibilities of the 37 Southwest employees RUCO identified for removal?

A. 16 Company witness Christina A. Palacios will summarize the duties and responsibilities of the positions of the 37 employees RUCO identified for removal and explain that

the expenditures for these positions are absolutely essential in providing utility service to its customers.

Q. 17 Did the Commission address this issue in Southwest's last Arizona general rate case?

A. 17 Yes. In Southwest's last Arizona general rate case (Docket No. G-01551A-00-0309), the Commission stated:

> "While these individuals may engage in some marketing activities, they do much more than that, including coordinating the entire process of delivering gas to a specific site. Southwest argues these jobs cannot be eliminated . . . We further agree with the Company that RUCO's proposed removal of half of the costs associated with the sales and marketing staff is not warranted, as these employees are necessary for processing a request for service."

Q. 18 What is your recommendation to the Commission regarding RUCO's proposed disallowance of the compensation for these 37 employees?

A. 18 RUCO's proposed disallowance is unfounded and should be denied. RUCO has failed to present any sound justification for the removal of these 37 employees from the cost of service. To the contrary, Southwest has presented an abundance of evidence to support the inclusion of these 37 Southwest employees in the cost of service, and Southwest's inclusion of these employees is consistent with prior Commission decisions.

SARBANES-OXLEY (SOX)

Q. 19 Please summarize the Company's SOX adjustment.

A. 19 There are two parts to the Company's SOX adjustment.

1. Implementation Costs – These costs represent the initial assessment and review of the Company's internal controls. Most of these costs were either incurred or invoiced, but not paid, during the test period. The Company requested that these one-time, incremental costs be recovered over a three-year period through a regulatory amortization, and that any amounts recorded during the test period be removed from operating expenses so those expenses would not be double-counted for ratemaking purposes.

2. Audit Fees – The Company's annual outside audit fees increased substantially due to the expanded scope of the audit needed to comply with SOX. These are recurring costs starting in 2005 with the audit of 2004 information, and the Company made an adjustment to operating expenses in order to recover these recurring incremental costs.

Initially, the Company estimated the expenses related to the annual outside audit because the actual audit fees were not known until several months after the rate case was filed. The Company underestimated its increase in audit fees related to SOX and slightly overestimated its costs related to implementation.

Q. 20 Do you agree with RUCO's and Staff's proposed adjustments to update the Company's actual costs pertaining to SOX?

A. 20 Yes. However, RUCO and Staff also made other adjustments that Southwest does not agree with.

Q. 21 What RUCO adjustments does Southwest not agree with?

A. 21 RUCO incorrectly assumed the Company double-counted some of its implementation costs recorded during the test period. However, my Rebuttal Exhibit No. __ (RLA-2) shows the correct calculation of the SOX adjustment, after updating all costs to actual, and there is no double-counting of implementation costs. After updating estimated SOX costs to actual, operating expenses are increased by $458,530, and the Company's requested regulatory amortization is $14,414 per year for three years.

Q. 22 What Staff adjustments does Southwest oppose?

A. 22 Southwest opposes Staff's proposed disallowance of the Company's request to recover its SOX implementation costs through a regulatory amortization. While the Company recognizes the implementation costs are non-recurring in nature, these costs were necessary in order to comply with the onerous requirements of Section 404 of the SOX Act. The Company was able to keep its implementation costs relatively low because it used internal labor (exempt employees working uncompensated overtime on this project in addition to their normal duties) and believes it is equitable and reasonable to request that customers compensate the Company for its modest incremental external costs associated with complying with a federal mandate through a regulatory amortization.

Further, the Company opposes Staff's conclusion that

25 percent of the recurring incremental annual audit fees related to SOX are non-recurring implementation costs. Staff has simply made an unfounded assertion and has failed to present any evidence that these costs are non-recurring implementation costs. As such, to categorize any portion of the Company's annual audit fees as non-recurring implementation costs is simply incorrect and should be rejected by the Commission.

The Company also opposes Staff's proposal of a sharing concept (i.e. disallowance) with regard to its recurring annual outside audit fees related to the additional audit work required to comply with the SOX Act. These audit fees were necessary costs of doing business and complying with a federal mandate. Furthermore, the level of increases in SOX costs the Company is requesting is reasonable, as Staff itself has admitted (Dorf, Page 16, line 13). Therefore, Staff's recommendation of disallowing one-half of the recurring incremental audit fees related to SOX is unsupported and unreasonable and should be rejected by the Commission.

Q. 23 Would the Company be able to eliminate the portion of expense not allowed for recovery in rates, should any portion of this expense be disallowed?

A. 23 No. Neither the Company nor its outside auditors have the discretion to alter the scope of the SOX compliance portion of the audit. These audit fees are not discretionary; they are required in order for the Company

and its outside auditors to comply with federal regulations that apply to every publicly traded company.

AGA DUES

Q. 24 Does Southwest agree with RUCO's proposed disallowance with regard to AGA dues?

A. 24 No. In compliance with prior Commission orders, the Company has already removed the percentage of the AGA's budget reported in the marketing and lobbying categories. I have attached the documentation supporting the percentages removed as Rebuttal Exhibit No.___(RLA-3), Sheets 1 and 2.

Q. 25 Does Southwest agree with RUCO's proposed disallowances pertaining to the Communications group of the AGA?

A. 25 No, according to the AGA, the Communications group develops information materials for member companies and consumers and coordinates all media activity. Also, the Communications group is an informational function as described above, it is <u>not a marketing or promotional</u> function that is similar to costs the Commission has disallowed in the past. The portion of the AGA dues allocated to the Communications group is reasonable, and the Company should be allowed to recover them.

Q. 26 Does Southwest agree with RUCO's proposed disallowances pertaining to the Public Affairs group of the AGA?

A. 26 No. The Public Affairs group provides members with information on legislative developments, prepares testimony, comments, and filings regarding legislative

activities, and lobbies on behalf of the industry. The lobbying portion of the Public Affairs group has already been removed by the Company. Furthermore, Rebuttal Exhibit No.___(RLA-3), Sheet 3, is a page from the most recent Audit Report available to the Company, and further explains the AGA's Public Affairs activities. In 2002, its major federal, legislative, and regulatory efforts were pipeline safety legislation and regulation, federal funding for Low Income Home Energy Assistance Program (LIHEAP), federal funding for research, and national energy policy legislation. The portion of the AGA dues allocated to the Public Affairs group is reasonable, and the Company should be allowed to recover them.

INTEREST ON CUSTOMER DEPOSITS

Q. 27 Did RUCO oppose the Company's proposal regarding customer deposits?

A. 27 No.

Q. 28 Did Staff oppose the Company's proposal regarding interest on customer deposits?

A. 28 Yes. Staff witness Robert Gray recommended the Company retain its current rate for interest on customer deposits, which is six percent. Company witness A. Brooks Congdon will address the Company's position regarding the appropriate interest rate that should be allowed on customer deposits in his rebuttal testimony.

Q. 29 If the Commission accepts Staff's recommendation to have the Company retain the current rate on customer deposits

of six percent, is there a corresponding adjustment that would be necessary?

