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TESTIMONY OF DAVID RUMOLO

On Behalf of Arizona Public Service Company's

Application for Declaratory Order

Docket No. E-01345A-03-0775

E-01345A-04-0657

Arizona Corporation Commission
DOCKETED

APR 22 2005

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2005 APR 22 P 3: 14
AZ CORP COMMISSION
DOCUMENT CONTROL

November 23, 2004

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TESTIMONY OF DAVID RUMOLO

ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY

(Docket No. E-01345A-03-0775)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. David J. Rumolo, 400 North Fifth Street, Phoenix Arizona, 85004

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am the Manager of Pricing and Regulation for Arizona Public Service Company ("APS" or "Company"). My Statement of Qualifications is attached as Appendix A.

Q. WOULD YOU PLEASE DESCRIBE THE FUNCTIONS OF THE COMPANY'S PRICING AND REGULATION DEPARTMENT?

A. The department is responsible for all pricing-related activities including cost of service analyses, rate development, service policy development, rate administration, and development of material for filings with regulatory bodies such as the Arizona Corporation Commission ("Commission").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe the methods used by APS to estimate a customer's energy consumption (kWh) and demand (kW) when the data cannot be obtained from the customer's meter. I discuss the reasons why I believe that APS' methodologies for estimating consumption and demand are reasonable and in compliance with applicable Commission rules. I also summarize an analysis that examined the potential financial impact to APS and its customers resulting from the application of the estimating methods used by APS today and in previous years.

II. SUMMARY OF TESTIMONY

Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. The definition of what constitutes an "estimate" has been discussed at great length in the industry and is a critical issue that must be resolved in this proceeding. My testimony provides a practical consensus view of Arizona utilities on this issue after examining ten specific instances that could arguably lead to a belief that such instances resulted in an "estimated bill." The methodologies that APS utilizes (both past and present) for estimating energy consumption (kWh) and demand (kW) when actual metered information is unavailable use a combination of customer-specific historical data and the demands of similarly situated customers; that is, APS customers on the same rate schedule.

The testimony provides a brief chronology of the changes in the data inputs to the estimation process that have occurred over time as we implemented a new customer information system ("CIS") and improved our estimation techniques. The progressive improvements to these techniques are more accurate, which I believe is the fairest result, to all involved: the customer who is receiving a bill based on estimated usage, the rest of APS' customers, and APS.

Complainant Read's contention that APS had no authority to bill customers on estimated usage due to lack of an approved estimation method is flawed. Similarly, APS' estimation formula appropriately considers the customer's consumption during both the previous month and the same month of the previous year, where applicable. Thus, our estimation process is consistent with the relevant Commission regulations and orders.

Finally, my testimony provides the results of an analysis that we performed to test the reasonableness of our estimation methodologies by taking a statistically

valid sample of customer bills that were based on actual meter readings and comparing those bills to those that customers would have received had we billed based on estimated consumption using the differing data inputs I describe in my testimony. The results of those analyses indicate that, on average, APS under bills customers when a bill is rendered on estimated usage. Based on our current estimating practices, we would have under billed customers by approximately $400,000 as compared with total retail revenues of approximately $1.8 billion. This is a reduction in the net under billing of those customers compared to the estimates used prior to 2004, but it is still a net under billing. Thus, I believe it can easily be concluded that our approach to estimation of customer usage is, and has been, reasonable and lawful.

III. DEFINITION OF ESTIMATED BILL

Q. WHAT IS AN "ESTIMATED BILL"?

A. The term "estimated bill" is actually a misnomer. There are no estimated bills, *per se*. In reality, APS estimates kWh consumption and/or estimates kW demand. The bill is then calculated precisely using the estimated usage and the appropriate Commission-approved rates. In essence, the estimation methodology estimates meter reads.

Although based on available customer data (for that particular customer or for a class of customers), an estimate is just that, an estimate; i.e., a reasonable approximation. It will almost certainly be higher or lower for a specific customer than the actual consumption or the actual meter read. As contemplated by the Commission's rules, an estimate must be made when an actual read of the customer's meter cannot be obtained, because electric utilities are required to bill the customer for each billing period (usually 25 to 35 days).

Despite its inaccuracy, the term "estimated bill" has been used throughout this proceeding, and thus I will adopt that same usage in my testimony. APS and the other utility participants in the Process Standardization Work Group ("PSWG") have spent a significant amount of time on the issue of what constitutes an "estimated bill" within the meaning of A.A.C. R14-2-210 ("Rule 210"). The most common bill estimation situation occurs when the utility cannot access the customer's meter to obtain a meter read (e.g., locked gate, dangerous dog, weather, etc.). APS identified the following ten separate situations involving customer bills where there conceivably could be a question as to whether the bill was "estimated" within the meaning of Rule 210. The 10 identified situations are:

1) Situation 1 – Characterization of the first bill after a billing period for which consumption was estimated

2) Situation 2 – Characterization of a bill if rates change in the middle of a billing cycle

3) Situation 3 – Characterization of a bill issued prior to obtaining a valid meter reading, which bill is later adjusted after a valid read is obtained

4) Situation 4 – Total meter failure or malfunction resulting in no available reliable information

5) Situation 5 – Meter failure or malfunction but some data is available

6) Situation 6 – Meter reading is not available using electronic meter reading information but data is obtained from visual meter reading

7) Situation 7 – Meter reading information is not available because the service is provided on an un-metered basis such as street lighting service

8) Situation 8 – Unbundled service for direct access customers is provided on the basis of load profiles rather than using interval data metering

9) Situation 9 – Meter tampering results in lack of metered consumption information

10) Situation 10 – An electronic meter reading is obtained but the data cannot be transferred to a billing computer

Situation No. 1 is present every time an "estimated bill," that is, a bill using estimated consumption, is issued. How do Arizona utilities characterize the bill covering the billing period *after* that billing period for which consumption was estimated? In other words, there is a valid meter read at the end of period one (e.g., May) but no read after period two (e.g., June), resulting in the issuance of an "estimated" bill for period two.

The utility then obtains an accurate meter read for period three (e.g., July). Although there could be a question whether the billing for period three is "estimated," APS considers that period three's bill was not "estimated" within the meaning of the Commission's rules and regulations because it is based on an actual read. Moreover, APS is unaware of any other Arizona utility that treats this period three bill as "estimated."

Situation No. 2 is likewise a common situation for any utility using cycle billing, that is, when meters are read throughout the calendar month in a series of billing "cycles." Is a bill considered "estimated" if rates change in the middle of a customer's billing cycle, which will happen for some customers regardless of the effective date of the rate change? APS believes that this is considered a non-estimated bill if the billing cycle's consumption was based on a valid meter read even though the usage was pro-rated to the appropriate number of days' consumption to apply the new and old rates. Again, APS' position is consistent with that of other Arizona utilities.

Situation No. 3 results when a bill must be issued prior to obtaining a valid meter read. Amended Rule 210A requires that bills reflect no more than 35 days' consumption. If a customer's read is late or the utility meter read is delayed beyond the 35-day maximum by weather, lack of timely access to the meter, etc., this results in an "estimated" bill, followed by a "corrected" bill. APS' treatment of this situation is that there is no estimation involved in this second bill because the bill is "corrected" to reflect the actual consumption once the meter read is obtained. As with Situations 1 and 2, APS believes its practice consistent with that of other Arizona utilities.

Situation No. 4 is one involving total meter failure or malfunction under circumstances where there is no means of reading the meter or where it cannot be determined when and to what degree the meter has failed, either in whole or in part. APS considers that these circumstances necessitate the issuance of an "estimated" bill.

Situation No. 5 also assumes meter malfunction. But in these instances, the time and impact of the malfunction can be precisely determined such that the usage recorded by the meter can be mathematically adjusted to produce the customer's actual usage for the billing period or periods in question. For example, if one leg of a three-phase meter fails, the usage has been under-recorded by one-third. Other examples include use of the wrong meter multiplier, current transformer ratio error, or if a meter tests a consistent and constant percentage slow or fast. APS does not consider these circumstances to produce "estimated" bills, nor do other Arizona utilities.

Situation No. 6 assumes that the utility, using an electronic meter reading system (e.g., an Itron probe), cannot obtain an accurate read either due to access issues or equipment failure. However, the meter reader does visually

read and manually records the customer's usage. The resultant bill is not "estimated."

Situation No. 7 covers instances when the Commission-approved rate schedule itself calls for non-metered usage to bill the customer. This is common in certain street and private lighting services. APS also has a Commission-approved rate schedule that provides for service to extra-small General Service customers on a non-metered basis. Obviously, bills for these services are not "estimated" bills within the meaning of the Commission's regulations.

Situation No. 8 is unique to load-profiled direct access customers (below 20 kW). Because these under 20 kW customers are not required by the Retail Electric Competition Rules to use interval metering, their metered monthly usage is allocated to specific days and times based on class load profiles. This load profile information is then used to bill Energy Service Providers ("ESPs") for transmission service and for generation settlement purposes (both are FERC-regulated services). Again, since load profiling has been specifically authorized by the Commission, and the services provided to ESPs are FERC-regulated, APS has concluded that load profiling is not bill "estimation."[1]

Situation No. 9 is a meter tampering situation. Unless the tampered meter falls into the "known failure" (both as to time and extent) situation described in Situation No. 5, APS believes that this requires issuance of an "estimated" bill.

Situation No. 10 involves the rare instance where there is an accurate electronic meter read, but the billing computer cannot, for some reason, download the read for billing purposes. The result is an "estimated" bill.

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[1] Even if this were considered an "estimated" bill, it usually would be the ESP's bill that was "estimated."

Q. WHY DOES IT MATTER WHETHER THERE IS AGREEMENT BY THE COMMISSION ON WHAT CONSTITUTES AN "ESTIMATED BILL"?

A. The Commission's rules require APS to label such bills as estimates. There are also actions required of electric utilities upon the issuance of the third consecutive bill based on an estimated meter read. Indeed, it is the disagreement between Complainant and APS over the characterization of the situation described in my testimony and the Company's Application as *Situation No. 1* that is at issue in Complainant's Complaint.

Q. IS APS ASKING THE COMMISSION TO CONFIRM THE COMPANY'S INTERPRETATION AS TO WHAT CONSTITUTES AN "ESTIMATED BILL" IN EACH OF THE ABOVE TEN CIRCUMSTANCES?

A. Yes.

IV. APS ESTIMATION PROCEDURES

Q. PLEASE SUMMARIZE APS' ESTIMATING PROCEDURES.

A. There are two measures of electric usage that may be estimated: 1) the amount of energy consumed (kWh) during the billing period and 2) maximum demand (kW) during the billing period. To estimate energy usage (kWh), APS' preferred approach is to use the customer's average daily usage for the same season. If there is insufficient information to do so, APS then uses the customer's usage from the previous month, if it is in the same season, or the customer's usage from the same month of the previous year, which is necessarily in the same season as the month for which consumption is being estimated. For recently connected customers, APS uses the previous usage for the same premises. Because the number of days in the customer's billing period varies from one month to another, APS calculates estimated energy

usage on a daily basis and multiplies this daily average by the number of days in the period.

To estimate demand (kW), APS applies the applicable time component (i.e., the number of days) and the class average load factor to the estimated energy use. APS would use the same formula to estimated demand in the admittedly unusual circumstance where a valid energy (kWh) reading has been obtained without a valid demand reading.

Q. WHAT ARE THE APS CATEGORIES OF ESTIMATING?

A. APS' estimating categories are as follows:

- A. Estimates for Active Accounts, Including Initial and Final Bills
  - 1. Estimating Energy Usage (kWh)
    - a. Existing Meter with Account History
      - i. Seasonal Average Method
      - ii. Previous Month Method
      - iii. Same Month Previous Year Method
      - iv. Time-of-Use Energy Allocation
    - b. New Meter Set Without Account History
  - 2. Estimating Demand (kW)
    - a. Residential Time-of-Use Demand Service Plan
    - b. Residential Non-Time-of-Use Demand Service Plan
    - c. Non-residential Demand Estimates
- B. Adjusting Estimated Usage Based on Subsequent Actual Read
- C. Estimating When Customer Diverts Energy
- D. Estimating in the Event of Meter Failure
  - 1. Complete Meter Failure ("dead meters")
  - 2. Slow/Fast Meters

Detailed descriptions of the specific estimating methods for each of the situations listed above are found in **Schedule DJR-1**.

Q. HAS APS MODIFIED ITS ESTIMATION PROCEDURES FROM TIME TO TIME?

A. Yes. Although the Claimant has incorrectly claimed that APS has changed its estimating procedures, in fact, we have only changed an estimating factor in the same procedure to improve our billing estimation accuracy. Over time, the data inputs have evolved and been refined, but the underlying techniques and formulae have been consistent. For the purposes of my testimony, I have divided the process timeline into 5 segments; 1) estimation under the "old" CIS that was in place prior to September 1998, 2) estimation when the new CIS became operational in 1998, 3) demand estimation modifications that became effective in 1999, 4) demand estimation modifications that became effective in 2002, and 5) demand estimation modifications that became effective in 2004.

Q. HOW DID APS ESTIMATE READS PRIOR TO SEPTEMBER 1998?

A. Prior to September 1998, APS generated bills using a computer system commonly referred to as "old CIS." When estimated bills were necessary, the old CIS estimated both consumption (kWh) and demand (kW) based principally on a customer's account history. Consumption was estimated based on the customer's usage during the same month of the previous year and the amount of usage during the preceding two months of the same year. A geographic weather adjuster was also applied to the estimated kWh, but there was no seasonal differentiation. Demand was estimated by applying a "load factor" (the ratio of a customer's average hourly usage to the customer's peak hourly usage), which was calculated by averaging the load factors from the two previous months and the same month of the prior year.

For example, assume that consumption (kWh) information was available for a particular month. Also assume that demand (kW) was missing and needed to be estimated. In calculating the demand estimate in this hypothetical, the old CIS would first calculate the load factor for the two previous months of the same year and the same month a year ago.

In determining the Load Factor, the old CIS used the following formula:

$$\text{Load Factor} = \frac{\text{kWh}}{\text{kW x No. of Read Days x 24 Hours}}$$

The second step in the calculation using the old CIS estimating method was to calculate the Average Load Factor for the three known data points; i.e., the previous two months of the same year and the same month in the previous year.

Once this was done, the Average Load Factor was inserted in a formula to compute estimated demand.

$$\text{Est. kW} = \frac{\text{kWh}}{\text{Avg. Load Factor x No. of Read Days x 24 Hours}}$$

Old CIS calculated estimated demand based on the application of average customer load factor for the previous two months and for the same month of the last year to the customer's energy, except where such data did not exist. In these latter instances, APS bill representatives would look to demands of similarly situated customers, for example, neighbors.

Q. WERE THE ESTIMATING PROCEDURES USED BY APS UNDER OLD CIS KNOWN TO THE COMMISSION?

A. The estimating procedures used by the old CIS were well known to the ACC and were addressed and applied by the ACC in several written orders prior to 1998, including a detailed order dated December 10, 1996 in Docket No. U-1345-96-162 (*Ciccone v. Arizona Public Service Co.*)("[W]e find 8.9 kW to be the appropriate demand estimate for the September 1995 bill because it is based on APS' estimation model which considers such factors as Mr. Ciccone's actual kWh used in September 1995, his previous months' demands, and the peak demand of other customers with similar kWh usage.").

Q. PLEASE DESCRIBE THE ESTIMATION METHODS USED WHEN THE NEW CIS WAS INSTALLED IN THE FALL OF 1998.

A. As noted in APS witness McLeod's testimony, the Company had to replace "old" CIS to accommodate retail access. Under the new system, energy consumption was estimated using the customer's average consumption for the previous 6 months of the same season. This procedure had been embedded in the software of the new CIS. When initially installed, new CIS did not have the capability to automatically estimate demand. If demand information was not available, CIS generated a billing exception report and a billing representative manually calculated the demand estimate.

Q. PLEASE DESCRIBE THE REFINEMENTS TO THE NEW CIS ESTIMATION PROCEDURE THAT WERE IMPLEMENTED IN THE SPRING OF 1999.

A. By April of 1999, new CIS was programmed so that it could estimate demand (kW) as well as consumption (kWh). The energy consumption estimation formula was unchanged. The new CIS was programmed to estimate demand using the same general methodology as old CIS; i.e., a load factor based methodology. The load factor was calculated using an average figure based on

all customers in that particular rate class in lieu of individual customer load factors. APS believes that the consistent application of average class load factor to the customer's estimated energy provides a reasonable and fair demand estimate when used in conjunction with the kWh estimate using customer-specific data. Historical load factor information for an individual customer is sometimes not available or is subject to anomalies due to the fact that the prior months' load factor or the prior years' load factor for that customer may have been impacted by a customer absence (such as a vacation) or a special event (such as a party) that produced unusual swings in energy usage or demand. The load factor was calculated using an average figure based on all customers in a particular rate class plus a "generosity factor" of approximately 10%. The load factor used for customers on Schedule EC-1 was 45%, 50% for Schedule ECT-1R customers and 60% for Schedule E-32.

Q. PLEASE DESCRIBE THE REFINEMENTS TO THE NEW CIS ESTIMATION PROCEDURE THAT WERE IMPLEMENTED IN 2002.

A. In August 2002, the class average load factors were changed in the demand estimating methodology to better reflect the most current load research data and eliminate the artificial "generosity factor." For Schedules EC-1, ECT-1R and E-32, a three-year average load factor was calculated based on load research data. This analysis resulted in changing the load factor for demand estimation purposes to 35% for Schedules EC-1 and ECT-1R, and to 50% for Schedule E-32.

Q. WHY DID APS CHANGE THE LOAD FACTOR INPUTS TO ITS DEMAND ESTIMATION PROCESS?

A. The additional liberal "generosity factor" virtually guaranteed that demand would be underestimated in the absence of a valid meter read, something that our billing representatives noticed repeatedly. This was inconsistent with the

Company's general goal of providing as reasonably accurate an estimate to our customers of their usage as practicable.

Q. PLEASE DESCRIBE THE REFINEMENTS TO THE NEW CIS ESTIMATION PROCEDURE THAT WERE IMPLEMENTED IN 2004.

A. In 2004, a further refinement to the estimating methodology was implemented that impacted only Schedule ECT-1R. Schedule ECT-1R is a time differentiated rate under which the residential customer is billed on maximum demand that occurs during the on-peak hours of 9:00 AM to 9:00 PM. Therefore, the estimation method should be based on the customer's load factor only during these on-peak hours. This analysis resulted in changing the load factor for demand estimation purposes to 42% for ECT-1R, which represented the average on-peak load factor for ECT-1R customers. The original new CIS programming for estimating kW for ECT-1R also included two additional errors that affected the ECT-1R demand calculation, and these errors were corrected in 2004. First, the program utilized 13 hours for the daily on-peak period rather than 12. The 13 hour on-peak period was a hold over from a rate no longer offered by APS. The second error was the use of 7 days per week in lieu of the 5 days per week during which the on-peak billing component applies. If you will recall the formula I described earlier, days and hours are in the denominator. Thus, both of these errors were actually to the customers' benefit because the computation created a lower estimated demand.

Q. IN YOUR OPINION, ARE THE PROCEDURES USED TO ESTIMATE READS UNDER THE OLD CIS AND NEW CIS ESSENTIALLY THE SAME?

A. Yes. Although APS has refined the inputs used to provide estimates on bills to simplify and to better computerize the process, the basic method used to estimate consumption and demand is essentially the same under the old CIS and the new CIS. The new CIS estimates demand—which was also done by the

old CIS—using available customer consumption (kWh) information, the time component and a specified load factor.

Q. YOU PREVIOUSLY INDICATED THAT THE CHANGES IN THE DATA INPUTS TO THE DEMAND ESTIMATION PROCESS WERE NEEDED TO AVOID CHRONIC UNDERESTIMATION OF DEMAND AND IMPROVE THE ACCURACY OF THE ESTIMATES. ARE THERE OTHER REASONS TO MODIFY THE LOAD FACTOR AND OTHER IMPUTS TO THE DEMAND ESTIMATION EQUATION?

A. Yes, although I believe the above reasons would, standing alone, be compelling justifications for the Company's actions. Moreover, I will reiterate that we are really only talking about the changes to the load factor made in late 2002. The April 2004 changes were, frankly, to correct errors in our estimation of on-peak demand for ECT-1R. These errors were in large part off-setting; but if we had retained the artificially high load factors used from 1999 through most of 2002, we would have been providing an incentive for customers to prevent meter access once they realized that the demand estimates were consistently below what they were during months APS was able to read the meter. Also, it is possible that these underestimates of demand, had they ever become more prevalent than the miniscule percentage they were, could have distorted the class billing determinants used to both apportion revenue requirements and influence rate design.

Q. SPECIFICALLY, HOW DOES APS ESTIMATE FOR ALL ACTIVE ACCOUNTS, INCLUDING INITIAL AND FINAL BILLS?

A. APS uses essentially the same method but uses data inputs that reflect the particular situation. For example, the estimation of energy consumption for a customer on a time differentiated rate recognizes the need to estimate on-peak and off-peak consumption while the process for estimating energy consumption for a non-time differentiated rate examines total consumption.

Schedule DJR-1 to my testimony provides descriptions for the range of estimating situations.

Q. DOES APS APPLY ALTERNATIVE ESTIMATION PROCEEDURES IN CASES OF ENERGY DIVERSION?

A. Yes. Energy diversion requires more in-depth analysis because of the extended length of time that the usage must be estimated, the lack of reliable customer history and the fact that energy diversion sometimes involves only a part of the customer's usage. APS has specific techniques to estimate consumption when diversion occurs. These techniques are discussed in depth in **Schedule DJR-1**. These procedures have been reviewed and approved in many Commission proceedings extending back 20 years.

Q. HOW DOES APS ESTIMATE IF A METER FAILS?

1. Complete meter failure ("dead" meters). Occasionally an actual meter read will indicate very little or no energy usage, and CIS will generate a billing exception. A billing representative will compare the low or zero consumption to the customer history. If a billing representative suspects that the meter is no longer working, the representative will attempt to determine if there is any activity at the site. The representative will request a field check to determine whether the meter has failed or the site is vacant and using no energy.

When a meter has failed, the usage is estimated by applying the methods described in **Schedule DJR-1** or by applying the actual per day usage (less three percent) of the new replacement meter, whichever is lower. When the new meter period usage is the basis for the estimate, APS adjusts for the typical differences in weather-related usage between the new meter month and the failed meter period.

2. *Slow/Fast Meters*. If a meter shop test of the suspected failed meter determines that the meter is registering a consistent percentage (either fast or slow) on tests of both full and light load, APS increases or decreases the actual historical usage in proportion to the percentage of error determined by the meter test. The account is rebilled for the period of meter error and the customer's account is credited or debited accordingly.

V. APS COMPLIANCE WITH COMMISSION REGULATIONS AND ORDERS AFFECTING ESTIMATION

Q. HAS APS EVER SOUGHT FORMAL COMMISSION APPROVAL OF ITS BILL ESTIMATION PROCEDURES?

A. No, although as noted above, there are numerous Commission orders addressing the Company's estimation practices in the context of individual APS customer complaints. In addition, as I will discuss later, APS has long had a Commission-approved methodology for estimating demand for customers served on Schedules EC-1 and ECT-1R.

Q. WHY NOT?

A. There are several reasons why APS did not seek formal Commission approval for the bill estimation procedures it has used in recent years. First, the Commission has had the opportunity to review the procedures in several instances, including the *Ciconne* decision, and has never indicated that APS' procedures were inappropriate. Second, despite the allegations in the Read complaint, it is our belief that the amendments to Rule 210 that required submittal of bill estimation procedures were never intended to apply to the incumbent utilities. The objective of the amended language was to ensure that new entrants into the meter reading and billing business would have approved estimating procedures in place before they began service to customers. Even if the Rule 210 amendments were intended to apply to incumbent electric

utilities, they neither affected estimation procedures then in use by APS nor became legally effective in any event.

Q. HAS ANY OTHER INCUMBENT ELECTRIC UTILITY HAD ITS ESTIMATION PROCEDURES APPROVED BY THE COMMISSION SINCE 1999?

A. Not to my knowledge, and this also supports the Company's interpretation of these Commission rules. It seems inconceivable to me that the Commission would create a rule that put every existing electric utility in violation of a rule on day one and then not say anything about such violation to any of these utilities for nearly six years.

Q. WHY DOES APS BELIEVE THAT THE COMMISSION DID NOT INTEND TO APPLY AMENDED RULE 210 TO INCUMBANT UTILITIES?

A. It was logical for the Commission to adopt amended Rule 210 and Rule 1612 to bring uniformity to the estimating procedures used by a large number of competitive ESPs who might be serving direct access customers within a single service area, but those events never materialized, and the Director of the Utilities Division never promulgated the procedures for establishing approval of estimating practices relating to direct access customers. In contrast, under the historical electric competition model in Arizona, there potentially could be different sets of estimation practices within different service territories. Theoretically, each competitive meter reading service provider could have different estimation practices depending on the circumstances. During the promulgation of the amendments to Rule 210 and the enactment of Rule 1612, APS was unaware of any Commission or Commission Staff intent to automatically invalidate the historical estimating procedures of incumbent utilities without first providing a workable and established mechanism for APS to issue estimated bills when circumstances dictated that it do so. For these

reasons, APS disagreed with the contentions of the Complainant that APS' bill estimation procedures were automatically invalidated as of January 1, 1999, and APS asked in its Application for Declaratory Order that the Commission clarify its position regarding Rules 210A(5)(a) and 1612.

Both the amended language to Rule 210 and the addition of Rule 1612's language were responses to the Commission's decision to open up metering and billing for electric service to competition from competitive ESPs. The competitive model raised the prospect of having multiple metering and billing entities within APS' service territory, as well as having two different billing entities for the same customer. I believe the Commission adopted Amended Rule 210 and Rule 1612 to bring uniformity to bill estimating procedures used by these different entities.

A review of the Commission's rulemaking docket, the comments filed by the numerous parties, and the Commission's own description of the Electric Competition Rules reveal no intent to change the historic treatment of estimated billing for Standard Offer customers, i.e., those served entirely by their incumbent utility. Neither did it establish any procedure for such utilities to secure approval of their billing estimation procedures, even though such procedures had been and were clearly in place and being applied on a daily basis by incumbent utilities such as APS, which were serving literally hundreds of thousands of existing customers. Also, as noted earlier, the only document issued by the Commission's Utilities Division Director under the provisions of Rule 1612 and that satisfies the requirements of Rule 210 pertains almost exclusively to direct access customers. Thus, the most reasonable and logical interpretation must be that the provisions of those rules discussed herein do not apply to APS Standard Offer customers.

To the extent that the Commission does interpret amended Rule 210 and Rule 1612 as applying to Standard Offer customers, there is still the critical issue of timing. Neither of these rules is self-executing, in that both require some subsequent Commission action, whether by the Commission itself or through its designee. Yet, as noted above, each of Arizona's affected utilities, including APS, already had bill estimation procedures in place and, at least in the case of APS, routinely had presented those procedures to Staff and the Commission in various informal and formal complaint proceedings over the years. It is simply unreasonable to now assume, as suggested by Complainant and her attorneys, that the entire process of rendering estimated bills was to totally and immediately cease until such time, if ever, as the Commission or its Utilities Division Director acted either to establish new procedures for existing and continuing Standard Offer customers or to re-validate any then existing estimating procedures. This would fly in the face of the Commission's repeated statements that billing customers for their usage is a Constitutional and statutory obligation of the utility that cannot be abrogated by a damaged or inaccessible meter. A far more compelling interpretation is that those incumbent utilities already utilizing estimation procedures within their service areas that were lawfully in effect prior to the adoption of amended Rule 210 and Rule 1612 could continue to use those procedures and to refine such procedures until such time as the Director issued new and different "operating procedures" under Rule 1612.

Q. DOES APS' ESTIMATING METHOD COMPLY WITH R2-210A(2)?

A. Yes. R2-210a(2) provides that, in making an estimate of "consumption" (kWh), a utility should "giv[e] consideration [to] the following factors where applicable: (a) the customer's usage during the same month of the previous year, and (b) the amount of usage during the preceding month." (Emphasis

supplied.) This particular provision of rule 210 was not amended with the adoption of the electric competition rules. APS does now consider and historically has considered individual customer data in estimating kWh usage. But APS also believes that the permissive language of Rule 210A(2) allows APS to use (and certainly does not prohibit APS from using) estimation factors in addition to usage during the same month of the previous year and the usage from the preceding month of the same year, and it does not compel APS to even "consider" these two months' data when it is not "applicable."

Rule 210A(2) says nothing about factors to be considered in estimating **demand** (kW). Because the formula for estimating demand is more complex and subject to more variables than an estimate of consumption (kWh), it is more likely to be subject to refinement and modification based on changing customer data and other periodic research and analysis. The application of class average load factor to the customer's individual kWh consumption that APS implemented beginning in the spring of 1999 is just such an example. The use of a class average load factor does not bias the estimated demands and appropriately scales the demand to the estimated energy by avoiding customer-specific anomalies that may produce significant distortions in the estimated demand.

Even if Rule 210A(2) were to apply to estimations of demand, APS' current and past estimates of customer demand use the individual customer's previous month's kWh and the same month of the previous year's kWh, where applicable, as part of the formula to estimate demand. Thus individual customer data is appropriately considered.

Q. DOES APS COMPLY WITH THE REQUIREMENTS OF A.A.C. R14-2-210A(4)?

A. Yes. Since before 1998, A.A.C. R14-2-210A(4) has required that, after the third consecutive month of estimating the customer's bill due to lack of meter access, the utility should attempt to secure an accurate reading of the meter. APS has always complied with that requirement.

Nothing in A.A.C. R14-2-210A(4) prohibits a utility from continuing to send the customer estimated bills if access to the customer's meter cannot be obtained. Indeed, the alternative of immediately terminating electric service would be far more disruptive and expensive for the customer.

The process described above is precisely what APS attempts to do -- secure an accurate reading of the meter -- each month that a bill is estimated, both before and after the third month. Indeed, where meter access issues require a bill to be estimated, the customer is better off receiving an estimated bill than having service terminated. For this reason, APS seeks to minimize disruption and inconvenience for the customer even when APS has the right to terminate the customer's electric service due to the customer's repeated refusal to provide meter access.

VI. IMPACT OF BILL ESTIMATION

Q. HAS APS PERFORMED ANY ANALYSES ON THE VARIOUS ESTIMATING METHODOLOGIES THAT IT HAS USED SINCE 1998?

A. Yes, we prepared such analyses.

Q. PLEASE DESCRIBE THE METHODOLGY USED IN YOUR ANALYSES.

A. For the analysis of estimating procedures, APS examined the impact of the procedures on a sample of customers who received service under Schedules E-

10, E-12, EC-1, ECT-1R, ET-1 and E-32. Although most of the controversy in this proceeding focuses on demand estimating issues, we included Schedules E-10 and E-12, which are residential rates that do not contain explicit demand charges, so that we could assess the changes that occurred in the estimating process when new CIS was implemented. The listed rates were selected because they represent the rate schedules under which the vast majority of APS customers receive service. For each of these rates, statistically valid samples of 100 accounts were randomly selected by computer. The selected accounts had to meet the following conditions:

1. same customer for the most recent 24 month period ended August 2004;
2. same rate for the selected time period; and
3. no estimated bills during the selected time period.

Once the accounts were selected, each account was "billed" for the 12 months ended August 2004, on their actual kWh and, if applicable, kW. Next, each account had kWh and, if applicable, kW estimated for each of the 12 months using each of the estimating methodologies used since 1998. Next, they were "billed" on the estimated usage. A comparison was then made to determine the difference between the bill using actual kWh and kW and estimated kWh and kW.

Finally, using the number of actual bills which were estimated for each of these rates for the 12 months ended August 2004, the results of the sample analyses were projected over the total number of active services that were billed on each of the rates for the same twelve month period.

Q. WHICH ESTIMATING PROCEDURES WERE USED IN YOUR ANALYSIS?

A. We used the following procedures:

1. "Old CIS" methodology
2. Commission-approved rate schedule provisions for estimating kW for EC-1 and ECT-1R
3. March 1999 new CIS estimating methodology
4. 2002 modification to new CIS estimating methodology
5. 2004 CIS estimating methodology

Q. ARE THESE THE SAME PROCEDURES THAT YOU PREVIOUSLY DESCRIBED IN YOU TESTIMONY?

A. Four of the five were previously discussed. The additional methodology reflects an estimating procedure that is found on the tariff sheets for Rate Schedules EC-1 and ECT-1R. Since the inception of these rates in the early 1980's, these rate schedules have contained provisions that indicate that if a meter was inaccessible due to a locked gate or safety limitations, the kW to be used for billing was to be the last read and reset of kW. The provisions on the rate sheet were arguably more narrow in their intended application and are a hold over from the very early days of APS offering residential demand rates in order to meet PURPA requirements. The estimating methodology described in the rate schedules has never been implemented, to the best of my knowledge. In fact, the tariff language provides perverse incentives to customers to deny APS access. For example, a customer could deny access to APS during the hottest months of the summer and would be billed on the last demand reading that may have occurred before high use periods began.

Q. HOW MANY ESTIMATES WERE USED IN YOUR ANALYSES?

A. The following table lists the number of bills that were estimated for the 12 months ending August 2004 and expresses that number as a percentage of the number of services billed.

Rate Schedule	Number of Estimated Bills	% of Bills Estimated
E-10	18,931	1.78%
E-12	62,090	1.32%
EC-1	2,053	0.32%
ECT-1R	4,797	0.90%
ET-1	35,933	0.99%
E-32	21,452	1.88%

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSES.

A. Under each of the estimating methodologies, the net effect is that APS under bills customers whose usage is estimated. A detailed listing is attached to my testimony (**Schedule DJR-2**) and is summarized below:

1. Under the Old CIS estimating routine, the net projected under billing was $605,330.
2. Under the rate sheet provisions for EC-1 and ECT-1R, the net projected under billing was $433,211.
3. Under the March 1999 new CIS methodology, the net projected under billing was $820,008.
4. Under the October 2002 methodology, the net projected under billing was $513,854.
5. Under the 2004 methodology, which is still in place today, the net projected under billing is $432,293.

Q. CAN YOU EXPLAIN WHY THE PROJECTED UNDERBILLING WAS SIGNIFICANTLY HIGHER UNDER THE MARCH 1999 METHODOLOGY?

A. Yes. It is largely a function of the liberal "generosity factor" that was added to the class average load factor. For example, while the class average for Schedule EC-1 was approximately 35%, a factor of 45% was programmed into

the CIS. Since a higher load factor results in a lower estimated kW, and we were using a load factor higher than the average, many of our demand estimates under this methodology were too low, which results in a greater under billing. The other class load factors used from 1999 to 2002 were similarly inflated and demands were similarly under-estimated.

Q. SCHEDULE DJR-2 INDICATED AN UNDERBILLING OF E-10, E-12, AND ET-1. HOW CAN THIS OCURR?

A. E-10, E-12 and ET-1 do not have demand charges. An estimated kWh usage will be, in essence, "trued up" when an actual meter read is obtained. However, E-10 and E-12 are blocked (i.e., the per kWh charge is different for varying blocks of consumption) and also seasonally differentiated (summer rates higher than winter). This also affects the billing impact of kWh estimates for the demand rates (EC-1, ECT-1R and E-32), albeit to a lesser extent. ET-1 is not blocked, but it has both diurnally (peak/off-peak) and seasonally differentiated kWh charges. Thus, how kWh are, in a sense, "allocated" by the estimation process can affect bills. Over a large enough sample, these impacts should balance out. The fact that we are showing chronic net underbilling of kWh leads me to believe there is some downward bias in our process that we have yet to determine.

Q. DID YOU PERFORM ANY ANALYSIS TO DETERMINE THE NUMBER OF BILLS THAT WERE IMPACTED BY THE CHANGES TO THE DEMAND ESTIMATING BETWEEN THE RATE SHEET PROVISIONS, THE MARCH 1999 PROCEDURE, AND THE OCTOBER 2002 PROCEDURE?

A. Yes. For the customers in our sample, we compared the bills based on actual consumption with each demand estimation methodology to determine how many bills would have been higher or lower had the estimation methodology been applied. The comparison is found in the table below. For example, for the EC-1 customer sample, under the August 2002 methodology 514 bills would

have had estimated demands higher than actual demands and 662 bills would have had demands lower than actual. In each case, the estimating formula also yielded some estimates that exactly matched actual meter readings. Therefore, the total number of bills that are higher or lower than actual may be less than 1200 (100 customers for 12 months) in any example.

Rate	Rate Schedule Methodology		March 1999 Methodology		August 2002 Methodology	
	No. of Bills Higher than Actual	No. of Bills Lower than Actual	No. of Bills Higher than Actual	No. of Bills Lower than Actual	No. of Bills Higher than Actual	No. of Bills Lower than Actual
EC-1	579	544	197	987	514	662
ECT-1R	598	562	16	1182	221	969
E-32	n/a	n/a	66	740	135	665

Q. DID YOU PERFORM A SIMILAR ANALYSIS TO EXAMINE THE IMPACT OF THE CHANGE IN THE ENERGY ESTIMATING PROCEDURE?

A. Yes, we did. As explained earlier in my testimony, the only change in the energy estimating procedure occurred when we moved from old CIS to new CIS. For the customers in our sample, we compared the bills based on actual consumption with each of the two energy estimation procedures to determine how many bills would have been higher or lower had the estimation procedure been applied. Note that, although there are slightly more overbills of E-10 and

E-12 than underbills, the net impact as shown on **Schedule DJR-2** is still an underbilling under both old and new CIS formulas.