A. 29 Yes. In order for the Company to be made whole, the interest rate used to calculate interest paid on customer deposits (to be recovered in operating expenses) must match the interest rate it is authorized to charge customers on their customer deposit balances. I have prepared Rebuttal Exhibit No.___(RLA-4), which shows that Staff's recommendation increases operating expenses by $717,364. In addition, in response to Southwest's third set of data requests, Data Request No. 1, Staff acknowledged that if the Commission authorizes a customer deposit rate of anything other than three percent, an adjustment to the revenue requirement would be appropriate.

MISCELLANEOUS EXPENSES

Q. 30 Did RUCO justify which miscellaneous expenses should be removed and not subject to recovery by the Company?

A. 30 No. RUCO simply stated that these expenses "are not necessary in the provisioning of gas service." Further, RUCO's workpapers lack any detail explaining the reasoning for proposing to disallow any single expenditure.

Q. 31 What is your position regarding RUCO's adjustment?

A. 31 The Company asserts that the vast majority of these expenditures are reasonable, recurring, and necessary business expenses and should remain in the cost of

service. However, the Company, after additional review, is willing to accept a small portion of RUCO's proposed adjustment, and those amounts are identified in Rebuttal Exhibit No.___(RLA-5).

Q. 32 Please provide a summary of the transactions RUCO identified for removal, which the Company believes are reasonable and necessary business expenses.

A. 32 I have prepared an exhibit (Rebuttal Exhibit No.___ (RLA-6), which further details the transactions RUCO identified for removal that the Company believes are necessary to provide service.

The categories of expenditures RUCO identified for removal include, without limitation, the following:

- Moving expenses incurred while transferring a Company employee from Tucson to Phoenix;
- Safety awards and costs related to the Emergency Operations Center and Emergency Response Facility;
- Alcohol and Drug Testing costs;
- Continuing Professional Education expenses.

When the categories of the transactions on Sheets 1 and 2 are not self-explanatory, I have provided additional descriptions of the category and examples of the types of expenditures within those categories on Sheets 3 and 4 of this exhibit. This exhibit demonstrates that RUCO's proposed adjustment was not based on an informed knowledge of the business purpose for the specific transactions, and the portion of RUCO's

adjustment detailed in Rebuttal Exhibit No.___(RLA-6) should be rejected by the Commission and allowed to be recovered by the Company.

INTANGIBLE PLANT CONSTRUCTION WORK IN PROGRESS (CWIP)

Q. 33 Do you agree with Staff's adjustment to remove an intangible plant project that was not completed from CWIP?

A. 33 Yes.

Q. 34 Did RUCO propose a similar adjustment?

A. 34 Yes. However, RUCO proposed to take this adjustment one step further by proposing to remove the net plant from rate base related to projects with amortizations that expire before December 31, 2004.

Q. 35 Does the Company agree with RUCO's additional adjustment to intangible plant?

A. 35 The Company agrees with part of the adjustment. The Company's post-test year adjustment to remove amortizations expiring at or prior to December 31, 2004, and to add intangible projects in CWIP expected to go into service at or prior to December 31, 2004, failed to recognize the rate base impact of the expiring amortizations. However, there is one correction that needs to be made to RUCO's Schedule MDC-2. There is a typographical error on Line 19(a) and (c), the amount needs to be increased from $301,440 to $601,440, and in response to a data request, RUCO acknowledge a typographical error and the need for a correction.

Q. 36 What portion of the adjustment does the Company dispute?

A. 36 The Company noticed an additional adjustment to accumulated amortization in Schedule RLM-3, Line 3(k). In response to a data request, Ms. Marylee Diaz Cortez explained that she used a one-half year convention to reflect the accumulated amortization that would have been recorded had this adjustment been made during the test year.

Q. 37 Why does the Company dispute this portion of the adjustment?

A. 37 The Company does not use a one-half year convention to amortize intangible plant. Amortization begins the month after the asset is placed into service. Therefore, removing the net plant balance at the end of the test period is the only adjustment necessary to rate base to correctly measure the impact of removing the assets that will be fully-amortized by the end of 2004 from the cost of service; no additional adjustment is necessary.

COMPLETED CONSTRUCTION NOT CLASSIFIED (CCNC)

Q. 38 Does the Company agree with RUCO's proposed adjustment to include only those work orders with an in-service date before the end of the test period?

A. 38 No. In the CCNC adjustment, the Company is requesting recovery of those dollars spent in certain non-revenue producing work orders during the test period because those dollars represent rate base that was serving customers during the test year. Many of these work orders

represent large pipe replacement projects which may be ongoing for several months and the in-service dates referenced by RUCO indicate when the entire project was completed. Though many of these work orders closed subsequent to the end of the test period, the expenditures made during the test period should be allowed to be recovered by the Company in order to be consistent with the matching principle, matching test year customers with the plant used to serve those customers.

Q. 39 Please provide a general example of the activity of a pipe replacement CCNC work order from beginning to end.

A. 39 Certainly. A large segment of pipe is identified for replacement, and for ease of administration is placed into a single construction work order. Small segments of pipe are replaced at a time, to minimize inconvenience to customers. Each segment of new pipe is actually serving customers, in most cases, within hours of its installation. When the last foot of pipe is replaced and the last bit of road is paved over the pipe, the work order is noted as "in-service" within the Company's systems. The work order does not close until all trailing charges related to the work order have been booked, which may be one to two months after the in-service date.

Q. 40 Did Staff propose an adjustment to CCNC similar to RUCO's adjustment?

A. 40 No. Staff concluded that the tangible plant was used and

useful by the end of the test year (Rogers, Page 4, Lines 3-4).

Q. 41 Please provide additional information about the work orders in question?

A. 41 The attached Rebuttal Exhibit No.___(RLA-7) details each work order, the balance at the end of the test period, the total amount transferred to plant in service, and the in-service date. This exhibit shows that the majority of the CCNC work orders were completed and noted as in service by mid-2005 in the Company's systems.

Q. 42 Is RUCO's additional downward adjustment to rate base for the retirement costs related to the CCNC work orders correct?

A. 42 No. Attached is Rebuttal Exhibit No.___(RLA-8), which calculates what the rate base impact of retiring these assets would be. There are three amounts captured in a retirement work order: book cost, removal costs, and salvage. The book cost would result in equal reductions to gross plant and the accumulated reserve, and any removal costs (net of salvage) would actually <u>reduce</u> the accumulated reserve (which increases rate base) by $7,361. The Company maintains its position that this calculation is not necessary for its CCNC adjustment due to its negligible impact on rate base.