Rate	Old CIS		New CIS	
	No. of Bills Higher than Actual	No. of Bills Lower than Actual	No. of Bills Higher than Actual	No. of Bills Lower than Actual
E-10	568	625	631	566
E-12	579	614	598	591
EC-1	563	637	573	627
ECT-1R	558	642	539	661
ET-1	518	618	555	645
E-32	552	643	550	644

VII. CONCLUSION

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. Yes. First, it is my belief that the estimating procedures that APS has in place today and has used in the past are reasonable approaches to solving a problem that faces every utility that meters usage, whether electric, gas or water. As the analyses we performed indicate, our estimating procedures are reasonably accurate and certainly do not present any financial windfall to the Company. In fact, the procedures, on the average, favor the customer. The reality is that

estimation procedures work exactly as intended: they produce estimates. Any single customer might receive favorable treatment by any single estimation procedure, but the larger question is whether the procedures are reasonable from an overall perspective. I believe that APS' procedures are reasonable and are in accordance with applicable Commission rules.

Q. DOES THIS CONCLUDE YOUR PREFILED TESTIMONY IN THIS PROCEEDING?

A. Yes.

Appendix A
Statement of Qualifications
David J. Rumolo

David J. Rumolo is Arizona Public Service Company's Manager of Pricing and Regulation. He has over 30 years experience in the electric utility business as a consultant and utility professional. Mr. Rumolo holds Bachelor of Science Degrees in Electrical Engineering and Business (Finance as an area of emphasis) from the University of Colorado. He is a registered professional engineer in the states of Arizona, California, Colorado, and New Mexico.

Mr. Rumolo's areas of expertise include utility rate design; embedded and marginal cost analysis; formulation of utility service policies; contract development and negotiation; utility valuation analyses; and evaluation of utility revenue requirements. Mr. Rumolo has testified on utility matters before state regulatory bodies in the states of Arizona, Colorado, Florida, and Wyoming and before judicial bodies in the states of Arizona and California. Mr. Rumolo is also experienced in the many aspects of electric utility planning and design including preparation of long range resource plans; transmission and distribution system long range planning; system protection analyses; and reliability assessments.

Mr. Rumolo has been in the pricing and regulation area of Arizona Public Service Company for approximately four years. Prior to assuming that position, he served as the Manager of Transmission and Market Structure Assessment for Pinnacle West Energy Corporation ("PWEC"). Before joining PWEC, Mr. Rumolo had a 15-year career as a consultant with Resource Management International, Inc., where he provided utility rate and engineering consulting services to utility clients across the United States and overseas. He began his career providing consulting services to utility clients when he joined the firm of Miner and Miner Consulting Engineers in Greeley, Colorado where he became the Manager of Planning and Rates. He later became a partner in Electrical Systems

Consultants where he focused on cost of service and rate analyses, as well as transmission and distribution planning.

ESTIMATION METHODS

1. ESTIMATING ENERGY USAGE (kWh)

a. Existing Meter With Account History

These situations usually occur because a customer has not provided APS personnel safe and unassisted access to the meter to obtain a read. When there is energy usage history available for the site, the Customer Information System ("CIS") or a Billing Associate will estimate the kWh usage (both total monthly usage and time-of-use usage when applicable) using one or more of the following three methodologies.

i. Seasonal Average Method. This method calculates the average usage per day for the entire season that includes the period for which there is a missing read. The resulting per day usage is multiplied by the number of days in the missing-read billing period to yield the estimate of usage for that period.

This method requires retrieval of the customer's total kWh and the total number of days for the most recent six months for the season of the missing read from CIS. The months in the two billing seasons are:

Season	Billing Months
Winter	November-April
Summer	May-October

Then, using the seasonal account history, CIS or a Billing Associate will follow these steps:

1) Total the number of days from each of the previous six months for the appropriate season to yield Seasonal Total Days.

2) Total the kWh from each of the previous six months for the appropriate season to yield the Seasonal Total kWh.

3) Divide Seasonal Total kWh by Seasonal Total Days to yield the Seasonal Per Day Usage.

4) Multiply the Seasonal Per Day Usage by the number of days in the missing-read billing period to yield the kWh for the missing-read billing period.

Example of Seasonal Per Day Calculation

Assume the missing-read month is July 2003 (a summer month) and that there are 32 days in the billing period. Thus, the appropriate seasonal energy is from the six summer months of the previous year. For this example:

Month	Usage	DAYS
July 2002	1,796	31
Aug 2002	2,098	29
Sep 2002	1,919	31
Oct 2002	1,629	28
May 2003	995	30
June 2003	1,532	29
Totals	9,969	178

Total Seasonal Usage = 9,969 kWh

Total Seasonal Days = 178 days

Missing-read Period = 32 days

Therefore:

9,969 / 178 = 56.01 kWh per day

56.01 x 32 = 1,792 kWh

Estimated consumption for July is 1,792 kWh.

ii. Previous Month Method. This method is used when there is not sufficient account history to use the Seasonal Average Method, but there is account history for the previous month in the same season as the missing-read month. This method calculates the estimated daily energy usage (kWh) from the previous month and multiplies it by the number of days in the missing-read billing period.

The steps in this method are as follows:

1) Retrieve from CIS the customer's usage and the number of days in the previous month.

2) Divide the previous month's usage by the number of days in the previous month to yield the per day usage.

3) Multiply the previous month's per day usage by the number of days in the missing-read billing period.

Example of Previous Month Per Day Calculation

Assume the missing-read month is January and the January billing period contains 32 days. For this example:

December usage = 2,369

December number of days = 27

January number of days = 32

2,369 / 27 = 87.74 kWh per day previous month

87.74 x 32 = 2,807 kWh for the missing-read month

January estimated usage is 2,807 kWh.

iii. Same Month Previous Year Method. This method is used when there is insufficient account history to use the Seasonal Average Method and the previous month is in a different season than the missing-read month. This method is identical to the Previous Month Usage Method (see ¶ A.1.ii. above), except that usage and number of days from the same month in the previous year is used to estimate the energy usage for the missing-read period, rather than usage and number of days from the previous month in the same year.

iv. Time-of-Use Energy Allocation without Account History. If the account is currently on a time-of-use service plan, but was not on time-of-use a year ago, the estimated usage is allocated to on-peak and off-peak based on the class average split for on-peak and off-peak energy.

Example of Same Month Previous Year Method, Time-of-Use Service Plan

Assume the same estimated energy in the previous example. The class average energy split for a time-of-use service plan in the summer months is 40% on-peak and 60% off-peak, and in the winter months it is 30% on-peak and 70% off-peak. Using these averages, the on-peak and off-peak energy calculations for this example are as follows:

Summer Month	Total	40% On-Peak	60% Off-Peak
	2,807 kWh	1,123	1,684
Winter Month	Total	30% On-Peak	70% Off-Peak
	2,807 kWh	842	1,965

b. New Meter Set Without Account History

This method is used when APS is unable to obtain a meter read at the first read of a new account. When this occurs, CIS flags the account as an "exception"

and the account is routed to a Billing Associate, who estimates the usage as follows:

i. If the number of days between the meter set and read date is less than the established threshold required to estimate usage (currently 10 days), the Billing Associate uses zero usage. Thus, the customer's first bill is only a prorated Basic Service Charge.

ii. If the number of days is greater than the current required threshold, the Billing Associate estimates a read using a "minimum usage estimate" of kWh per day (currently 20 kWh per day) multiplied by the number of days between the original meter set and read date. For those new accounts on a time of-use rate, the "minimum usage estimate" is split at 40% on-peak during the summer and 30% on-peak during the winter. This is consistent with the methodology described in ¶ A.1.a.iv above. If the new account also has a demand meter, the demand is estimated using the same load factor methodology as mentioned in ¶ A.2 below.

2. ESTIMATING DEMAND (kW)

In general, to estimate a customer's maximum demand without an actual read, CIS or a Billing Associate estimates demand (kW) by applying the applicable time component and the class average load factor to actual or estimated energy usage (kWh). The Billing Associate may also give consideration to the customer's demand during the same month of the previous year or the demand during the preceding month to verify the estimated demand using the average load factor.

a. Time-of-Use Demand Service Plans. For those customers on a time-of-use demand service plan, APS first calculates the estimated on-peak

kWh using the appropriate kWh estimating methodology. APS then calculates the total number of on-peak hours during the missing-read period by multiplying the on-peak hours per day times the estimated number of weekdays in the missing-read billing period. APS next calculates the on-peak demand by dividing the on-peak energy usage by the number of on-peak hours and the time-of-use class average on-peak load factor. Residential demands are estimated and billed to the nearest tenth of a kW. Non-residential demands are estimated and billed to the nearest whole kW.

Example of Estimating Demand for Time-of-Use Service Plan

For this example, assume the following:

Estimated on-peak energy usage = 842 kWh

Number of weekday on-peak hours = 12[1]

Number of days in the missing-read billing period = 31

Number of weekdays in the missing-read billing period = 5/7 x 31 = 22

Class average on-peak load factor = 42%[2]

Then:

22 x 12 = 264 on-peak hours

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[1] Currently, the monthly on-peak hours for ECT-IR accounts are 12 hours for each weekday. Until April 2004, the monthly on-peak hours were overstated as 13 hours for all days (based on a superceded rate schedule). The use of 13 on-peak hours for all days **understated** the estimated demand compared to the use of 12 on-peak hours for weekdays. This is because the denominator in the demand formula would be larger with the greater number of on-peak hours, thus understating the demand that results from the division of estimated on-peak kWh by the product of on-peak hours and load factor. The Commission decision that approved a 13 hour on-peak time period for all days for ECT-1 was ACC Decision No. 52593. The 12 hour on-peak period for weekdays was approved for ECT-1R in ACC Decision No. 56250.

[2] 42% is the current average monthly on-peak load factor used to estimate demand for ECT-1R customers.

842 / (264 x 0.42) = 7.6 kW

The estimated on-peak demand for the missing-read period is 7.6 kW

b. Non-Time-of-Use Demand Service Plans. To estimate demand for the non-time-of-use service plans, APS calculates the kWh usage for the missing-read billing period. APS then calculates the total number of hours in the missing-read billing period by multiplying the number of days by 24. APS calculates the monthly peak demand by dividing the estimated energy usage by the total number of hours figure multiplied by the class average load factor. Residential demands are estimated to the nearest tenth of a kW. Nonresidential demands are estimated and billed to the nearest whole kW.

Example of Estimation Demand for Non-Time-of-Use Service Plan

For this example, assume the following:

Estimated energy usage = 1,160 kWh

Number of days in missing-read billing period = 29

Class average load factor = 35%[3]

Then:

29 x 24 = 696 hours

1,160 / (696 x 0.35) = 4.8 kW

The estimated monthly maximum demand is 4.8 kW.

c. Non-Residential Demand Estimates. All non-residential services that must be estimated are calculated using the same methods as the residential methods above, except the average load factors for the respective class of non-residential customers are used in the calculations.

[3] Since August 2002, APS has used a 35% average load factor to estimate demand for EC-1 customers.

ESTIMATING W HEN ENERGY DIVERSION OCCURS

In instances in which a customer diverts his energy use, one or more of the methods described above may be used to estimate the usage for the period of suspected energy diversion. If there is insufficient usage history because tampering has occurred over an extended period of time, the Degree Day Method may be used.

The Degree Day Method consists of determining the customer's non-weather-sensitive "base load" (as metered during a period that is determined to be free from tampering or diversion) and adding to that usage the estimated usage of the customer's inventory of weather-sensitive appliances, adjusted for actual weather conditions as measured by "degree days."

APS estimates the base load as an average of the electric usage with little or no heating or cooling, which represents a customer's basic electric usage for lighting and non-weather-sensitive appliances, such as washer, dryer, television and refrigerator. April and November are normally base load months requiring minimal heating or cooling.

Next, APS adds to the base load the customer's estimated electrical requirements for heating or cooling needs. APS inventories the customer's weather sensitive equipment, such as evaporative cooler, refrigerated air conditioner, heat pump, heat strips, and gas furnace. Using APS' database of the electric usage of such equipment, APS estimates the customer's electric usage for heating and cooling.

The additional electric usage for heating or cooling is calculated by using temperature information received from the National Weather Service. APS retrieves the historical daily temperature during the back-billing period from

the National Weather Service to calculate the customer's degree days. To determine how many hours of heating or cooling were needed, the high and low temperatures for each day are averaged. In the summer, if the daily average temperature is over 80 degrees, then the difference between the daily average and 80 degrees represents the number of hours needed for cooling to maintain an inside temperature of 80 degrees that day. In the winter, the high and low temperatures are again averaged and if the daily average high temperature is under 65 degrees, then the difference between the daily average temperature and 65 degrees represents the number of hours needed for heating to maintain an inside temperature of 65 degrees that day.

Once the number of heating or cooling hours is determined, the electric usage of the customer-specific equipment to meet that heating or cooling requirement is calculated. APS uses its current engineering estimates for the kW demand for the heating and cooling equipment and multiplies those factors by the actual degree day hours to yield the kWh for both heating and cooling requirements.

Summary of the Degree Day Calculations:

1. Estimate base load using actual averaged data in base load months.

2. Calculate the number of heating or cooling degree day hours for the billing cycle.

3. Multiply customer specific heating and cooling equipment by the appropriate kW factor. The current average electric usage factor is as follows:

   a. Heat pump heating = 0.771 kW per ton

   b. Gashace=0.955 kW per hour

   c. Refrigerated cooling = 1.266 kW per ton

   d. Evaporative cooling = 0.955 kW per each ¾ horse power cooler

4. Multiply the total heating or cooling hours in the billing cycle (calculated in number 2 above) by the total kW (calculated in number 3 above).

5. Add the product from number 4 above to the base load in number 1 above to determine total kWh for the billing cycle.

Example of Bill Estimation for Energy Usage Using Degree Day Method

Assume:

1. An all-electric, 2,000 square foot home with a three-ton heat-pump.

2. November usage for this home is 700 kWh.

3. National Weather Service temperatures in December as shown in the following table:

Day of the Month	Daily High Temp	Daily Low Temp	Average	Inside temperature of 65 degrees – required heating hours per day
December 1	66	50	58	65 – 58 = 7 heating hours
December 2	70	50	60	65 – 60 = 5 heating hours
December 3	78	56	67	65 – 67 = 0 heating hours
***	***	***	***	***
December 31	68	52	60	65 – 60 = 5 heating hours

Assume for this example:

1. December is the billing period

2. Base load = 700 kWh

3. Total heating hours for the billing period = 7 + 5 + 0 + . . . + 5 = 196 degree hours

4. 3 tons of heating x 0.771 kW per hour per ton = 2.313 kWh per heating degree hour

5. 196 x 2.313 = 453 kWh, total heating requirement

6. 700 + 453 = 1,153 kWh, total estimated usage for the billing period

If it is necessary to estimate demand, the demand is determined as set forth in ¶ A.2 above.

Schedule DJR-2

Summary of Estimation Procedure Revenue Impacts

RATE	NUMBER OF METERS ESTIMATED	NUMBER OF ACTIVE SERVICES BILLED	OLD CIS TOTAL DOLLAR IMPACT	RATE SHEET PROVISIONS TOTAL DOLLAR IMPACT	MARCH 1999 TOTAL DOLLAR IMPACT	AUGUST 2002 TOTAL DOLLAR IMPACT	APRIL 2004 TOTAL DOLLAR IMPACT
E-10	18,391	1,030,798	$(41,863)		$(12,196)	$(12,196)	$(12,196)
E-12	62,090	4,699,950	$(252,427)		$(157,576)	$(157,576)	$(157,576)
EC-1	2,053	273,335	$(4,123)	$412	$(32,993)	$(627)	$(627)
ECT-1R	4,797	533,316	($8,831)	$(6,768)	$(179,092)	$(86,373)	$(4,811)
ET-1	35,933	3,642,505	$(103,719)		$(46,971)	$(46,971)	$(46,971)
Total Residential	123,264	10,179,904	$(410,963)	$(6,356)	$(428,828)	$(303,743)	$(222,182)
E-32	21,452	1,138,749	$(194,367)		$(391,180)	$(210,111)	$(210,111)
Total	144,716	11,318,653	$(605,330)	$(6,356)	$(820,008)	$(513,854)	$(432,293)

EXHIBIT
APS-2
Admitted

REBUTTAL TESTIMONY OF

DAVID J. RUMOLO

On Behalf of Arizona Public Service Company

Docket No. E-01345A-03-0775
Docket No. E-01345A-04-0657

JANUARY 24, 2005

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REBUTTAL TESTIMONY OF

DAVID J. RUMOLO

ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is David J. Rumolo, and my business address is 400 North Fifth Street, Phoenix, Az 85004.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?

A. Yes, I filed direct testimony on November 23, 2004. That testimony described the bill estimating procedures used by APS in recent years and provided analyses that compared revenue levels under alternative bill estimation procedures.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. My testimony provides comments regarding the interim report prepared by Staff's consultant, Barrington-Wellesley Group, Inc. ("BWG Report") as part of the Staff Inquiry into the Usage Estimation, Meter Reading and Billing Practices of APS. Specifically, my testimony focuses on the bill estimation and auditing aspects of the BWG Report. In that regard, I have specific comments regarding several of the recommendations contained therein. APS Witness Tammy McLeod's rebuttal testimony addresses the meter reading and customer service aspects of the BWG Report.

II. SUMMARY OF TESTIMONY

Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.

A. The BWG Report does not give the Commission a complete and, in some instances, accurate picture of the Company's meter reading and billing practices. In other instances, it focuses on long past events that were well known to the Commission at the time. Its recommendations ignore much of the Company's requests in the Application, neither supporting nor opposing them. Finally, its recommendations, as they would impact the estimation of customer usage and demand, would increase the net under-billing already flowing to the group of customers receiving bills based on estimated meter readings, many of whom create the very conditions that require their bills to be estimated.

III. BWG REPORT

Q. DO YOU BELIEVE THAT THE BWG REPORT PROVIDES A FAIR ASSESSMENT OF THE METER READING AND BILL ESTIMATION PRACTICES OF APS?

A. No, I do not. Although I believe that the BWG Report provides some valuable information supporting our contention that APS' metering, billing, and bill estimation practices are reasonable, I also believe that some of the information that is presented in the report, especially in the summaries, can, if taken out of context, lead to erroneous conclusions. Moreover, I believe that the BWG Report misinterprets or mischaracterizes much of the information made available to BWG by APS, and thereby leaves in many instances the misimpression that APS' practices are different than they actually are or that historical practices (some of which occurred five or six years ago) are indicative of APS' current practices.

Q. PLEASE CITE AN EXAMPLE OF YOUR CONCERN.

A. On page I-9 of the BWG Report, the question is presented, "Are APS' usage estimation, meter reading, and billing practices consistent with those of other Arizona electric utilities?" The report's response is "No, APS' practices for estimating both kWh and kW vary from those practices in place at other electric utilities in the State of Arizona". While that statement is literally accurate, it is grossly misleading. The report reader is left to review the back up material, namely Appendix C, to find out that virtually none of the Arizona utilities use the same method for estimating kWh, and, to the extent that these other Arizona utilities estimate kW at all, each utility does it a different way. Thus, the statement in the BWG Report that APS' estimating practices are not consistent with the practices of other Arizona utilities is equally true of all Arizona utilities that BWG surveyed and therefore, in my view, is both a meaningless statement and highly misleading. Similarly, the BWG Report notes that APS uses a six month seasonal average to estimate consumption (kWh), which it contends is not consistent with the practices of other Arizona utilities. Again, the reader must examine Appendix C to discover that some Arizona utilities use one month (either the previous month or the same month last year), some use two, three or four months, and one utility uses five months. Thus, here again, the BWG Report suggests that there is some established standard for estimating kWh among other Arizona electric utilities from which APS deviates, when in fact there is no consistent standard.

Q. DO YOU CONCUR WITH BWG'S APPARENT CONCLUSION THAT APS' ESTIMATION METHODS ARE CONTRARY TO THE REQUIREMENTS ESTABLISHED IN THE COMMISSION'S RULES?

A. No.

Q. WHY DO YOU BELIEVE THAT APS' BILL ESTIMATION METHODOLOGIES ARE FULLY CONSISTENT WITH THE APPLICABLE PORTIONS OF RULE 210?

A. First, Rule 210 describes a methodology for estimating consumption, i.e., energy. It does not address methodologies for estimating demand. Second, the rule merely indicates the two factors which should be given consideration. The rule does not indicate that the two factors should be the only factors used.

Yet, BWG's seeming interpretation of R14-2-210.A.2 is that the Commission's rule allows one and only one estimation methodology, i.e., consumption estimates be based solely on the previous month and the same month previous year. This narrow interpretation would also lead to the conclusion that most Arizona utilities are in violation of the rule. However, R14-2-210A.2 says no such thing.

R14-2-210.A.2. reads as follows:

"Each billing statement rendered by the utility or billing entity shall be computed on the actual usage during the billing period. If the utility or Meter Reading Service Provider is unable to obtain an actual reading, the utility or billing entity may estimate the *consumption (emphasis added)* for the billing period giving *consideration [emphasis added]* the following factors *where applicable [emphasis added]*:

a. The customer's usage during the same month of the previous year,

b. The amount of usage during the preceding month."

The emphasized elements of the rule shown above can only lead to the conclusion that the interpretation of the language as noted in the BWG Report is not consistent with the actual language of the rule.

Q. ARE THERE OTHER REASONS TO BELIEVE THAT THE COMMISSION HAS LIKEWISE CONCLUDED THAT "LAST MONTH" AND "SAME MONTH LAST YEAR" WERE NEITHER PRESCRIPTIVE NOR THE EXCLUSIVE FACTORS THAT COULD BE CONSIDERED IN ESTIMATING USAGE?

A. Yes. Aside from the obvious fact that, without any prior objection by Staff or the Commission, virtually no Arizona utility exclusively uses those two months' worth of data to estimate usage even when available, clearly the current APS method that uses 6 months of data for the same season will incorporate both the previous month and the same month one year ago in all cases where such data is "applicable." Indeed, the only time that the previous month would not be incorporated is if the estimated month is the first month of a new season. Using the seasonal data from the previous year but for the same season as the month for which the estimate of consumption is being made is certainly a more "applicable" methodology than using, for example, a winter month to estimate summer consumption or visa versa.

There was obviously a reason Rule 210 includes the permissive term "if applicable". I believe that this term provides common sense flexibility to Rule 210. As cited above, for seasonal rates, it makes more sense to use same season data than data for the previous month. Also, the rule does not specify estimation methods if data is not available. For example, if the service is at a new location that previously did not have service, there would be no data for the same month a year earlier. Thus, Rule 210 is intended to provide general guidelines, not mandates. If Rule 210 is interpreted as a mandate, most Arizona utilities are in violation of the mandate based on the data found in the Appendix to the BWG report.

Finally, these same provisions of Rule 210 were in effect in 1996 when the Commission closely examined APS' estimating procedures in the *Ciccone* case and recognized that APS considered more than just the last month and the same month last year. As the *Ciccone* decision observes:

> APS has a computer program which it uses to estimate customer's demand when it is unable to read a customer's meter for some reason. The computer program estimates a customer's kW demand based on the customer's actual kWh usage, his previous months' usage, and kW demand readings for other customers with similar kWh usage. . . . We believe that APS's computer program, which is based on actual data of Mr. Ciccone's usage patterns <u>and usage of other similar customers</u>, results in a more accurate estimate of Mr. Ciccone's actual demand during the period when APS failed to reset the meter. [Emphasis supplied.] [Decision No. 59919 (December 10, 1996) at 7 and 9.]

Thus, the BWG Report not only ignores the very language of the rule itself, but also fails to take into consideration – to any extent whatsoever – the prior interpretation and application by the Commission of its own rules.

Q. DO YOU CONCUR WITH RECOMMENDATION IV-1 FOUND IN THE BWG REPORT?

A. BWG Recommendation IV-1 states: "APS should be required to obtain Commission approval of its estimation procedures as a tariff filing". Although there is no currently effective requirement for such approval, APS requested in its Application for a Declaratory Order in October 2003 Commission approval for its estimating procedures to the extent found appropriate by the Commission. See Second Amended Application at pg. 13, lines 14-25. Thus, APS can accept this recommendation as long as it applies equally to all regulated Arizona electric utilities and does not involve any retroactive impact on current or previous estimating procedures.

Q. DOES THE BWG REPORT RECOMMEND APPROVAL OF THE COMPANY'S PRESENT PROCEDURES FOR ESTIMATING DEMAND AND ENERGY?

A. No. Neither does it propose a different set of procedures. The Company's Application requested that the Commission either approve the Company's past and present estimation procedures or establish new procedures. It further asked that in the latter case, the Commission should nevertheless confirm the validity of bills issued using the prior methodologies. This and other issues raised in the Application, including even the issue of what constitutes an "estimated bill," are not even addressed, let alone resolved, in the BWG Report.

Q. DO YOU CONCUR WITH BWG RECOMMENDATION IV-2?

A. No. BWG Recommendation IV-2 proposes a credit to customers who, during the period from 1998-2003, had an estimated demand read that was not adjusted downward when the actual demand read the following month was less than the estimate. If Recommendation IV-2 is adopted, APS may be required to provide credits to customers whose demand was estimated as long ago as six or seven years. I disagree with this recommendation for several reasons. APS made a business decision in 2003, after it had otherwise modified its estimating procedures for demand accounts to reduce the extent of underestimates, to provide a credit if billing demand appeared to be overestimated. This procedure continues today and will continue for the future unless the Commission orders modifications to the practices. It was never intended to be applied retroactively because of both equity concerns and practical considerations.

Q. PLEASE EXPLAIN.

A. If a customer has had an overestimated demand one month for which the customer receives an automatic credit, but had underestimated demands in other

months for which the customer is never billed, that customer will be unjustly enriched. And while that was also true after September 2003, improvements in APS' estimation procedures had, by that time, reduced to some extent the likelihood of such inequities. Applying these same crediting procedures retroactively is simply not a balanced approach to bill estimation. Bill estimation is, by its very nature, an inexact "science." Our analysis indicates that on a net basis, we tend to underestimate. And while we can estimate the potential for "over-billing," we have less ability to estimate "under-billing" on an individual customer basis and thus cannot collect revenues that are owed by such customers. Yet, in the aggregate, such under-billings are statistically known to exist.

The balance of "over-billing" versus "under-billing" inherent in any bill estimation method is not dissimilar to the same balance struck throughout the rate-making process itself. Rates are not designed on an individual customer basis but generally reflect the average cost to serve a particular customer class and recover from that class its total allocated revenue requirements. By definition, some customers in the group will pay more than cost and others less. If you reduce rates for the one without increasing them for the other, you create a net under-recovery of cost that will have to be paid by other customer classes. Similarly, if a bill estimation process is adopted that is asymmetrical, ultimately customers whose meters are accessible on a regular basis will pick up the revenue deficiency from customers whose consumption is frequently estimated even more than is presently the case. Prior to 2003, the average rate of underestimating of demand accounts was greater than it is now. Thus, ordering a retroactive credit for customers who may have received an overestimated

demand read during the period 1998-2003 – without attempting to do the same with respect to underestimated demand reads – would be fundamentally unfair and would further benefit many of those customers who brought about the very access problems that required their accounts to be estimated.

Recommendation IV-2 is also impractical to implement. To determine the retroactive credit as described in Recommendation IV-2, each estimated bill during those five years must be examined including the time period when our new customer information system was in the implementation phase. APS would also have to determine whether the same customer had been under-billed during other months, or had already received credit for this (via a billing exception or as a result of interaction with the APS Consumer Advocate's Office), thus partially or totally reducing any credit. APS would then need to attempt to locate customers to provide refunds. APS experiences a high customer turnover rate and locating previous customers may be costly and impractical.

Lastly, to require APS to retroactively apply a business decision made in 2003 (under different business conditions and circumstances) would discourage efforts by APS in the future to make process improvements because of the concern that it might create retroactive liability on the part of the Company. This would be roughly analogous to attempting to apply a voluntary rate reduction retroactively. Once done, it is doubtful you would see another voluntary rate reduction proposed.

For all these reasons, I disagree with Recommendation IV-2. It makes neither equitable nor practical sense, and it ignores the underlying business realities concerning the imprecise nature of bill estimation, particularly as applied to

demand accounts and particularly under the estimating procedures used by APS prior to 2003.

Q. YOU HAVE SAID THAT YOU DO NOT AGREE THAT THE BWG REPORT PROVIDES A FAIR ASSESSMENT OF THE METER READING AND BILL ESTIMATION PRACTICES OF APS. WOULD YOU CARE TO COMMENT FURTHER ABOUT THAT?

A. I will leave it to Tammy McLeod to address the meter reading issues, but I feel strongly that the report's discussion of APS' bill estimation practices is misleading and fails to recognize process improvements and changes that are a normal part of business operations. BWG interviewed numerous APS personnel, was provided with copies of virtually all of APS' relevant documentation relating to bill estimation, and directed that several tests be run on APS' bill estimation systems. Based on all of this information, BWG has concluded the same thing that APS previously told the Commission (and that APS told the court in the Read litigation) – i.e., that APS, on average, has consistently **underestimated** customers' bills and that there is no truth to the allegations of the Read complaint that APS has systematically overcharged customers whose bills must be estimated. Nevertheless, the BWG Report leaves the impression that APS' bill estimation practices are beset with problems and are not consistent with the practices of other electric utilities.

For example, the report discusses at some length the problems that occurred in 1998 and early 1999 when APS implemented its new CIS. However, as Ms. McLeod has testified, and as this Commission is well aware, those problems were both temporary and no different than the types of short-term problems that are experienced by any business – particularly an electric utility – when implementing a new CIS. Thus, the report's assertion and discussion that "there

were various problems associated with estimated bills following implementation of the new CIS" (BWG report at I-9) – events that occurred more than six years ago – is misleading and leaves the impression that those problems continue today.

Similarly, and as I have testified at some length, I do not agree with the blanket statement in the BWG Report that customers are harmed by the methodologies that APS uses to estimate demand (even though BWG admits that it does not know the extent of any such harm). Estimating energy usage, particularly demand, is an inexact exercise, and virtually no electric utility has the range of experience that APS has in estimating residential demand. Although the BWG Report criticizes the decision by APS to use a class average load factor in its formula for estimating demand, the report fails to analyze the various considerations that make use of a class average more equitable, and the report fails to acknowledge that the use of class average (and other adjustments made by APS in the last few years) load data in combination with customer-specific energy usage to estimate demand has, on average, made APS' estimating procedures for demand accounts more reasonable and more likely to underestimate than under the pre-1999 processes. That combination also smoothes out the variations in estimations that can be caused by sole reliance on individual customer data. By focusing on the inevitable circumstance attending any estimation procedure, i.e., some individual estimates will be higher than actual usage, but ignoring the fact that, on an overall basis, APS underestimates demand accounts, the BWG Interim Report misunderstands the entire estimating process. For these and other reasons, I do not agree with either BWG's discussion or its conclusions relating to APS' estimating procedures.

Q. HAS APS PROPOSED RATE CHANGES THAT WILL EFFECT BILL ESTIMATION?

A. Yes, the Proposed Settlement Agreement that has been entered into by almost all parties to the APS rate case (Docket No. E-01345A-03-0437) has two elements that will reduce the number of demand estimations that will likely be required in the future. First, the Proposed Settlement Agreement requires that residential Schedule EC-1 be eliminated in the next APS rate case. To the degree that customers currently on Schedule EC-1 elect rate schedules without an explicit demand charge, e.g., the TOU rate Schedule ET-1, the number of residential bills that could be estimated at any point in time is reduced. The Proposed Settlement Agreement also dramatically reduces the number of general service customers whose bill will include an explicit demand charge. The proposed Schedule E-32 eliminates the demand charge for general service customers with demands of 20 kW or less. Approximately 79% of the 95,000 E-32 customers are 20 kW or less. Therefore, the universe of general service customers where demand estimation could <u>ever</u> be an issue will be significantly smaller than it is today. When the new rates are implemented, demand readings for billing purposes will only be required of approximately 20,000 E-32 general service customers as compared to almost 95,000 E-32 customers today – an over 70% reduction.

Q. DOES APS AGREE WITH BWG RECOMMENDATION IV-3?

A. No. BWG Recommendation IV-3 proposes that APS' internal auditors conduct annual internal audits on bill estimation, metering, and billing practices; ensure that it has completed implementation of any findings, and that the results of these audits should be filed with the Commission. I discussed this recommendation, as well as the recommendation regarding an independent audit

by a Commission-hired auditor, with the director of our audit group and APS has significant concerns regarding Recommendation IV-3.

The Pinnacle West Capital Corporation Audit Services Department ("Department") employs a risk-based audit planning process, approved by the Board of Directors' Audit Committee, to allocate its resources to areas of the highest risk. The Department maintains an Audit Universe of all likely internal audit projects. Annually, the universe is reviewed and updated and subjected to a risk assessment methodology in order to risk-rank each project. Broadly, the risk factors utilized in the risk assessment methodology are in three categories, Financial Impact, Internal Control/Structure, and External Considerations. The highest ranking items are added to the plan. When usage estimation, meter reading and billing practices rise to the level of risk that makes them, individually or collectively, appropriate for audit, they will be added to the plan, as has been done periodically in the past, but certainly not on an annual basis.

It is worthy to note that in the current world of Sarbanes-Oxley requirements relating to internal controls and auditing of Key Controls, there will for the foreseeable future be some annual work done on Revenue controls processes. However, this work will not result in separate audit reports dealing specifically with the sub-processes, such as bill estimation, of the revenue process. It should also be noted that for 2004 Sarbanes-Oxley Revenue Process controls testing, usage estimation and billing were deemed below the materiality threshold for definition as a Key Control and therefore, were not tested. That situation likely will not change in the future.

If the Commission were to mandate annual internal auditing of the usage estimation and billing process, such a mandate would be unprecedented, and would prevent the Department from directing audit resources to areas where the time could be spent to address greater risks to the Company and its customers.

The BWG Report recommends that APS should ensure that any findings reported in previous internal audits are completely implemented. The Department performs appropriate follow-up on the implementation of agreed upon management action plans that result from internal audits. But to institute an absolute requirement that all audit recommendations be automatically implemented is an invitation for auditors to usurp the functions of management. It would be little different that suggesting that the Commission be required to follow without question every recommendation of its Staff.

On principle, APS believes the recommendation that internal audit results be filed with the Commission to be inappropriate. Internal audits are done for management purposes only and are not intended for external use. These reports may include detailed critical evaluations of our Company's operations. Disclosure of this information would also be inconsistent with the expectations of individuals who provided such information on the basis that it would remain both confidential and internal to APS. If this expectation were breached, it would significantly impair the free flow of confidential information to the Department and thus reduce the likelihood of any improvements resulting from future internal audits. This would be contrary to public policy expectations that public companies have vigorous programs of self-analysis and control improvement.

Q. DOES APS AGREE WITH THE BWG RECOMMENDATION THAT AN INDEPENDENT AUDITOR BE USED TO DETERMINE COMPLIANCE WITH ANY ORDER IN THIS PROCEEDING?

A. We believe this is unnecessary, unwarranted by any findings in the BWG Report, and is an inappropriate use of resources. Bill estimation affects a very small number of customers, and our analyses indicate that we tend to underestimate. Regardless of any modifications to our current practices, we will always have some customers who deny us access or we simply can't get a meter read. Determining compliance with any Commission order or directive is and should remain an internal Commission Staff function. Adding additional costs to address issues that impact a small number of customers simply is not fair to those customers where access is not an issue.

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. Yes. The BWG Report is both incomplete in its analysis and unsubstantiated in its conclusions. It does not give the Commission a complete, and in some instances, accurate picture of the Company's meter reading and billing practices, especially if the reader only reviews the summaries found early in the report. In other instances, it focuses on long past events that were well known to the Commission at the time. Its recommendations ignore much of the Company's requests in the Application, neither supporting nor opposing them. Finally, its recommendations, as they would impact the estimation of customer usage and demand, would increase the net under-collection from the group of customers receiving bills based on estimated meter readings, many of whom create the very conditions that require their bills to be estimated.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

EXHIBIT
APS-3
Admitted

SETTLEMENT TESTIMONY OF

DAVID J. RUMOLO

On Behalf of Arizona Public Service Company

Docket No. E-01345A-03-0775
Docket No. E-01345A-04-0657

March 18, 2005

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SETTLEMENT TESTIMONY OF
DAVID J. RUMOLO
ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY
(Docket Nos. E-01345A-03-0775 and E-01345A-04-0657)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is David J. Rumolo, and my business address is 400 North Fifth Street, Phoenix, Az 85004.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?

A. Yes, I filed Direct Testimony on November 23, 2004 and Rebuttal Testimony on January 24, 2005. My Direct Testimony described the bill estimating procedures used by APS in recent years and provided analyses that compared revenue levels under alternative bill estimation procedures. My Rebuttal Testimony addressed specific concerns of the Company with certain of the findings and recommendations of the interim report prepared by Staff's consultant, Barrington-Wellesley Group, Inc. ("BWG Report") as part of the Staff Inquiry into the Usage Estimation, Meter Reading and Billing Practices of APS.

Q. WHAT IS THE PURPOSE OF YOUR SETTLEMENT TESTIMONY?

A. My testimony provides explanations of and comments regarding certain of the terms of the Proposed Settlement Agreement dated February 25, 2005 ("Proposed Settlement" or "Agreement"). I will also explain why the Proposed Settlement is in the public interest. Since the Proposed Settlement covers a wide number of issues, my Settlement Testimony will address only portions of the Proposed Settlement, while APS Witness Tammy McLeod will addresses the other aspects of the Agreement.

II. SUMMARY OF SETTLEMENT TESTIMONY

Q. PLEASE SUMMARIZE YOUR SETTLEMENT TESTIMONY.

A. The Proposed Settlement compromises several contested issues regarding estimating usage in the absence of a valid meter reading in a manner acceptable to all parties. It also brings regulatory certainty as to the issues concerning estimation addressed in the Agreement, which in large part was the original goal of the Company's Application in Docket No. E-01345A-03-0775 back in the fall of 2003. Finally, it puts behind both APS and the Commission a dispute that has consumed tremendous resources of time and money on both sides.

In that first category, I place the applicability of certain language within two of our residential rate schedules, EC-1 and ECT-1R, as well as the appropriate remedy in those instances in which that language was not followed. I also include the issues of whether and for how far back the Company should be compelled to make retroactive bill adjustments for specific instances of over-estimation while not making adjustments in the opposite situation, especially when there is no dispute that such asymmetry will aggravate an overall underestimation and underbilling situation.

In the second category, the validity of bills issued using the Company's post-1998 bill estimation has been affirmed, subject to the specific exception noted in Paragraph 16. APS also has direction concerning what estimation procedures it should use prospectively (i.e., upon approval of the bill estimation tariff schedulc called for in Paragraph 26) and a process by which future changes in those procedures can be implemented (Paragraph 28). Finally, there is agreement on those situations triggering an "estimated" bill, with all that entails under the provisions of A.A.C. R14-2-208, and those that do not (Paragraph 27).

As to the third benefit of the Proposed Settlement, I believe them obvious. The Agreement ends a dispute that has lasted for nearly two years, engendered a battle of expensive consultants, disrupted Company operations, and consumed resources on both sides far disproportionate to the dollars ever at issue.

III. THE PROPOSED SETTLEMENT

Q. WHAT ISSUES OF DISAGREEMENT REGARDING ESTIMATION PRACTICES DOES THE PROPOSED SETTLEMENT COMPROMISE?

A. There were essentially two such issues. The first concerned the degree to which APS had utilized and needed to utilize a procedure for estimating demand set forth in residential rate schedules EC-1 and ECT-1R. Associated with that issue is the appropriate remedy for those instances where both Staff and APS agreed the procedure was applicable but not followed. The second was the degree to which a Company-initiated policy of crediting individual customer bills for specific instances of overestimation of demand – a policy that had first been adopted by APS in the fall of 2003 before the Company filed its initial Application with the Commission – should be applied retroactively.

Q. PLEASE DISCUSS HOW THE AGREEMENT RESOLVES THE FIRST OF THESE TWO ISSUES.

A. Residential rate schedules EC-1 and ECT-1R contained language suggesting that when a meter reading could not be obtained because of a locked gate or safety condition, the customer's demand should be billed using the last valid meter read, usually but not necessarily the prior month's reading. Staff indicated in its testimony that it believed APS has never followed this procedure, which it also interpreted as applicable to all estimations of demand under these two rate schedules. Thus, Staff originally recommended a substantial fine against APS, but Staff did not suggest recalculating customer bills using the rate schedule procedure. Both APS and Staff agree that such a recalculation would likely produce a net benefit to the Company. APS noted that the rate schedule estimation procedure by its own terms applied in only two situations, locked gate and safety, which accounted for less than half of the estimated demands during the period analyzed by Staff. Further, as noted in Paragraph 3 of the Agreement, APS discovered during the course of these proceedings that the Company's Billing Service Representatives, which handled all demand estimations until early 1999, utilized the last demand reading in estimating residential demand, albeit not universally and perhaps not even systematically. It was not until demand estimation became automated with the "new" CIS that the rate schedule procedure was all but abandoned in favor of a load-factor based methodology. Because of these factors and also because APS did not profit to any degree from its failure to universally follow the rate schedule procedure (quite to the contrary, it lost money), APS believed a fine of any kind totally inappropriate.

In lieu of any fine, the Proposed Settlement requires APS to expend $600,000 on new programs and equipment designed to gain access to its customers' meters and thus reduce the need for estimation. To that $600,000 would be added any unclaimed refunds, an issue I will discuss next. APS is expressly prohibited from seeking any rate recovery of the $600,000. This solution attacks the underlying problem of customer meter access rather than getting bogged down on arguing about whose interpretation of the tariff is correct or debating how bills were estimated some twenty years ago. As such, it focuses on the future and not on assigning blame for the past.

Q. WHAT ABOUT THE ISSUE OF CUSTOMER CREDITS AND REFUNDS?

A. Beginning in September of 2003, APS instituted a policy of crediting customers for over-estimations of demand, as indicated by a subsequent meter read. As explained in Ms. McLeod's Rebuttal Testimony, the new policy was not without controversy because it aggravated an already existing problem of demand and bill underestimation. And since the underestimation was progressively larger the further one went back in time to the implementation of "new" CIS, it was determined not to make the change in policy retroactive.

Despite the Company's concerns, Staff recommended precisely such a retroactive application of the new APS policy. The Staff recommendation further called for adding interest to the adjustments, despite the Commission's unequivocal pronouncement in the *Ciccone* decision [Decision No. 59919 December 10, 1996)] that such interest was inappropriate "as a matter of policy." The Staff recommendation also ignored APS arguments that there were

statute of limitations and other statutory provisions limiting how far back the Company could be compelled to provide refunds or billing credits.

The Proposed Settlement essentially adopts the Staff position. APS grants full billing credits and refunds, with interest, back to the introduction of "new" CIS in 1998. The only "exceptions" are: (1) instances in which the impact of contract and rate schedule demand minimums made the overestimation of actual demand moot (because it did not impact the actual bill); (2) instances in which the customer had already received a credit for the estimation; and (3) instances where the affected customer has left the APS system and either had a refund due of less than $5 or cannot be located. The first of these three "exceptions" is only applicable to general service customers. The second could theoretically apply to both residential and general service customers, but APS has agreed only to claim an offset for such prior credits in the case of general service customers. In the third instance, any amount not refunded to an affected former customer, either because the amount was too small to justify the effort in locating such former customer or the former customer cannot be located to submit a claim under Paragraph 20, is added to the $600,000 for improved customer access that I previously discussed.

Q. DID STAFF AND APS DISAGREE ON EVERY ISSUE CONCERNING BILL ESTIMATION?

Absolutely not. Indeed, if we had not agreed on so much to begin with, it is doubtful we could have come to settlement. For example, Staff and APS agreed that Complainant Avis Read had not been overbilled (Paragraph 9). They agreed that APS' demand estimation process was consistent with Rule 210 (Paragraph 8) and resulted in underestimation of demand on average, both in absolute terms

and relative to the process outlined in rate schedules EC-1 and ECT-1R (Paragraph 7). Staff and APS further agreed that irrespective of whether the 1998 amendments to Rule 210 were ever effective, any alleged violations of their provisions neither warranted a fine nor affected the validity of bills issued since 1998 using the estimation procedures implemented by the Company with "new" CIS (Paragraph 34).

Q. HOW DOES THE PROPOSED SETTLEMENT PROVIDE APS WITH THE REGULATORY CLARITY SOUGHT IN ITS 2003 APPLICATION?

A. Paragraph 27 adopted Staff witness Rowell's recommendations as to what circumstances result or do not result in an "estimated" bill for purpose of the Commission's regulations. As it turns out, Mr. Rowell agreed with the Company's position on this issue, and therefore it represented another issue that did not need to be compromised because there was, in fact, no disagreement between Staff and APS. I previously discussed the status of bills issued since Commission approval of the 1998 amendments to Rule 210, which was also the subject of the Company's 2003 Application. Finally, Paragraphs 12-15 provide for a new process to estimate demand. Although the Company would have preferred retaining its existing demand estimation procedure, especially considering the significant unrecoverable cost to change to this new methodology (Paragraph 25d), an alternative clearly contemplated by the original 2003 Application was a Commission directive as to how usage and demand should be estimated and an agreed-upon methodology for implementing future changes to whatever methodology the Commission authorized (Paragraph 28).

Q. WHAT ABOUT THE BENEFITS OF FINALLY ENDING THIS NOW LONG-STANDING CONTROVERSY OVER BILL ESTIMATION AND METER READING PRACTICES?

A. As I indicated in my Summary, these benefits are both obvious and substantial for both sides. From the Company's perspective, the benefits of getting this matter behind it were some of the primary drivers in leading it to agree with Staff's terms for settlement.

IV. CONCLUSION

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. Yes. The Proposed Settlement is a fair and reasonable compromise. It provides substantial benefits to APS customers, both current and former. It should lead to a reduction in access-related bill estimation, provides regulatory certainty and clarity where none existed before. Finally, it ends a near two-year dispute that has consumed very significant resources of time and money on both sides. I urge the Commission to adopt this Agreement.

Q. DOES THAT CONCLUDE YOUR SETTLEMENT TESTIMONY?

A. Yes.

EXHIBIT
APS-4
Tammy

TESTIMONY OF TAMMY MCLEOD

On Behalf of Arizona Public Service Company's

Application for Declaratory Order

Docket No. E-01345A-03-0775

November 23, 2004

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TESTIMONY OF TAMMY MCLEOD
ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY
(Docket No. E-01345A-03-0775)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

A. My name is Tammy McLeod. I am the General Manager of Customer Service and Southern Arizona operations for Arizona Public Service Company ("APS" or "Company"). My business address is 2121 W. Cheryl, Phoenix, Arizona. A Statement of Qualifications is attached as Appendix A.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. In connection with the Application for Declaratory Order ("Application") filed by APS with the Commission in October 2003 and amended twice since then to update certain information, my testimony will explain the background facts relating to APS' meter reading practices and bill estimation procedures, and various other matters concerning the Application.

II. SUMMARY OF TESTIMONY

Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. APS understands that timely and accurate meter reads are an important part of customer service, which is why we place such an emphasis on meter reading accuracy. Although the Company's goal is to read every meter every month, that goal is, of course, unobtainable for a variety of reasons outside our control. Thus, my testimony includes an overview of APS' meter reading practices so that the Commission will have the benefit of that background in assessing the need for a reasonable resolution of the issues raised by the Company's Application. In this regard, I will discuss in my testimony the number of meter readers used by APS,

the process by which meter readers are hired, trained, deployed and evaluated, the reasons for estimates, the procedures and processes used by APS to obtain access to meters and, most importantly, to inform our customers of meter access problems. I will also address the steps taken by APS to ensure that meters are read, the procedures used by APS to make an estimate when an actual read of the meter cannot be obtained, and other related matters.

My testimony at this time will not include a detailed response to the claims made by Complainant Avis Read. It is my understanding that the Complainant has the burden to initially provide some evidence to support such claims. If and when that evidence is presented by Complainant, I expect to provide testimony at a later time specifically responding to the Complaint. What I can say now is that, contrary to the claims made in the Complaint that APS systematically and intentionally over bills its customers when a bill must be estimated, APS' analysis shows that its estimation procedures, even as refined and improved in recent years, **tend to under bill its customers on average**. APS witness David Rumolo will address this issue separately and in more detail.

III. APS METER READING PROGRAM

Q. WHAT IS THE COMPANY'S GOAL IN TERMS OF READING METERS?

A. APS' goal is to read every meter every month. It is always in APS' interest to get actual accurate meter reads because when a meter is not read, additional work and costs are created for APS. These include the efforts of billing representatives, the need for meter verifications by field personnel, phone calls and mailings to our customers, and the receipt of additional customer calls to our Call Center.

Q. WHAT IS THE TOTAL NUMBER OF CUSTOMER METERS IN APS' SERVICE TERRITORY?

A. As of October 18, 2004, APS had over 1 million meters installed in the field. Only 175,000 or so of these meters are on accounts where customers are being billed on a demand rate (roughly 155,000 for EC-1, ECT-1R and E-32). The number of customer meters broken down by class is outlined in the document attached as **Schedule TM-1**.

Q. HOW DOES APS READ MORE THAN ONE MILLION METERS EVERY MONTH?

A. At present APS employs approximately 158 meter readers throughout the State of Arizona to perform this task. These meter readers read the Company's meters over the 21 cycles in a billing month.

Q. HAS THE NUMBER OF APS METERS INCREASED OVER THE YEARS?

A. Yes. APS has employed the following number of meter readers on an annual basis since 1995.

Year Ending	Meter Readers[1]
1995	111
1996	121
1997	117
1998	133
1999	136
2000	131[2]
2001	135
2002	139
2003	145
YTD 2004	158

Q. HOW DOES THIS COMPARE WITH APS CUSTOMER GROWTH?

A. The number of APS customers has increased just under 40% since 1995, while meter readers have increased over 42%. I consider this a pretty good match.

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[1] APS would also note that in addition to APS "meter readers," APS "Servicemen" and "Troublemen" (these are all IBEW job classifications), as well as Local Reps and other job classifications, may also read meters on occasion, if needed, as part of their service to our customers.

[2] In 2000, APS implemented DB Microware, which is a software program allowing more efficient meter reading routing. This allowed APS to improve productivity.

Q. DOES APS HAVE ENOUGH METER READERS TO READ ALL OF ITS METERS?

A. Yes. If we did not, this would be reflected by a persistent inability of our meter readers to complete their assigned routes. No such inability exists. In addition, I am sure the IBEW would notify me if it believed additional employees were required because that would mean additional union jobs.

Q. IF APS HAD MORE METER READERS, WOULD THAT ELIMINATE THE NEED TO ISSUE BILLS BASED ON ESTIMATED USAGE?

A. No. It would not even reduce the number of such estimates by an appreciable amount, if at all. For example, more meter readers would do nothing to resolve access issues, or to change the weather in the northern part of our service area, or to prevent meters or meter reading equipment from malfunctioning, or to prevent meter tampering.

Q. HOW DOES APS ESTABLISH ITS METER READING ROUTES?

A. APS builds its routes on actual average read time for each meter in the route. A meter reader's standard workday is 8 hours. A daily route assignment is targeted at 6 to 6.5 hours read time, allowing for travel time to and from the route, lunches, and breaks, in addition to the meter reading. Routes with added travel to and from headquarters will have a read time of less than 6.5 hours.

In high growth areas, new routes are split off of established routes as more meters are added into that area. Optimally, each APS meter reading shop operates with a ratio of 18 to 19 routes per meter reader during the 21 cycle work month (APS has 21 billing and meter reading cycles per month). This allows the workforce to have earned paid time off, and to manage the commitments to read all of the routes monthly within the established time windows. In cooperation with the IBEW,

employees are added, as needed to cover the growth, which is identified through the increase in customers per route.

Because geographical differences and meter placement influence the number of meters that can be read, routes are based on time rather than number of meters. Indeed, each meter route has a different number of meters assigned. Some routes have a smaller number of meters to read, such as 100, other routes could have 1,000 meters. However, both routes would be completed within a 6 to 6.5 hours read timeframe under normal conditions.

Q. WHAT IS THE AVERAGE NUMBER OF METERS THAT EACH METER READER IS RESPONSIBLE FOR READING PER DAY?

A. The quantity of meters in a route is determined by numerous factors. Geography of the area (i.e., mountain areas), walking distance between meters, dirt roads, driving distance to and from shop headquarters are all elements that impact the number of meters in a route. Density of meters is another critical factor, i.e., a route with numerous multistory apartments will allow for a much greater volume of meters to be read versus a route with subdivision homes, versus a route with homes on acreage, versus a route with a combination of meter distributions.

All routes are constructed to enable one day completion by the meter reader. Some routes are also created with growth in mind (such as a new subdivision) and will not be a full day's assignment. Other routes have grown beyond a full day's reading and have to be adjusted. Both of these situations are called "pieces." Pieces will be combined and assigned to a meter reader to become a full day's route assignment until growth or additions to already pieced-out routes become a full route assignment. In high density areas, a meter reader can easily read from 400 to 1000 meters a day. In the more rural and low (meter) density areas a meter reader may read only 100 to 500 meters a day.

Q. COULD YOU BRIEFLY EXPLAIN THE METER READING PROCESS?

A. At its simplest, the meter reader first locates the customer's meter. If it is probable, the meter reader inserts the magnetic probe attached to his or her hand-held meter reading computer (called "Itron"). The read is automatically down-loaded, and the Itron provides both an audio and visual signal that the read has been successful. If the meter is not probable, or if the probe will not download the read, the meter reader will type in the read on the Itron. Should the typed-in read not be consistent with the prior month's read (e.g., it was less than the last reading), the Itron will reject the read and ask the meter reader to check both the read and the meter ID number again (in the latter instance, the read may be accurate, but for the wrong meter). When the read is typed in because of probe or meter failure, the meter reader will note that problem in his log so that the probe/meter can be checked or replaced when the meter reader returns to the office. Finally, the meter readers will manually reset the demand reading to zero, assuming either that the probe did not do so automatically or the meter was non-probable. The meter reader then moves on to the next service location.

Q. WHAT ARE THE INITIAL STEPS IN HIRING AND TRAINING AN APS METER READER?

A. A candidate list is maintained by IBEW Local 387. The candidates put their names on the list and once the IBEW's list is exhausted, the "book" is opened and a new list started. APS screens the candidates provided by the IBEW by having a panel interview them. Each interview is approximately an hour long and includes situational questions and questions about prior work experience. For example, candidates are specifically asked about past experience (good and bad) with dogs and other factors such as attitude towards working out of doors that may affect their ability to be productive meter readers.

Candidates who pass the interview attend up to a full day's presentation about meter reading, learn the basics of meter reading, read a mock route and take a screening test. This is an opportunity for the candidate to see the realities of the job, its physical nature, and the expectations of types of meter reading and quantities of meters to be read. APS emphasizes that it expects a meter reader to always attempt to read every meter unless there is an unsafe condition. A background check is also done on all candidates. Candidates that pass these stages advance to the hiring pool where they are eligible to be meter reader trainees.

Q. WHAT ARE THE NEXT STEPS?

A. Meter reader trainees begin training with a meter reader trainer. The training schedule outline is as follows:

- Day 1--Issue supplies, including scopes, shirts, keys, hats, dog stick, and seal bag; introduction to crew and facilities; shadow a veteran meter reader.
- Day 2--Discuss meter reader manual; practice reading pictures of real meters (PowerPoint presentation, or slides); and master level one of the Meter-pro ® meter reading software program.
- Day 3--Master level two and three of the Meter-pro ®; practice reading pictures of real meters; hand-held computer (Itron) training on the training route.
- Day 4--Half-day in field with trainer with a partial route, including scoping practice; additional level two and three Meter Pro ® and scope practice at the APS yard.

- Day 5--Work in field with veteran meter reader shadowing trainee; final meter reading test and check list completion.

- Second week--Split routes and solo with spot checks from trainer; work up to full route with additional help (as needed per individual).

Q. ONCE AN APS METER READER IS HIRED, HOW DOES APS EVALUATE THAT METER READER'S PERFORMANCE?

A. APS uses progress reports to gauge newly-hired meter readers at the 30/60/90-day and six-month milestones. The progress reports evaluate attendance, safety, performance, conduct, and working flexibility. A team leader will meet with a new-hire and provide specific instances of customer complaints or customer compliments, along with statistical performance data, and therefore is able to understand how the trainee is progressing.

In addition, APS has now developed a "Training Card," which will be utilized to get training feedback on the last two classes of trainees. The purpose of the Meter Reading Training Grade Card is to benchmark the trainees once they leave the training shop. This allows a veteran meter reader to evaluate a newly-hired from a new perspective. The Grade Card, with the evaluator input, will show areas in which the trainee needs further training, or confirm that the trainee has a firm grasp of the concepts that have been taught. Each trainee is different with regards to the rate at which he or she grasps and masters the concepts of meter reading. Once the training shop is confident that the trainee is ready to be released to his or her new home shop, the Grade Card will come into play, with the aid of the new home shop evaluator. It is anticipated that all trainees will be evaluated near the six-month mark. If it is discovered that a trainee has not mastered a meter reading concept, a refresher training session will be administered. Depending on the need

for and intensity of the additional training, the refresher training may be done either back at the Deer Valley training shop or at the new home shop of the trainee meter reader. The trainee will not be released back into the field until all concepts have been mastered.

Trained meter reader standards are maintained by the expectations and performance minimums standards. The expectations and performance minimums were developed by a joint committee of meter readers, first level management (usually departmental or section leaders), Human Resources personnel, and IBEW representatives. The goal of the committee was to provide the best possible meter reader for APS customers by setting consistent, fair and reasonable standards. These standards are posted, updated, and reviewed at least every six months. They are also part of the meter reading training curriculum.

Q. DO APS METER READERS HAVE INCENTIVES TO MINIMIZE UNREAD OR MISREAD METERS?

A. Yes. Meter readers have incentives to obtain actual meter reads and to not have meter reads estimated. These include both positive financial incentives, such as additional pay for obtaining at least 99.9% accurate reads and for timely completion of all reads on the meter reader's assigned route, as well as the potential for disciplinary action if an employee's performance remains substandard.

The contractual agreement between APS and the IBEW escalates the pay on the following time/ performance schedule: (1) Meter Reader-first six months; (2) Meter Reader-second six months; (3) Meter Reader-third six months; (4) Meter Reader-thereafter; and (5) Meter Reader-special. This last category is for regular, "grandfathered" employees. We also have a set of employees who are regular but

not "grandfathered" and, thus the highest scale they can reach is "Meter Reader-thereafter." In addition, APS has IBEW employees (supplemental) on a second tier pay scale. Their special pay is called "senior." In the case of supplemental workers, if they do not perform up to expectations, they are coached and eventually returned to the IBEW's candidate list. In order for a meter reader to attain/maintain "special/senior" status, he or she must habitually complete all routes and maintain an error factor of no more than one error per 1,000 dial read meter reads.

Q. DOES APS ROUTINELY EVALUATE ON-GOING METER READER PERFORMANCE?

Yes, APS conducts a statistical analysis of time stamp data (productive route time), and systematically reviews error reports, door hanger reports and "lock-out" reports. Field checks and customer contacts also provide other methods to evaluate meter reader performance. In addition, the rotation of routes amongst meter readers (in conformance with a commitment made by APS to the Commission after *Ciconne*) provides a second set of eyes and will highlight any areas of needed improvement or reflect improvements achieved with a given meter reader.

Q. WHAT IS THE SIGNIFICANCE OF THE "TIME STAMP DATA" YOU REFERENCED IN YOUR LAST ANSWER?

A. Every meter read is time stamped by the Itron. Thus, APS knows precisely how long a meter reader takes between reads and precisely how long it takes to complete the entire route. We also know whether the read was typed in or was down-loaded through the meter probe. This assures us that the meter reader is actually reading the meters as scheduled.

Q. WHY IS IT NECESSARY FOR APS TO ESTIMATE METER READS?

A. APS estimates usage or consumption (kWh) and/or demand (kW) when APS is unable to obtain a meter read for any one of a number of reasons. For instance, APS may be unable to obtain a meter read because APS is unable to obtain access to the customer's premises to read the meter (e.g., road closures due to weather or other factors) or the customer has made it impossible to gain safe access to the meter (e.g., locked gates, blocked meters, or dangerous animals). This also includes extremely rare instances when the meter reader is prevented from getting to a meter due to unsafe conditions not caused by the customer, such as bees, rattlesnakes, etc. In addition, there are instances when meter malfunctions or other meter issues prevent APS from obtaining a read (i.e., display is blank, dead meter). Occasional personnel issues may cause a meter to go unread on its designated cycle. For example, per APS' agreement with the Commission, APS rotates its routes among meter readers every quarter. Also, new and previously non-existent meters may be added to the routes due to customer growth. Either of these may make a specific meter difficult to find. Finally, APS will not be able to obtain a complete and valid meter read if the meter has been tampered with.

Q. WHAT STEPS DOES APS TAKE TO MINIMIZE THE NECESSITY FOR ESTIMATED READS?

A. APS' policy, procedure and training instructions require that the meter reader will always attempt to read the meter unless an unsafe condition presents itself. There have been times where a meter reader determined that a meter was inaccessible and then on a subsequent visit to the site, the meter was accessible. This can occur for numerous reasons. For example, the subsequent meter reader may simply be taller, thus enabling such reader to reach the gate latch or see over a fence that the previous meter reader was unable to access. One meter reader may have a greater

tolerance for aggressive dogs than another and as a meter reader's experience grows, his or her tolerance may increase. In addition, there may be some isolated occasions where the individual meter reader did not make an adequate effort to read the meter. This can occur when a gate has been locked for several months and the meter reader will assume it is still locked and enter "locked out."

Various steps are taken in an effort to minimize each of these types of occurrences. Those steps include:

- rotating routes among meter readers every quarter;
- monthly reports that identify those meter readers having higher than expected "lockouts";
- review and research of all "no read" accounts; and
- identification of those accounts where door hangers were left.[3].

In addition, as described below, the various steps and activities associated with APS' "no access procedures" are measures that minimize the occurrence of estimates in field access conditions.

Expectations for meter reading route completion are outlined in the Meter Reader Expectations and Performance Minimums document (a copy of which is attached hereto as **Schedule TM-2**).

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[3] Any accounts that are not read require the meter reader to prepare and leave a door hanger. Meter readers that are not indicating that they are leaving door hangers will be identified on this "lock out" report, referenced above.

Q. WHAT STEPS DOES APS TAKE TO MINIMIZE AND RESOLVE, WITH THE HELP OF ITS CUSTOMERS, "NO ACCESS" PROBLEMS?

A. In September of 1995, APS adopted a "no access" procedure for residential customers with an access problem in the Metro area. Under that policy, if the customer service representative determined there was an access problem when speaking with the customer, the representative could do one of the following: (1) offer the Info Line number for the customer's meter read office so that the customer could assure that APS would have unassisted access to the meter; (2) offer to send the customer a read schedule so that the customer will know when to call the Info Line to find out the specific days of the month the meter reader will be in their area; or (3) offer an APS company lock for use by the customer. (See **Schedule TM-3** attached hereto.)

Under the 1995 policy, if the customer was unable to provide unassisted access to the meter, the representative referred the customer to the Meter Read Section Leader for the customer's read office. The Meter Read Section Leader would offer that customer one of two options: (1) switch to a non-demand time-of-use ("TOU") rate if the digital TOU meter can be read over the fence; or (2) offer to switch the customer to a non-demand TOU rate and an Access Card (sometimes referred to as a "Pink Card"), which would be mailed monthly to the customer so that the customer could obtain a read and mail the card back to APS. (See **Schedule TM-4** attached hereto.) And although there were iterations of the above policy during subsequent years, the next major changes did not occur until 2003.

In June 2003, APS updated its no access policy to add further steps for each estimated read. Under the current no-access policy, each month that a meter reader is unable to access the meter for a monthly read, the meter reader leaves a door hanger, indicating the reason he or she could not access the meter, such as "the

gate was locked or inaccessible," "your pet is protecting your home from strangers and would not allow me to enter your yard," "plants and trees are covering or blocking the view of the meter," "the path to your meter is blocked or inaccessible," etc. The door hanger provides the phone number for the call center and asks that the customer call APS. (See **Schedule TM-5** attached hereto.)

Each month APS is unable to access a meter, APS Meter Reading Administration confirms that the meter reader left a no-access door hanger; if no door hanger was left, Meter Reading Administration creates a Meter Access Request letter to be sent to the customer.

In addition, (within metro Phoenix for residential customers since early 2001, and later modified to include the rest of APS' customers), in the third consecutive month of no access, the customer's account has been downloaded into an automated dialer, which leaves an automated voice message at the customer's phone number of record that informs the customer of the "no access" problem. The recorded message is as follows: "This is an important message from APS regarding your electric bill. We have been unable to read your electric meter for at least three consecutive months; therefore, your billings have been estimated. Please call us at [relevant number] to resolve this issue and insure that your future bills are accurate. The number again is [relevant number]. We thank you in advance for your cooperation on this matter." Second, the third consecutive "no read" creates a billing exception, which I will describe in more detail later in my testimony, that may prompt an APS billing representative to send a so called "blue card" to the customer asking the customer to contact APS about any access problem. Also, the meter reader would have left yet another "no-access" door hanger that indicates the no access reason (e.g., dog) and asks the customer to contact APS. If the customer contacts APS, an effort will be made to resolve the

access issue, and the customer can provide a read that will be used to determine the accuracy of the estimated read utilized in the billing.

On the fourth consecutive month of no access, Meter Reading Administration creates and mails the customer another postcard. The postcard instructs the customer to contact the call center for access solutions.

By the fifth consecutive month of no access, the customer has received four door hangers or meter access letters, a dialer call, and two post cards. In the fifth month, Meter Reading Administration sends a second Active Accounts No Access letter that instructs the customer to contact the Call Center to obtain access solutions to avoid any potential interruption of service. The letter informs the customer that APS will disconnect the customer's service, following the next month's read, if the meter is still inaccessible. (See **Schedule TM-6** attached hereto.)

In the sixth consecutive month of no access, Meter Reading Administration reviews an account for any indication that the customer has called to resolve access. If none is found, Meter Reading Administration will attempt to call any listed daytime phone numbers. If the customer is unreachable by phone, a disconnect order is generated and sent to APS Field Services personnel. The serviceman makes one more attempt to access the meter before service is disconnected. If there is still no access to the meter, the disconnect order is reassigned to Overhead or Underground (Metro) or Field Service Supervisor (State) for actual disconnection of service in conformance with Commission regulations.

Although APS employs all of these special attempts to contact our customers about access problems, the bill itself is yet another communication tool. Under most circumstances, each estimated bill for demand meters includes a side bill

message in the margin that reads as follows: "*ALERT/ALERT* A meter reading issue exists at your location. Please call us at 602-371-7171 (Metro Phoenix area) or 1-800-253-9405 (other areas)." (See **Schedule TM-7** attached hereto.)

Q. HOW DOES APS MONITOR CUSTOMER SATISFACTION CONCERNING METER READING AND BILLING?

A. APS continuously monitors customer satisfaction concerning meter reading and billing. In order to do so, we engage third party research firms to perform surveys of our customers on an annual basis. This provides information on Customer Satisfaction in general and includes testing customer perception on the accuracy of our bills and the separate elements of our bill and bill format.

Within the Billing & Payment component of the customer research, the attribute that best reflects a customer's perception of meter reading/billing is "Accuracy of the bill." On one national survey, APS has a mean score of 8.30 on a scale of 1 to 10 where 1 is Unacceptable, 10 is Outstanding and 5 is Average. This reflects a very substantial improvement since the billing problems that accompanied the conversion to the new CIS in 1998-1999, when APS scored 7.43. It is also proof that our heightened emphasis on customer service is paying off where it counts – with our customers.

In addition, we track informal complaints to the Commission for meter reading and billing as well as informal customer complaints that were resolved by the APS Consumers Advocate's Office that did not go to the Commission. Through the end of October, 2004 there have been 95 informal billing complaints and 20 informal meter reading complaints. There were 24 billing and 5 informal meter reading complaints resolved by APS that did not escalate to the Commission. Both types of complaints have been significantly reduced in the past five years. For example,

the figures that correspond with the 95 and 20 informal complaints referenced above for 1999 were 164 and 31, while the figures for 1999 corresponding to the 24 and 5 informal complaints would be 144 and 26.

Of the informal billing complaints, the majority are not about inaccurate bills but rather relate to customers' concerns about high bills. The resolution is normally to educate our customers about energy use and offer to make payment arrangements. There were only nine bills that needed to be adjusted this year based on these informal complaints to the Consumer Advocate's Office.

Two thirds of the informal meter reading complaints are related to access issues and the other third are more general in nature such as a customer concerned about the ability of our meter reader to accurately read their meter with a magnifying device or needing to explain how kW demand works. Of the access related complaints, the majority involve the advocates explaining our need to have safe, unassisted access to read demand meters and are usually resolved by the customer agreeing to provide access.

IV. APS' ESTIMATING METHODS

Q. WHAT IS MEANT BY THE TERMS "CONSUMPTION" AND "DEMAND"?

A. APS is required by A.A.C. R14-2-210A to bill its electric customers on a monthly basis. APS offers its customers a number of billing rates from which to choose. An important distinction between those rate are the bases on which they are calculated—consumption and demand. "Demand rate" accounts use both components. Consumption, or "kWh" (kilowatt hours) is the total amount of electricity that a customer has used during that billing cycle. KWh is the initial factor in the amount of the bill received by APS' customers. Demand, or "kW"

(kilowatt), on the other hand, is the peak electric capacity consumed during a one-hour period in that billing cycle for residential accounts and a fifteen-minute period for commercial accounts. Kilowatt hours (kWh) and kilowatts (kW) are both billed at specific rates mandated by the Commission, and those line items are then totaled, resulting in a sum owed to APS for electrical use during that billing period.

Q. HOW DO ESTIMATED READS AFFECT NON-DEMAND ACCOUNTS?

A. The billing on non-demand accounts is based on accumulated usage, much like the mileage on a car's odometer. Therefore, when a bill is estimated, the next bill that is based on an actual read (when added to the estimated bills), will be a "true up" and reflect the actual consumption since the last actual meter read. For example, if the estimate of usage in the first month was lower than actual usage, the following "true up" bill for month two will be correspondingly higher than actual usage for month two and the combination of month one and month two bills will be the actual usage for both months. Therefore, the customer has only been billed for actual usage. Although there can be minor bill impacts due to rate blocking, as well as TOU and seasonal rates, the study presented by APS witness Rumolo indicates these impacts are largely off-setting in the aggregate, although still resulting in a net underbilling. In certain situations, the actual read falls outside the computer's (i.e., the "CIS's") high/low criteria because the actual read is either much too low or much too high compared to the previous estimated read. The CIS then generates a billing exception that is routed to a billing representative who prepares a corrected bill which redistributes actual energy across the month, or months, of missing reads in proportion to the number of days in each billing period. The bill (or bills) for the missing read period(s) is/are adjusted to reflect the prorated energy, and the customer's current bill is either credited or debited the

difference between the estimated bill(s) and the prorated bill(s). Accordingly, there is no evidence of any over-estimating of energy usage with respect to non-demand accounts (such as Complainant Read's account at 6826 E. Solcito Lane).

Q. DID THE OLD CIS AUTOMATICALLY SEND BILLS REQUIRING ESTIMATED DEMANDS TO DEMAND RATE CUSTOMERS?

A. No. Bills with a demand component requiring estimation under the old CIS triggered what was and is referred to as a "billing exception." Under the old CIS, a billing representative reviewed every account for which a billing exception had been created for that particular month. At that point, the billing representative could either: (1) use the estimated demand read provided (but not billed) by the old CIS to the billing representative (sometimes referred to as a "courtesy" estimate); or (2) if the CIS data appeared to be insufficient, manually calculate the consumption and/or demand estimates after reviewing that customer's account history and, if believed necessary, demands of other similar customers; and/or (3) request that a meter reader make another attempt to obtain an actual meter read. It is impossible for APS, or any other utility, however, to conclusively determine, after the fact, the demand component of a customer's monthly usage. Thus, absent an actual read of the demand meter, an estimate of demand is the <u>only</u> available option.

Q. WHAT OCCURRED, IN TERMS OF BILLING, IN SEPTEMBER 1998?

A. In September of 1998, APS began using a new computer system acquired from IBM and previously installed at Northern Indiana Public Service Company. APS commonly referred to this new computer system as "new CIS." This new system was necessary for APS to accommodate retail access, then scheduled to begin January 1, 1999. Although the new CIS system has always been able to estimate

consumption (kWh), at its inception and for approximately the next eight months, the new CIS was unable to estimate demand (kW). Thus, from September 1998 through early March 1999, if the new CIS did not have an actual read for the demand number, the system would create a billing exception for that account. As with the old CIS system, the billing exceptions caused a billing representative to review the account and calculate the required demand estimate. The billing representative could do so by manually calculating the estimates after reviewing that customer's account history and, if believed necessary, demands of similar customers, or could request that a meter reader make another additional attempt to obtain an actual read of the meter if possible.

Q. AFTER MARCH 1999, DID NEW CIS GENERATE ALL BILLS THAT CONTAINED ESTIMATED READS?

A. No, in a number of instances the new CIS still generated a billing exception for bills that required estimates (thus requiring the billing representative to review the calculation or prepare the estimated bills). For example, if the customer did not have a sufficient history from which to calculate consumption (kWh), the new CIS would generate a billing exception. In addition, as of April 1999, if a customer had received a bill that contained estimates for more than three consecutive months, the APS computer billing system created a billing exception. (As noted earlier, this was later changed to create the same billing exception a month earlier.) In both instances, the billing exception requires that account to be reviewed by a billing representative who manually calculates the bill based on that customer's account history and similar customers' load factors, and/or requests that a meter reader again attempt to obtain an actual read of the meter.

Q. WHAT OCCURS IF THE DEMAND COMPONENT OF AN ESTIMATED READ IS DETERMINED TO BE TOO HIGH BASED ON A SUBSEQUENT ACTUAL READ?