Q. 43 Does this conclude your prepared rebuttal testimony?

A. 43 Yes, it does.

SOUTHWEST GAS CORPORATION
ARIZONA
RECORDED WITHIN-GRADE AND GENERAL WAGE INCREASES

Line No.	Description (a)	Arizona (b)	Corporate (c)	Line No.
1	Annualized Salaries at August 31, 2004 [1]	$ 61,779,296	$ 41,807,212	1
	Actual Wage Increases: [2]			
2	Recorded Within-Grade Increases 9/1/04-8/7/05:	$ 689,510	$ 122,450	2
3	General Wage Increase Granted June 27, 2005:	1,346,139	1,440,837	3
4	Total	$ 2,035,649	$ 1,563,287	4
	Within-Grade Increases			
5	Actual Percentage Increase (Ln 2 / Ln 1)	1.12%	0.29%	5
6	Proposed Percentage Increase [3]	1.35%	0.29%	6
	General Wage Increase			
7	Actual Percentage Increase (Ln 3 / Ln 1)	2.18%	3.45%	7
8	Proposed Percentage Increase [3]	2.00%	2.00%	8
	Total			
9	Actual Percentage Increase (Ln 5 + Ln 7)	3.30%	3.74%	9
10	Proposed Percentage Increase (Ln 6 + Ln 8)	3.35%	2.29%	10

[1] WP Schedule C-2, Adj. 3, Sh 3, Ln 1
[2] Includes wage increases only for employees on the Company's payroll at August 31, 2004.
[3] WP Schedule C-2, Adj. 3, Sh 4, Note [3]

SOUTHWEST GAS CORPORATION
ARIZONA
ACTUAL JUNE 2005 GENERAL WAGE INCREASE AND WITHIN-GRADE MOVEMENT

Line No.	Description (a)	Reference (b)	Arizona (c)	Corporate Direct (d)	System Allocable (e)	Total (f) (c) + (d) + (e)	Line No.
1	Annualized Salaries at 8/31/04	WP Sch C-2, Adj. 3, Sh 3, Ln 1	$ 61,779,296	$ 41,807,212	$ 41,807,212		1
2	Historical Distribution	WP Sch C-2, Adj. 3, Sh 3, Ln 5	n/a	6.80%	87.25%		2
3	Distributed Annualized Salaries	Ln 1 * Ln 2	$ 61,779,296	$ 2,843,265	$ 36,475,304		3
4	**Actual Wage Increase Percentages**	Rebuttal Exh. No. ___(RLA-?), Ln 9	**3.30%**	**3.74%**	**3.74%**		4
5	Annualized Labor	Ln 3 * (1 + Ln 4)	$ 63,814,945	$ 2,949,583	$ 37,839,217		5
6	Overtime Percentage	WP Sch C-2, Adj. 3, Sh 4, Ln 4	8.53%	2.77%	0.43%		6
7	Annualized Labor + Overtime	Ln 5 * (1 + Ln 6)	$ 69,260,748	$ 3,031,319	$ 38,002,599		7
8	Percent Indirect Time	WP Sch C-2, Adj. 3, Sh 4, Ln 7	13.53%	12.33%	12.33%		8
9	Indirect Time	Ln 7 * Ln 8	$ 9,374,278	$ 373,708	$ 4,685,054		9
10	Annualized Labor, Less Indirect Time	Ln 7 - Ln 9	$ 59,886,470	$ 2,657,610	$ 33,317,545		10
11	O&M Percent	[1]	81.02%	100%	96.51%		11
12	Annualized Labor to O&M Accounts	Ln 10 * Ln 11	$ 48,518,347	$ 2,657,610	$ 32,154,763		12
13	Paiute and SGTC Allocation	Sch C-1, Sh 19, Ln 8(g+h)	n/a	n/a	4.29%		13
14	Annualized Labor after Paiute and SGTC Allocation	Ln 12 - (Ln 12 * Ln 13)	$ 48,518,347	$ 2,657,610	$ 30,775,324		14
15	4-Factor Allocation to Arizona	Sch C-1, Sh 18, Ln 10(b)	n/a	n/a	57.58%		15
16	Annualized Labor after Allocation to Arizona	Ln 14 * Ln 15	$ 48,518,347	$ 2,657,610	$ 17,720,431		16
17	Proposed Annualized Labor after Allocation to Arizona	[2]	$ 48,546,243	$ 2,620,441	$ 17,472,965		17
18	Impact on Requested Revenue Requirement	Ln 16 - Ln 17	$ (27,895)	$ 37,169	$ 247,466	$ **256,740**	18

The following references refer to sheet numbers in WP Sch C-2, Adj. 3:

[1] Arizona: Sh 15, Ln 11(c); Corp Dir: Sh 20, Ln 5(c); Sys Alloc: Sh 20, Ln 5(f)

[2] Arizona: Sh 15, Ln 10(c); Corp Dir: Sh 20, Ln 6(c); Sys Alloc: Sh 20, Ln 6(f) * (1-4.29%) * 57.58%.

REBUTTAL TESTIMONY
EXHIBIT NO.___(RLA-1)
SHEET 2 OF 2

SOUTHWEST GAS CORPORATION
ARIZONA
UPDATED INCREMENTAL SARBANES-OXLEY 404 (SOX 404) COMPLIANCE COSTS
ADJUSTMENT NO. 8

Line No.	Description (a)	Reference (b)	Account Number (c)	Amounts (d)	Line No.
	Test Period SOX 404 Incremental Costs				
1	Incremental Costs Recorded During Test Period [1]	WP C-2, Adj. 8	921	$ 13,765	1
2	Incremental Costs Recorded During Test Period [1]	WP C-2, Adj. 8	923	48,225	2
3	Total Incremental Costs Recorded During Test Period	Ln 1 + Ln 2		$ 61,990	3
4	Test Year Costs to Reclassify	Ln 3 * -1		(61,990)	4
5	Less: Paiute & SGTC Allocation at 4.29%	Ln 4 * 4.29% [1]		2,658	5
6	Amount to Reclassify Before 4-Factor	Ln 4 + Ln 5		$ (59,333)	6
7	Arizona 4-Factor	C-1, Sh 18		57.58%	7
8	Reclassification Allocated to Arizona	Ln 6 * Ln 7		$ (34,164)	8
	Regulatory Amortization - SOX 404				
9	Additional Incremental Costs Invoiced [2]	WP C-2, Adj. 8	923	$ 16,470	9
10	Total Implementation Costs	Ln 3 + Ln 9 + Ln 10		$ 78,461	10
11	Proposed Amortization Period			3	11
12	Total Annual Amortization Before Allocation	Ln 11 / Ln 12		26,154	12
13	Less: Paiute & SGTC Allocation at 4.29%	Ln 13 * 4.29% [1]		(1,121)	13
14	Total Annual Amortization Before 4-Factor	Ln 13 + Ln 14		$ 25,032	14
15	Arizona 4-Factor	C-1, Sh 18		57.58%	15
16	**Amortization Allocated to Arizona**	**407.3**		**$ 14,414**	16
	Estimated Incremental Annual Audit Fees				
17	for SOX 404 Opinion [3]		923	$ 894,000	17
18	Less: Paiute & SGTC Allocation at 4.29%	Ln 18 * 4.29% [1]		(38,329)	18
19	Allocation Before 4-Factor	Ln 18 + Ln 19		$ 855,671	19
20	Arizona 4-Factor	C-1, Sh 18		57.58%	20
21	Amount Allocated to Arizona	Ln 20 * Ln 21		$ 492,693	21
22	Incremental Annual Audit Fees Allocated to Arizona	Ln 21		$ 492,693	22
23	Less: TY Amount in A&G Reclassified to Regulatory Amort.	Ln 8		(34,164)	23
24	**Net Adjustment to A&G Expense**	**Ln 23 + Ln 24**		**$ 458,530**	24

[1] Rebuttal Exhibit No. ___(RLA-2), Sheet 2, Ln 6.
[2] Rebuttal Exhibit No. ___(RLA-2), Sheet 2, Ln 11.
[3] Rebuttal Exhibit No. ___(RLA-2), Sheet 2, Ln 20.