A. As of September 2003, when APS obtains an actual read after sending out an estimated read, the computer billing system creates a billing exception if the system determines that the demand component of the previous estimated read was too high. For instance, if APS estimated the demand portion as 10 kW, but the actual demand read following that estimated bill was 9 kW, CIS would create a billing exception when the bill that included the demand read of 9 kW was generated. The billing exception requires that account to be reviewed by a billing representative. If the billing representative determines that the estimated demand was too high based on the read, the billing representative would make a refund to the customer by adjusting the current month's bill to reflect the credit to be provided for the previous month.

Q. DID APS ADJUST ANY BILLS PRIOR TO SEPTEMBER 2003 BECAUSE OF A SUBSEQUENT LOWER DEMAND READ?

A. Yes, but that was not the routine practice. If a bill was kicked out for an exception for reasons other than a subsequent lower demand read (e.g., the kWh read failed a high/low test), the APS billing representative would have noticed the inconsistency between the earlier estimate of demand and the subsequent meter read and would have credited the customer's account.

When the change was made in 2003 to make such crediting a routine practice, it was not without some concerns. Making an adjustment when the estimate is high - but not when it was too low - creates an inherent bias in favor of underestimation. APS believes, and the study presented by Mr. Rumolo confirms, that APS has consistently underestimated customer usage over the years, to the detriment of the Company and its other customers. Adopting the policy we did in 2003 exacerbates that underestimation, which is not reflected in Mr. Rumolo's study. Even on the individual customer level, if that customer has had an overestimated demand one

month, for which he or she now receives an automatic credit, but underestimated demand in other months, for which he or she is never billed, that customer has been unjustly enriched. Thus, the decision was made not to apply the change in Company policy retroactively.

Q. WHAT DETERMINES WHETHER A BILL BASED ON AN ESTIMATED METER READ WILL BE GENERATED AND ISSUED BY THE COMPANY'S COMPUTERIZED BILLING SYSTEM RATHER THAN BEING GENERATED MANUALLY BY AN APS EMPLOYEE?

A. When the meter read comes in from the CIS Meter Reading sub-system with "meter-not-read" status, the CIS Billing sub-system will attempt to generate an estimate. There are several business rules coded within the CIS Billing System that determines if an account can be properly estimated by the billing system. If the system successfully estimates the usage, a billing statement gets sent out the same night to the customer. Such statement will indicate that it was estimated.

If the CIS Billing system is unable to estimate, based on the coded business rules in the system, a "billing exception" is generated. Resolution of the billing exception will be manually completed by an APS billing representatives and a billing statement will be produced for the customer. The resolution of the billing exception involves estimation of meter reads, if necessary. If the reads are estimated, it will be represented as such on the statement. As is the case with automated bill estimations, customers are given a phone number to call if they have questions about or wish to dispute the estimated usage.

Q. HOW DOES APS ADJUST ESTIMATED KWH USAGE BASED ON SUBSEQUENT ACTUAL READ?

A. When APS obtains an actual read following a previously estimated meter read that does not fall within the bounds of APS' normal "high-low" energy usage criteria for the previous month, CIS creates an exception. A billing representative evaluates the exception to determine if the new read indicates that the prior estimated read now appears to be significantly high or low. If the billing representative determines that the estimated read is either high or low, taking into account normal seasonal usage changes, then the billing representative will adjust the previous month's estimated read taking into account the subsequent actual read.

The amount of energy usage (kWh) can be estimated for Final and Active Monthly Bills by comparing a subsequent actual read with the last prior actual read and determining the difference to get the adjusted missing read. The difference between the last actual read prior to the estimated read, and the new actual read subsequent to the estimated read are used to calculate the per day usage. The per day usage is multiplied by the number of days for the bill to yield the total energy used in the billing periods.

<u>Example of Reallocation of Energy Usage Based On Subsequent Actual Read</u>

Assume on May 15 APS had an actual read of 19886.

On June 16, APS estimated energy usage for 32 days (May 15 to June 16).

On July 14 APS obtained an actual read of 23210 for 28 days (June 16 to July 14).

Total number of days: 28 + 32 = 60

Total Usage: 23210 - 19886 = 3,324 kWh for 60 days

Per day usage: 3,324 / 60 = 55.4 kWh

Estimated June usage: 32 x 55.4 = 1,773 kWh

Estimated June read: 19886 + 1773 = 21659

As noted and discussed earlier, an estimated demand (kW) will be reduced later when a subsequent actual demand read is lower than the estimated demand read for the previous missing-read billing period. When CIS finds this circumstance, it produces a billing exception. The billing representative who receives the exception notice reduces the previously estimated demand to the actual read, and credits the customer's account balance for the difference in the demand charge.

Exception 193, which is attached hereto as **Schedule TM-8**, is a print-out of an on-line billing guideline used by APS billing representatives.

Q. PLEASE DESCRIBE APS' PROCEDURES FOR ENSURING THAT EVERY BILL RESULTING FROM AN ESTIMATED METER READ IS APPROPRIATELY DESIGNATED AS SUCH.

Q. YES. EVERY SUCH BILL BY THE CIS BILLING SYSTEM OR THE APS BILLING REPRESENTATIVES IS APPROPRIATELY DESIGNATED AS SUCH ON THE PRINTED STATEMENT. HAS APS INDICATED THE REASON FOR THE ESTIMATION ON EVERY APS BILL BASED ON AN ESTIMATED READ?

A. No. APS sometimes did not provide a reason for the estimation on the customer's bill when the reason did not involve any act or omission by the customer, and thus there was nothing the customer could have done or could do in the future to address the cause for the estimation. Although I understand the basis for this omission, I also recognize that the Commission's rule requires that we provide a reason for our estimation on the customer's bill, and thus APS is presently implementing the appropriate changes to its billing software.

V. WHAT IS THE IMPACT ON CONSUMERS OF APS' BILL ESTIMATION METHODS

Q. CAN ESTIMATED DEMAND READS WORK TO THE CUSTOMER'S FAVOR?

A. Bills that contain estimated demand reads often work to the customer's favor. For example, attached as **Schedules TM-9 and 10** are copies of the billing histories of two random demand account customers who received bills that contained estimates. In each instance, the estimated demand is clearly lower than the demand actually used in the months both before and after the estimated reads.

Schedule TM-9 is the account history for Meter Number E26017. This customer had an actual demand meter read in February 1999 of 9.1 kW. The customer then received bills that estimated demand in March, April and May 1999. The estimated demands were 5, 4.7, and 4.3 kW, respectively. Beginning in June 1999, the customer then received bills that contained actual reads, and the actual demand reads were significantly higher than the estimated demand reads. For instance, the demand read in June was 9.5 kW; July was 8.7; August was 8.4; and September was 9.8.

A customer is charged per unit of demand (kW). In March 1999, for rate EC-1, APS billed $7.68 for each kW used. Thus, in March 1999, the charge for the account referenced above for the estimated demand was $38.40. If the demand had been estimated at 8.5, for instance, which is a figure much more in line with this customer's historical demand use, the charge for the demand would have been $65.28. *Id.*

Schedule TM-10 is the account history for Meter Number C87111. On October 25, 2000, the actual demand read was 8. From November 2000 through March 2001, APS estimated the demand at numbers that ranged from 1.6 to 3.9. Beginning in April 2001, however, APS was able to obtain actual reads of the meter, and for the next seven months, the actual demand was 5.8; 6.8; 6.3; 6.2; 6.3; 6.6; and 5.9 kW.

Even if it appears that estimated demands were too low based on historical usage, APS does not go back to the customer for additional payment. Thus, in instances where estimated demands were lower than what was probably actually used, the estimated demand figures inure to the benefit of the customer. In contrast, if APS discovers that an estimate of a demand account was too high, APS gives the customer a rebate on the customer's next bill.

I realize that these are just anecdotal examples. However, Mr. Rumolo presents a comprehensive analysis of the issue of underestimation as part of his testimony. Such analysis confirms what our billing representatives have long maintained, which is that APS bends over backwards to be fair to those customers who receive bills based on estimated meter reads.

VI. CONCLUSION

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. APS takes its responsibility to provide accurate and timely bills to its customers seriously. It has devoted significant human and mechanical resources to doing just that. Even when it is forced to bill its customers based on an estimate of their usage, it does so in a reasonable, fair and timely manner. APS is proud of the strides it has made in recent years to elevate all aspects of its service, including meter reading and billing. We look forward to continuing and, if possible, building upon this effort in the future.

Q. DOES THIS CONCLUDE YOUR PREFILED TESTIMONY IN THIS PROCEEDING?

A. Yes.

APPENDIX A

STATEMENT OF QUALIFICATIONS

Tammy McLeod has worked for Arizona Public Service Company since January of 1995. She began as a Segment Manager in Marketing. In 1997, Ms. McLeod accepted a developmental rotation as the Manager of Customer Offices within Customer Service. She was promoted to Director of Customer Operations later that year. Currently, her position is the General Manager of Customer Service and Southern Arizona Operations. Ms. McLeod received her Bachelor of Science from the University of Colorado and her Masters of Business Administration from the Wharton School at the University of Pennsylvania.

TOTAL NUMBER OF METERS IN THE FIELD

RC_CD	RC_DESC	Count	
1	RESIDENTIAL	915,992	
2	COMMERCIAL	103,511	
3	INDUSTRIAL	3,536	
4	IRRIGATION	358	
5	STREET LIGHTING PUBLIC	25	
6	OTH. SALES TO PUBLIC AUTHORITY	196	
	TOTAL	1,023,618	Meters installed in the Field

TOTAL NUMBER OF METERS IN THE FIELD

RC_CD	RC_DESC	Count	
1	RESIDENTIAL	522,816	
2	COMMERCIAL	83,928	
3	INDUSTRIAL	3,222	
4	IRRIGATION	322	
5	STREET LIGHTING PUBLIC	17	
6	OTH. SALES TO PUBLIC AUTHORITY	41	
	TOTAL	610,346	Demand meters in the Field

TOTAL NUMBER OF METERS IN THE FIELD

RC CD	RC DESC	Probed	Non Probed	Total
1	RESIDENTIAL	51,181	16,806	67,987
2	COMMERCIAL	58,988	24,934	83,922
3	INDUSTRIAL	2,239	976	3,215
4	IRRIGATION	237	85	322
5	STREET LIGHTING PUBLIC	4	-	4
	TOTAL	112,649	42,801	155,450

Meter Reader Expectations
and
Performance Minimums
August 2004

Meter Readers shall wear appropriate uniforms; footwear, eye protection and display Company badge so that it is readily visible to customers.

Meter locations

- Slot 1 – Will have the direction physical location. (Except for rural reading. If a meter is not on a house use the house as reference.)
- Slot 2 – Prevail location (ZN, ZS, ZW, ZE…) which side to enter on
- Slot 3 – Access (dog, company lock...)

Meter message

- Clear and identifiable messages only
- No cryptic messages such as abbreviated letters crammed in together.
  Example of non-acceptable notes: FLW SS (Frank Lloyd Wright south side)
  Acceptable: Go N. Mtr faces S.
- Add directions to get to meter

Any notes not updated in the meter instructions/forced message slot and directions, is a safety issue.

T.O.U. reading

- All T.O.U. meters should be probed whenever there is access.
- Non-accessible T.O.U. meters should be read manually, whenever possible, for each dial and a "G" entered for kW not reset. Lockout reason should be provided.

Lockouts/Freeform messages

- Consistency using lockout codes.
- Lockout codes must be supported by freeform messages for all accounts. Such as:

Lockout Code	Freeform message
Blocked Meter	Need information if meter or pathway to meter is blocked, and with what.
No Answer at Door	Reason why we needed to knock on door, due to dog, locked gate, locked laundry room door, etc.
Locked Gate	Need key or combination, identify where (need key for east gate)

- Whenever possible, attempt to get lockouts at end of day after route is completed.
- Customer has multiple access problems:
  - If any safety issues (such as dog) use first to lockout then add the other access notes in freeform. For example: If customer has dog in yard and locked gate…. Lockout for dog then in freeform enter locked gate. This will alert office personnel that there are more than one access problems when communicating with the customer to resolve the access issue(s).
  -

Door Hangers

- All inaccessible meters, (meters with foliage or safety concerns etc) should be left a door hanger, monthly, until meter is accessible to read. A code"40" (left door-hanger) should be entered on the handheld.

Vehicles

- Daily and weekly inspections shall be performed on Company vehicles. The vehicle shall be maintained in a manner to promote good Company image, and maintained to meet all safety requirements. Safe and courteous driving is required. Vehicles shall not be left running if unattended. Vehicles will be driven on the correct side of the street. Vehicles will not be parked to block entry to driveways or parked in reserved spaces. Radios should not be loud enough to be heard outside of the vehicle. Vehicles should not be used to read routes that are more efficiently read as walking routes.

Rural Reading

- When meter is not on house use the house as reference.
- If there is no house, use the entrance (the way you gained access into yard) as reference.
- Use mileage
- Use left and right directions when necessary.
-

Route Maintenance

A properly sequenced route will consist of:

- 1st account on route will have "Start Here". This will let anyone who reads the route know, which account to start on. Plus, provide directions to get to route from the shop location.
- Truck, park here, walk, and pick up vehicle – this should be included in notes and note time away from truck, i.e.; walk one hour.
- Update notes even if it's a stranger route. (safety and route maintenance)
- On a stranger route - it is ok to sequence in meters (i.e. pedestals) but not to re-sequence route.
- Provide date on notes regarding access such as dogs, doggy door and gates.
- Must have continuous flow, especially with the flow of traffic, it is recommended to read alley's first.
- When re-sequencing route update notes.

Important actions while reading

- Be safe -Watch where you are walking, wear PPE, operate vehicles safely
- Be productive - Maintain routes with notes, sequence for efficiency and catch lock-outs at end of route
- Be positive - Present a positive image; be courteous in your driving and parking, be friendly to the customers and display a professional appearance.

Route maintenance complaints

If a meter reader has a complaint about maintenance on a route that is not their normal assigned route:

- 1st time - Meter reader will demonstrate professionalism and courtesy and address the issue to the meter reader responsible for maintaining the route.
- 2nd time – If no changes have been made Meter Reader to approach the Production Coordinator.
- Pull meter trail the day in question. Production Coordinator will then need to check if notes have been updated. If not, Production Coordinator will discuss route maintenance with Meter Reader normally assigned the route.
- 3rd time – Production Coordinator will monitor route the next month and if the route still remains to be un-maintained, the Supervisor will be notified.

It is okay for the meter reader to sequence his or her own route as long as it flows. This will make it easy for others who read behind to follow.

Expectations for meter reader levels:

1st – 6 (measured at 9 months)

1. Low reading **error factor.(expectation measurement 2.0 by 6th month) (performance minimum 3.0)**
2. Ability to show up to work on time. (measurement 3 or more in 6 months)
3. Know directions. (i.e. north, south, east, west, right and left)
4. Demonstrates commitment to safety. Includes keeping company vehicles clean and inspected. (measurement - zero accidents and property damage)
5. Satisfactory completes two (2) weeks training in Deer Valley or 501 meter reading shops, (501 encouraged) with various meter readers.
6. Must successfully complete 30/60/90 day on Meterpro at level 3 in 15 minutes with a passing grade of 80%.
7. Maintain physical ability to complete job assignments.
8. By 6 months – completing routes to the satisfaction of the measurement of this step. (Measurement-90%of assignment)
9. Uses understandable lockout codes and messages.(measurement customer complaints - 4 or more)
10. Distributes door-hangers for problem accounts with access. (measurement -periodic field spot checks for proper use)
11. Demonstrates a thorough understanding of procedures to follow for accidents, time off, etc.
12. Promotes harmony and positive attitude to work and others.

2nd-6

1. Ability to re-sequence route. read order vs. meter trail sequence
2. Ability to show up to work on time.(measurement 3 or more tardy's annually)
3. Low reading **error factor. (Expectation Measurement - 1.5 or less) (Performance minimum 2.5)**
4. Low lockouts. (measurement equal to or less than shop average)
5. Uses understandable lockout codes and messages. (measurement 3 or more customer complaints)
6. Distributes door-hangers for problem accounts with access.(measurement _periodic spot field checks)
7. Completion of route by the end of 12 months. (Measurement 100% of the assignment)
8. Demonstrates commitment to safety. Includes keeping company vehicles clean and inspected.(measurement zero accidents and property damage)
9. Maintains route maintenance/information on a monthly basis (measurement (new sets, meter changes, wrong routes, etc. are updated)
10. Promotes harmony and positive attitude to work and others.

3rd-6 and Thereafter

Error Factor (Expectation Measurement 1.5 or less) (Performance minimum 2.0)

Meets all of the criteria listed through 2nd- 6, plus:

Completes assigned work.(measurement100%)

1. Provides training to other meter readers, as assigned.
2. Promotes harmony and positive attitude to work and others.
3. Maintains an error factor of 1.2 or less.

Meter Reader Special Tier/ Senior Tier/T/A Tier– Special / Senior /T/A Tier Pay is an incentive/bonus

Areas that are measured to evaluate for meter reader special are defined in the LOMA for Meter Reader Special classification.

Special classification Meter readers who do not meet the evaluation criteria will be returned to 3rd step progression.

Performance Minimums

Meter Readers who are not meeting performance minimums, as outlined, will be placed on a maximum 90 day performance track.

MEASUREMENTS - Senior/Special/Thereafter Tier	POINTS
Error factor 1.0 or less	1
100% Route Completion	1
TOTAL POINTS	2
Required points	2
*immediate loss of classification for	
remainder of current month and next two months for preventable accidents and/or property damage/loss greater than $500.00	

Date September 18, 1995

To Distribution

From Gayle Blake
Sta # 3851
Ext # 83-7696

SUBJECT **New No Access Guidelines for Existing Customers**

Effective immediately, there will be a new no access procedure for existing residential customers that currently have an access problem in the Metro area

The procedure for new customer connects or existing customers requesting a rate change to a TOU rate has not changed. These customers will need to provide unassisted access and are not eligible for the options listed below.

The new guidelines for existing no access problems have been established to

- Help reduce the number of verifies that are sent to the field by Billing Services
- Reduce the number of estimated bills
- To improve our safety goals by eliminating potential meter read hazards

If you determine there is an access problem when speaking with a customer, the following options are available·

1 Offer the Info Line phone number for your customer's meter read office This will provide the customer with enough information so they can guarantee that we will have unassisted access to the meter **(Rate Codes: 1800, 1200, 1600, 1300, 0800, 0100)**

The Info Line phone numbers are as follows

Read Office	Info Line Number
191, 192, 193	250-2558
291, 391, 396	250-2552
293, 395	250-2556
392, 393	250-2560
394, 397	250-2562

AND

2 Offer to send the customer a meter read schedule so they will know when to call the Info Line and find out the days of the month the meter reader will be in their area **(Rate Codes: 1800, 1200, 1600, 1300, 0800, 0100)**

Note It is important to generate a meter reading schedule through the IVR so the CSIF screen is automatically updated to generate a new meter reading schedule each year

OR

3 Offer an APS company lock (if applicable) **(Rate Codes: 1800, 1200, 1600, 1300, 0800, 0100)**

If you have a customer that absolutely cannot provide unassisted access to the meter, you will need to refer the customer to the Meter Read Section Leader for the customer's read office You may transfer the call directly to the Meter Read Section Leader or send a VISTA note with the customer's account information and phone number

The Meter Read Section Leader will follow up with the customer and field check the location if necessary The Meter Read Section Leader may offer one of the following options

1 If a TOU digital meter can be read over the fence, the Section Leader may offer the TOU rate to the customer However, sunlight, meter location, etc will affect the ability to obtain a read from a digital meter over the fence **(Rate Codes: 1200, 0800, 0100)**

2 The Meter Read Section Leader may offer an Access Card (Pink Card) This card will be offered ONLY when no other options are available to access the meter The Access card will be mailed monthly to the customer so they can obtain a read The customer will need to send the card back with a read the same day they receive the card in the mail **(Rate Codes: 1200, 0800, 0100)**

If the access card is returned to us on the scheduled read date - the meter reader will enter the reads that afternoon

If the access card is returned after the scheduled read date - the information will be sent to Billing Services

If the access card is not returned - the customer's bill will be estimated

The Meter Read Section Leaders will be monitoring the no access reports on a daily basis The CMSG screen will be updated to indicate what options or arrangements were made with the customer

As a reminder, please refer to the standard line of questioning listed below to determine accessibility to the meter

Q Where is the meter located?

Access the MTRR or MVTO screen to view the MTR RD MSG field for reason codes or meter read message codes that indicate any previous access problems Refer to Meter Read Message Codes in the Codes and Terms chapter or Rep Direct

Access the MRDC screen to check the meter location codes to determine if there may be an access problem Update the MRDC screen with any new information Refer to Meter Read Location and Instruction Code in Codes and Terms chapter or Rep Direct

Note If the meter is located inside (porch, garage, house, etc), a TOU rate is not an option Advise the customer they have the option of paying to have the meter and service entrance relocated You will need to refer the customer to a Service Coordinator (Metro) or the CSP (State) for the area

Q Do you have a dog?
Advise the customer that the dogs will need to be secured away from the meter by a dog run, fence, or inside the home on the date the meter will be read Update the MRDC with the type of dog (example dog/pit bull or dog/retriever)

Note Do not indicate whether the dog is bad or okay A dog's temperament may be different with different meter readers so each meter reader will determine their own comfort level with a dog

Q Do you have a swimming pool?
Advise customer that the locking part of the latch needs to be on the outside of the gate You may offer the customer an APS lock

If the customer is unable to provide you with enough information to determine that APS will have unassisted access Please refer the customer the appropriate Meter Read Section Leader

If you have any questions, please contact Donna Frazer at ext 81-1224 or pager 226-2233

This information will be updated in the next edition of Rep Direct.

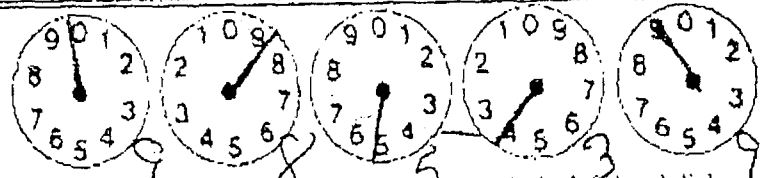
Distribution
Metro Region Customer Office & Support
State Region Customer Office Section Leaders
Local Reps

cc

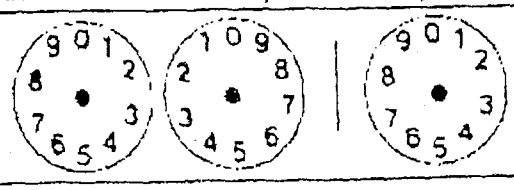
Jeanne Jones	3192	Karen Wolff	3858
Shereen Lovendge	3855	Denise Hutchinson	3851

Donna Frazer	4621	Phil Cea	3378
Chuck Evans	4038	Brian Riffle	2618
Dan Kolmos	3378	Ruben Alcocer	4621
Ed Guthne	4038	Ginger Pitts	4101

Cycle 16



If your meter shows fewer than 5 dials, cross off the left-hand dial above. Please mark the pointers exactly as they appear on your meter.



DATE that you read your meter. 11-20-04

Your Service Address

IF YOUR METER HAS A DIGITAL DISPLAY, PLEASE FILL IN THE BOXES BELOW.

The digital display, located on the bottom half of the meter, will flash four or five different readings. Each display will operate for approximately seven seconds. Some electronic meters will display 88888888 prior to the readings. Please enter the numbers in the appropriate boxes listed below.

01						
02						
03						
04						
05						

Reason for variation in electric usage.

- ☐ Premises vacant.
- ☐ Have added appliances.
- ☐ Have been away from home.
- ☐ Don't know reason for change.

☐ YES, I would like to arrange for monthly access to remain on my present rate. Please call me at:

Daytime Phone:
( ) _____

Evening Phone:
( ) _____

Thank You!

APS

THE POWER TO MAKE IT HAPPEN™

A message from your APS Meter Reader...

I was here today to read the APS meter, but could not get a read because:

- ❑ Your gate was locked and/or you latch is out of reach.

- ❑ Your pet is protecting your house from strangers and would not allow me to enter your yard.

- ❑ Foliage is covering or blocking the view of the meter.
- ❑ Path to meter is inaccessible.
- ❑ _____

_____

We have solutions to offer you.
Please take a minute to call us:
English: (602) 371-7061
Spanish: (602) 371-7051
Toll-free: (877) 873-8798
Your assistance is appreciated!

APS

Active Account
No Access

September 9, 2003

«cust_name»
«addr1»
«addr2»

Dear «Cust_Name»

The electric service will be disconnected at «SADD» as we have been unable to safely access and read the electric meter for five or more consecutive months

We want to provide you uninterrupted service and accurate billings, so please take a moment to contact us

Your service will be disconnected following your next read if we are unable to safely access your meter To re-establish service, safe access will be required and reconnect charges will apply

Please call (602) 371-7061 or 1-877-873-8798 to provide us an opportunity to offer access solutions We can also assist you in Spanish at (602) 371-7051 (en Español)

Sincerely,

APS Customer Service

Questions? Visit our website at www.aps.com or call 602-371-7171, 24 hours a day, 7 days a week. Para servicio en español llame al 602-371-6861.

Your Account Number 824204282
Billing Date Apr 16, 2002

Previous Balance	Payments Received	Current Charges	Total Due by 04/29/2002
0.00	0.00	47.95	47.95

* ALERT/ALERT *

A meter reading issue exists at your location.

PLEASE CALL US at: 602-371-7171 (Metro Phoenix area) or 1-800-253-9405 (other areas).

SERVICE INFORMATION

Service number 3001S20286
Your service plan Time Advantage Rate
Service address 3638 W Caribbean Ln

Your meter number E38746
Your meter is read in cycle 07

On Apr 11 your total kWh read was	54186
On Mar 14 your total kWh read was	54118
Your total kWh usage is	68
This month's read was estimated - DOG	
On Apr 11 your on-peak kWh read was	22764
On Mar 14 your on-peak kWh read was	22739
Your on-peak kWh usage is	25
Your off-peak kWh usage is	43

ENERGY USE COMPARISON

	This Month	Last Month	Last Year
Days	28	N/A	N/A
Daily kWh	2	N/A	N/A
Daily Cost $	0.75	N/A	N/A

CURRENT CHARGES

Basic service charge	15.00
Charge for on-peak kWh used	2.76
Charge for off-peak kWh used	1.84
ACC mandated environmental surcharge	0.06
Regulatory assessment	0.04
Sales tax	1.41
Current energy & delivery charges	21.11
Service establishment charge 03/14/2002	25.00
Regulatory Assessment	0.05
Sales Tax	1.79
Current miscellaneous charges & credits	26.84
Total current charges	47.95

When paying in person, please bring bottom portion of this bill.

Billing Date Apr 16, 2002
Account Number 824204282

Account Number 824204282
Billing Date Apr 16, 2002

ENTER AMOUNT ENCLOSED

ENTER S.H.A.R.E. AMOUNT

MAKE CHECK PAYABLE TO: APS

Check No. _____

Date paid _____

Amount _____

LINDA SCHAEFFER
PAUL SCHAEFFER
3638 W CARIBBEAN LN
PHOENIX AZ 85053-4637

If contributing to S.H.A.R.E. please enter amount in S.H.A.R.E. box and add to your total

TOTAL AMOUNT OF $47.95 DUE BY 04/29/2002

KEEP THIS STUB PORTION FOR YOUR RECORDS

07 R 1 1

0000000082420428280200204160000026849000004795 64 000

APS05719

Exception 193 - Current Month KW Less Than Previous Estimated KW

Background

A demand meter registers both the kwh (energy) usage and KW (demand). The demand is measured for a specific timed interval determined by the service plan and meter type. Once the demand meter registers the highest KW (demand) during the month, it will retain that KW until the meter is reset. It does not go backwards (lower), and will only go forward (higher), if anytime before the meter is reset a higher demand registers.

Description

This exception is created when the current month's actual registered KW (demand) is lower than the estimated KW (demand) from the previous month. To resolve this exception you will need to cancel the previous month(s) bill (with the estimated demand), lower the estimated KW (demand and possibly change the kwh (energy) usage.

Working the Exception

1. **Open Exception** from the in-basket.
2. Open the **Installed Services** notebook - **Usage History Page.**
3. If there are multiple months with estimated demands, each of those higher estimated months will need to be rebilled using the actual KW (demand) value registered in the current month using the steps below.
   - **Cancel the bill(s)** that were estimated from the **Bill Comp page. Use "Prorated" from the dropdown list.**
   - **Use the actual current month KWH read to prorate and rebill the previous estimated usage.** If you can see from the meter reader notes that the kwh was an actual read, and only the kw wasn't read, then don't rebill the kwh.
   - **Use the actual current month KW (demand) to rebill the previous month(s) estimated demand.**
   - Open the **SA Billing Worksheet** and **double click on the read row to change the read and demand for the month(s) that are being rebilled.**
   - **Calculate the usage**, and **submit the worksheet.**
   - **Return to the Exception tab** once the rebilling is completed.
4. **Calculate the current months usage** in the **Usage Summary Page.**
5. **Approve the Exception** on the **Exception page.**
6. If rebilling multiple months, follow the same directions that you use currently for correspondence sent.

EXHIBIT 1

Installed Services Selected Edit View Help

Meter Number Is E26817 — Meter Trail 393-08-09-42708

Next SA Window 02/06/2004 Thru 02/17/2004

General | Usage History | Rel'ship | Profile

Status	TOU	Sour	Date	Begin	End	Billing Usage	Dmd Rdg	B
BILLED		NOR	12/08/1999	2964	4372	1,408.0	6.900	
BILLED		NOR	11/08/1999	1716	2964	1,248.0	9.400	
BILLED		REA	10/08/1999	0	1716	1,716.0	9.400	
BILLED		SER	09/15/1999	0	0	0.0	0.000	
BILLED		SER	09/15/1999	44262	44816	554.0	8.500	
BILLED		MAN	09/09/1999	41383	44262	2,879.0	9.600	
BILLED		REA	08/09/1999	39146	41383	2,237.0	8.400	
BILLED		REA	07/12/1999	36657	39146	2,489.0	8.700	
BILLED		REA	06/09/1999	35772	36657	885.0	9.500	
BILLED		AUT	05/11/1999	34351	35772	1,421.0	4.300	
BILLED		AUT	04/09/1999	32799	34351	1,552.0	4.700	
BILLED		AUT	03/11/1999	31158	32799	1,641.0	5.000	
BILLED		REA	02/09/1999	30177	31158	981.0	9.100	

Add Reading... Hide Void/Cancelled

Page 1 of 1

E26817, ON, N

NUM

Start | Inbo... | CIS ... | Ste ... | Lam... | Mic... | Cust... | Inst... | Serv... | 9:55 AM

EXHIBIT 2

Installed Services Selected Edit View Help

Meter Number is C87111 — Meter Trail 393-19-09-3600

Next SA Window 02/23/2004 Thru 03/02/2004

General | Usage History | Rel'ship | Profile

Status	TDU	Source	Date	Begin	End	Billing Usage	Dmd Rdg	Bld C
BILLED		NORMA	10/25/2001	88684	90174	1,490.0	5.900	
BILLED		NORMA	09/25/2001	86235	88684	2,449.0	6.600	
BILLED		NORMA	08/24/2001	83628	86235	2,607.0	6.300	
BILLED		NORMA	07/26/2001	81019	83628	0.0	6.200	
BILLED		NORMA	06/28/2001	78735	81019	2,284.0	6.300	
BILLED		NORMA	05/29/2001	76744	78735	1,991.0	6.800	
BILLED		NORMA	04/26/2001	75328	76744	0.0	5.800	
BILLED		OFFICE	03/28/2001	74407	75328	921.0	0.000	
BILLED		OFFICE	02/27/2001	73495	74407	912.0	3.900	
BILLED		AUTOM	01/25/2001	73019	73495	476.0	1.500	
BILLED		AUTOM	12/27/2000	72491	73019	528.0	1.600	
BILLED		AUTOM	11/27/2000	71874	72491	617.0	1.700	
BILLED		PROBE	10/25/2000	68984	71874	2,890.0	8.000	

Add Reading — Hide Void/Cancelled

Page 1 of 1

Meter # C87111, ON, NOR

NUM — 9:18 AM

EXHIBIT
APS-5
Admitted

REBUTTAL TESTIMONY OF TAMMY MCLEOD

On Behalf of Arizona Public Service Company

Docket No. E-01345A-03-0775

Docket No. E-01345A-04-0657

JANUARY 24, 2005

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REBUTTAL TESTIMONY OF TAMMY MCLEOD
ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY
(Docket Nos. E-01345A-03-0775 and E-01345A-04-0657)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Tammy McLeod. I am the General Manager of Customer Service and Southern Arizona operations for Arizona Public Service Company ("APS" or "Company"). My business address is 2121 W. Cheryl Drive, Phoenix, Arizona.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?

A. Yes, I filed Direct Testimony on November 23, 2004.[1] That testimony explained the background facts relating to APS' meter reading practices and bill estimation procedures, and various other matters concerning the Application.

Q. WHAT IS THE PURPOSE OF YOUR RESPONSIVE TESTIMONY?

A. My testimony provides comments regarding the report prepared by Staff's consultant, Barrington-Wellesley Group, Inc. ("BWG Report"), as part of the Staff inquiry into the usage estimation, meter reading and billing practices of APS, as well as Complainant's "testimony"[2] and the related Complaint filed with the Commission.

II. SUMMARY OF REBUTTAL TESTIMONY

Q. WOULD YOU PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY?

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[1] There was one small formatting error in my testimony filed on November 23, 2004. Corrected testimony was filed on January 7, 2005.

[2] Complainant did not file any actual testimony with the Commission. Instead, Complainant only filed the depositions of a number of APS employees who had been deposed by Complainant's counsel. Most of the testimony by these employees is not relevant to the matters before the Commission because these employees had no knowledge, personal or acquired, about these issues.

A. My testimony focuses on the meter reading and customer service aspects of the BWG report and Complainant Read's "testimony" and Complaint. I also have specific comments about several of the conclusions and recommendations contained in the BWG report. In short, however, APS is already taking most of the actions recommended by BWG. In addition, the issues raised by BWG concerning Complainant Read are based on erroneous information or are simply unsubstantiated speculation.

APS witness David Rumolo's rebuttal testimony addresses the bill estimation aspects of the BWG report and Complainant's Complaint.

III. REBUTTAL TESTIMONY AS TO METER READING ISSUES

Q. DO YOU CONCUR WITH RECOMMENDATION III-1 FOUND IN THE BWG REPORT?

A. No. The recommendation is unnecessary and ignores the facts as to what APS already does. BWG recommends that APS put new procedures in place to ensure that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either small or remote. APS believes that its current processes and procedures *do* ensure that resources are sufficient to address emergency short-terms needs for meter reading shops that are either small or remote.

Q. PLEASE EXPLAIN.

A. Back-up support for each small or remote meter reading shop is provided by the office that is closest to that meter reading shop, and ultimately by metro Phoenix. The small remote locations and their back-up support are shown below:

- Winslow – Flagstaff
- Holbrook – Snowflake
- San Luis – Yuma

- Douglas – Casa Grande and Globe
- Bisbee – Casa Grande and Globe

The back-up office is responsible for sending coverage to the remote office should the need arises due to personal time off or other unscheduled emergencies. This process minimizes the potential for meters that are not read due to unscheduled emergencies.

The BWG report references an incident that occurred almost three years ago where for a period of approximately five months (March – August, 2002), a series of unfortunate and highly unusual events caused meters to be estimated in the Bisbee and Douglas area. When one examines the data for the remote offices as a whole, it is obvious that this was an isolated situation. In addition, since this occurred, the Bisbee and Douglas offices have been realigned under the same leadership as Metro-Phoenix, so Metro-Phoenix now provides another level of back-up support that did not exist in 2002. Noticeably, the isolated problems that occurred in the Spring of 2002 in the Bisbee and Douglas area have now been minimized.

Q. DO YOU AGREE WITH BWG'S ASSERTIONS ABOUT THE NUMBER OF "SKIPPED" READS THAT OCCURRED FOR APS CUSTOMERS AS SHOWN IN TABLE III-5 OF BWG'S REPORT?

A. No. Table III-5 of the BWG report is simply incorrect. This Table purports to show the number of "skipped reads" from 1995 through 2004. (BWG defines "skipped reads" as meter readings that did not occur because back-up meter reading sources are not available.) BWG says that it obtained these figures from APS' response to Staff DR 6-11. In fact, however, APS' response to Staff indicated there were <u>no</u> "skipped" reads in the sense that APS made no effort to obtain the read. Moreover, the numbers shown on BWG's Table as "skipped reads" included instances in which a meter was not able to be read for reasons other than emergency staffing issues. APS is not able to determine the actual number of "skipped reads" -- as

defined by BWG -- for these years, but it is fair to say that the number of meter readings that did not occur from 1995 through 2004 because back-up meter reading resources were not available was very, very small. It is also important to point out that even using BWG's numbers, which are erroneous as defined, BWG admits on page I-6 of its report that these figures are reasonable when compared to industry practices.