SOUTHWEST GAS CORPORATION
SYSTEM ALLOCABLE
UPDATED INCREMENTAL SARBANES-OXLEY 404 COMPLIANCE COSTS
ADJUSTMENT NO. 8

Line No.	Description (a)	Account (b)	Month Paid (c)	Amount (d)	Line No.
	SOX 404 Implementation Costs				
	Paid During Test Period				
1	Jefferson Wells [1]	921	06/04	$ 6,618	1
2	Jefferson Wells [1]	921	07/04	7,147	2
3	Ernst & Young	923	08/04	22,395	3
4	Ernst & Young	923	06/04	15,830	4
5	Ernst & Young	923	03/04	10,000	5
6	Total Test Year Amount to Reclassify to 407.3			$ 61,990	6
	Paid After Test Period				
7	Jefferson Wells	923	10/04	$ 18,718	7
8	Jefferson Wells	923	10/04	3,802	8
9	Jefferson Wells	923	10/04	(4,400)	9
10	Jefferson Wells	923	10/04	(1,650)	10
11	Implementation Costs Paid After Test Period			$ 16,470	11
12	Total Implementation Costs			$ 78,461	12
	Incremental Annual Audit Fees for SOX 404 Opinion				
	Paid During Test Period				
13	PriceWaterhouseCoopers	923	8/04	$ 21,000	13
	Paid After Test Period				
14	PriceWaterhouseCoopers	923	12/04	150,000	14
15	PriceWaterhouseCoopers	923	12/04	100,000	15
16	PriceWaterhouseCoopers	923	12/04	100,000	16
17	PriceWaterhouseCoopers	923	2/05	120,000	17
18	Paid to PriceWaterhouseCoopers to Date			$ 470,000	18
	Accrued March 2005 (invoice not yet received)				
19	PriceWaterhouseCoopers	923	3/05	$ 424,000	19
20	Subtotal: Paid/Accrued After Test Period [2]			$ 894,000	20
21	Total Incremental Annual Audit Fees for SOX 404 Opinion			$ 915,000	21

[1] Reclassified from Account 921 to 923 in 10/04 in JE 335.
[2] Amount to be added to Account 923 in Adjustment No. 8.

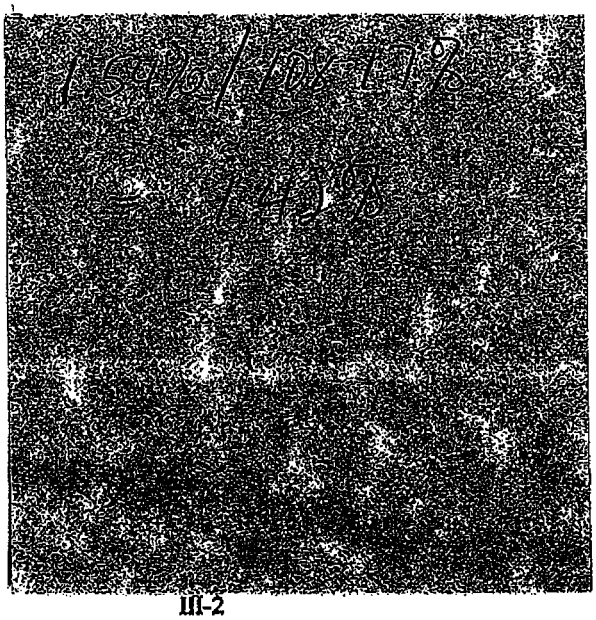
American Gas Association
Expenditures Funded by Member Dues
For the Year Ended December 31, 2003

REBUTTAL TESTIMONY
EXHIBIT NO.___(RLA-3)
SHEET 1 OF 3

Group Number	Group Name	Net Expense		Adjustments	G&A Allocation (3)	Adjusted Net Expense	% of Dues
03	Public Affairs	5,466,314	1, 2	(2,086,787)	594,755	3,974,282	23.35%
03	Communications	-	2	2,135,112	543,776	2,678,888	15.74%
06, 16	Corporate Affairs and International	1,588,513		-	441,818	2,030,331	11.93%
05	General Counsel & Corp. Secretary	669,281	1	(36,677)	203,916	836,520	4.91%
09	Regulatory Affairs	1,126,488	1	984,182	339,860	2,450,530	14.40%
08	Marketing Development	160,846	1	-	101,958	262,804	1.54%
14	Operating & Engineering Services	2,727,138	1	(815,865)	1,121,540	3,032,813	17.82%
07	Policy & Analysis	1,373,570	1	419,920	543,776	2,337,266	13.73%
12	Industry Finance & Admin. Programs	655,825		-	152,937	808,762	4.75%
01,10,11	General & Administrative Expense	4,044,336		-	(4,044,336)	-	0.00%
	Grand Total	17,812,311		$ 599,885	$ -	$ 18,412,196	108.17%

Adjustments as a result of AGA/NARUC Oversight Committee Staff agreement.

1 Allocation of salaries and other expenses to benefiting group.
2 Breakout of communications portion of division expenses
3 G&A allocated on basis of average equivalent full-time employees during 2003.



REBUTTAL TESTIMONY
EXHIBIT NO.___(RLA-3)
SHEET 2 OF 3

Calculation of Lobbying Expenses Pursuant to
Internal Revenue Code Section 162(e)

The American Gas Association incurred lobbying expenses, as defined under IRC Section 162, of 2.10% of total member dues during calendar year 2003.

IRC Section 162 Definition of Lobbying

(e) Denial of deduction for certain lobbying and political expenditures
- (1) In general no deduction shall be allowed under subsection (a) for any amount paid or incurred in connection with -
  - (A) influencing legislation,
  - (B) participation in, or intervention in, any political campaign on behalf of (or in opposition to) any candidate for public office,
  - (C) any attempt to influence the general public, or segments thereof, with respect to elections, legislative matters, or referendums, or
  - (D) any direct communication with a covered executive branch official in an attempt to influence the official actions or positions of such official.
- (2) Exception for local legislation - In the case of any legislation of any local council or similar governing body -
  - (A) paragraph (1)(A) shall not apply, and
  - (B) the deduction allowed by subsection (a) shall include all ordinary and necessary expenses (including, but not limited to, traveling expenses described in subsection (a)(2) and the cost of preparing testimony) paid or incurred during the taxable year in carrying on any trade or business -
    - (i) in direct connection with appearances before, submission of statements to, or sending communications to the committees, or individual members, of such council or body with respect to legislation or proposed legislation of direct interest to the taxpayer, or
    - (ii) in direct connection with communication of information between the taxpayer and an organization of which the taxpayer is a member with respect to any such legislation or proposed legislation which is of direct interest to the taxpayer and to such organization, and that portion of the dues so paid or incurred with respect to any organization of which the taxpayer is a member which is attributable to the expenses of the activities described in clauses (i) and (ii) carried on by such organization.
- (3) Application to dues of tax-exempt organizations - No deduction shall be allowed under subsection (a) for the portion of dues or other similar amounts paid by the taxpayer to an organization which is exempt from tax under this subtitle which the organization notifies the taxpayer under section 6033(e)(1)(A)(ii) is allocable to expenditures to which paragraph (1) applies.
- (4) Influencing legislation - For purposes of this subsection -
  - (A) In general The term "influencing legislation" means any attempt to influence any legislation through communication with any member or employee of a legislative body, or with any government official or employee who may participate in the formulation of legislation.
  - (B) Legislation - The term "legislation" has the meaning given such term by section 4911(e)(2).
- (5) Other special rules
  - (A) Exception for certain taxpayers - In the case of any taxpayer engaged in the trade or business of conducting activities described in paragraph (1), paragraph (1) shall not apply to expenditures of the taxpayer in conducting such activities directly on behalf of another person (but shall apply to payments by such other person to the taxpayer for conducting such activities).
  - (B) De minimis exception
    - (i) In general Paragraph (1) shall not apply to any in-house expenditures for any taxable year if such expenditures do not exceed $2,000. In determining whether a taxpayer exceeds the $2,000 limit under this clause, there shall not be taken into account overhead costs otherwise allocable to activities described in paragraphs (1)(A) and (D).
    - (ii) In-house expenditures for purposes of clause (i), the term "in-house expenditures" means expenditures described in paragraphs (1)(A) and (D) other than
      - (I) payments by the taxpayer to a person engaged in the trade or business of conducting activities described in paragraph (1) for the conduct of such activities on behalf of the taxpayer, or
      - (II) dues or other similar amounts paid or incurred by the taxpayer which are allocable to activities described in paragraph (1).
  - (C) Expenses incurred in connection with lobbying and political activities - Any amount paid or incurred for research for, or preparation, planning, or coordination of, any activity described in paragraph (1) shall be treated as paid or incurred in connection with such activity.
- (6) Covered executive branch official - For purposes of this subsection, the term "covered executive branch official" means -
  - (A) the President,
  - (B) the Vice President,
  - (C) any officer or employee of the White House Office of the Executive Office of the President, and the 2 most senior level officers of each of the other agencies in such Executive Office, and
  - (D) (i) any individual serving in a position in level I of the Executive Schedule under section 5312 of title 5, United States Code, (ii) any other individual designated by the President as having Cabinet level status, and (iii) any immediate deputy of an individual described in clause (i) or (ii).
- (7) Special rule for Indian tribal governments - For purposes of this subsection, an Indian tribal government shall be treated in the same manner as a local council or similar governing body.
- (8) Cross reference - For reporting requirements and alternative taxes related to this subsection, see section 6033(e).

Citation: IRC Sec. 6033(e)

AMERICAN GAS ASSOCIATION

Government Relations Division Expenses Including Allocation of General and Administrative Expense

For the year ended December 31, 2002

Division	Expense
Public Affairs The American Gas Association monitored and represented the activities of Congress and Federal agencies that affected issues of importance to the natural gas industry and its customers. This division also monitored state and local legislative and regulatory trends. In 2002 its major federal, legislative and regulatory efforts were pipeline safety legislation and regulation, Federal funding for Low Income Home Energy Assistance Program (LIHEAP), federal funding for research, and national energy policy legislation.	$3,994,184
Regulatory Affairs Prepares comments in regulatory proceedings before the FERC and participates in public policy discussions with NARUC. During 2002, it was active in a number of FERC proceedings involving regulations of interstate pipelines.	$2,566,965
Total Government Relations Expenses	$6,561,149

SOUTHWEST GAS CORPORATION
ARIZONA
IMPACT OF CHANGE IN INTEREST RATE ON INTEREST ON CUSTOMER DEPOSITS

Line No.	Description (a)	Amount (b)	Line No.
1	Thirteen Month Average Balance [1]	$ 23,912,141	1
2	Interest Rate increased from 3% to 6%	3.00%	2
3	Increased Interest Expense (Ln 1 * Ln 2)	$ 717,364	3

[1] Schedule C-2, Adj 19, Sheet 1, Ln 16(e)

SOUTHWEST GAS CORPORATION
ARIZONA
MISCELLANEOUS EXPENDITURES
AMOUNTS COMPANY AGREES WITH RUCO TO REMOVE

Line No.	Account	Gross Amount	Allocation to PP and SGTC	Amount Net of Allocation to PP and SGTC	Allocation to Arizona	Arizona Total	Line No.
1	870	$ 6,956	-	$ 6,956	100.00%	$ 6,956	1
2	880	31,953	-	31,953	100.00%	31,953	2
3	902	95	-	95	100.00%	95	3
4	921	13,481	4.29%	12,903	57.58%	7,429	4
5	923	27,400	4.29%	26,225	57.58%	15,100	5
6	930	1,143	4.29%	1,094	57.58%	630	6
7		$ 81,029		$ 79,227		$ 62,165	7

SOUTHWEST GAS CORPORATION
ARIZONA
MISCELLANEOUS EXPENDITURES
CATEGORIZATION OF EXPENSES NECESSARY TO PROVIDE SERVICE

Line No.	Description (a)	Account (b)	Gross Amount (c)	Allocation to PP and SGTC	Amount Net of Allocation to PP and SGTC	Allocation to Arizona	Arizona Total	Line No.
1	Alcohol/Drug Testing	921	946	4.29%	905	57.58%	521	1
2	Annual Shareholder Meeting	930	21,477	4.29%	20,556	57.58%	11,836	2
3	Coffee, Water, Tea, Sodas, etc.	870	6,252	-	6,252	100.00%	6,252	3
4	Coffee, Water, Tea, Sodas, etc.	880	35,740	-	35,740	100.00%	35,740	4
5	Coffee, Water, Tea, Sodas, etc.	921	48,634	4.29%	46,549	57.58%	26,803	5
6	Continuing Professional Education	921	4,560	4.29%	4,364	57.58%	2,513	6
7	Customer Survey Winners	921	3,762	4.29%	3,600	57.58%	2,073	7
8	Emergency Ops Ctr/Em. Resp Facility	870	18	-	18	100.00%	18	8
9	Emergency Ops Ctr/Em. Resp Facility	880	780	-	780	100.00%	780	9
10	Emergency Ops Ctr/Em. Resp Facility	921	1,493	4.29%	1,429	57.58%	823	10
11	Employee Recognition	880	5,352	-	5,352	100.00%	5,352	11
12	Employee Recognition	921	3,288	4.29%	3,147	57.58%	1,812	12
13	Employee Recruiting	870	350	-	350	100.00%	350	13
14	Employee Recruiting	880	440	-	440	100.00%	440	14
15	Employee Relocation	870	2,237	-	2,237	100.00%	2,237	15
16	Equipment, Materials and Supplies [1]	870	1,098	-	1,098	100.00%	1,098	16
17	Equipment, Materials and Supplies [1]	880	4,389	-	4,389	100.00%	4,389	17
18	Equipment, Materials and Supplies [1]	902	98	-	98	100.00%	98	18
19	Equipment, Materials and Supplies [1]	921	5,329	4.29%	5,101	57.58%	2,937	19
20	Food Service Event	921	515	4.29%	493	57.58%	284	20
21	Ice Machine Lease/Ice Purchase	870	1,586	-	1,586	100.00%	1,586	21
22	Ice Machine Lease/Ice Purchase	880	3,231	-	3,231	100.00%	3,231	22
23	Lodging	880	39	-	39	100.00%	39	23
24	Lodging	921	942	4.29%	901	57.58%	519	24
25	Lodging	923	368	4.29%	353	57.58%	203	25
26	Lodging	930	16,057	4.29%	15,368	57.58%	8,849	26
27	Low Income Program Information	880	2,525	-	2,525	100.00%	2,525	27
28	Meeting Facilities	880	5,628	-	5,628	100.00%	5,628	28
29	Meeting Facilities	921	443	4.29%	424	57.58%	244	29
30	Memberships	870	500	-	500	100.00%	500	30
31	Memberships	880	384	-	384	100.00%	384	31
32	Memberships	921	2,720	4.29%	2,603	57.58%	1,499	32