Q. DO YOU CONCUR WITH RECOMMENDATION III-2?

A. Not completely. As to the first part of this recommendation, APS has completed a pilot project in Metro-Phoenix, in which the number of consecutive months that the meter reading department cannot access a specific meter is tracked manually via a spreadsheet. The pilot project has indicated the effectiveness of such information, and as a result, APS is in the process of revising its "No Access Meters" report to include this information. As to the second portion of the recommendation, however, adding the information about the other instances of "no access" at a property during the previous 24 months (as recommended by BWG) would not change any of the processes or procedures associated with our attempts to gain access. In fact, it is not even useful information.

Q. WHY IS THAT?

A. Knowing about other instances of non-access during the prior two years is of no help in obtaining access today. Moreover, APS already escalates its efforts to obtain access with each "no access" occurrence, as I explained in great detail in my Direct Testimony. There is little, if anything, more that APS could do simply because this sort of data would be incorporated into a formal report.

Q. PLEASE CONTINUE WITH YOUR DISCUSSION OF BWG RECOMMENDATION III-2.

A. BWG further recommends that APS should prioritize and focus first on customers with demand accounts when working the "no access" report.[3] APS does not prioritize the customers with demand accounts and does not believe it is appropriate to do so without express Commission authorization for such special treatment. Instead, APS concentrates on resolving access issues with all customers that are included on the "no access" report as quickly as possible. However, should the Commission establish that preferential treatment should be provided to demand customers, our current practice can certainly be modified.

Q. DOES APS AGREE WITH RECOMMENDATION III-3?

A. APS already does what is being recommended. Recommendation III-3 recommends that APS monitor the extent to which APS complies with the Commission requirement that meters be read with 25-35 days after the last meter reading.[4] APS believes that it already takes such monitoring steps. As a result of the Commission requirement to read meters each month within a 25–35 day window (which has now existed for a number of years), several years ago APS developed a web query, which enables the meter reading leaders to pull a daily report that indicates any route that is in jeopardy of being read too early or any route that is nearing the 35 day deadline. All meter reading locations use this tool on a daily basis to plan their work and accomplish the meter reads within the time frame set forth by the Commission.

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[3] In its report, BWG states that this Recommendation refers to Finding III-9. There is no "Finding III-9" in the BWG report.

[4] BWG states that Recommendation III-3 refers to Finding III-9. There is no "Finding III-9" in the BWG report.

Q. DOES APS CONCUR WITH RECOMMENDATION III-4?

A. In Recommendation III-4, BWG suggests that the Itron software used by meter readers be changed so that it no longer includes the last month's usage and the last month's meter readings.[5] In fact, last year APS began to evaluate this very issue. (It is important to note, however, that this change has no effect on the day-to-day management of meter reading.)

In 2004, APS Metro Meter Reading established a single shop pilot to evaluate the need to display the last read and usage data in the handheld computer utilized by meter readers. The display for both fields was disabled in one shop location to determine if there would be any adverse impacts on the effectiveness of the meter readers. The pilot results indicated that most meter readers did not experience any negative impacts by not having this feature. A small number of meter readers indicated that although the fact that the feature was no longer included on their handheld, these readers liked the previous feature because the information served as a self check of their dial reads when the handheld indicated a high/low check. All meter readers indicated, however, that the lack of the feature would not have an adverse impact to their existing reading process.

Given the results of the pilot program, APS expanded this effort throughout the Metro Phoenix shops for further evaluation of impacts. The individual findings in the expanded program were comparable to the original pilot shop findings. APS undertook the next step of this program and created instructions so that all of the state region offices could make a similar change. As a result, APS believes that the steps to implement Recommendation III-4 have already occurred.

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[5] According to BWG, Recommendation III-4 refers to Finding III-10. There is no Finding III-10 in the BWG Report.

Q. DOES APS CONCUR THAT APS SHOULD PROVIDE THE COMMISSION WITH QUARTERLY REPORTS ABOUT THE STATUS OF THE REMOTE METER READING PILOT AND IMPLEMENTATION PLANS, AS SUGGESTED BY RECOMMENDATION III-5?

A. As with several of the recommendations listed above, APS believes that Recommendation III-5 is simply not necessary, in light of the fact that APS currently has an AMR (Automatic Meter Reading) pilot in progress.[6] Moreover, BWG's discussion of this issue at page III-12 of its Report is overly simplistic and fails to acknowledge both the careful study that APS is undertaking and the costs and logistical issues associated with AMR, which I discuss in more detail in the AMR Overview attached as Schedule TM-1R.

In particular, BWG compares APS to other utilities with implications that our implementation of AMR is somehow "behind" the "best practices" electric utilities. The fact is that AMR technology only advanced in the last couple of years to the point where either time-of-use or demand meters could be served in this manner. Given the high percentage of time-of-use and demand customers in the APS service territory, the AMR technology needed to advance to the point it is today for APS to move forward with the AMR pilot.

In addition, APS' study of AMR is not new. The Company had conducted extensive studies and cost analysis in the early 1990's, but as the Commission promoted direct access, it was unclear what metering responsibilities would remain with APS and what future rate designs would be in place -- and thus what metering capabilities would be required -- for either direct access or standard offer customers. This uncertainty made the foray into AMR impractical and risky.

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[6] BWG states that this Recommendation refers to Finding III-10. There is no Finding III-10 in the BWG Report.

In sum, APS believes that it has already begun a remote meter pilot, as described above and in Schedule TM-1R. In addition, it is not necessary for APS to provide the Commission with a report every three months related to the status of the pilot. Once APS reaches a decision regarding these issues, APS certainly will advise the Commission about how APS intends to proceed.

Q. DOES APS CONCUR WITH RECOMMENDATION III-6?

A. BWG's Recommendation III-6 is not necessary because APS already takes the actions suggested by BWG.[7] Through use of an auto-dialer, APS already calls "no access" customers prior to the next scheduled read date. This is part of the standard "no access" process where customers are called after the third consecutive access issue. This process has already been provided to the Commission and is detailed in the BWG Report. Moreover, we also already maintain records on the number of instances that the auto-dialer is used to call customers. In addition, to ensure that customers with access issues are aware of their meter read date, APS mails these customers read schedules and maintains a daily "Info Line," which provides our customers information about the meter read date.

Q. DOES APS CONCUR WITH RECOMMENDATION III-7?

A. In Recommendation III-7, BWG recommends that APS implement a pilot program to evaluate whether scheduling appointments with "no access" account customers results in less estimated reads due to "no access" problems.[8] APS does not believe

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[7] BWG states that Recommendation III-6 refers to Finding III-12. There is no "Finding III-12" in the BWG report.

[8] BWG states that Recommendation III-7 refers to Finding 12. There is no "Finding 12" in the BWG report.

that this Recommendation makes sense for a number of reasons, as set forth below. First, Schedule 1, Section 5.4 requires that the Company's authorized agents shall have unassisted access to Customer's premises at all reasonable hours to install, inspect, read, repair or remove its meters. BWG fails to take into consideration that unassisted access is not only required for reading a meter, but unassisted access is also required during a fire, an outage and other legitimate safety or routine maintenance related situations. The idea of a pilot program requiring the Company to "schedule" reads essentially negates the existing Commission requirement for unassisted access. Second, this recommendation is quite costly because a scheduling mechanism would have to be developed, and weekend and night crews established.[9] Third, this recommendation would cause APS to create an asymmetrical service model in favor of no access customers. Moreover, the current "access procedure" already provides for extensive customer contact via a variety of media -- a door hanger left at the non-access customer site, a note on the bill, phone calls, and post cards mailed to the non-access customer.

After receiving the BWG report, APS, on its own initiative, contacted Utah Power and Light ("UP&L") regarding the scheduling of appointments for meter reads with access issues. In its report, BWG identified UP&L as having such a practice.[10] In fact, however, we learned that UP&L's "appointment" option is not done on a regular basis because UP&L also has the option of sending a prepaid postcard. In reality, UP&L typically makes appointments only for special reads (for example, in very high-security areas such as prisons) just as APS does today.

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[9] If the Commission adopts Recommendation III-7, APS will request that the Commission also adopt a tariff so that APS is reimbursed for these costs.

[10] It is important to note that UP&L does not have a demand based rate for residential customers.

In addition, UP&L told us that they charge customers if the appointment occurs at a time outside normal business hours. For chronic access issues, UP&L uses methods similar to APS' methods to gain access to the meter (providing meter reading schedules, sending cards for customer reads, etc.). In sum, UP&L does not use routine appointments to solve chronic access issues and makes any such appointments at its own discretion.

Q. DOES APS AGREE WITH RECOMMENDATION III-8?

A. APS believes that APS already does exactly what the Recommendation suggests. In Recommendation III-8, BWG proposes that APS implement a policy to ensure that meter reading supervisors periodically inspect meter locations reported as "no access" to verify that appropriate corrective measures are taken. While we do not have a formal policy, APS' current process does exactly that. Every shop supervisor, head meter reader or production coordinator periodically inspects meter locations identified as "no access" to verify the conditions.[11] In addition, APS produces an "Abnormal Read Report" at the shop level. This report highlights any meter where the demand was not reset (meaning the meter was not physically accessed) or where the read obtained was seriously out of line from the previous month. The leader or production coordinator is then able to visit the field to inspect the circumstances that have caused the meter to appear on the report.

Q. DOES APS CONCUR WITH THE RECOMMENDATIONS OF RECOMMENDATION V-1?

[11] There are a few small shops that do not have a shop supervisor, head meter reader or production coordinator. Given the small number of meters in these locations, it is simply unnecessary and impractical to have an individual periodically inspect locations identified as "no access" to verify the conditions.

A. No. This recommendation is virtually identical to Recommendation III-7, which suggests that APS implement a pilot program to determine if scheduling appointments with "no access" customers reduces the number of estimated bills. As I outlined in my testimony above, this idea is costly and impractical. First, BWG appears to ignore the extensive steps that APS takes to obtain actual meter readings at customer premises, including a note on the bill, automated and personal phone calls, door hanger left at the non-access customer site, and post cards mailed to the non-access customer. (These steps were outlined in further detail in my Direct Testimony.) Moreover, as outlined above, it is important for a number of safety reasons for APS to have unassisted access to the meter, in addition to the Commission and APS' desire that meters be read every month. This idea would actually encourage customers to continue to deny APS unassisted access to their meters, contrary to R14-2-209(D). Finally, as discussed earlier, this Recommendation would be expensive to implement because APS would have to develop a scheduling mechanism, and hire additional resources statewide to staff after-hours and weekend crews.

Q. DOES APS AGREE WITH RECOMMENDATION V-2?

A. BWG suggests in Recommendation V-2 that APS continue to participate in benchmarking studies that compare APS' practices to other electrical utilities and providing those studies to Staff on a quarterly basis. APS does participate in various benchmarking studies when we determine they are useful and cost effective. When the Company does participate in benchmarking studies, we can provide them to the Commission. We do not participate in benchmark studies on a quarterly, or even yearly, basis because neither APS nor industry standards and metrics change that frequently. To suggest that we participate in every such study that may be proffered is unnecessary and wasteful.

IV. REBUTTAL TESTIMONY AS TO READ COMPLAINT AND BILLING ISSUES

Q. DOES APS CONCUR WITH RECOMMENDATION VI-1?

A. BWG suggests in Recommendation VI-1 that APS should train its Billing Services Representatives and others involved in the meter reading and billing process to (1) understand that customers value an accurate bill more than an underestimated bill, and (2) recognize situations in which the underestimation of usage may result in problems for their customers. APS recognizes that there is value to APS and to all of its customers -- including those APS customers who do provide APS unassisted access to their meters as required by R14-2-209(D) -- in receiving estimated bills that come as close as possible to estimating the actual usage. APS does understand the importance of having an estimating process that meets this goal, and already trains its Billing Services Representatives (BSRs) and others involved in the process to ensure that the estimated bill is as close as possible to the actual usage. Although it obviously makes sense to automate the estimating process as much as possible, the APS estimating procedures will generate billing exceptions in those instances where an estimated bill appears to be unusual or where sufficient information for a computerized estimate is not available for that customer. When a billing exception is generated, the bill is referred to a BSR for review and attention.

Further, in late 2000 and 2001, APS had a company-wide initiative to educate and raise awareness for all of its 6000 employees with respect to the key components of customer satisfaction. One of the points emphasized as part of this initiative was the importance of having accurate meter read and payment amount. APS identified this issue to all employees as a key component of Customer Satisfaction. In sum, APS believes its BSRs are already trained and understand the value of estimating a meter read as accurately as possible, and no additional training is needed as

suggested by BWG. Moreover, because bill estimation inherently is an inexact exercise that can be impacted by numerous variables, APS strives to give customers the benefit of the doubt to the extent reasonably possible. To the extent that this has resulted in more underestimation than overestimation on average, APS believes that customers generally recognize and value the efforts that APS has made to benefit these customers.

Q. WHAT ARE THE HIRING REQUIREMENTS FOR BILLING SERVICE REPRESENTATIVES AND HOW ARE THEY TRAINED?

A. In general terms, the BSRs are selected from employees within the APS Call Centers or Business Offices who have demonstrated that they can effectively handle more complex customer inquiries and issues and understand the many factors that influence a customers usage patterns. An employee selected as a BSR must possess significant CIS skills, as well as general business knowledge. There are three levels of Billing Representatives: beginning, intermediate and senior. Promotion opportunities are available only when a position becomes vacant. These titles can be somewhat misleading because several of the BSRs have been in their position for many years and have acquired substantial billing knowledge during their tenure, which in turn is passed on to other BSRs. (The BSRs have an average tenure of 8.6 years in Billing Services.)

Training for a Beginning Level BSR position consists of 1-2 weeks of introductory training with a Training Instructor. A summary of the BSR training is attached as Schedule TM-2R. Once the introductory training is completed, a BSR will spend the next 3-6 months in on-the-job training with other BSRs learning each billing exception. As a BSR learns the exception resolution process, the BSR is permitted to work independently until he or she is trained to resolve a different exception type. At any stage, the BSR always has access to assistance should the need occur.

Q. HOW DOES APS MONITOR A BILLING SERVICE REPRESENTATIVE'S PERFORMANCE?

A. After a BSR begins to operate independently, his or her performance is monitored by APS' Quality Control system, which is in fact designed to ensure that BSRs are acting appropriately in dealing with all issues, including estimating. In fact, because quality is a priority, the BSR is permitted to learn at his or her own pace, with the expectation that the BSR will reach full production within 12 months.

Q. DOES APS CONCUR WITH RECOMMENDATION VI-2?

A. In Recommendation VI-2, BWG suggests that APS provide a clearer notice on re-billed accounts. APS is at present processing an enhancement to its billing format that I believe will do a superior job of depicting corrected charges and rebilling situation.

Specifically, the bill will specify "Credits for Cancelled Bills" and "Corrected Charges" on the front page in the "Summary of What You Owe" section. In addition, APS will include -- where possible -- a direct correlation between the cancelled bill amount and the corrected charges. (This is not possible where billing periods have changed.) The exact verbiage will read: "Your previously billed charges of [$____] have been cancelled. This page reflects corrected charges." The detailed information found on this page will then tie to the Summary section on the front page. Thus, the summary clearly and succinctly leads customers through the explanation of their "Total amount due."

This enhancement is being done in conjunction with the billing changes already required within CIS to implement the eventual results of Docket No. E-01345A-03-0437. Therefore, APS will begin to send these redesigned bills to customers on the same day that the new rate structure goes into effect. Consequently, APS

believes that it has already taken steps to address BWG's concerns in this area, and that no further steps are necessary.

Q. ARE THERE ANY OTHER ISSUES WITH RESPECT TO THE BWG REPORT THAT YOU WOULD LIKE TO ADDRESS?

A. In numerous places in its report, BWG suggests that APS' efforts to improve its meter reading and billing departments were brought about by the Read Complaint. In fact, that assertion is simply incorrect. APS is constantly seeking to improve its meter reading, billing and other customer service departments, and the improvements that were noted by BWG and are discussed above were simply part of APS' efforts to improve itself and provide the best service possible to its customers.

V. THE READ COMPLAINT

Q. DOES APS CONCUR WITH BWG'S ANALYSIS OF THE READ COMPLAINT?

A. Not entirely. As part of its underlying report, BWG also analyzed the Avis Read Complaint. It is important to note that BWG concluded that contrary to the allegations in the Read Complaint, Mrs. Read suffered no damage as a result of the estimated bills she received from APS. BWG confirmed APS' contention that Mrs. Read's accounts were consistently underestimated on those occasions when APS was forced to estimate her bill because of a lack of access to her meter.

Mrs. Read had two accounts. The first, which BWG calls the "Paradise Valley account," was a non-demand account and as BWG concedes in its report, customers with non-demand accounts who receive estimated bills are not damaged because their accounts are eventually "trued up" once an actual read is obtained. As to the Paradise Valley account, the estimated bills unquestionably underestimated, rather than overestimated, Mrs. Read's usage at this address. Mrs.

Read's second account, which was located in Phoenix, was also underestimated in the few months when APS was required to send Mrs. Read estimated bills.

Q. DOES APS AGREE WITH BWG'S SPECULATION THAT THE UNDERESTIMATED BILL MADE IT LESS LIKELY THAT COMPLAINANT WOULD REDUCE HER ELECTRIAL USAGE?

A. No. There is no basis for any such conclusion. BWG speculates that the underestimated bills made it less likely that Mrs. Read would take measures to reduce her usage. This is pure speculation, however, and is simply not borne out by the facts. In fact, the record demonstrates that even after Mrs. Read received bills for actual reads, showing that she was consuming very large quantities of energy, and even after APS pointed out to Mrs. Read that her electric consumption was excessive, Mrs. Read took no steps to reduce her electricity usage. During the entire time that Mrs. Read was an APS customer, her electricity usage remained consistently high.

For instance, in September and October 2000, APS was able to obtain an actual read of Mrs. Read's Paradise Valley meter. Her kWh usage for the September read (reflecting two months worth of electrical usage because the August 2000 read was estimated) was 9855 kWh (total bill of $1296); the following month, Mrs. Read's October usage was 4789 kWh, which is an extremely large amount of electricity consumption (total bill of $620). In addition, when Mrs. Read began to provide APS regular access to her Paradise Valley meter in 2002 and 2003, her electricity consumption remained high and did not appear to be impacted by the fact that she was receiving bills, based on actual reads, that in some months totaled more than $700.00. In fact, these consumption figures even triggered a requirement that the meter reader read the meter for a second time and verify the kWh read.

Mrs. Read's consumption and bill amounts for actual reads in 2002-2003 are shown below. The usage for virtually every month would be considered "high."

Date of Meter Read	kWh Consumption	Total Dollar Amount of Bill
04/19/2002	2877	$242.75
05/20/2002	3524	$446.12
06/19/2002	4823	$617.76
07/19/2002	6032	$769.33
08/19/2002	6145	$779.28
09/18/2002	5648	$714.73
10/18/2002	3196	$396.16
11/18/2002	2338	$195.66
12/20/2002	2469	$206.15
01/21/2003	2428	$202.88
02/20/2003	2150	$180.60
03/24/2003	2285	$191.41
04/21/2003	1969	$166.10
06/19/03 (May was estimated)	3585	$609.92
07/21/2003	6156	$772.24
08/19/2003	5814	$724.10
09/18/2003	5538	$688.84

Date of Meter Read	kWh Consumption	Total Dollar Amount of Bill
10/20/2003	4035	$496.84
11/19/2003	1862	$155.03
12/18/2003	1999	$165.83
01/21/2004	2485	$204.14
02/20/2004	2193	$181.14

Q. DID APS HANDLE COMPLAINANT'S ACCOUNTS APPROPRIATELY IN TERMS OF CUSTOMER SERVICE?

A. Yes. BWG's conclusion to the contrary appears to ignore the extensive measures that APS took to get access to Mrs. Read's meter to obtain an actual meter read. Moreover, BWG's suppositions about other ways in which APS might have read Mrs. Read's Paradise Valley meter are, quite frankly, unfounded and, as set forth in more detail below, are simply not possible.

Virtually all of BWG's criticisms of APS' handling of the Read accounts relate to Read's Paradise Valley account, so that is where I will focus my rebuttal testimony.[12] At page VI-I of its report, BWG states that APS "did not access" Mrs. Read's meter at the Paradise Valley premises from June 1999 through February 2000. This statement is misleading in that it implies that APS made no

[12] The only criticism of the manner in which APS handled Mrs. Read's Phoenix account is the fact that APS did not send Mrs. Read a bill from December 1998 until March 1999 because of problems with APS' new CIS system. APS regrets that this unavoidable, one-time problem resulted in a number of APS customers not receiving bills for a time period. However, the issues related to the implementation of a new CIS system, which occurred now more six years ago, have long since been resolved. APS respectfully submits that BWG's reference to this long-resolved, unusual, one-time event as a basis for criticizing APS' handling of the Mrs. Read's Phoenix account is unwarranted.

attempt to read Mrs. Read's meter during this period. In fact, APS went to Mrs. Read's residence every month and attempted to read the meter. In each of these months, however, Mrs. Read's gates were locked and APS was unable to access her meter. Moreover, as discussed below, APS took extensive steps to actually get a meter read, including calling Mrs. Read, sending letters and postcards, and leaving door hangers on her door.

Q. BWG STATES IN ITS REPORT THAT THE "OWNER OF THE PROPERTY" TOLD BWG THAT THE GATES AT COMPLAINANT'S PARADISE VALLEY PROPERTY WERE NOT LOCKED DURING THE RELEVANT PERIOD. IS THAT INFORMATION CORRECT?

A. When BWG went to look at the Paradise Valley residence previously occupied by Mrs. Read, the current owner, George Bien-Wilner, told BWG that the gate at the front of the property did not hold a lock. Although that may be true today, that was not the case when Mrs. Read lived at the residence and APS attempted to gain access. Indeed, one of APS' account notes (to which BWG had access) indicates that on September 5, 2000, Mrs. Read confirmed in a conversation with an APS billing representative that both gates on the property had locks on them.

During this conversation with APS, Mrs. Read stated that if the meter reader tried to enter the property from the west gate, the meter reader would encounter dogs and that Mrs. Read was not willing to unlock that gate. As to the other gate, Mrs. Read stated that APS could cut off her lock and replace it with an APS lock. That would not, however, have resolved the dog issue. Moreover, it may be that APS reasonably thought the access problem had finally been resolved because APS was able to get an actual read of Mrs. Read's meter on September 18, 2000, two weeks after the conversation with Mrs. Read, as well as for the ensuing October and November 2000 billing periods.

In any event, BWG's conclusion that there was no access problem at the Read residence because the gates allegedly were not locked is simply incorrect.

Q. DID APS PROPERLY CONSIDER OTHER ACCESS ALTERNATIVES THAT WOULD PERMIT IT TO OBTAIN A READ OF COMPLAINANT'S PARADISE VALLEY METER?

A. At page VI-5 of its report, BWG states that it is not clear whether APS properly considered other access alternatives that would permit APS to read Mrs. Read's Paradise Valley meter. In reality, as the facts demonstrate, there was no "other alternative" to read the meter at Mrs. Read's Paradise Valley home.

The house to the west of Mrs. Read's home has a meter in front of the house. Although the house to the east has a gate that currently has a lock-box, during the period that APS attempted to read the Read meter, this gate was locked. In addition, it is impossible to see Mrs. Read's meter from the back yard of the house to the east.

BWG also speculates that the meter reader may have been able to cross the undeveloped lot next to the Avis Read backyard and read the meter from over the fence. This is pure speculation. In fact, the meter reader who routinely read Mrs. Read's account in 1999 and 2000 advised BWG in his January 5, 2005 interview that he believed that this undeveloped lot used to have a house on it when he was reading this account. In addition, the meter reader explained to BWG in his interview that during the time in question, vegetation around the entire perimeter of the Read residence prevented the meter from being read from anywhere outside the Read property.

Q. WHAT STEPS DID APS TAKE TO GET ACTUAL READS FOR COMPLAINANT'S PARADISE VALLEY ACCOUNT?

A. One is left with the impression from the BWG report that APS took no steps to try to get actual reads for Mrs. Read's meters. Again, this is not borne out by the facts. On January 5, 2000, as a result of the fact that APS had estimated Mrs. Read's bills in 1999, APS sent Mrs. Read a letter listing her 2000 Meter Reading Schedule for the Paradise Valley account. On February 24, 2000, APS sent a postcard to Mrs. Read and advised her that the read on her current month's bill was estimated because the meter reader was unable to access her meter due to a locked or broken gate. The postcard also asked Mrs. Read to read her electric meter and mail back the postcard with the readings. On March 2, 2000, APS also sent Mrs. Read a letter because the access gate was locked, and asked Read to call APS. (Mrs. Read apparently did call APS with a meter read on March 3, 2000). On March 30, May 1 and June 1, 2000, APS sent letters to Mrs. Read, advising her that the meter reader was unable to access her meter because the access gate was locked. APS stated that APS needed to be able to read her meter every month to provide her with an accurate bill, and asked Mrs. Read to call APS to discuss possible options. Mrs. Read never responded to the letters.

In September 2000, APS did have a number of conversations with Mrs. Read about her account, where APS pointed out to Mrs. Read that her electricity consumption appeared to be quite large and suggested various options to try to determine if there was some other explanation for Mrs. Read's high usage. After the conversation with Mrs. Read on September 5, Mrs. Read authorized APS to speak with a "Lydia," a friend of Mrs. Read. During this conversation, APS told Lydia that Mrs. Read had already used 1613 kWh in 8 days. APS advised Lydia that this was very high usage and suggested that Mrs. Read have her air conditioning and other major appliances checked.

On October 13, 2000, Mrs. Read called again to complain about the amount of her bills. APS agreed to have the meter checked to ensure it was not defective. APS explained to Mrs. Read that if the meter was operating normally, it had to be something in her home that was causing such high usage numbers. On October 18, 2000, the Customer Associate again spoke to Mrs. Read and told her that the actual read on October 18 was in line with the actual September read, and it therefore appeared that the meter was not defective. The Customer Associate again suggested to Mrs. Read that she ask her landlord to have someone look at the appliances in the home.

On January 29 and February 27, 2001, APS again sent a postcard to Mrs. Read asking for a manual reading of her electric meter. On March 6, 2001, APS received one of the cards back from Mrs. Read, which included a manual meter read. APS was able to access Mrs. Read's meter in late March and April 2001. However, for the next two months APS was unable to access Mrs. Read's meter because of a locked gate. On May 25 and June 26, 2001, APS sent Mrs. Read a postcard, telling her that APS was forced to estimate her bills because the access agate was locked, and asking for a manual meter reading. On June 28, 2001, Mrs. Read provided APS with a manual read.

On July 26, 2001, APS sent Mrs. Read a postcard stating that her meter could not be read because the gate was locked and asked her to provide APS with a manual read. On July 30, 2001, Mrs. Read called APS and provided a manual meter read. On August 24, 2001, APS sent Mrs. Read a postcard stating that the meter could not be read because the gate was locked and asked her to provide APS with a manual read. Mrs. Read did not respond to this request.

APS sent a letter to Mrs. Read on November 2, December 5, December 13 and December 21, 2001, advising her that APS could not read her meter because the access gate was locked and asking her to call APS. On December 28, 2001, APS sent a postcard to Mrs. Read, advising her for a fourth time that month that APS could not access her meter. Mrs. Read did not mail back the postcard with the requested manual reading, or respond to the letters.

APS also sent a postcard to Mrs. Read requesting a manual meter reading on January 30, 2002. Mrs. Read did not respond. Mrs. Read began to provide access to her meter after April 2002 and most of her bills after that point were based on actual reads. If the bill was estimated after that point, however, APS sent Mrs. Read a postcard advising her that APS could not access her meter, and also left a door hanger on her door.

Thus, contrary to BWG's conclusion, APS made numerous and repeated attempts to make arrangements to access Mrs. Read's meter, but its numerous attempts to do so were simply unsuccessful.

Q. DID COMPLAINANT REQUEST AN EXTENDED PAYMENT PLAN TO PAY HER BILLS?

A. No. BWG also criticizes the fact that APS did not offer Mrs. Read the option of paying her bills via an extended payment plan. Mrs. Read routinely paid her bill, whether based on estimated or actual reads, and thus there was no reason to offer her such a payment plan. However, had she made such a request, it no doubt would have been granted. Customers are routinely informed in APS advertisements and in periodic mail inserts that a balanced payment program is available if a customer wishes to pay an essentially level monthly bill. (In fact, more than 20% of APS' residential customers participate in APS' "Equalizer" plan.) From my review of the customer notes pertaining to Mrs. Read's account, it

does not appear that Mrs. Read requested a balanced or an extended payment plan with respect to any of the larger bills that she received. I also note that on several occasions Mrs. Read did remit several payments totaling thousands of dollars. It would appear that Mrs. Read did not require or desire a balanced or extended payment plan. If Mrs. Read had requested an extended payment plan, APS would certainly have granted that request.

Q. DO YOU HAVE ANY OTHER RESPONSE TO THE READ COMPLAINT AND TESTIMONY FILED WITH THE COMMISSION?

A. It is important to note that Complainant did not file any actual testimony with the Commission. Instead, Complainant only filed the depositions of a number of APS employees who had been deposed by Complainant's counsel. In terms of the Read Complaint filed with the Commission, however, the BWG report completely rebuts Complainant's allegation that APS "systemically deceived and overcharged" Complainant. Indeed, as set forth in APS witness David Rumolo's testimony, on average, APS underestimated customers who received estimated bills. Moreover, APS denies that it submitted misleading or incomplete reports about its estimating methods to the Commission.

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. In summary, as set forth above, APS is already taking virtually all of the steps recommended by BWG. As to the Read Complaint, the issues raised by BWG lack foundation and are simply erroneous.

Billing Services Training Summary

Intro to CIS – Basic training provided to all CIS Users
- Log on
- Navigating CIS
- Rep Direct

Finding Information – Also basic training provided to all CIS Users
- Search Methods
- Locating Account Information
- On Demand
- Comments, Notes & Complaints

Service Plans and Metering
- Calculate dollar amounts for the active residential service plans.
- Calculate dollar amounts for the E-32 General Service plan.
- Perform a variety of rate comparisons on the different service plans available.
- Review the meter type/service plan validation as well as the meter type/meter code validation.
- Review the criteria used to determine Full Scale Demand on a meter.

Service Orders
- In this module associates learn to use CIS to process service orders to area service, meter reading and the meter shop.

Policies and Procedures
- Review the ACC Terms & Conditions for Back Billing and the acceptable exceptions.
- Review the steps required to document "no access" accounts.
- Discuss the procedure for rebilling No Access accounts.
- Practice prorating reads for multiple months rebilling.
- Review the steps required for working Unidentified Usage accounts.
- Review the process for notifying Meter Reading of unable to Locate and Wrong Route accounts.
- Review the steps required to analyze an account for a possible dead meter.
- Review the steps required to work a variety of Meter Exchange exceptions.

Form Letters
In this module associates view the different form letters that are used to inform customers of different billing/rebilling situations that have occurred on their account.
- Access Word and practice creating a customer letter using the Billing Templates.
- Access the Billing Services Letter Printer Web site and practice creating a web letter.

Billing Services Training Summary

Miscellaneous Transactions
Participants practice issuing statements of account, routing bills and adding reads to Usage History

- Practice the Hardcopy Route function. (routing the customer statement to verify accuracy prior to mailing)
- Practice entering Memo Reads. (memo reads are entered off-cycle – usually customer provided reads not used for billing)
- Identify an Irregular User. (a customer who does not have consistent usage – may be an irrigation well, winter visitor, etc.)
- Review the SA Maintenance worksheet (to verify accuracy of service plan and user type; irregular or normal).

Billing Exceptions

- Review the criteria CIS uses to create an exception.
- Review the In Basket function.
- Review the Billing Exception workflow.
- Practice analyzing accounts to determine a billing resolution.
- Practice changing a meter read by using the Usage Detail page.
- Practice canceling & rebilling prior month's consumption when a read error has occurred.
- Review the Post Billing Exception window process.
- Includes 3 days OJT working simple exceptions

Billing Service Requests
Participants perform the necessary steps to complete Billing Services Requests from other areas.

- Open a Billing Service Request from an In Basket.
- Analyze the request and the account.
- Perform necessary adjustments.
- Complete the Billing Service Request.

Reports
Participants will learn about the different reports that Billing Services receives daily and what steps need to be taken to resolve the situation.

- Practice working the New or Found Electric Meter report.
- Practice working the Meter Exchange Information report.
- Practice working the Removed Meters report.
- Practice working the Unposted Meter Reads report.
- Review the Service Plan to Meter Type report.
- Review the Zero Consumption report.

AMR/AMS Overview

Over the past several years, APS has evaluated Automatic Meter Reading (AMR) and Advanced Metering Systems (AMS) technologies.[1] In the past, this review has been limited to kilowatt hour-only meters because the technology had not advanced sufficiently to address demand meters and/or time of use (TOU) meters. APS conducted pilots – very limited in scope -- of certain kWh-only applications to determine the feasibility for APS' customer base.[2] While reading kilowatt-hour only meters using an automated process offered some time savings, these savings were quickly negated when customers within the pilot change to TOU or demand rates. When TOU or demand meters were interspersed in the midst of a kWh AMR route, the efficiencies of reading the route remotely quickly evaporated because the meter reader still had to physically probe the TOU meters. During the last couple of years, however, technological advances have created potential AMS solutions for APS' service territory.

APS is currently evaluating two AMS technologies, developed by Elster EnergyAxis and PowerOneData, respectively . In the Fall of 2004, APS installed approximately 480 Elster meters and 455 PowerOneData meters in Phoenix residential areas. The two pilots

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[1] APS uses the term "AMS" to distinguish these technologies from the more generic "AMR" term. "AMR" typically includes systems such as monthly "drive-by" energy-only solutions, which are solely intended to gain efficiencies in the meter reading function. The goal of "AMS," on the other hand, is not only to make meter reading more efficient, but to also provide additional daily consumption information and remote, as-needed access to the utility's meters.

[2] As previously stated in the Direct Testimony of Tammy McLeod, APS is unique in terms of the number of TOU customers and the number of residential demand accounts.

are being evaluating on an ongoing basis. There are a number of issues arising out of the pilot programs that must be resolved before APS reaches a final decision as to the feasibility of AMS meters.

EXHIBIT
APS-6
Admitted

SETTLEMENT TESTIMONY OF TAMMY MCLEOD

On Behalf of Arizona Public Service Company

Docket No. E-01345A-03-0775

Docket No. E-01345A-04-0657

MARCH 18, 2005

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SETTLEMENT TESTIMONY OF TAMMY MCLEOD
(Docket Nos. E-01345A-03-0775 and E-01345A-04-0657)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Tammy McLeod. I am the General Manager of Customer Service and Southern Arizona operations for Arizona Public Service Company ("APS" or "Company"). My business address is 2121 W. Cheryl Drive, Phoenix, Arizona.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?

A. Yes, I filed Direct Testimony in this proceeding on November 23, 2004.[1] That testimony explained the background facts relating to APS' meter reading practices and bill estimation procedures, and various other matters. I also filed Rebuttal Testimony regarding the interim report prepared by Staff's consultant, Barrington-Wellesley Group, Inc. ("BWG"), as well as Complainant's "testimony"[2] and Complaint filed with the Commission.

Q. WHAT IS THE PURPOSE OF YOUR CURRENT TESTIMONY ?

A. My current testimony addresses various issues relating to the proposed settlement agreement ("Settlement" or "Agreement") that the parties to this proceeding entered into on February 25, 2005. In doing so, I am aware that APS has not filed any responsive testimony to Staff's January 23, 2005 direct case, which puts this

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[1] There was one small formatting error in my testimony filed on November 23, 2004. Corrected testimony was filed on January 7, 2005.

[2] Complainant did not file any actual testimony with the Commission. Instead, Complainant only filed the depositions of a number of APS employees who had been deposed by Complainant's counsel in a now-dismissed Superior Court action.

matter in a somewhat different procedural status than, for example, the Company's presently pending rate case settlement. Thus, I will also address some of the issues raised by such testimony, most specifically the proposed fines against the Company. As I discuss later, these proposed fines were dropped as part of the Settlement.

Q. WOULD YOU PLEASE SUMMARIZE YOUR CURRENT TESTIMONY?

A. My testimony focuses on the reasons that APS agreed to the Settlement, a brief explanation of some of the provisions of the Agreement, and some background relating to the Settlement. In general, APS agreed to the Settlement because, after full development of the underlying facts by Staff and Staff's outside consultants (BWG) as well as by APS and its own outside consultants (Accion Group and Ascent Group), APS determined that there were relatively few disputed issues and that resolution of those disputed issues by mutual agreement was more productive than contesting those remaining issues at a Commission hearing.

APS witness David Rumolo will also provide testimony regarding various aspects of the Settlement.

II. ISSUES RELATING TO MRS. READ AND HER COMPLAINT

Q. THE SETTLEMENT (PARAGRAPH 35) CALLS FOR DISMISSAL OF MRS. READ'S COMPLAINT WITH PREJUDICE AND DOES NOT PROVIDE FOR RECOVERY BY MRS. READ OR HER ESTATE OF ANY AMOUNT. CAN YOU EXPLAIN WHY?

A. Yes. Once the facts relating to Mrs. Read's complaint were developed and were fully examined by Staff's outside consultants (BWG), there was complete agreement that, although Mrs. Read's bills were estimated on several occasions because the APS meter reader was prevented from accessing Mrs. Read's meter

due to a locked gate or the presence of a dog, APS had not over-estimated Mrs. Read's bill on any of those occasions. On the contrary, the undisputed evidence was that APS consistently under-estimated Mrs. Read's bills. As the BWG Report states (at page I-10): "Contrary to the allegations contained in the Read Complaint, the main problems with the estimated bills issued to Mrs. Read . . . are that the estimates are too low rather than too high." This is also acknowledged by all of the parties in Paragraph 9 of the Settlement. Thus, there was no evidence that Mrs. Read had been financially harmed in any way by the estimated bills she received on those occasions when her meter could not be accessed.

Q. NEVERTHELESS, I NOTE THAT IN RECITAL 5 OF THE SETTLEMENT, APS ACKNOWLEDGES THAT IT COULD HAVE DONE EVEN MORE TO OBTAIN ACCESS TO MRS. READ'S METER. CAN YOU EXPLAIN THE REASON FOR THAT RECITAL?

A. Yes. Although APS believes that its meter reader took reasonable steps under the circumstances to obtain access to Mrs. Read's meter, including door hangers, phone calls to her, and written communications with her (all of which I explained in detail at pages 20-23 of my Rebuttal Testimony dated January 24, 2005), APS accepts Staff's assertion that it could have done even more to obtain access, such as knocking on the door or checking with a neighbor. As I noted in my previous testimony in this proceeding, APS makes every reasonable effort to obtain access to meters, particularly demand meters, and APS seeks to avoid the drastic remedy of cutting off electric service to customers, such as Mrs. Read, who consistently deny access to their meter. Moreover, it should be noted that customers, like Mrs. Read, have an obligation under Commission regulations (A.A.C. R14-2-209(D)) to provide safe and unassisted access to their meter, as all parties to the Settlement have acknowledged in Paragraph 29 of the Settlement.

Q. THE SETTLEMENT ALSO STATES IN RECITAL 4 AND PARAGRAPH 36 THAT APS DID NOT SEND MRS. READ ANY BILLS FOR FIVE MONTHS FROM SEPTEMBER 1999 TO JANUARY 2000 DUE TO IMPLEMENTATION PROBLEMS WITH ITS CIS. WHAT IS THE SIGNIFICANCE OF HAVING THESE STATEMENTS IN THE SETTLEMENT?

A. The problems stemming from APS' conversion to its new Customer Information System (CIS) in late 1998 and 1999 were one-time events that were similar to problems experienced by virtually every electric utility that has engaged in a CIS conversion in the last decade. (See the Accion Report attached hereto as **Exhibit TM-1.**) Many of these problems were made known to the Commission at the time. (See the document attached hereto as **Exhibit TM-2** in which Commission Staff acknowledge in 1999 the efforts made by APS to deal with CIS conversion problems.) Moreover, APS took numerous measures to limit the impact of these conversion problems on customers, including a series of letters to customers explaining the unusual circumstances giving rise to these problems and the resultant impact on APS' ability to generate some bills on a timely basis. Attached hereto as **Exhibit TM-3** are copies of some of those letters and other communications. Those letters and other communications with customers made it clear that APS would work with the customers in every reasonable way to minimize the impact or inconvenience to customers, including, if requested by the customer, an extended period for payment of any delayed bills. It was the continuation of these CIS transition problems that resulted in the fact that APS did not send Mrs. Read bills from September 1999 through January 2000. APS regrets that occurred, but as Staff Witness Matthew Rowell notes in his testimony dated January 24, 2005 (at page 16), "implementation of a new CIS is a difficult undertaking and . . . it can result in significant billing problems even though it is managed appropriately."

In this instance, when Mrs. Read received a delayed bill in February 2000, the total amount of the cumulative bill was $6,336, and Staff believes that may have caused an unexpected hardship for Mrs. Read (although neither Staff nor its consultants ever spoke with Mrs. Read). In response, APS pointed out that more than $4,000 of that amount had nothing to do with the fact that she had not been billed for five months. In fact, most of the bill ($4,600) was a prior balance for which Mrs. Read had been previously billed as of August 23, 1999, but which she had not paid. In any event, APS accommodated Mrs. Read by allowing her three months to pay the February 2000 charges, and APS assessed no penalty or late fees, nor took any other action during this period (such as sending a late notice) to collect this balance, even though most of the bill had nothing to do with delayed billings by APS. Nevertheless, APS agreed to Paragraphs 36 and 37 of the Settlement to acknowledge its obligations to bill customers in accordance with Commission regulations, but at the same time explain the unique circumstances relating to its failure to send bills for several months in late 1999 and early 2000 to Mrs. Read and number of other customers as a result of the CIS conversion problems, which problems were corrected long ago.

Q. STAFF'S ORIGINAL RECOMMENDATION WAS TO FINE APS $20,000 IN CONNECTION WITH APS' FAILURE TO BILL THE READ ACCOUNT FOR FIVE MONTHS IN LATE 1999 AND EARLY 2000, BUT THERE IS NO SUCH PROVISION CONTAINED IN THE SETTLEMENT. PLEASE EXPLAIN.

A. In lieu of any fine, APS agreed to expend considerable sums to improve training of Billing Service Representatives, to improve communications with customers, to improve meter reading procedures, and to modify its bill estimation procedures.

Q. IN YOUR OPINION, WOULD A FINE HAVE BEEN APPROPRIATE EVEN ABSENT A SETTLEMENT?

A. No. Aside from any legal defense the Company may have interposed, APS believes that the circumstances did not justify a fine of any amount. APS failed to send Mrs. Read bills for a five-month period in late 1999 and early 2000 because of the unfortunate problems that occurred with the conversion to the new CIS system. As explained above, APS took reasonable measures to alleviate any financial burdens for customers that may have resulted from those computer problems.

Staff's major concern appears to have been based primarily on the fact that Mrs. Read did not receive an extended payment plan and that she received a $6,000 bill in February 2000. However, as set forth above and in my Rebuttal Testimony filed on January 24, 2005, there is no indication that Mrs. Read wanted or needed an extended payment plan, and she took three months anyway to pay the bill without any penalty by APS. Further, even though Mrs. Read received a bill for over $6000 in February 2000, approximately $4,600 of those charges had been incurred (and timely billed) prior to the time that the new CIS failed to send Mrs. Read bills in late 1999. In reality, if Mrs. Read had paid the $4,600 when those amounts were due, she would have received a bill in February 2000 for approximately $1,700. APS understands that $1,700 is still a significant amount and we regret that Mrs. Read was not billed for this five-month period. But Mrs. Read had received very substantial bills previously because of her rather high usage of electricity, and there is no reason to believe that Mrs. Read considered this bill to be a particular hardship.

Q. THE SETTLEMENT CONTAINS NO PROVISION FOR PAYMENT OF FEES TO MRS. READ'S ATTORNEYS, ALTHOUGH PARAGRAPH 35 STATES THAT THE AGREEMENT DOES NOT PROHIBIT HER ATTORNEYS FROM SEEKING FEES TO WHICH THEY MAY BE ENTITLED UNDER APPLICABLE LAW. WHY IS THIS PROVISION IN THE AGREEMENT?

A. It was APS' position throughout that Mrs. Read's attorneys had no statutory basis for recovery of attorneys' fees, that Mrs. Read had not prevailed on the merits, and that the Commission had no jurisdiction to entertain such a request for fees in any event. This language relating to attorneys' fees was inserted in Paragraph 35 to preserve whatever right they may have to seek recovery of fees from the Superior Court.

III. APS' FAILURE TO IMPLEMENT THE DEMAND ESTIMATION PROCEDURES SET FORTH IN RATE SCHEDULES EC-1 AND ECT-1R

Q. IN RECITAL 3 AND PARAGRAPH 6 OF THE SETTLEMENT, APS ACKNOWLEDGES THAT IT FAILED TO FULLY IMPLEMENT THE DEMAND ESTIMATION PROCEDURES OF RATE SCHEDULES EC-1 AND ECT-1R, AND STAFF HAD ORIGINALLY PROPOSED A FINE OF MORE THAN $500,000 FOR THIS FAILURE. WHAT DOES THAT AGREEMENT PROVIDE?

A. As noted earlier, and in lieu of such fines, APS must expend substantial sums (exceeding $600,000) to change various aspects of its bill estimation procedures and related business practices. (See Paragraphs 23 and 24 of the Settlement.) It was further agreed that APS would not be permitted to seek cost recovery of these (and various other) expenditures called for under the Settlement. (See Paragraph 25 of the Settlement.)

Q. WHAT WERE THE CIRCUMSTANCES BEHIND THIS SITUATION AND WHY DID APS BELIEVE A FINE INAPPROPRIATE?

A. First, it should be noted that APS brought this circumstance to Staff's attention as soon as it was discovered by APS. Second, the EC-1 and ECT-1R Rate Schedules went into effect in approximately 1983 and 1988, respectively, and APS believes that it adhered to the demand estimation procedures in those Rate Schedules in many if not most instances until sometime in the mid or late 1990's — perhaps as late as the conversion to APS' new CIS system in the late 1990's — but records

are not available to confirm the precise history relating to how long and to what extent the demand estimation procedures in these Rate Schedules were followed by APS. Third, the demand estimation procedures in these Rate Schedules (which required that, if demand needed to be estimated, the estimated demand would be the last demand reading for that customer) expressly applied only in the limited circumstances of a lack of meter access due to "a locked gate" or "safety" reasons; the Rate Schedules did not address the numerous other reasons (such as weather, equipment failure, etc.) that require bills to be estimated. Fourth, APS demonstrated that if APS had followed the demand estimation procedures of these Rate Schedules in later years, there would have been less net **under-billing** to customers on these Rate Schedules (that is, estimated bills would on average have been higher) than under the demand estimation procedures that APS actually used in those years. And fifth, there was no evidence that APS intentionally disregarded the demand estimation procedures of these Rate Schedules; on the contrary, APS believes that the failure to systematically follow those demand estimation procedures in the instances where access was denied because of a "locked gate" or for "safety" reasons was an oversight (and one that produced no financial benefit for APS).

IV. NEW DEMAND ESTIMATION PROCEDURES

Q. THE SETTLEMENT CALLS FOR APS TO IMPLEMENT AN ENTIRELY NEW ESTIMATION PROCEDURE FOR DEMAND ACCOUNTS. PLEASE EXPLAIN WHY THIS IS BEING DONE AND WHAT THE EXPECTED BENEFITS OF THIS CHANGE WILL BE.

A. First, APS wishes to note that all parties agreed in the Settlement (Paragraph 8) that APS' current demand estimation procedures (which use class average load factors to estimate demand) are consistent with the requirements of A.A.C. R14-2-210. Moreover, APS demonstrated that its use of class average load factors to

estimate demand consistently resulted in net overall **under-billing** to customers rather than net over-billings as had been alleged in the Read Complaint. Nevertheless, APS recognizes that there are numerous procedures that can be used to estimate demand and that reasonable minds can differ as to which way is best. Thus, based on the recommendations of Staff's consultants, APS has agreed as part of the Settlement to change its demand estimation procedures to implement the procedures set forth in Paragraphs 11 through 16 of the Settlement. Summarized briefly, this new demand estimation procedure will rely on available customer-specific or premises-specific prior demand readings to the extent possible. A class average load factor will be used only if customer-specific or premises-specific prior demand readings are not available.

Q. AS PART OF THE SETTLEMENT, IS APS AGREEING TO MAKE ANY CHANGES TO ITS CURRENT PROCEDURES FOR ESTIMATING CONSUMPTION (KWH) AS OPPOSED TO DEMAND (KW)?

A. No. There has been no finding that APS' current procedures for estimating consumption (kWh) require any changes. APS has agreed, however, to conduct a study to determine the impact of reclassifying May as a non-summer month for purposes of kWh estimation. (See Paragraph 17 of the Settlement .) Once the study has been completed, APS will report its findings to the Commission and will discuss whether a change in its kWh estimation procedures is desirable.

V. METER READING ISSUES

Q. YOU MENTIONED EARLIER THAT APS HAS AGREED TO IMPLEMENT A VARIETY OF NEW METER READING AND OTHER PROCEDURES DESIGNED TO REDUCE THE NUMBER OF "NO ACCESS" METERS AND TO EXPAND COMMUNICATION WITH CUSTOMERS REGARDING ACCESS AND BILLING ISSUES. PLEASE EXPLAIN?

A. By way of background, it is important to note (as APS' consultants pointed out) that APS has a higher percentage of residential customers on demand billing accounts than virtually any electric utility in the country. Indeed, most other Arizona electric utilities have little or no residential customers on demand billing accounts. Unlike non-demand meters (which can be read or scoped from a distance and do not need to be reset each month), a demand meter must be accessed each month so that the demand dial on the meter can be reset to zero. This presents a special challenge to APS because of APS' high percentage of customers on demand billing accounts. And, of course, it is no response to say that APS should reduce the number of residential demand accounts, because such accounts are very beneficial to the customer and allow the customer to significantly reduce his or her utility bill by simply managing the rate of consumption to minimize spikes in demand during a billing cycle. In spite of these challenges, APS currently has a meter-reading rate (98.99%) that is **above** the national and local industry average. (See Accion Report, **Exhibit TM-1** hereto, at page 20.) It was also shown that APS has more experienced meter readers and despite the high number of demand meters, has a meter-reading accuracy rate above industry average and fewer inaccessible meters than the industry average. (Id.)

Thus, although it is undisputed that APS is performing very well under its current meter reading procedures, the Settlement provides for APS to expend substantial

sums of money to improve and upgrade its meter reading procedures and technology. For example, APS will spend more than $600,000 on an Access Improvement Program that will be designed to achieve even further reductions in the number of "no access" issues. This Access Improvement Program will include such things as remote ports or similar devices, advanced metering systems, and enhanced radio technology — all of which would potentially permit meters to be read and reset electronically to one extent or another, thereby reducing the need for a meter reader to access the meter. (See Paragraphs 22 through 24 of the Settlement.)

Q. WHAT ELSE DOES THE SETTLEMENT AGREEMENT PROVIDE WITH RESPECT TO METER READING ISSUES?

A. APS has agreed to implement or improve various meter reading reports and install meter reading performance measures. In addition, we have agreed to continue with activities and slightly modify others such as: implementing a pilot program to evaluate the use of an auto-dialer to communicate with customers who have repeatedly presented access problems, publishing a policy of periodic inspection by meter reading supervisors of repeated "no access" locations to ensure that corrective measures are taken, participation in benchmarking studies with other utilities relating to access issues, and various other procedural and technological measures. (See Paragraph 32 of the Settlement.)

Q. WHAT MEASURES HAS APS AGREED TO IMPLEMENT AS PART OF THE SETTLEMENT TO IMPROVE CUSTOMER COMMUNICATIONS AND CUSTOMER SERVICE?

A. As set forth in Paragraph 33 of the Settlement, APS has agreed to implement some new training procedures for Billing Service Representatives and others involved in bill estimation matters regarding the importance of timely and accurate customer

bills, adherence to Commission rules and tariffs, and procedures for more effective communication with customers. In addition, APS has agreed to provide clearer information on re-bills regarding the reason for the re-bill and that the customer need pay only the re-billed amount.

Q. IN PARAGRAPHS 19 THROUGH 21 OF THE SETTLEMENT, APS HAS AGREED TO GIVE CREDITS OR REFUNDS TO THOSE CUSTOMERS WHOSE ESTIMATED DEMAND READINGS BETWEEN SEPTEMBER 1, 1998, AND OCTOBER 1, 2003, WERE HIGHER THAN THE SUBSEQUENT READ. WHY ARE SUCH CREDITS OR REFUNDS BEING MADE?

A. In September 2003, APS made the business decision that, notwithstanding the fact that APS' demand estimation procedures resulted in net overall **under-billings** to its customers, it would begin crediting those demand customers whose estimated demand readings in a month were higher than the subsequent actual demand read. APS chose not to make that practice retroactive at the time because (1) the extent of under-billing was even greater prior to 2003, and (2) any such credits are arguably unwarranted for any period of time because an over-estimate of demand in one month is probably offset by under-estimates relating to that same customer and is certainly offset by an allocable portion of the overall under-estimates for all demand customers. Nevertheless, APS agreed as part of this Settlement to retroactively apply those credits to September 1, 1998 (or to give refunds to those customers who are no longer APS customers who can be located with reasonable effort and who are entitled under the Settlement to credits of at least $5.00). If a customer who would receive a payment under the Settlement cannot be located, that amount will be added to the amount APS is required to expend under Paragraphs 22 through 24 to improve its meter reading and bill estimation procedures.

Q. WILL CUSTOMERS WHO RECEIVE THESE CREDITS OR REFUNDS BE PAID INTEREST ON THOSE AMOUNTS?

A. Yes. Although the Commission stated in the *Ciccone* decision (Decision No. 59919, Docket No. U-1345-96-162) that, as a matter of "Commission policy," "APS should not pay interest on any amounts that it refunds to customers due to over billings due to failures to reset customers' demand meters" (id. at page 13), and although (as the Commission noted in *Ciccone*) APS does not receive interest when a customer is under-billed, APS agreed as part of this Settlement to pay interest on the credits and refunds that it has agreed to give to customers.

Q. WHAT BECOMES OF APS' APPLICATION FOR DECLARATORY ORDER AS A RESULT OF THIS SETTLEMENT?

A. As part of the Settlement, Staff and APS have effectively addressed most of the issues raised by APS in its Application, but the Settlement "takes no position on the validity or the applicability of the amendments to A.A.C. R14-2-210." Specifically, with respect to Commission approval of APS' bill estimation procedures, the Settlement acknowledges the validity of APS' current and prior bill estimation procedures under Commission rules (see Paragraphs 18 and 34 of the Settlement), but the Settlement also requires APS to submit its new bill estimation procedures to the Commission as a tariff filing within 30 days of the Commission's approval of this Settlement and to make similar tariff filings for any changes in procedures in the future (see Paragraphs 16, 26 and 28 of the Settlement). Thus, on a going forward basis, APS' bill estimation procedures will be on file with the Commission irrespective of whether A.A.C. R14-2-210 requires electric utilities to do so generally.

Similarly, the parties have agreed in Paragraph 27 of the Settlement that Staff's answers to ten circumstances or questions raised by APS in its Application are acceptable and will become part of APS' bill estimation procedures.

In effect, therefore, the Settlement sufficiently addresses the issues raised in APS' Application for Declaratory Order and deals with them in a manner that is satisfactory to both APS and Commission Staff.

VI. COMPLIANCE ISSUES

Q. WHAT MEASURES ARE SET FORTH IN THE SETTLEMENT TO ENSURE THAT APS COMPLIES IN THE FUTURE NOT ONLY WITH THE TERMS OF THE SETTLEMENT BUT ALSO WITH COMMISSION RULES AND TARIFFS?

A. There are a variety of compliance measures in the Settlement and some of those have already been discussed, such as the requirement that APS file its bill estimation procedures with the Commission as a tariff filing. Perhaps the most important compliance provisions are those contained in Paragraphs 39, 40 and 41 which require APS to conduct various audits and internal reviews and report the results to the Commission. Various other compliance reports are required to be made by APS under the Settlement (see Paragraphs 17, 19, 24, 32(a), 32(c), 32(e), 32(f), 32(g), 32(h), and 33(a)).

VII. CONCLUDING REMARKS

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. Yes. I think it is important to recognize that the extensive review conducted by Staff and its consultants and by APS' own consultants has shown that there was no systematic over-billing of customers whose bills were estimated by APS. On the contrary, the undisputed findings are that APS' bill estimation procedures have

consistently resulted in net overall **under-billing** of customers. By its very nature, bill estimation is not a precise science, and that is well demonstrated by the fact that bill estimation procedures differ from company to company and there is no industry standard for bill estimation — particularly no industry standard for estimating demand accounts. (See Accion Report at pages 6-7.) And, although APS has agreed as part of this Settlement to modify its bill estimation procedures and to implement a variety of new meter reading and billing practices, the Settlement also gives APS the ability to come back to the Commission to request further modifications if circumstances indicate that such further modifications are warranted.

Q. DOES THIS CONCLUDE YOUR SETTLEMENT TESTIMONY?

A. Yes.

EXHIBIT TM-1

INDEPENDENT ASSESSMENT OF ***METER READING AND*** *BILL ESTIMATION PRACTICES*

Prepared by

Accion Group

on behalf of

Arizona Public Service Company's
Application for Declaration Order
Docket No. E-01345A-03-0775

January 24, 2005

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EXECUTIVE SUMMARY AND CONCLUSIONS

To address the allegations contained in the Complaint filed by Avis Read at the Arizona Corporation Commission (Commission or ACC) on September 9, 2004, and any issues that might be raised by the Staff of the ACC in that proceeding, Accion Group was retained by Arizona Public Service (APS) to provide an independent assessment of the meter reading and billing practices of the company. From our review, we believe the recommendations of the consultants to the Staff are without merit and, if adopted, would needlessly add expense and regulatory burden, without any benefit to customers. Further, our review found the assertions of Avis Read to be unfounded and, at most, an isolated, non-recurring incident which does not justify new reporting requirements.

The review was undertaken to provide APS with an unbiased opinion on whether:

1. APS bill estimating procedures comply with industry standards and result in appropriate billings to customers
2. APS customers are treated fairly relative to estimation practices
3. APS practices minimize the need for estimated bills to the extent practicable of APS bills (0.9% in Metro Phoenix) estimated in 2004.
4. Meter readers use good utility practices to obtain a meter read.

Our review consisted of six parts:

1. A survey of electric utility meter reading and billing practices of utilities across the country
2. A survey of meter reading and billing regulation in the United States
3. Statistical analysis of the impact of APS bill estimation methodologies
4. Review of the report prepared by Barrington-Wellesley Group (BWG) Staff consultants filed on December 28, 2004 (BWG Report)
5. Review of the Complaint filed by Avis Read with the Commission on September 9, 2004
6. Interviews and observation of APS' billing processes from meter reading through the issuance of bills.

From our review we determined that:

Estimation Conclusions

1. APS billing estimation practices are reasonable and have, over time, benefited its customers.
2. Although no single industry standard exists, either nationwide or in Arizona, APS billing and bill estimating practices for both energy and demand are consistent with good utility practices

in the electric utility industry and are appropriate for the company's unique service territory and rate structure.

3. APS has successfully reduced the number of estimated bills to the point where it is one of the better performing electric utilities. APS read 98.99% of its meters in 2004.
4. Customers on a tariff without a demand charge cannot be harmed by an estimated bill, because once an actual meter read is obtained the billing will be adjusted to reflect actual energy usage.
5. APS' method of calculating demand charges is reasonable and consistent with good utility practices.
6. As a group, APS under-bills its customers for demand charges when bills are estimated.
7. There is no consistent regulatory policy in the United States or in Arizona regarding bill estimating procedures or requirements.

Meter Reading Conclusions

1. The APS service territory with its extreme climates, wide range of customer density is unique and presents significant operating challenges to meter access.

2. The availability of Residential rates in Arizona, which contain a demand charge, is unique in the industry.
3. APS meter readers make appropriate efforts to obtain a meter reading from each meter during each billing cycle.
4. There is no consistent regulatory policy in the United States or in Arizona regarding meter reading procedures or requirements.

Conclusions About the BWG Report

1. The Staff consultants have not adequately or appropriately evaluated the APS meter reading, billing, and bill estimating practices.
2. Adoption of the Staff consultants' recommendations would increase APS' operating costs without a corresponding benefit to customers.
3. Adoption of the Staff consultants' recommendations would potentially reward customers who deny APS access to their meter and shift cost to other customers.

Avis Read Conclusions

1. There is no evidence that Avis Read was over-billed.
2. The remaining allegations of Avis Read's are unfounded.

HOW THE INDEPENDENT ASSESSMENT WAS CONDUCTED

We conducted a survey of meter reading and estimated billing practices of utilities in the United States. Also, we surveyed regulatory practices in the United States for meter reading and bill estimation. To fully understand APS practices, past and present, we interviewed APS personnel with responsibility for meter reading and billing. Our interviews included supervisors and personnel who provide meter reading and billing services. As part of these interviews, we visited the APS billing department and sat with different billing representatives as they reviewed estimated bills for customers where meter access was denied or unavailable. Also, we accompanied meter readers for two days as they attempted to read every meter. We witnessed their efforts to obtain a meter read, even when access to a meter was denied, and witnessed their actions when encountering a malfunctioning meter and a possible tampering situation. Finally, we reviewed the report prepared by consultants for the Commission.

UTILITY METER READING AND BILL ESTIMATION PRACTICES

As described more fully on the following pages, APS employs meter-reading practices that are consistent with the practices generally employed in the industry. All participants in our study noted that access

to meters is a continuing problem. APS' practices to secure access to the meter are as comprehensive as any of the utilities surveyed. Several companies we surveyed have, in recent years, begun to implement Automated Meter Reading (AMR) to, in part, to address this problem. APS has advised us that it is presently in the process of pilot testing AMR for its residential (single phase) customers, and may continue to study deployment of those meters for parts of its service territory.

Availability of such meters for general service customers remains an issue. Reliable and cost effective AMR demand and TOU meters are now becoming available. Significantly, our survey found that there is no standard approach in the industry to calculating estimated usage by customers in those instances where a meter read was unavailable for whatever reason. The characteristics of each service territory, such as population density and climate, significantly impact the specific factors used in the estimation methods employed by our survey participants.

All of our survey participants based estimated energy usage on some combination of historical data, where available, including data from one or more prior months, and data from prior years. APS was no different in that regard. Various utilities computed estimates using factors that considered weather, some form of multiplier or seasonal load factors.

None of our survey participants had a procedure for routinely estimating demand. Typically, demand meters are used for larger commercial and industrial accounts where utilities reported that meter access is usually available. In those instances when a valid read was not available, they reported that follow-ups within the read window were attempted. This is consistent with APS' practices for larger commercial and industrial accounts. We did note that because of the broad application of APS General Service Rate Schedule E-32, APS has more access issues on this rate code. Also, unlike APS, our participants reported that they do not typically have demand rates for residential customers or install demand meters on residential accounts and therefore do not need to estimate residential demand. In those few instances where demand on a residential account needs to be estimated, there was no consistent approach to calculating an estimate. In those few incidents where it was necessary to estimate residential demand, there was no uniform or consistent approach used.

Our findings identify APS as unique in its need to, and the extent to which it must, estimate demand on residential accounts. As noted later in this report, we believe APS' approach to estimating customer energy usage and demand is appropriate and equitable to all customers.

SURVEY OF METER READING & ESTIMATED BILLING

During November and December 2004, Accion Group, in partnership with The Ascent Group and at the request of APS, conducted a survey of meter reading and estimated billing practices of utilities in the United States. The survey was done to determine if APS employs good utility practices and to assist in the evaluation of the merits of the allegations made by Avis Read in her complaint filed with the ACC on September 9, 2004. More than a dozen U.S. investor-owned electric, gas, or electric and gas combination companies were targeted. We investigated how the surveyed companies resolve difficult meter access accounts, and how accounts are billed when no actual read is available.

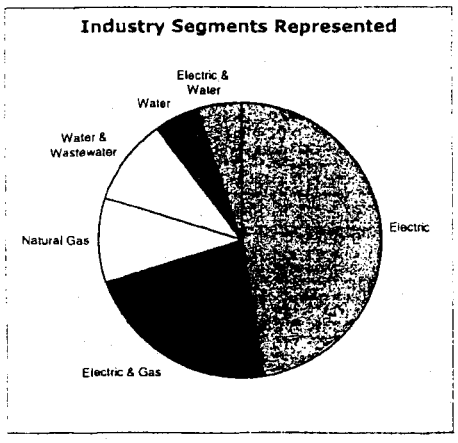
Scope of Survey

The utility companies were selected based on the following criteria:

- Geographically diverse
- Differing customer information systems
- Good industry reputations
- Mix of urban, suburban, rural accounts
- Known focus on difficult access accounts

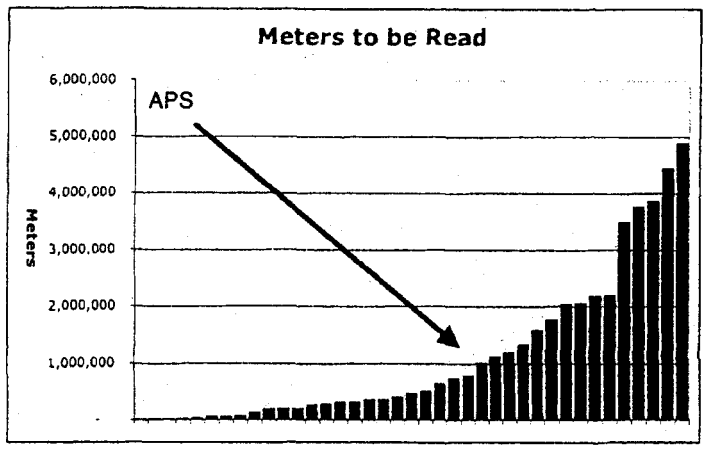
Including 12 specifically targeted companies, 39 utilities participated in our research. Nearly all companies participated in detailed telephone interviews of meter reading and billing personnel to examine meter reading practices, no-access resolution approaches, and billing estimation procedures. Additionally, participants completed on-line questionnaires.

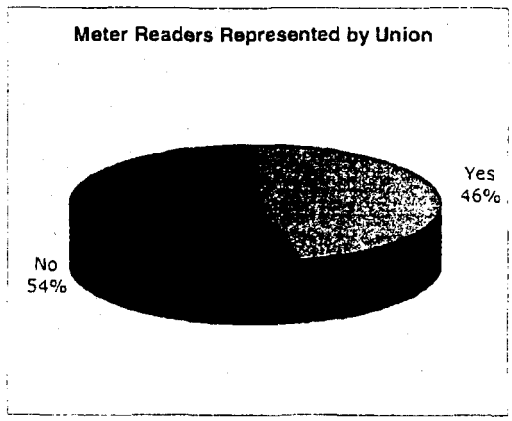
The survey included participants from all four corners of the US and in between. The number of meters read ranged from 4,500 to 4.9 million. Participants represented diverse service territories with an average meter density of 453 meters per square mile (high of 6,350 and low of 3 meters per square mile). Participating utilities also represent several industry segments -- electric service, natural gas service, water service, and wastewater service, with some providing more than one of these services. The participants included investor-owned, cooperative, government, and municipal utilities. More than half of participants were investor-owned electric utilities.



While the majority of study participants were from the United States, we did have several utilities from Canada and Australia.

Participants averaged 1.1 million meters to be read, roughly the same as APS.





Nearly half of participants have meter readers who are represented by a bargaining unit. APS' meter readers are represented by a bargaining unit.

Two surveys were used to gather information on two functional areas—Meter Reading and Billing. Specifically, we asked companies to tell us about their methods to secure a meter reading in situations of difficult or no access. We also asked companies basic information to better understand the management approach and philosophies of the Meter Reading department.

On billing, we asked companies to tell us how they deal with a "no read" account. Specifically the steps that are taken to communicate with the customer and the basic formulae used to estimate usage.

We contacted the companies by phone or email to identify the appropriate person in each area to respond to the questionnaire. A brief phone interview was conducted and/or participants completed an online survey form.

Study Objectives

The main objective of the study was to evaluate the various tactics and strategies used today to read customer meters and to bill estimated demand and energy use. Secondary objectives included understanding:

- The range of performance by company and by industry segment;
- How utilities are using technology to reduce costs and improve customer satisfaction;
- Other effective process improvement or cost-reduction techniques;

- How utilities measure individual, team, and center-level performance and encourage high productivity and performance;
- The role of meter reading training and its impact on performance.

Participants were asked to share management tactics and strategies, as well as identify any improvement in performance. The study also asked utilities to include considerations, successes, and plans moving forward.

Study Findings

Meter reading is still one of the more labor-intensive utility activities. While the use of automated meter reading technologies (AMR) is increasing, most utilities are reading the majority of their meters manually. Our panel reported an overall AMR implementation rate of 8.3 percent. The remaining 91.7 meters are read manually, usually on a monthly basis.

With all the changes in the utility industry and the economy, most utilities have been forced to reduce operating costs. At the same time, companies are being asked by regulators, customers, members, and shareholders to increase customer service and satisfaction. Essentially to "do more with less"—a daunting challenge for any organization.

The Meter Reading organization is effectively the cash register of the utility. Utilities must measure and bill energy or water use monthly (in most cases) in order to bill customers and facilitate the revenue collection process. Meter reading is the usage collection process that makes billing possible. Errors in meter reading result in billing errors or unbilled accounts that ultimately result in reduced collections and in higher operating costs. In addition, skipped meter readings result in estimated bills or no-bills. Accordingly, utilities have worked diligently to improve their meter reading processes and APS is no exception.

For many companies, the meter reader is an entry-level job, a planned stepping-stone into the company. And as such, meter reading departments can incur high turnover, thereby increasing the costs incurred to hire and train effective and efficient meter readers, and ultimately, increasing the cost to read a meter.

Clearly the meter reading organization is evolving with the introduction of automation. The diversity of metering and AMR equipment, complexity of accounts and billing, the challenges of service territory, and needs of different customer groups dictate different solutions for different companies. Regardless of the implementation rate, the transition from manual to automation is challenging from a technology and people perspective. Routes must be consolidated and optimized,

employee roles and responsibilities change with changing priorities, performance measurement metrics must shift to accommodate the mix of automation and manual effort, processes and systems change ... it's a challenging time for any organization. Even after automation, metering devices must be visited on occasion for testing and other reasons.

In this transition to automation and the quest for reduced operating expenses, most utilities are focusing on three approaches to meter reading improvement:

- Reducing costs of manual reads through contract negotiations, rerouting, more sophisticated hand-held equipment and meters, productivity improvement, and lowering overhead; many have maxed out these options; Some have reduced costs to a point that makes it difficult to justify AMR, for residential accounts.
- Contract meter reading to reduce overhead, tackle seasonal peaks, and as a strategy to transition to automated meter reading.
- Automated meter reading – some large-scale implementation as well as several strategies to pinpoint "high read cost" meters, unsafe meter locations, and high-turnover premises. Some companies have automated "key accounts" and commercial

accounts to accommodate real-time pricing and/or prepare for the competitive market.

The promise of automation, implementing AMR, remains the top plan for the future, whether they are proposing a partial or complete implementation, for our utility panel. APS is presently testing two AMR systems to determine the effectiveness and reliability of available meters and related software. Both systems appear to have the potential to offer significant benefits to APS if various technical and operating shortcomings, which may impede the widespread deployment of AMR, can be resolved.

Benchmarking performance is an effective technique to understand meter reading performance and to identify improvement opportunities. APS has consistently participated in benchmarking programs to compare its meter reading performance to its peers, to keep an eye on the industry, and to identify best practices and other improvement opportunities.

Meter Reading & Meter Access

- *Meter access is a continual challenge for all utilities.* Customers, terrain, and weather impact accessibility of meters. Meters once routinely accessible can be rendered inaccessible for reasons, such as home additions or modifications, dogs, fences, locked

gates, lock changes, landscaping. Weather and natural disasters also impact access, temporarily and permanently. Utilities are constantly challenged to resolve access issues to obtain a reading or perform service-related work at the premise. As long as customers flow in and out of the service territory and service is measured through a premise-based meter, utilities will be challenged to access each and every meter.

- *"No Access" approaches vary depending upon the level of emphasis, cost, and is closely tied to regulatory requirements.* Most companies attempt to resolve no access using the lowest-cost approaches—picking up skips later in the day, leaving a door hanger, printing a message on the bill, sending letters, and making calls. APS uses all of these approaches. Most companies have defined tolerances in their billing system that permit the system to estimate usage up to a point, and APS is no exception. When that point is reached, some utilities diligently pursue higher-cost no-access approach, such as making a field appointment or special trip to attempt a read, begin AMR installation, if viable, install company locks, relocate the meter, at customer expense, or terminate service. Most, however, continue to estimate usage for many months, even years, while

customers continue paying the bills. The approaches and timing of actions vary from company to company.

- *Performance metrics encourage diligence in obtaining a reading—hold the Meter Readers accountable for getting a read.* Many utilities participating in this study indicated that they held meter readers accountable for obtaining a read. In fact, most emphasized the importance of their role and how they would be held accountable. Measurements typically are put in place to gauge both individual and group performance. Incentives and awards are designed to compliment the measurement framework and encourage superior performance. The companies reported providing employees with a clear idea of job expectations and performance. Those companies also reported success in improving accuracy and increasing route completion rate. APS has also instituted a comprehensive meter reading evaluation and monitoring process that is relied on in the management of the meter reading process. APS continually evaluates both individual meter reader performance and group performance.

- *customer communications can be effective in resolving no access, alerting customers to estimated usage, as well as improving customer satisfaction.* Several high performing companies provide customer communications to remind them of the scheduled read date, ask them to open gates, tie-up dogs, or what ever is necessary to gain access. One company uses the same personnel to call customers to alert them to an estimated bill, and to request access, stating that the proactive communications is very satisfying to customers. APS uses several of these approaches.

- *AMR is being strategically deployed for high-read-cost, unsafe, inaccessible, and/or high turnover premises.* Half of our panel is using AMR or a similar technology to remotely read meters in difficult access locations. While a few utilities have or are in the process of implementing a company-wide AMR program, most indicated taking a strategic approach at cost reduction through AMR. The most popular plan for the future is AMR. To date, however, AMR has not been available for residential demand meter applications required by APS. And it is still difficult to obtain for 3 phase service.