REBUTTAL TESTIMONY
EXHIBIT NO.___(RLA-6)
SHEET 1 OF 4

SOUTHWEST GAS CORPORATION
ARIZONA
MISCELLANEOUS EXPENDITURES
CATEGORIZATION OF EXPENSES NECESSARY TO PROVIDE SERVICE

Line No.	Description (a)	Account (b)	Gross Amount (c)	Allocation to PP and SGTC	Amount Net of Allocation to PP and SGTC	Allocation to Arizona	Arizona Total	Line No.
1	Meter Reading Incentive Program [2]	880	6,550	-	6,550	100.00%	6,550	1
2	Meter Reading Incentive Program [2]	902	9,835	-	9,835	100.00%	9,835	2
3	Minority Enterprise Development	880	500	-	500	100.00%	500	3
4	Miscellaneous [3]	870	130	-	130	100.00%	130	4
5	Miscellaneous [4]	880	682	-	682	100.00%	682	5
6	Miscellaneous [5]	921	254	4.29%	243	57.58%	140	6
7	Office Supplies	880	1,264	-	1,264	100.00%	1,264	7
8	Office Supplies	921	2,500	4.29%	2,393	57.58%	1,378	8
9	Other Recognition	880	703	-	703	100.00%	703	9
10	Outside Services - Building Services [6]	870	2,350	-	2,350	100.00%	2,350	10
11	Outside Services - Building Services [7]	921	35,885	4.29%	34,347	57.58%	19,777	11
12	Photography Equipment/Processing	880	6,182	-	6,182	100.00%	6,182	12
13	Photography Equipment/Processing	902	687	-	687	100.00%	687	13
14	Professional Development	870	100	-	100	100.00%	100	14
15	Professional Development	880	2,502	-	2,502	100.00%	2,502	15
16	Professional Development	921	200	4.29%	191	57.58%	110	16
17	Professional Photography	880	1,590	-	1,590	100.00%	1,590	17
18	Professional Photography	921	17,252	4.29%	16,512	57.58%	9,508	18
19	Professional Photography	930	6,886	4.29%	6,591	57.58%	3,795	19
20	Safety Awards [8]	880	15,015	-	15,015	100.00%	15,015	20
21	Shredding Service	921	4,335	4.29%	4,149	57.58%	2,389	21
22	Subscriptions	930	5,268	4.29%	5,042	57.58%	2,903	22
23	Temporary Employee	880	2,000	-	2,000	100.00%	2,000	23
24	Training	880	1,508	-	1,508	100.00%	1,508	24
25	Training	921	935	4.29%	895	57.58%	515	25
26	Transportation	921	350	4.29%	335	57.58%	193	26
27	Trip Reduction Incentive Program [9]	880	3,206	-	3,206	100.00%	3,206	27
28	Working Meals	870	3,762	-	3,762	100.00%	3,762	28
29	Working Meals	880	30,665	-	30,665	100.00%	30,665	29
30	Working Meals	921	22,769	4.29%	21,793	57.58%	12,549	30
31	Working Meals	930	6,834	4.29%	6,541	57.58%	3,766	31
32	Total Reasonable and Necessary Costs		$ 373,877		$ 364,702		$ 277,814	32

REBUTTAL TESTIMONY
EXHIBIT NO.___(RLA-6)
SHEET 2 OF 4

SOUTHWEST GAS CORPORATION
ARIZONA
MISCELLANEOUS EXPENDITURES
CATEGORIZATION OF EXPENSES NECESSARY TO PROVIDE SERVICE

[1] Equipment, Materials and Supplies

Miscellaneous purchases of tangible items of low value not included in operating inventory, including but not limited to: appliances, audio visual equipment, cellular phones, screws, hooks, fittings, flanges, tie-downs, straps, cleaning supplies, gauges, etc.

[2] Meter Reading Recognition Program

The Meter Reading Recognition Program is a Company-wide program that recognizes and rewards employees who have performed all of their Meter Reading job duties in an outstanding manner. The program has specific procedures and guidelines regarding how an award under this program may be earned (see response to Data Request No. RUCO-8.01(c)). The performance guidelines include accuracy, attendance, safety, human relations skills, etc.

[3] Miscellaneous, Account 870

A safety document was translated into Spanish.

[4] Miscellaneous, Account 880

Includes $25 arbitration fee, $100 of expenses the Company received reimbursement for, $200 in Customer Appreciation prizes, a $100 expense that was double-counted in RUCO's adjustment, $57 in meals for residents evacuated during a natural gas emergency, and $150 for trade show expenses.

[5] Miscellaneous, Account 921

Includes $128 in publications and $126 for an equipment repair.

[6] Outside Services – Building Services, Account 870

Maintenance of indoor plants.

[7] Outside Services – Building Services, Account 921

Consulting fees to firm specializing in architecture, engineering, site planning, and interiors for various remodeling projects.

[8] Safety Awards

There are two parts to the Safety Awards program. The first part applies to employees who drive a vehicle on a daily basis. Those who complete a full calendar year without a preventable accident receive a $15.00 reward, and who complete 5 years driving a vehicle without a preventable accident receive a $40.00 reward. The second part of the Safety Awards Program recognizes each employee in a department that completes a full calendar year without a lost time preventable injury with a reward of $20.00. This reward increases to $40.00 after five consecutive years without a lost time preventable injury, and the reward continues annually until the streak is broken.

[9] Trip Reduction Incentive Program

Maricopa County The Travel Reduction Program (TRP) is mandated for all employers in Maricopa County with 50 or more employees. The goal of the TRP is to implement measures which encourage employees to use an alternate mode of travel instead of driving alone. The Company agreed to be part of the Ozone Program and to receive trip reduction credit for its participation. As such, the Company was required to implement the following items: 1) Communicate high pollution advisories to all employees; 2) provide incentives throughout ozone season; 3) track employee participation; and 4) collect signed employee pledges.