- *Nearly all participants' demand meters are assigned to commercial establishments, making access a non-issue.* Participants reported that all or nearly all demand rate customers were commercial establishments. Even those with demand meters installed at a residence were not billing the customers on the demand rate.

Since virtually all demand billed and metered customers are larger commercial, utilities usually have little difficulty obtaining a reading and resetting the demand as long as the reading can be done during operating hours of the business. As a result, our participants rarely estimate customers billed on a demand rate, usually only in situations of a meter failure or a weather problem. Only one company in our panel installed recorders on all demand meters, primarily for load profile purposes. In the event a reading is missed, the company can access demand history from the recorder. While this is cost effective for a system with few demand meters, it would not be practical for a company, such as APS, with a large number of demand meters on smaller commercial customers.

- *Companies, including APS, encourage high performance through incentives and rewards* - The "best performers" identified in this study encourage excellence through incentive

programs and/or informal or formal reward programs. Programs varied from bonus pay, special recognition, gift certificates, "bucks" redeemable at the company store, steak dinners, and other non-cash awards.

- *APS has an above average read rate.* APS reads on average 98.99% of its meters. This is above the panel average of 98.2%. Read rates for participants ranged from 86% to 99.9%.

- *APS has an above average accuracy rate.* APS reads on average 99.97% of its meters accurately, without error (about 28 errors per 100,000 meters read). This is above the panel average of 99.8% (about 222 errors per 100,000 meter read). Error rates for participants ranged from 2 to 1,800 errors per 100,000 meters read.

- *APS has fewer inaccessible meters.* APS reported approximately 1% of its meters as inaccessible. This is below the electric industry panel average of 1.1% inaccessible meters.

- *APS meter readers, on average, have more read experience than panel average.* APS reported an average length of service for meter readers of 8 years. This is slightly higher than the panel average of 7.5 years.

- *APS experiences less turnover in meter reader personnel than panel average.* APS reported an average annual turnover of 10 percent, significantly below the panel average of 20 percent.

Billing & Estimation

- *There is no apparent standard industry approach to estimating kWh usage.* There is no apparent standard among our participant group for estimating kWh usage. While more than two-thirds reported the use of customer history, there is a wide variation in the exact factors used for the estimation. Companies based estimates on daily averages of prior customer usage for the: previous month, same season, same month last year, previous month and previous year, last year surrounding 3 months, last three months...The approaches were different from company to company and varied depending upon the availability of customer usage history.

- *Like the majority of participants, APS bases its kWh estimates on the customer's history, when applicable.* APS uses a daily average for the same season to estimate kWh usage. If this is not available, or is inapplicable (e.g., wrong season), prior month, same season or same month, prior year are used to estimate

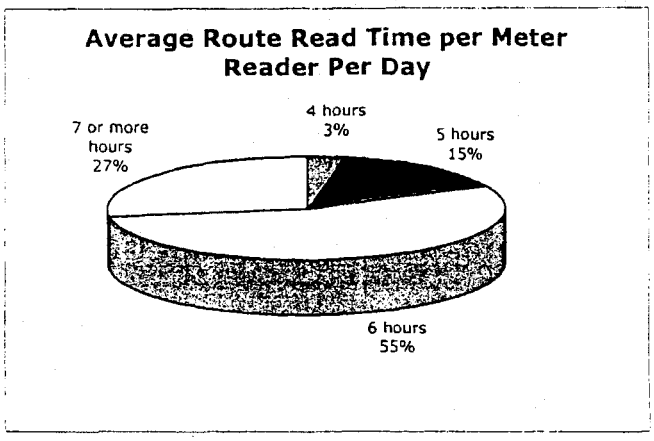
usage, or service address history, if individual customer history is insufficient.

- APS has the largest number of demand-rate residential customers in our panel and of any company that we are aware of in the U.S.
- Among our panel, only a couple of utilities reported having any residential demand customers and those that did had less than a dozen customers, most of which were churches (classified as residential for those utilities), none of which were an access issue. Residential accounts pose the greatest access challenge for any utility because, as we discussed earlier, it's usually much easier to gain access to larger commercial establishment.
- *Since most demand meters are for larger commercial accounts, companies make concerted efforts to obtain actual readings and avoid estimation.* Operating hours make demand meters more accessible to companies. As a result, few demand meters are access issues for utilities and very few demand-rate accounts are estimated. Our panel reported they were able to bill demand-rate customers on actual reads and had very few accessibility issues.

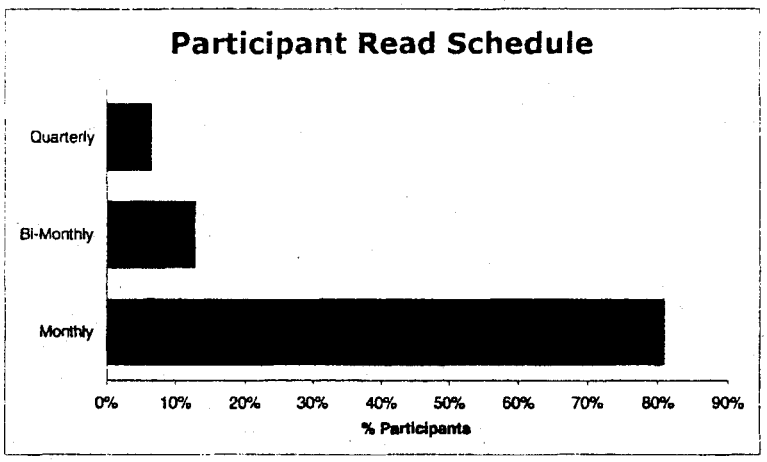
- *There is no apparent standard industry approach to estimating kW demand.* Our panel rarely estimated kW demand, usually in situations of meter failure or malfunction. In those instances, several approaches were used: using last month's kW demand, rate class average kW demand, customer history-based kW demand, or individually calculated kW using load research. The approaches varied from company to company, and in those using customer history, the time-periods selected to average also varied.

Study Observations

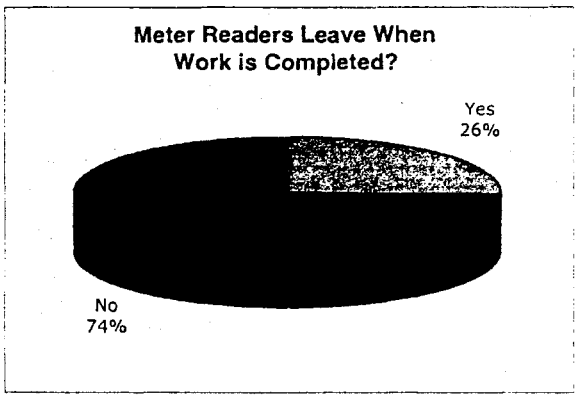
We received 39 valid survey responses from a diverse group of utilities. For the panel, route read time, per meter reader, averaged 5.8 hours (number of hours reading meter route, excluding breaks, lunch, travel to and from route). More than half of participants (55 percent) reported an average route read time of 6 hours per meter reader. Average route read time is heavily influenced by service territory, population density, and route design.



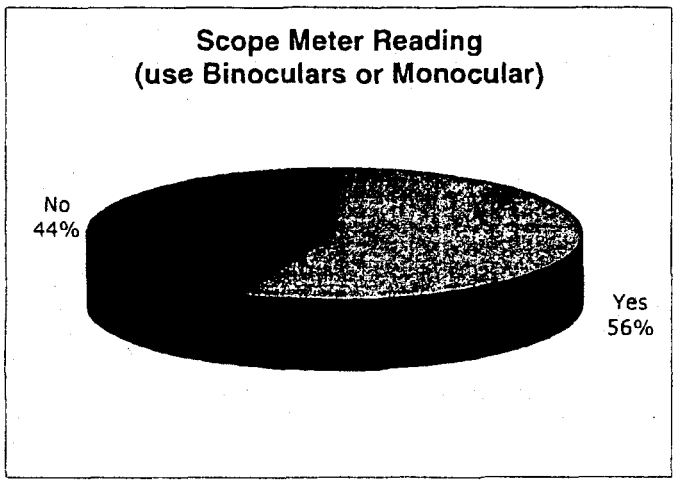
The majority of participating utilities read meters on a monthly basis (81 percent). Six utilities read on a bimonthly basis, and three utilities read quarterly.



The majority of participating utilities do not let meter readers go home after completing the day's assignment (74 percent). APS does not let meter readers go home after completing the day's assignment.



The majority of participating utilities do scope meter readings (56 percent) when necessary, using a monocular or binoculars. APS meter readers do scope readings when able.



As a group, participating utilities average route composition is 42 percent Urban (>450 meters per route), 38 percent Suburban (> 250 < 450 meters per route) and 20 percent Rural (< 250 meters per route). Territories range from primarily Rural to completely Urban.

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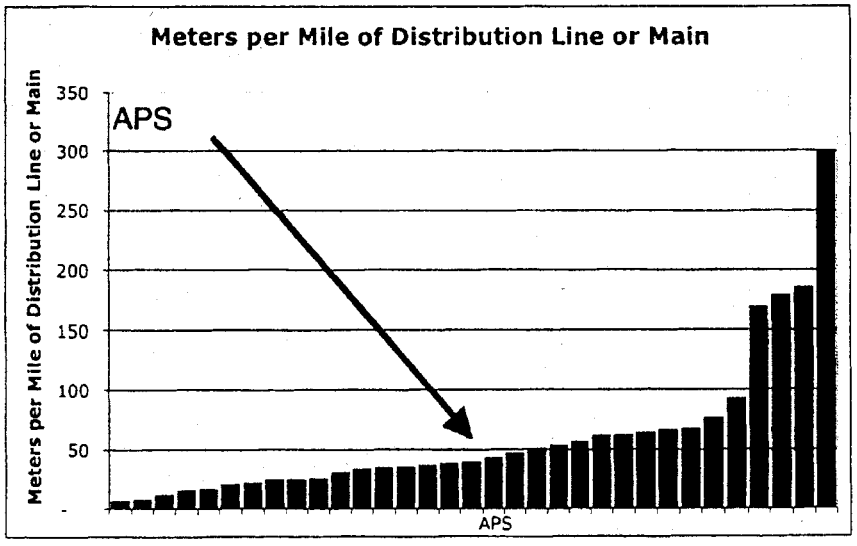
APS territory is primarily suburban (60 percent) and urban (40 percent) with relatively few rural routes. Nevertheless, as noted below, APS meter density is quite low.

Participants range from 35 square miles in service territory to 390,000, with an average of 22,675 square miles. In terms of meter density, the panel ranged from 3 meters per square mile to 6,349, with an average of 454 meters per square mile. The charts below detail meters per square mile and meters per mile of distribution line/main for the participant

	% Inaccessible Meters	% Indoor Meters
Electric	1.1%	0.7%
Natural Gas	4.1%	24.4%
Water	0.0%	2.7%
Combination	1.1%	12.4%
APS	1.0%	0.1%

group. APS has approximately 24 meters per square mile of service territory and 43 meters per distribution line mile, as denoted in the charts below.



Participants range from 7 meters per distribution line or main mile to 299, with an average of 70. Natural gas utilities exhibit the largest percentage of both inaccessible meters and indoor meters, as demonstrated in the table of industry averages below.

Participants range from no indoor meters to a maximum of 87 percent indoor meters. As a group, the panel averages a 5 percent indoor meter population. Averages for each industry segments are

presented below. APS is well within the electric industry norm for percent inaccessible meters and percent indoor meters.

Average years of meter reading experience ranged from 1 to 20 years, with an average for the group of 7.5 years. APS meter readers average 8 years read experience.

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Reported turnover for the panel was indirectly proportional to the years of reading experience. Companies reporting high turnover reported short length of service while companies with minimal turnover reported long length of service. The following chart details turnover percentages for the panel. As a group, annual turnover averaged 20 percent. APS averages 10 percent turnover, well below the average for the panel.

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Participants were asked to identify the measures used to evaluate meter reader performance. Surprisingly, many companies reported no measures of meter reading performance.

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APS measures meter reading performance based on all of the factors noted on the chart above. At APS, meter readers are provided

with written expectations for acceptable job performance and receive monthly performance progress reports. Pay reviews are conducted semi-annually. Additionally, individual and "shop" or group statistics are posted each month at APS in a "report card" for each meter reader.

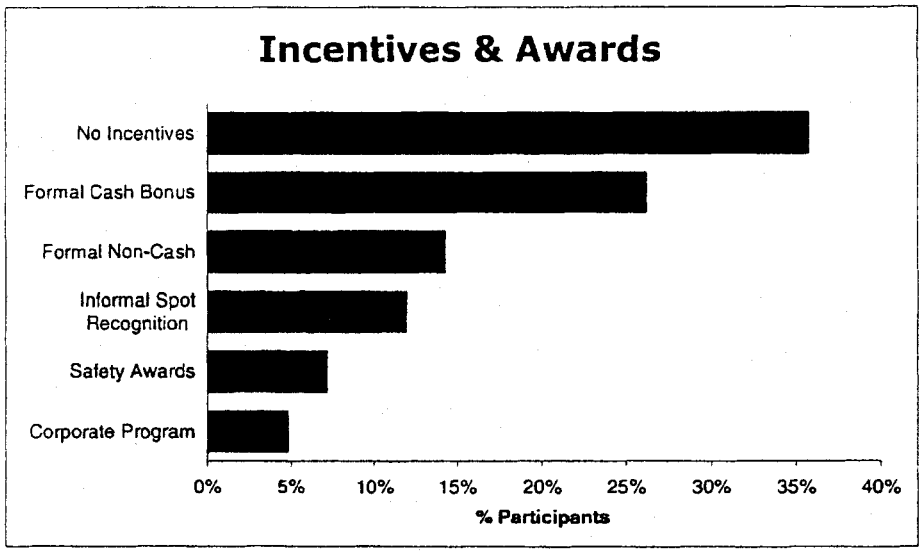
For those reporting meter reading performance measures, the most popular was completion rate—the number of meters read per assigned route. The second most used measure was read accuracy or error rate. The next most popular measure focused on safety—accidents and injury. Read time was the fourth most used measure—actual time to read a route versus standard. Finally, attendance was the fifth most used measure.

Other measures used included:

- Customer Relations
- Teamwork
- Complaints
- Amount of time worked daily
- Conduct
- Job Knowledge and Resource Management
- Communication
- Relationship with Supervisor

More than 60 percent of participants offer some kind of incentive or award program for meter readers. A formal "cash bonus" incentive is the

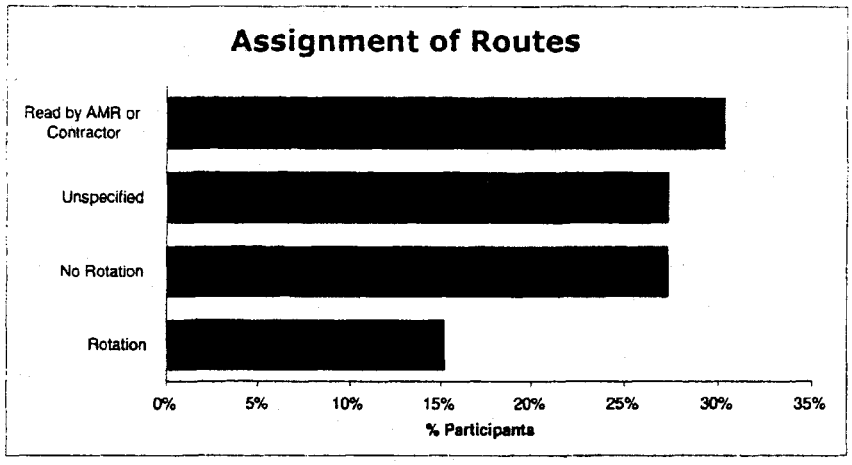
most popular—meter readers have the opportunity to earn bonuses based on superior performance. Non-cash incentives are the next popular—meter readers earn gift certificates, dinners, parking spots, trophies, and other non-cash items for superior performance. Other companies offer informal, on-the-spot recognition, usually through non-cash awards or through group recognition. Several companies use a combination of formal and informal awards to motivate performance.



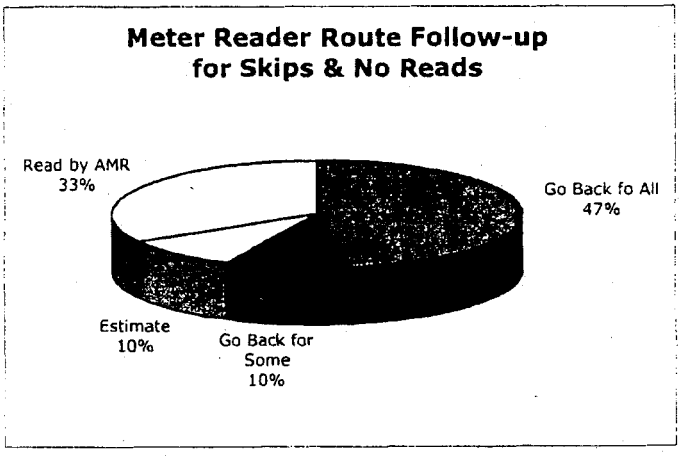
APS has an incentive system in place to encourage meter reader safety and performance. Using a "special pay" rate classification, meter

readers earn incentive pay on a rolling 6 months of performance, based on safety-zero accidents, equipment-$500 damage or greater=loss, error factor of .01, and 100% route completion. Awards and incentives include: special/senior pay based on performance, safety celebrations for shop safety records, "Living the Vision" awards, public acknowledgement of customer compliments, and individual recognition with movie passes, dinners, gift certificates.

Many utilities are using Automated Meter Reading (AMR) technology and/or contractors to read meters on a month-to-month basis. Those reading with company meter readers specifying route assignment, 27 percent do not rotate the assignment of routes among meter readers while 15 percent do rotate assignment of route. Those not rotating routes usually rely on a seniority-based bidding process for route assignment. Companies rotating routes reported rotating monthly, every 3rd month, every 4th month, and "round robin". APS meter readers exchange routes every 4th month with a "route swap partner."

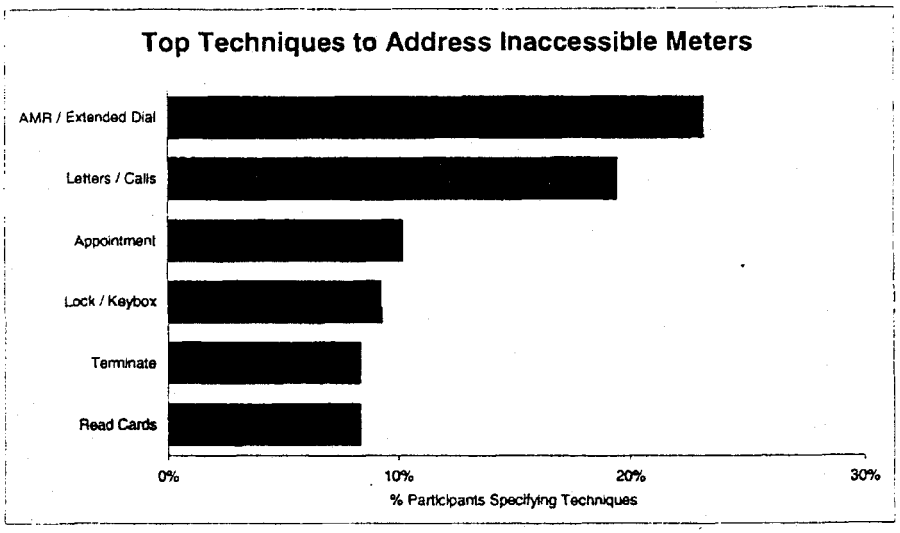


Companies have varying approaches to route completion. The majority of participants ask meter readers to go back and re-attempt readings for CGIs (can't get ins) at the end of the route or at the beginning of the next day's work. Others have supervisors, team leads, or foremen go back for skips sometime during the read-window. The approach can also vary within a company based on the season, weather, manpower availability, terrain, meter density, workload, and management style. The length of the read-window and schedule often determine how many days are available to pick-up any skips prior to cycle closing. A small percentage of companies only attempt to pick-up skips for commercial customers, usually a demand meter. Several companies make the determination based on the number of skips in a route, if they fall below a certain level, there is no attempt to pick-up the read, rather the account is estimated.



APS asks its meter readers to pick up any skips at the end of the route or the beginning of the next day. Thus, many "skips" do not actually result in issuance of estimated bill.

Addressing Inaccessible Meters



Our participants were asked to identify the steps that they take to address inaccessible meters. AMR is the most popular technique now

being employed to address small groups of chronically inaccessible meters.

The second most popular technique is to notify the customer by letter or phone and to continue to estimate the usage on the account. A number of companies report they will disconnect service after several months of continued "no access".

The least popular technique is to arrange a special time or appointment with the customer to obtain a reading. These appointments are usually a last resort before termination for "chronic" no access meters, after repeated efforts to read the meter with no success. Very few participants set appointments with customers for month-to-month cycle reads, and some charge customers to do so.

Companies also request customer keys and access codes to gain entry. Some will install a key box or company lock as a more long-term solution. One utility insists that the customer's doorknob be keyed to a company master key. Lastly, companies supply read cards to customers to self-read. However, for some participants, self-reads are considered estimates, not actual reads.

Most utilities use a number of these techniques to address "no access" and chronic "no access" meters, especially if no AMR has been implemented.

Other techniques sited in the survey:

- Leaving door hangers requesting access, sometimes serving as a read card too
- Printing messages on estimated bills requesting access
- Relocation of the meter at customer expense
- Reversing the routes every other month
- Calling customers before the scheduled read
- Saturday reads and special skip routes

Obviously, inside meters and inaccessible meters continue to challenge the effectiveness of utility meter reading departments in our panel. Inaccessible meters ranged from 1 percent to as high as 18 percent of total meters to be read each month. AMR has proven to be an effective technique, although costly, to eliminating many access problems and repeat trips to the meter. Several panel companies did, however, note that it is only a solution if you can gain access to the meter to install AMR. Other techniques, such as keys, letters, calls, and appointments are labor intensive, expensive and hit-or-miss. And none of these address other legitimate reasons why unfettered utility access is required.

APS has a clearly defined "no access" policy to address inaccessible meters. APS relies on many of the techniques described above to address access issues, including: door hangers, self-read cards, letters, calls, bill messages, and finally, termination. APS' "no access" policy dictates predefined steps to resolve "no reads" depending upon how long the meter has been inaccessible. The policy is described in the following paragraphs.

APS Meter Readers leave a door hanger, indicating the reason the meter could not be read, for all inaccessible meters. The door hanger provides the phone number for the call center and asks that the customer call APS. Each month APS is unable to access a meter, Meter Reading Administration confirms that the Meter Reader left a no-access door hanger; if no door hanger was left, Meter Reading Administration creates a Meter Access Request letter to be sent to the customer.

In the third consecutive month of no access, the APS customer's account is downloaded into an automated dialer, which leaves an automated voice message at the customer's home number that informs the customer of the access problem. If the customer contacts APS, an effort is made to resolve the access issue and the customer may provide

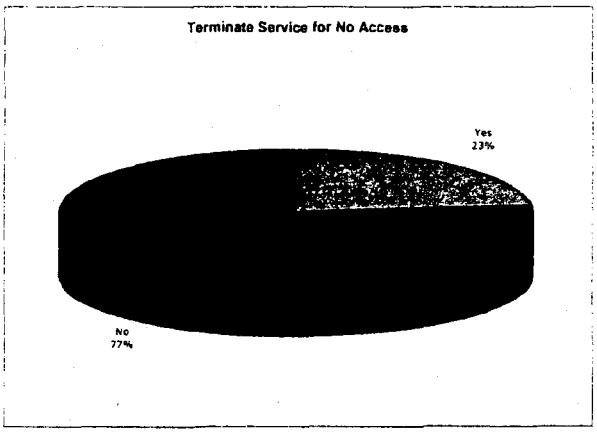
a read that will be used to determine the accuracy of the estimated read utilized in the billing.

APS Meter Reading Administration creates and mails the customer a postcard on the fourth consecutive month of no access. The postcard instructs the customer to contact the call center for access solutions.

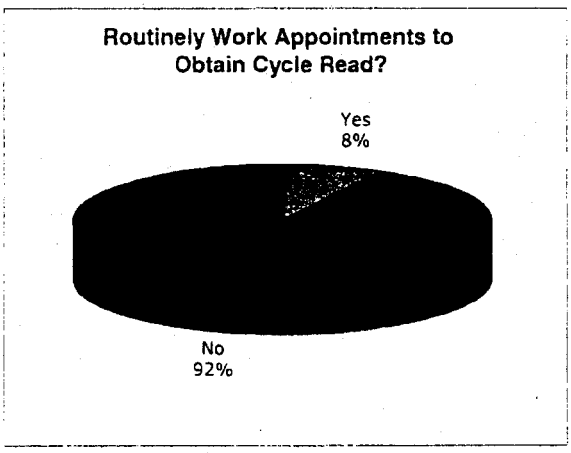
By the fifth consecutive month of no access, the APS customer has received four door hangers or meter access letters, a dialer call, and a post card. In the fifth month, Meter Reading Administration sends an Active Accounts No Access letter that instructs the customer to contact the Call Center to obtain access solutions to avoid interruption of service. The letter informs the customer that APS will disconnect the customer's service, following the next month's read, if the meter is still inaccessible.

In the sixth consecutive month of no access, Meter Reading Administration reviews an account for any indication that the customer has called to resolve access. If none is found, Meter Reading Administration will attempt to call any listed daytime phone numbers. If the customer is unreachable by phone, a disconnect order is generated to Field Services personnel. The serviceman makes one more attempt to access the meter; if there is still no access to disconnect at the meter, the order is reassigned to OH or UG (Metro) or Field Service Supervisor (State).

Most utilities will not terminate service in a no access situation, preferring rather to continue billing estimated usage and continuing to attempt to gain an actual reading. Termination of service can be very disruptive and costly to customers, especially customers who are content to continuing paying an estimated bill. APS' No Access policy, as described on the prior page, does stipulate termination after 6 months of no access; however, *very few accounts have been terminated for no access.*



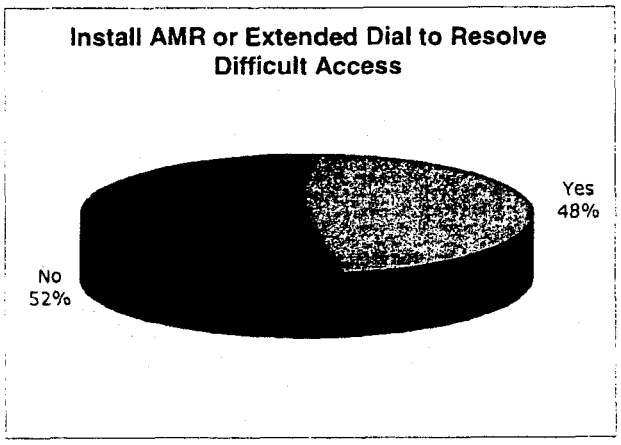
Very few utilities set routine appointments to obtain a routine cycle reading (only 8 percent of participants). Twenty-eight percent of participants reported having occasionally used appointments to resolve unusually difficult "no-access" situations, the majority are worked as field orders rather than by meter readers in-route, and usually only if there is no other way to resolve access. APS uses this approach for unique situations, such as at prisons and military bases.



APS does not use field appointments to gather readings for inaccessible meters, nor does it routinely work meter-reading appointments into its routes. APS, like most other utilities, has determined that the complexity and difficulty of managing scheduled appointments, and the increased costs APS would incur, would not warrant initiating a practice of scheduling appointments in light of APS' lower than industry average number of inaccessible meters and the probability that such a practice would not significantly or consistently reduce the number of meters it would have to estimate.

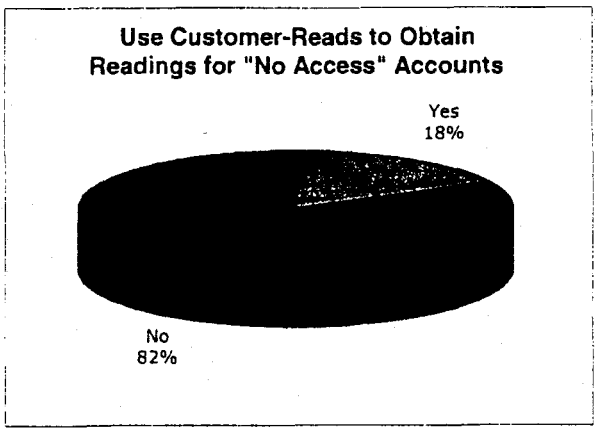
AMR is the most popular long-term solution to difficult access and unsafe access meters. Almost half of participants report using AMR or extended dial technology to remotely read inaccessible meters. This figure is growing as the deployment of AMR increases across the industry and as AMR technology becomes more viable for all meter types. While

AMR has in recent years become widely available for single-phase kWh and residential gas meters, the technology has been unavailable for the more complicated meters, such as demand, time-of-use, and multi-phase meters. The adoption of AMR will become more widespread for all meter types as the technology becomes available and is proven through field tests and pilot implementation.



APS is currently piloting AMR technology for single-phase kWh meters and will evaluate advanced technologies as they are developed.

A few companies provide self-read cards to customers. However, several companies reported that the "self-read" was still considered an estimate and did not count as an "actual read". In addition, others reported they found self-read cards to be unreliable, especially those left at the gate or property line.

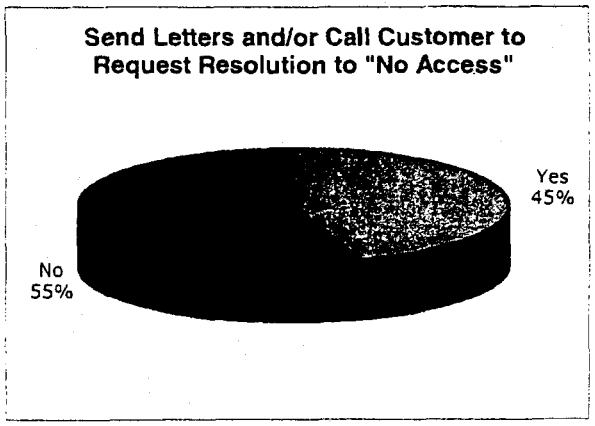


APS' Billing Department sends self-read cards to customers after 2 months of no access. Customers are instructed to provide access to the meter or send back a meter reading.

Many utilities will send a series of special letters and/or call the customer to request access to the meter and to arrange for a long-term solution. In many cases, the letters are automatically generated by the billing system after 1, 2, 3, or more consecutive estimates. This is consistent with APS practices.

A few companies print messages on estimated bills as well, alerting the customer to the estimated bill and asking for access to obtain a reading. APS routinely does this.

Bill messages are a low cost approach; letters and calls are more costly. None guarantee resolution. However all of these are less costly than the special field visit that may or may not gain access.



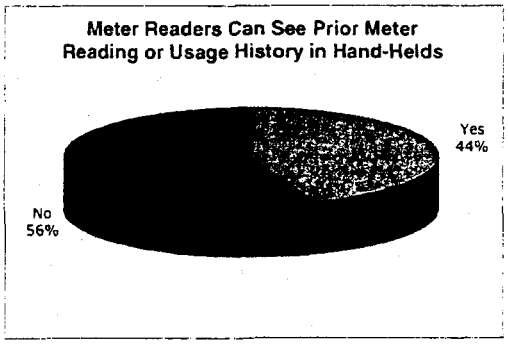
A small number of companies are proactively calling customers prior to the scheduled readings, to remind them to tie up dogs, unlock gates, or provide access to the meter. In a few instances, some I companies issue cell phones to meter readers and code contact phone numbers with the meter information in the handhelds so meter readers can call customers during the route to arrange access. APS does provide to its customers general information regarding meter-reading dates through periodic mailings and information available on APS' web site.

Consistency in the read schedule and time of arrival at the meter also make it easier for customers to provide access—they know when the meter reader arrives each month and can get into a routine.

APS' policy clearly defines the steps taken to resolve no access, including sending a series of letters and post cards as well as calling the

customer to request access. APS also prints a message on the estimated bills asking customers to contact the company to resolve the billing issue.

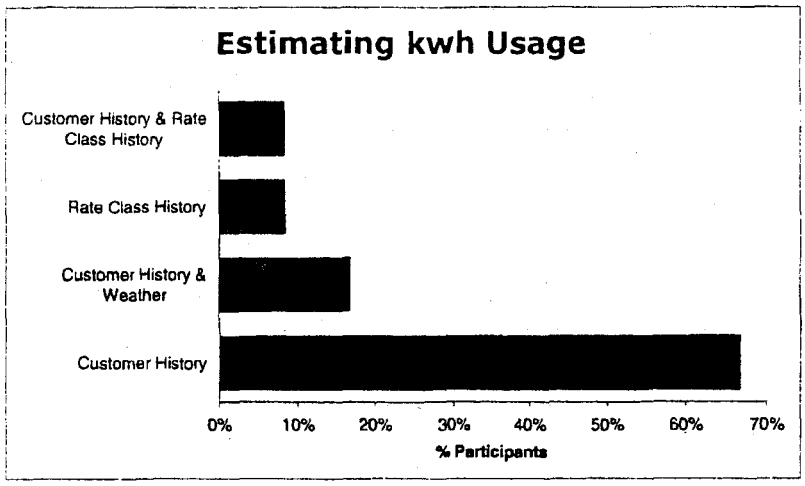
Handhelds can be programmed to check for high and low readings and alert meter readers of possible errors or malfunctions in the meter. Some companies use the prior usage reading and/or same-time last year's reading as the parameters for a "high-low" error check. This information can also be displayed for the meter reader or not, depending upon how the system has been programmed. Some companies allow meter readers to see the prior reading only after a reading has been entered, some before, some not at all. Some companies have removed prior readings from handhelds to discourage "curbing" of meters. However, others state that the information is valuable to meter readers and helps them do a better job; they keep it available as another accuracy check.



Estimating kWh Usage

Most participants estimate kWh usage based on customer history, although the time-period(s) used or averaged varied dramatically. Several companies have incorporated weather into their estimation algorithm, primarily by incorporating a "degree day" calculation. One

participant has incorporated weather through the averaging of customer history and rate class history. A small percentage relies only on rate class history, with no customer history.



There is no apparent standard among our participant group for estimating kWh usage. Even among those companies that prefer to base estimates on customer history, a wide variation of techniques are used, including:

- Previous month
- Same season
- Same month, last year
- Previous month and previous year
- Last month; previous 12 months; same month, last year

- Last month; last year, same month; last year, prior month before and after
- Last year, same 3 months; last 3 months, last month
- Last 3 months, same time last year
- Last month
- Last year, same month, prior month

Like the majority of participants, APS bases its kWh estimates on the customer's history, a daily average for the same season to estimate kWh usage. If this is not available, or applicable, prior month, same season or same month, prior year are used or service address history.

Estimating Demand

Participants reported that all or nearly all demand rate customers were commercial establishments. Even those with demand meters installed at a residence were not billing the customers on the demand rate.

Since virtually all demand billed and metered customers are larger commercial, utilities usually have little difficulty obtaining a reading and resetting the demand as long as the reading can be done during operating hours of the business. As a result, our participants rarely estimate

customers billed on a demand rate, usually only in situations of a meter failure or a weather problem.

When participants do estimate demand-rate customers, the kWh usage could be based on an actual read or an estimate, as described in the prior page. The following approaches are used by participants to estimate the kW demand:

- Use last month's kW demand
- Rate Class Table of kW demand
- Average customer kW demand history, similar to average used for kWh history
- Calculated as needed by load research

Again, since participants rarely estimate demand-rate customers, approaches are non-standard. All are manually estimated, and because the need is usually a meter failure or malfunction, the estimate is often calculated by load research employees instead of billing representatives.

APS has the largest number of demand-rate residential customers in our panel and of any company that we are aware of in the U.S. Among our panel, only a couple of utilities reported having any residential demand customers and those that did had less than a dozen customers, most of which were churches, none of which were an access issue.

Residential accounts pose the greatest access challenge for any utility, as we discussed earlier, it's much easier to gain access to a commercial establishment.

METER READING AND BILL ESTIMATION REGULATION

Accion Group conducted a survey of state regulatory authorities to compare their rules and regulations dealing with meter reading and bill estimation with the practices used in Arizona by APS. The survey targeted twelve states that had experience with deregulation. Our findings demonstrate that there are no standard practices or regulations used by regulators and that the procedures used by APS are generally consistent with the requirements used by other state regulatory agencies.

The survey was conducted in two phases. First, the web sites of each targeted regulatory authority were reviewed. This review was conducted to identify, where possible, the policy and practices the regulatory authority had enacted concerning meter reading and bill estimation. The web site review also identified what information was available to consumers about meter reading and bill estimation. The second phase of the survey was conducted by telephone, with regulatory personnel about the experience of the regulatory authority with meter reading and bill estimation. The telephone survey also explored the

frequency and nature of customer complaints regarding metering and billing issues.

As stated above, a total of twelve regulatory authorities were surveyed. Our sample was designed to include different regions of the country, with different demographic characteristics. We also surveyed a mixture of large and small states to include information on urban and rural customer territories. From experience we knew that the states with the greatest interest in meter reading are those that have experimented with deregulation. Accordingly, we targeted those states for review. From discussion with regulatory staffs, we confirmed that interest in meter reading increased during deregulation, and waned at other times.