The incentives provided by the Company to comply with the TRP are as follows: $10 gas coupons: Each employee who participates in the trip reduction (car-pool, van-pool, bike, ride the bus or walk to work) eight times in any month will get a coupon following the month that they qualify; $100 gift certificate: A drawing is held at the end of every month for all employees that participate at least eight times; 4-$25 gift certificates. The drawing for the grand prize of $100 has four consolation prizes each month; Van-pool subsidy: the company has three van-pools (24 employees) that it subsidizes each employee that rides at $30 per month; $50 Gift Certificate for High Pollution Advisory (HPA) drawings: any time that the county announces a HPA day, every employee that participates by using an alternate form of travel (van-pool, car-pool, bus, bike or walk) is entered into a drawing at the end of that month. The Company holds one drawing for the entire month, and each HPA day gives participating employees additional chances to win.

Tucson The Travel Reduction Program (TRP) is administered through the City of Tucson. There is a city ordinance that requires pro-active travel reduction programs and city businesses are expected to participate. The TRP requires the Company to provide its survey to Company employees. Southwest Gas shows support of the city ordinance and program by providing additional incentives for employees to participate. For its Tucson employees, the Company awards three $100, three $50 and three $25 gift certificates in a random drawing as an incentive to those who complete an annual TRAVEL REDUCTION SURVEY. The survey is used as a benchmark to show trends in employee travel to/from work with the goal to reduce miles driven, encourage use of alternative fuels and modes of transportation (i.e., bus, bike, and walk) and carpooling.

SOUTHWEST GAS CORPORATION
ARIZONA
FERC ACCOUNT 376 - MAINS
COMPLETED CONSTRUCTION NOT CLASSIFIED
BALANCES AT AUGUST 31, 2004 AND JULY 31, 2005 AND AMOUNT TRANSFERRED TO PLANT

Line No.	District (a)	Work Order Number (b)	FERC Account (c)	Description (d)	Work Order Balance at 8/31/04 (e)	Work Order Balance at 7/31/05 (f)	Amount Transferred to Plant (g)	In-Service Date (h)	Line No.
1	32	C4233289	376	Replace Steel and PVC Main	$ 16,656	$ 0	$ 43,025	14-Sep-04	1
2				Total 9604	$ 16,656	$ 0	$ 43,025		2
3	32	C3662360	376	Replace 1960' of 1 1/2" Steel	$ 47,765	$ 0	$ 50,393	1-Jul-04	3
4	32	C3668519	376	Replace approx. 12' of 1 1/2"	893	935	0	open	4
5	32	C3681448	376	Replace 276' of 2" PVC	16,043	0	16,540	17-Jan-04	5
6	32	C4223980	376	Replace 610' of 3/4" Steel	2,397	0	33,462	17-Sep-04	6
7	32	C4240722	376	Replace 1355' of 2" Steel	159	167	0	open	7
8	32	C4244375	376	Replace 623' of 2" Steel	13,672	0	15,148	14-Jul-04	8
9	32	C4244378	376	Replace 175' of 2" Steel	6,242	0	26,396	27-Jun-04	9
10	32	C4253022	376	Replace 165' of 2" PVC	51	53	0	open	10
11	32	C4270703	376	Replace and Relocate 1,580	(21,774)	0	(725)	9-Sep-04	11
12				Total 9605	$ 65,447	$ 1,155	$ 141,214		12
13	32	C2536287	376	Install Rectifier/Adodebe.	$ 2,940	$ 3,072	$ 0	open	13
14				Total 9611	2,940	3,072	0		14
15				Total District 32 - Valley	$ 85,043	$ 4,227	$ 184,239		15
16	36	C3222006	376	Install 4" PE 8100 Main and	$ 14,492	$ 0	$ 115,900	15-Mar-05	16
17	36	C3222112	376	Replace 2,901 Feet of Primary Steel	1,599	0	214,027	30-Dec-04	17
18	36	C4262016	376	Replace Approximately 1800'	47,271	0	103,420	27-Aug-04	18
19	36	C4264592	376	Relocate Existing 2" and 4"	989	0	31,094	30-Dec-04	19
20				Total 9604	$ 64,350	$ 0	$ 464,441		20
21	36	C2585555	376	Replace 195 Feet of 2" Drisco	$ 5,940	$ 0	$ 5,974	1-Jul-04	21
22	36	C3629025	376	Replace 7,105 Feet of Primary Steel	114,529	0	112,232	23-Oct-04	22
23	36	C4225145	376	Replace 346' of 2" Steel	1,534	12,636	0	21-Jun-05	23
24	36	C4234544	376	Replace 11,366 Feet of Primary Steel	16,924	0	241,107	29-Dec-04	24
25	36	C4234927	376	Abandon Exposed 2" Steel Main	1,203	0	44,210	15-Mar-05	25
26	36	C4244953	376	Replace 630 Feet of 2" Steel	425	0	14,897	14-Jan-05	26
27	36	C4264224	376	Relocate Existing 4" Steel	2,612	0	2,646	6-Aug-04	27
28	36	C4269542	376	Replace 2" Drisco Main	447	0	525	22-Jul-04	28
29	36	C4274671	376	Replace 528' of 2" PE8000	695	0	(572)	20-Aug-04	29
30				Total 9605	$ 144,311	$ 12,636	$ 421,019		30
31	36	C0366671	376	Install 135' of 6" HP Steel	$ 642	$ 0	$ 0	cancelled	31
32				Total 9635	$ 642	$ 0	$ 0		32
33				Total District 36 - Tuscon	$ 209,302	$ 12,636	$ 885,460		33
34	42	C2547577	376	Install 50' of 6" PE Main	$ 36,208	$ 0	$ 49,064	1-Nov-04	34
35	42	C2568723	376	Install 729' of 10" Steel	9,905	76,077	0	open	35
36	42	C2584157	376	Work Order to Charge Poth.	81,145	10,294	0	open	36
37	42	C2589973	376	Install 44' of 4" PE Main	254	0	20,554	23-Sep-04	37
38	42	C3201085	376	Install 4365' of 6" PE Main	88,272	0	324,428	3-Sep-04	38
39	42	C3209649	376	Install 50' of 4" Steel HP	783	0	27,321	17-Sep-04	39
40	42	C3216903	376	Install 27' of 4" PE and 77' of 2" PE	3,647	0	4,239	5-Aug-04	40

Source: Company Records

SOUTHWEST GAS CORPORATION
ARIZONA
FERC ACCOUNT 376 - MAINS
COMPLETED CONSTRUCTION NOT CLASSIFIED
BALANCES AT AUGUST 31, 2004 AND JULY 31, 2005 AND AMOUNT TRANSFERRED TO PLANT

Line No.	District	Work Order Number	FERC Account	Description	Work Order Balance at 8/31/04	Work Order Balance at 7/31/05	Amount Transferred to Plant	In-Service Date	Line No.
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
1	42	C3635877	376	Install 1304 Feet of 2" PE	$ 34,271	$ 0	$ 77,499	21-Sep-04	1
2	42	C3646604	376	Install 1100' of 4" PE Main	3,843	0	64,644	4-Nov-04	2
3	42	C3660167	376	Install 138' of 4" PE Main	21,843	0	26,546	25-May-04	3
4	42	C3663930	376	Install 24' of 8"Steel HP Main	3,039	3,773	0	open	4
5	42	C3696055	376	Install 798' of New 2" Steel	4,871	0	47,307	17-Jun-05	5
6	42	C4231967	376	Install 27' of 6" Steel 175 PSIG	(4,714)	0	7,874	20-Dec-04	6
7	42	C4233234	376	Retire 187' of 1-1/4" PE Main	71	0	0	cancelled	7
8	42	C4233802	376	Install 211' 6" Steel 175 PS	(11,749)	0	10,293	5-Apr-05	8
9	42	C4249546	376	Install 939' of 2" PE Main	6,266	0	0	cancelled	9
10	42	C4251567	376	Install 576' -2" PE Main	(1,817)	0	8,126	29-Nov-04	10
11	42	C4252036	376	Install 178' of 6" Steel	9,910	0	57,157	30-Sep-04	11
12	42	C4260769	376	Install 450' of 8" Steel	1,461	0	93,682	2-Oct-04	12
13	42	C4269589	376	Install 500' of 12" Steel	35,482	0	107,728	13-Sep-04	13
14				Total 9604	$ 322,990	$ 90,144	$ 926,462		14
15	42	C1422042	376	Replace 5" HP Steel Main	$ 262,590	$ 0	$ 281,433	7-Oct-04	15
16	42	C3664082	376	Replace 1054' of 2" Steel Main	13,932	0	93,578	20-Oct-04	16
17	42	C3693590	376	Abandon 2995'	52,673	0	68,349	12-Aug-04	17
18	42	C4231870	376	Install 408' of 4" PE Main and Aba.	477	0	26,295	11-Sep-04	18
19	42	C4232460	376	Replace 1838' of 2 1/2 Steel	1,732	0	30,671	18-Jan-05	19
20	42	C4254828	376	Replace 871' of 2" Steel	1,400	0	0	cancelled	20
21				Total 9605	$ 332,804	$ 0	$ 500,326		21
22	42	C0319485	376	Install 1,214 Feet of 4" 3PE Main	$ 267	$ 0	$ 128,017	25-Sep-04	22
23	42	C3213815	376	Install 307' of 2" Steel Main	7,375	0	21,553	23-Aug-04	23
24	42	C3214516	376	Install 195' of 2" PE	252	0	26,080	12-Oct-04	24
25	42	C3214937	376	DS 26-2 Install 3923' of 4"	335	0	283,381	11-Oct-04	25
26	42	C3216934	376	SWG Install 397' of 2" Steel	1,575	4,431	0	open	26
27	42	C3638065	376	Install 2007' of 4" PE Main	4,140	0	48,505	8-Dec-04	27
28	42	C3649358	376	Install 1624' of 6" HP Steel	42,220	0	84,085	13-Sep-04	28
29	42	C4230274	376	Install 773' of 4" PE Main	293	0	109,390	4-Nov-04	29
30	42	C4231846	376	Install 225' of 2" PE Main	511	0	14,934	4-Oct-04	30
31	42	C4231882	376	Install 1319' of 4" PE Main	547	0	86,362	6-Nov-04	31
32	42	C4236882	376	Install 624' of 4" PE Main	33,581	0	49,998	26-Aug-04	32
33	42	C4239280	376	Install 844' of 2" PE Main	2,746	0	29,220	30-Aug-04	33
34	42	C4245306	376	Install 640' of 2" PE Main	656	0	11,230	13-Dec-04	34
35	42	C4246076	376	Install 169' of 2" PE Main	211	0	27,093	29-Dec-04	35
36	42	C4249537	376	Extend 241' of 2" PE	419	0	18,292	2-Sep-04	36
37				Total 9606	$ 95,128	$ 4,431	$ 938,140		37
38	42	C1400917	376	Install Deep Anode Groundb.	$ 12,458	$ 12,980	$ 0	open	38
39	42	C2584270	376	This Job Entails the Total	7,667	8,015	0	open	39
40				Total 9611	$ 20,126	$ 20,995	$ 0		40
41				Total District 42 - Phoenix	$ 771,048	$ 115,570	$ 2,364,928		41
42	44	C4231070	376	Lower 2" PE Gas Main to Cl.	$ 3,239	$ 3,394	$ 0	open	42
43				Total District 44 - Ajo/Gila Bend	$ 3,239	$ 3,394	$ 0		43
44	46	C4249338	376	Replace 1659' of 2" Steel	$ 24,383	$ 0	$ 34,298	7-Sep-04	44
45				Total District 46 - Mountain	$ 24,383	$ 0	$ 34,298		45
46	47	C3203028	376	Abandon approx. 13,363' of 2"	$ 36,757	$ 0	$ 37,148	7-Dec-04	46
47	47	C3682002	376	Rerouted Main Due to Wash.	54	55	0	open	47
48	47	C4262595	376	Abandon 174' of 1-1/4" Steel	8,160	0	75,860	29-Sep-04	48
49				Total District 47 - Southeast	$ 44,971	$ 55	$ 113,008		49
50	48	C4272528	376	Install 318' of 4" Drisco	$ 5,790	$ 0	$ 10,982	17-Sep-04	50
51	48	C4273657	376	Replace 20 Feet of 1" HP Steel	1,581	3,470	0	open	51
52				Total District 48 - Yuma	$ 7,370	$ 3,470	$ 10,982		52
53				Total Arizona	$ 1,145,356	$ 139,352	$ 3,592,915		53

Source: Company Records

SOUTHWEST GAS CORPORATION
ARIZONA
ACCOUNT 376.0 - MAINS
RETIREMENT WORK ORDERS RELATED TO CCNC WORK ORDERS

Line No.	Description	Construction WO	Retirement WO	Book Cost [1], [2]	Removal Cost & Salvage [1]	Total Closings	Line No.
	(a)	(b)	(c)	(d)	(e)	(f) (d) + (e)	
	DISTRIBUTION PLANT						
	Mains						
1	Replace 1960' of 1 1/2" Steel	C3662360	R3662360	(1,079)	(2,230)	$ (3,309)	1
2	Replace 276' of 2"PVC	C3681448	R3681448	(202)	(7)	(209)	2
3	Replace Approximately 1800'	C4262016	R4262016			-	3
4	Replace 195' of 2" Drisco	C2585555	R2585555	(1,749)	(192)	(1,941)	4
5	Relocate Exisitng 4" Steel	C4264224	R4264224	(15,771)	(598)	(16,369)	5
6	Replace 2" Drisco Main	C4269542	R4269542	(2,295)	-	(2,295)	6
7	Replace 538' of 2"PE800	C4274671	R4274671	(4,308)	(914)	(5,222)	7
8	Instal 138' of 4" PE Main	C3660167	R3660167	(1,492)	-	(1,492)	8
9	Abandon 2995'	C3693590	R3693590	(5,780)	(3,421)	(9,201)	9
10	Install 307' of 2" Steel Main	C3213815	R3213815	-	-	-	10
11	TOTAL			$ (32,677)	$ (7,361)	$ (40,038)	11
12	**IMPACT ON ACCUMULATED PROVISION FOR DEPRECIATION**				**$ (7,361)**		

[1] Source: Response to Data Request No. RUCO-13.01
[2] Book cost has an equal impact on gross plant and accumulated provision for depreciation.