From the information we were able to gather, we were unable to find any standard approach among the states for when meters must be read or for the use of estimated bills. While there is a preference for monthly meter reading, even this goal is not employed by all regulators.

As a general matter, meter reading and bill estimation are not issues given much consideration by regulatory authorities. Indeed, when telephoning regulatory authorities it was common for us to have difficulty finding a staff person with any knowledge, much less familiarity, with meter reading or bill estimation regulations. In some states, there are no formal regulations addressing bill estimation and meter reading

regulations. In an effort to identify the incidence of customer complaints, we began our inquiry at each regulatory authority with the staff person responsible for receiving customer complaints. Of the states we surveyed, none of the customer complaint caseworkers had any experience with bill estimation regulations or complaints. This required us to address all questions to staff members responsible for electric utility issues.

All of the regulatory authorities surveyed recognize that circumstances will prevent the reading of every meter every billing cycle. The most common reasons for permitting estimates are denied access and inclement weather, although there are obviously other reasons that can justify estimated reads.

The obligation to read meters ranges from "whenever possible"[1] and the necessity to "strive" to obtain regular monthly readings[2], to a requirement that meters be read at least once every twelve months.[3] One state permits estimated bills for up to sixteen billing cycles or four years, whichever is shorter for seasonal, remote meters.[4]

There was no consistency on the number of months permitted between actual meter reads when access was denied, either through action of the customer or other circumstances. Similarly, there was not a

[1] Connecticut
[2] Maryland
[3] Pennsylvania, Ohio
[4] Maine

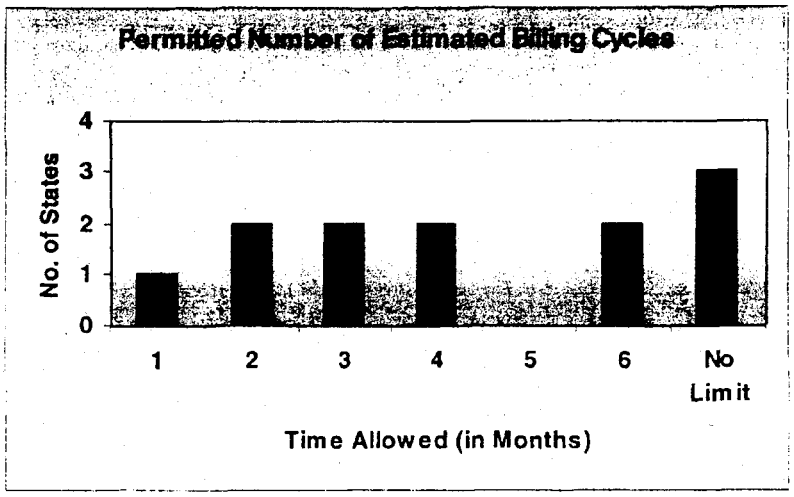
standard for the number of months without access before termination of service is allowed and most state regulations are silent on the point at which termination is permitted. The expectation of termination for non-access to meter ranges from four months[5] to eight months[6], with most state regulations on meter reading silent on the right to terminate.

As with meter related issues, the regulation of estimated bills is varied. At one end of the spectrum, one state has no limit on the number of months of estimated bills[7]. Another state limits estimated bills to one month, except where meter access is denied by the customer.[8] The procedures for estimating bills vary among the states. Most state regulations are silent on how bills are to be estimated[9]. One state requires each electric utility to have an estimating procedure on file with the regulator, though the regulator does not approve a procedure.[10] Our survey identified two states requiring estimated bills to be based on past usage in same month, prior year, with both recognizing the need to have an adjustment for differing weather conditions in the two periods.[11] Another recognized same month, prior year data as one factor to be considered in estimating a bill, along with temperature changes from prior

[5] Illinois
[6] New Jersey
[7] North Carolina
[8] Massachusetts,
[9] Such as Massachusetts, Maine, North Carolina, Ohio, Texas
[10] Connecticut
[11] Maryland

month, usage in prior month, and seasonal load factors.[12] One state requires estimated bills to be based on historic usage and permits a weather adjustment.[13]

Although many different procedures are authorized in various jurisdictions, we know of no instances in which customers were allowed free electricity even when the authorized procedures were not followed.



Our survey specifically addressed the treatment of estimating residential demand meters. This is the one area of our survey where consistency ruled with the surveyed state regulators: none made provisions for estimating demand meters. Where time of use (or time of day, as they are known in some states) meters are in use, no special

[12] Nevada
[13] Pennsylvania

provisions were identified in any state for estimating bills when the meters could not be read.

From our survey, it is apparent that there is little consistency among states when dealing with meter reading and bill estimation. While regulators expect meters to be read and bills rendered on a regular basis, all states recognize that circumstances will prevent some meters from being read. The methodology for bill estimation is, likewise, varied across the country. A majority of the states surveyed did not prescribe a detailed estimation methodology, and those that did address the issue provided for various adjustments including adjustments for weather variations and seasonal adjustments.

Regarding residential demand meters, none of the states regulated the methodology employed for estimating residential demand meters, for virtually none have them in use. From our discussions with regulatory staffs, it is clear that other state regulators do not face the dramatic challenges created by the climate variations of Arizona, or seek to use demand meters as a form of demand side management. Accordingly, the issue of estimating demand billings when meter readings are unavailable is unique to Arizona.

IMPACT OF BILL ESTIMATION PROCEDURES

Part of Accion Group's assignment was to evaluate the impact of APS' bill estimation procedures on its customers. To accomplish this, Accion Group personnel reviewed each of the various procedures APS applied to billings during the last six years. We also interviewed personnel in the billing department to confirm our interpretation of the documentation we reviewed.

The procedures we reviewed included the algorithms used in APS' CIS system and the factors applied to calculate estimated bills. During the years since APS initiated use of its current CIS system, the base computational methodologies used to produce estimated bills has not changed. Certain adjustments to factors used in those algorithms have, however, been adjusted to reflect identified changes in customer load factors and to correct the hours and days used to compute Time of Use estimates. A complete description of the methodology can be found in the Testimony of David Rumolo, filed in this case on November 23, 2004.

Accion Group also reviewed the study of the impacts of estimation methodologies conducted by APS, which was presented in the previously cited testimony of David Rumolo. We observed that the current method provided the most neutral customer impact, an annual underestimation on estimated bills of approximately $432,000, resulting in a net under-

billing to customers as a group whose meters are inaccessible, fail, or are otherwise not read.

To confirm the APS study, Accion Group designed a second study that utilized a universe of actual meter reads covering the period September 1999 through August 2004. Statistically significant samples of actual bills for each rate code were randomly selected and estimates for each of those actual reads were prepared using the estimation procedure being utilized by APS at the time the actual bill was rendered. Under this second study, the only constraint on selection of a bill was that an actual read had been recorded. A total of 956 bills were selected to be estimated. Both kWh and kW estimates were computed using the formula in use at the time the original bill was prepared and each account was then "rebilled" based on rates then in effect.

We anticipated that the accuracy of the estimates (the percent deviation from the actual meter reads) would be normally distributed if the APS methodology was appropriate. A normal distribution would tend to show that most estimates approximated the actual reads with about 50% of all estimates that were not equal to the actual being higher than the actual and 50% being lower.

As Chart 1 demonstrates, we observed that estimated kWh as a percent of actual followed a statistically normal distribution with

approximately 48% of all estimates being less than actual and approximately 65% of all estimates equal to or less than 110% of actual. In fact, 45.8% of all estimates were within 10% of actual meter reads. Chart 2 shows that APS' methods for estimating KW however, demonstrates a marked tendency to underestimate demand. Nearly 80% of all samples calculated were equal to or less than 100% of actual demand. In reality, this estimation of demand and resultant under-collection of demand charges was further exacerbated when APS began to correct individual over-estimates of demand (as determined by a subsequent actual read) in 2003. Moreover, unlike variances between actual and estimated kWh, the net systematic underestimate of demand is not "self-correcting."

As noted above, we then had APS bill each estimate to determine the impact these estimates would have had. By rate code , we found the following average over and under billing impacts were computed.

Results of Accion Analysis

Rate Code	Average Actual Bill [1] $	Average Estimated Bill [2] $	% Over [3]	% Under [3]
E-12	73.57	68.63	46	54
E-10	72.84	74.10	53	44
EC-1*	144.84	134.20	33	67
ET-1	131.11	126.43	51	48
ECT-1R*	153.90	128.23	19	81
E-32*	571.16	545.00	40	59

*Demand Rates

We found that over 58% of the estimates computed resulted in a hypothetical under billing. By Rate Code we found that APS' approaches resulted in average estimates ranging from a 1.7% over estimate for Rate Code E-10 (which would self-correct in succeeding months) to a 16.7% average under billing for Rate Code ECT-1R. In total, our sample of 956 bills underestimated bills by $12,417.49, or an average of $12.99 per bill. We next compared our results to the results of the study conducted by APS and found them to be generally consistent.

Based on our findings, we have concluded that APS' estimation methodology is conservative and serves the best interests of those of the Company's customers whose bills are based on estimated reads. As a group, those customers are not harmed. Furthermore, APS' periodic

[1] A total of 956 bills were sampled.
[2] Bills were estimated using APS methodology in effect at the time actual bill was prepared.
[3] Percentages may not total to 100%, reflecting estimates equal to actuals.

refinements of the factors used to calculate the estimates have, over time, reduced but not eliminated underbilling. We believe APS' use of historic seasonal average usage and class load factors has enabled APS to develop estimates that are fair and reflect the volatility of usage and demand that APS experiences as a result of Arizona weather patterns and customer requirements.

Chart 1: Total kWh Estimation as a Percent of Actual

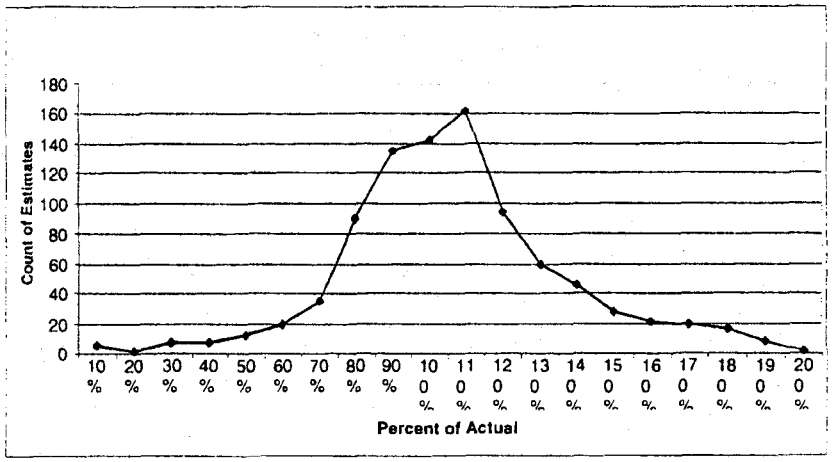
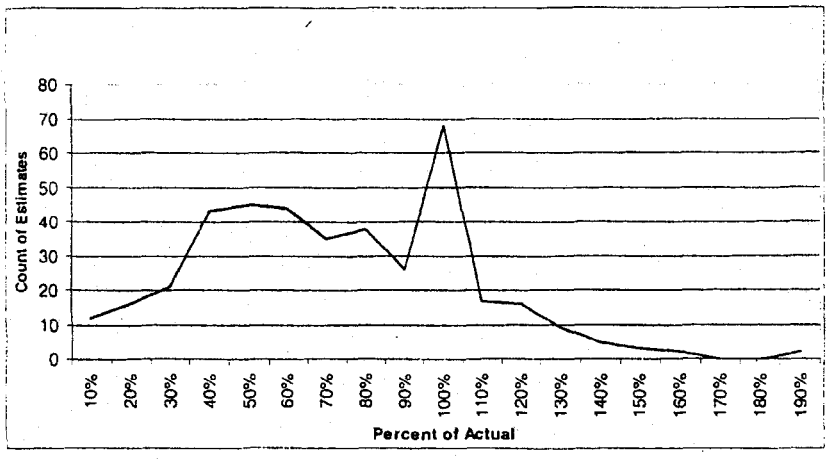


Chart 2: kW Estimation as a Percent of Actual



REVIEW OF STAFF CONSULTANT'S REPORT

On December 28, 2004, the "*Staff Inquiry into the Usage Estimation, Meter Reading, and Billing Practices of Arizona Public Service*" (BWG Report) was provided to the parties to this docket. The BWG Report makes 15 recommendations and discusses the claims of the Avis Read Complaint filed on September 9, 2004. Some of the recommendations address problems that do not exist at this time and many of the findings in the Report significantly distort the facts relied on to support them. In total, the BWG Report suggests that APS' practices may "harm" customers and that the potential "harm" may be of a significant magnitude. Contrary to that assertion, we found that APS' practices have, over time, benefited its customers.

The BWG Report tends to distort the significance of past anomalies and creates a false impression of APS practices. In other cases, the BWG Report appears to be based on misinterpreted or incomplete information.

The 15 recommendations are based on findings in the BWG Report. When the findings are read, it is clear that in many instances the Staff Consultants found no fault with APS' practices. While the BWG Report findings identify APS employees taking prompt, corrective action when problems became apparent, the findings rarely identify an endemic problem that even potentially could cause harm to APS' customers.

Only about 1.2 percent of the APS bills rendered in 2004 and only 0.9% of bills in the Phoenix Metro region were estimated, of which few were on residential demand metered rates. Therefore, contrary to the implication in the BWG Report that APS practices "harm" customers, the overwhelming likelihood is that APS customers are unaffected by the meter estimation processes, because they make their meters available to the meter readers and receive regular bills. Similarly, the tiny minority that did receive an estimated bill suffered no harm in the aggregate and may have in fact benefited. Even BWG recognized that customers on a standard rate, without demand charges, are not harmed by an estimated bill because their actual usage will be known once an actual meter read is obtained and any estimation "error" (whether an over- or under-estimation) will be corrected automatically. Accordingly, the number of customers who could potentially be affected by an inaccurate estimate is limited to demand rate customers. Even the few customers who received estimated bills for demand charges are more likely to be under-billed rather than overcharged. Based on the analyses we performed and on our review of the study conducted by APS as presented by David Rumolo in his testimony filed November 23, 2004, we are confident that APS' estimation procedures result in a net under-billing to customers whose bills are estimated. In the aggregate, customers as a group are

not being charged any more than is permitted pursuant to APS' filed tariffs.

When the findings supporting the 15 recommendations are reviewed, many are already consistent with current APS practices. Others address problems resolved long ago. Some of the recommendations regard more recent APS improvements, and a few propose projects or practices already begun or under consideration by APS. In particular, the Staff Consultants recommend actions they apparently claim will benefit ratepayers, yet their findings regarding APS practices did not identify any value the proposed actions may create. Indeed, if required, the recommended studies and reports would prolong indefinitely this Docket, without identifying any benefit to customers or the public interest of such continued intense scrutiny of APS' metering and billing practices.

On the following pages we discuss several of the specific recommendations made by the Staff's Consultants and address the findings and facts purportedly supporting those recommendations.

Recommendation III-2 suggests that APS improve its internal reporting without identifying an internal APS need for the data to be reported. Indeed, we found that much of the data is already available and is used to manage the meter reading function. This recommendation fails to identify any reason why the information that is currently available

to APS Managers is inadequate or any harm the present APS reporting practices on this subject could cause customers. The collection of data and the filing of reports without an established need or benefit are unnecessary and costly.

Recommendation III-3 (compliance performance measures for reading within billing cycles) relies on the same findings in the BWG Report as Recommendation III-2. As with the prior Recommendation, the Staff Consultants fail to identify how the form of records maintained by APS up to 9 years ago have any bearing on what current practices are, or the accuracy of customer bills today and into the future. After a review of APS records, the BWG Report could not identify a problem with meter reading within a billing cycle, other than failure to read for no access or meter failure. It is apparent that APS performance in this area is appropriate and that those responsible for completing meter readings in a timely fashion are doing so. There is nothing in the BWG Report that supports creating a new reporting requirement for a phantom problem.

Recommendation III-4 (removing prior month readings from the Itron Hand Held Computer (HHC) relies on Finding III-10, which states "(we) did not find evidence that meter reading schedules are assigned in a manner that may compel meter readers to take short cuts ..." Report at III-10. The findings also acknowledged a "zero tolerance" policy should

any meter reader attempt to fake a meter reading. Significantly, the finding identifies only one instance of a meter reader being terminated for falsifying a read in 1995 and another in 2004 who confessed to "falsifying reads," although only after this transgression had been discovered by the supervisors. Also, the finding fails to note, as confirmed by our discussions with APS Witness McLeod, that the majority of the Itron HHCs have now been set to block access to this data, and the company intends to make this change to all HHCs used by its meter readers. Accordingly, if there ever was a problem, APS has already taken steps to avoid or eliminate it.

According to the BWG Report, Recommendation IV-3 which addresses the role of APS' internal auditors is supported by Finding IV-11 (Report at IV-13) which asserts "it has taken APS significant time and effort to align" the new CIS with business practices. The statement, while true, is incomplete and misleading. It fails to acknowledge that APS fully completed the implementation of its new CIS by 2000, and it further fails to acknowledge that virtually every utility that has installed a new CIS in the last decade has experienced unexpected difficulties. More significantly, the most recent date regarding <u>any</u> vestigial transitional difficulties is from December 2000 - over four years ago. (Report Finding IV-7 at IV-14). This Recommendation seems to be overreaching and may reflect the lack of understanding of the purpose of internal audits. The Recommendation

would have the Commission require APS devote internal audit resources to reviewing this area even if no ongoing material risk was identified. Moreover, to adopt every recommendation proffered in an internal practices audit whether or not deemed necessary by management would be imprudent. In effect, the Staff Consultants would have APS management cede their judgment and responsibilities to an auditor. While an auditor may offer worthwhile suggestions and valid observations, it is management's responsibility to make decisions and ensure that the company runs well. It would be wholly inappropriate for an audit report to be elevated to the level of controlling the Company.

Recommendation VI-1, supported by Finding VI-1, advocates sensitivity training for billing services representatives. As part of our review of APS practices, we sat with billing representatives while they reviewed estimated bills and determined how the bills were to be issued. We also reviewed training manuals and met with supervisors to review performance records, complaints and disciplinary records. We found no evidence of a lack of training or a lack of understanding of the significance of bills to customers. The Finding referenced as a reason for this sensitivity training recounts the steps taken to generate an estimated bill when there is partial or no meter read for the billing cycle. Finding VI-1 does not identify any shortcoming in the performance of billing

representatives, or suggest there has been any confusion on the part of customers.

Recommendation IV-2 addresses a billing practice APS changed in 2003. If adopted, it would require APS to review each estimated bill and subsequent actual bill rendered to every demand metered residential account it served during the period 1998 through 2003 to determine if the actual metered demand was less than estimated demand in each previously estimated month, to compute a credit for each such occurrence, to locate the customer affected, and to refund that credit. This would be a time-consuming, complex and costly exercise to benefit customers who failed to comply with APS' approved tariff terms and conditions regarding meter access and would simply add to an already net underbilling situation.

On that last point, it should be re-emphasized that we have tested APS' estimation methodology and found that it tended to underestimate customers' electric usage and that approximately 58% of all estimated bills were for less than actual usage. Also, about 80% of all demand estimates were for less than what was used. We also found that over roughly the same period, the average estimate was about $13.00 ***less*** than the actual bills tested in our sample.

As noted above, it appears that Staff's Consultants may have made recommendations based on incomplete information about industry practices or a misinterpretation of the APS data available to them. Several recommendations propose requiring APS to prepare and submit periodic reports or to participate in ongoing research and to provide that information to the Commission - Recommendations III-1, III-6, III-7, and V-2. Among this group, it appears that Staff's Consultants have proposed that procedures be put in place to address a sporadic resource problem that occasionally existed at APS' smaller offices that APS has already addressed (Recommendation III-1), that APS pilot-test scheduling appointments with chronic no-access customers, a recommendation unsupported by any findings and a practice rarely used in the industry (Recommendation III-7), that APS test using an auto-dialer to communicate meter reading schedules with chronic no access customers in spite of the facts as found by Staff's Consultants that APS has comprehensive policies in place that provide that information to its customers (Recommendation III-6), and that APS continue to participate in benchmarking studies and report on those studies quarterly (Recommendation V-2) without any evidence to suggest that APS had any intention to stop benchmarking its performance against its peers or that such data would be available quarterly.

Recommendation III-8 which would have APS adopt a policy to ensure that meter-reading supervisors inspect no-access locations, while unsupported by any findings, would, if adopted, have no meaningful effect on APS' operating practices. According to our review, interviews with company personnel, and our accompanying meter readers in the field, APS already has practices in place to accomplish this goal. Recommendation V-1 implies that APS does not make adequate efforts to obtain meter readings at persistent no-access locations, an implication that is refuted by the Consultant's findings in Chapter III of its Report. Further, as noted earlier in our report, APS' estimated bills as a percent of total bills is less than the industry average even in spite of its heavy concentration of demand meters and the fact that it is only now beginning to implement recently available AMR technology.

Finally, the BWG Report recommends requiring APS to create a report every three months about the on-going AMR pilot project underway at APS (Recommendation III-5). This Recommendation, while understandable, should not be adopted as proposed. Quarterly reports would provide no meaningful or useful data from which conclusions should be drawn. AMR technology is currently being tested in the Metro region, which in 2004 had a 0.9% "no access" meter reading rate. The on-going performance of AMR in the Metro region, evolving technology and

associated cost, will in time produce a basis for the business decision of whether to install AMR meters throughout APS' service territory. Undoubtedly, APS will advise the ACC when sufficient data upon which to determine which, if any, AMR technology will add value to the system. Until then, quarterly reports would provide no valuable information.

In conclusion, our review of the Interim Report finds that the majority of the recommendations would address circumstances and concerns that have been previously corrected by APS. The remaining recommendations are either actions that could be taken, but would not provide customer value or improve APS practices, or are already under review and testing by APS. Accordingly, we believe the recommendations in the Interim Report should not be adopted and the Commission should find that APS meter reading and bill estimation practices are appropriate and not in need of additional scrutiny.

EXHIBIT TM-2

Thank You for Your Patience and Understanding While We Convert to a New Customer Information System

We've had several challenges during our recent conversion to a new state-of-the-art computer system.

We spent many months training our employees and getting our company ready for the conversion. However, as with the implementation of any large system, we have had a couple of obstacles to work through as we made this conversion.

We're putting the finishing touches on the system and there still may be a few more bugs to work out. However, once the new system is running smoothly, we'll be able to provide you with more individualized service than ever before.

We value your business and appreciate your understanding during these challenging times.

APS

THE POWER TO MAKE IT HAPPEN™

10/98

BILL INSERT

Dear Customer:

Due to a problem with our new computer billing system, the enclosed bill is for more than one month's energy usage. We are very sorry that this has occurred. Please be assured that you will in no way be penalized for our delay. You have our commitment that your credit will not be adversely affected by this delay and no late fees will be assessed.

If you would like additional time to pay this bill, please give us a call at 371-7171 in the Phoenix metro area and 1-800-253-9405 outside Phoenix.

You are a valued customer and we appreciate your business. We sincerely apologize for the frustration and inconvenience this has caused you.

APS

Jan Bennett
Vice President
Customer Service

Tel. 602-371-7171
1-800-253-9405
www.apsc.com

Mail Station 8766
PO Box 53999
Phoenix, Arizona 85072-3999

Dear Customer:

I am writing to apologize for a recent occurrence that created a delay in the production and mailing of your electric bill.

APS recently installed a new customer information computer system. Our new system is designed to better serve you by giving us more flexibility and the ability to provide you with more individualized service more quickly.

However, as with the implementation of any large system, we have had a couple of challenges to work through as we made this conversion. One of these issues has caused us to mail your statement late.

I assure you we are aware of this matter and are working diligently to resolve this issue as quickly as possible. Please know that you will, in no way, be penalized by this occurrence.

I sincerely apologize for any frustration and/or inconvenience this delay may have caused you. Your patience and understanding is greatly appreciated.

Sincerely,

Jan H. Bennett
Vice President
Customer Service

LATE 1998
and
EARLY 1999

APS

Jan Bennett
Vice President
Customer Service

Tel. 602-371-7171
1-800-253-9405
JHBennet@apsc.com

Mail Station 8766
PO Box 53999
Phoenix, Arizona 85072-3999

Dear SurePay Customer,

Due to a problem with our computer billing system, the enclosed statement is for more than one month's energy use. I am very sorry that this has occurred and hope you are not seriously impacted by this delay in billing.

Since SurePay automatically debits your bank account for the entire amount due, to avoid negatively impacting your bank account, we suspended your participation in the SurePay program for the current statement.

Therefore, this month we request that you send us a check or money order for payment on your account. Or, if you prefer, you can stop by one of our customer offices to pay your bill.

If you want or need additional time to pay the amount due, you can ask us to temporarily cancel your SurePay participation and make payment arrangements with you. Then, when you are ready to be reinstated in the SurePay program, you can sign the enclosed form and return it in the postage-paid envelope. Your account will be activated on SurePay within fifteen (15) days of when we receive the form.

To be removed from SurePay and to request payment arrangements, please call 371-7171 (metro Phoenix area) or 1-800-253-9405 (other areas of Arizona).

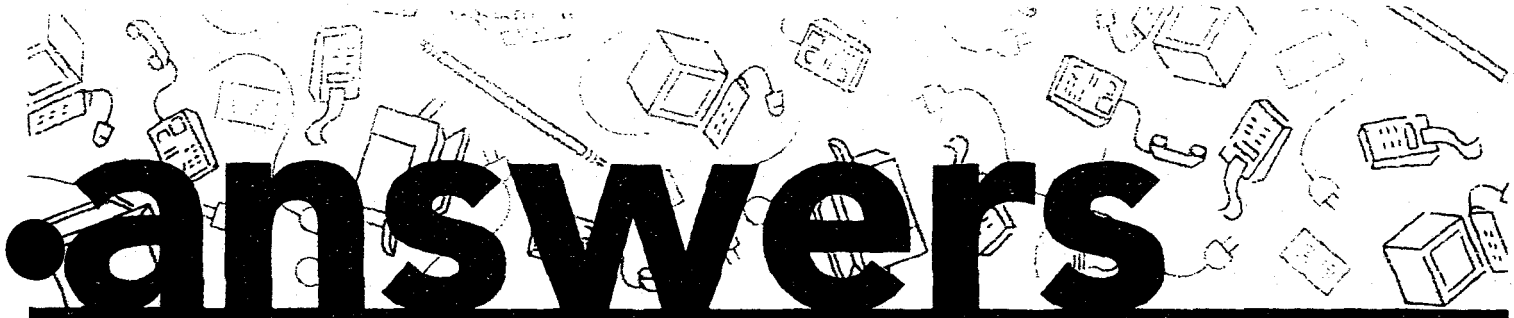
If you do not request payment arrangements or removal from SurePay, no action is required by you except payment of this bill. Then, your future APS bills will be handled as usual – through automatic SurePay transfer from your bank and your *entire* balance due on your account will be deducted from your bank account each month.

We appreciate your business and I sincerely apologize for any frustration and inconvenience this delay may have caused you.

Sincerely,

Jan H. Bennett
Vice President
Customer Service

LATE 1998
and
EARLY 1999



Ideas and Information for
APS Business Customers
November/December 1998

APS

Thank You for Your Patience!

Recently, APS began installing a new Customer Information System. We have encountered several challenges during the conversion of our 700,000+ customer records. As a result, many of our customers have been inconvenienced. Certainly, no customer will be charged a late fee as a result of our errors or late delivery of bills. We regret that you may have experienced our growing pains with us. Again, we apologize to any of you who may have been caught in the middle of our conversion process.

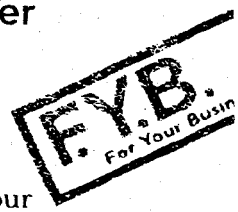
On the positive side, our new CIS system promises to give us greater flexibility and information than ever before, which means we'll be better able to serve you.

We value you as a customer and sincerely hope we haven't inconvenienced you during this process. Thank you again for your patience.

Money Saving Energy Tip

Plant small shrubbery near the foundation of your building to shade the lower half of outer walls. (Plant three feet from the wall to prevent water damage.)

Save Time When Making Routine Calls to the APS Business Center



In a hurry when when calling our Business Center (371-6767/ 800-253-9407)? You can receive fast, efficient information about your APS account and electric service 24 hours a day, seven days a week by using the Interactive Voice Response System shortcuts listed below.

Reason for Your Call	Press
To report a power outage	1 + 1
To report an electrical emergency	1 + 2
For billing information or payment arrangements	1 + 3
To connect or disconnect service	1 + 4
For office locations or APS mailing address	1 + 5
To sign up for Business Equalizer	1 + 6
To speak to a Business Center Representative	1 + 0

If you call for account information, please be ready to enter your account number. You'll find this number printed on the top of your APS statement.

Dear Customer,

We haven't sent you a statement in several months due to a problem with our new computer billing system. I am extremely sorry for this delay and any inconvenience it may have caused you.

We are working diligently to resolve any remaining problems that have resulted from the conversion to a new customer information system, and hope to send you a statement soon.

When you receive your bill, you can choose to either pay it in full or pay over several months, interest free, of course. You have my promise that late fees will not be assessed on your account due to this bill.

I am confident that once our new system is running smoothly, we'll be able to provide you with better and more individualized service than ever before.

If you have any questions, please give us a call at 371-7171 (metro Phoenix area) or 1-800-253-9405 (other areas). You are a valued customer and we appreciate your business.

Sincerely,

Jan H. Bennett
Vice President
Customer Service

SPRING/SUMMER - 1999

Dear Customer,

The enclosed statement is for more than one month's energy usage. Our delay in sending you monthly bills is due to a problem with our new computer billing system. I am extremely sorry that this has occurred and sincerely apologize for any frustration and inconvenience this delay may have caused you.

I assure you that the "Total Amount Due" shown at the bottom of the last page of this statement is no more than if you had received separate bills for each month's energy usage. You also have my commitment that late fees will not be assessed on your account due to this bill.

To make payment as easy as possible you may either pay this bill in full or take as many months to pay as we took to get this bill to you. For example, if you choose the extended payment option and this is a three-month bill, you can pay one-third each month for three months. When you receive your next monthly statements, any unpaid amount from the extended payment option will be displayed as a previous billing balance. You may enclose payment for both your current billing and extended option payment in the enclosed postage-paid envelopes. While you may take the allotted time to pay past bills, we ask that you remain up to date with your current bill.

If you have already sent payment(s) on your account, I thank you!

We are working diligently to resolve any remaining problems that have resulted from the conversion to a new customer information system. I am confident we will soon have the system running smoothly and we'll be able to provide you with better and more individualized service than ever before.

Once again, I apologize for any inconvenience our billing delay may have caused you. You are a valued customer and we appreciate your business.

Sincerely,

SPRING/SUMMER - 1999

Jan H. Bennett
Vice President
Customer Service

EXHIBIT TM-3

News For

Corporate Media Relations (602) 250-227

Date: Wednesday, December 2, 1998
City: Sun City, Arizona
Media: THE SUN CITIES INDEPENDENT
Page: 3

APS experiences billing problems

Timing poor for utility with deregulation looming

By MIKE RUSSO
Independent Newspapers

With the dawning of the electric deregulation era in Arizona on the horizon and electric providers scrambling to retain their existing customer base, Arizona Public Service has experienced a glitch that has antagonized customers statewide at the most inopportune time.

A new computerized billing system installed in September, ironically to make the transition to the deregulation age go smoother, has not worked as expected and has caused major problems, according to Maria Arrellano, APS spokeswoman.

"This new system will be able to provide us greater flexibility in dealing with our customers," Ms. Arrellano said. "We had some unanticipated problems, incorrect bills, so they were pulled aside and manually checked, and some were late bills.

"We rededicated resources to fix the problem both on the computer side and the customer service side," she continued.

Customer service representatives are aware of the situation and should be explaining it to irate customers, according to Ms. Arrellano.

"When we realized we had a problem with the new billing system, we started sending letters to our customers apologizing for the problems," she said.

"We should have the system fixed in the next several weeks," Ms. Arrellano said. "Unfortunately, it will take us some time to catch up. We are making progress every day.

"We apologize to our customers for the inconvenience and frustration this system has caused them," Ms. Arrellano added. "We pride ourselves in customer service.

"We are aware of all these related issues," Ms. Arrellano said. "We have been trying to deal with these customers as diligently as possible."

APS will not penalize anyone with billing problems resulting from the company's errors, whether it be a late bill or incorrect bill, according to Ms. Arrellano.

Ms. Arrellano said she did not know how many customers statewide had been affected by the billing snafus, but she acknowledged that customer complaints have risen since the implementation of the new system.

Complaints directed to the Arizona Corporation Commission have also risen during the last two months, according to Perry Baker, Corporation Commission public information officer.

"For the year, we have received a total of 72 complaints regarding APS," Mr. Baker said. "In last two months, we have received 25 of them, a little more than a third of the complaints"

Most of the complaints have dealt with customers not receiving credit for payments or customers not receiving bills for several months, according to Mr. Baker.

"On the consumer side (the Consumer Affairs Division of the ACC), they think APS has been pretty responsive," Mr. Baker said. "They have tried to explain what is going on through inserts in their billings. So, we have not come down on them too hard. We think they have been doing a good job in trying to take care of customers and rectify the problems.

"As far as we can tell, no customers are being adversely affected," Mr. Baker concluded.

Neither the Sun City Homeowners Association nor the Sun City Taxpayers Association have received any complaints from members regarding APS billing, according to officials of the two organizations.

4/1

AVAILABILITY

This rate schedule is available in all territory served by the Company at all points where facilities of adequate capacity and the required phase and suitable voltage are adjacent to the sites served.

APPLICATION

This rate schedule is applicable to all Standard Offer and Direct Access electric service, except as stated below, required for residential purposes in individual private dwellings and in individually metered apartments when such service is supplied at one site through one point of delivery and measured through one meter.

Rate selection is subject to paragraphs 3.2 and 3.3 of the Company's Schedule 1, Terms and Conditions for Standard Offer and Direct Access Services, and this rate schedule will become effective only after the Company has installed the required timed kilowatt/kilowatthour meter.

This schedule is not applicable to breakdown, standby, supplementary or resale service.

TYPE OF SERVICE

The type of service provided under this schedule will be single phase, 60 Hertz, at a single standard voltage (120/240 or 120/208 as may be selected by customer subject to availability at the customer's site). Three phase service may be furnished under the Company's Schedule 3 (Conditions Governing Extensions of Electric Distribution Lines and Services), and is required for motors of an individual rated capacity of 7-1/2 HP or more.

RATES

The customer's bill shall be computed at the following rates plus any adjustments incorporated in this schedule:

Bundled Standard Offer Service

Basic Service Charge: $0.493 per day; plus

May – October Billing Cycles (Summer)	November – April Billing Cycles (Winter)
$11.00 per kW during On-Peak hours, plus $ 0.05204 per kWh during On-Peak hours, plus $ 0.03202 per kWh during Off-Peak hours	$8.00 per kW, plus $0.03025 per kWh

The Bundled Standard Offer Service Rate consists of the following Unbundled Components:

Unbundled Components

Basic Service Charge: $0.211 per day

EXHIBIT
tabbies
S-1
Admitted

RATES (cont)

Unbundled Components (cont)

Revenue Cycle Service Charges:

Metering	$0.165	per day
Meter Reading	$0.055	per day
Billing	$0.062	per day

System Benefits Charge:	$0.00161	per kWh
Transmission Charge:	$0.00476	per kWh

Distribution Charges:

May – October Billing Cycles (Summer)	November – April Billing Cycles (Winter)
$2.84 per kW during On-Peak hours, plus $0.01095 per kWh	$2.22 per kW, plus $0.01128 per kWh

Generation Charges:

May – October Billing Cycles (Summer)	November – April Billing Cycles (Winter)
$8.16 per kW during On-Peak hours, plus $0.03472 per kWh during On-Peak hours, plus $0.01470 per kWh during Off-Peak hours	$5.78 per kW, plus $0.01259 per kWh

DIRECT ACCESS

The bill for Direct Access customers will consist of the Unbundled Components Basic Service Charge, the System Benefits Charge, and the Distribution Charge. Direct Access customers must acquire and pay for generation, transmission, and revenue cycle services from a competitive third party supplier. If any revenue cycle services are not available from a third party supplier and must be obtained from the Company, appropriate charges will be applied to the customer's bill.

TIME PERIODS

The standard Company On-Peak time period is 9 a.m. to 9 p.m. Monday through Friday. Mountain Standard Time shall be used in the application of this rate schedule.

OPTIONAL TIME PERIODS – TEST PROGRAM

The customer may choose one of the following On-Peak time periods in lieu of the Company's standard On-Peak time period:

7 a.m. – 7 p.m. Monday through Friday
8 a.m. – 8 p.m. Monday through Friday

RATES (cont)

TIME PERIODS (cont)

OPTIONAL TIME PERIODS – TEST PROGRAM (cont):

A maximum of 10,000 customers will be allowed to participate in this test program. The program will be applicable to both Rate Schedule ECT-1R and Rate Schedule ET-1. Customer participation will be subject to meter availability and work schedule constraints.

DETERMINATION OF KW

The kW charges billed in this schedule shall be based on the average kW supplied during the 60-minute period of maximum use during the customer's chosen On-Peak hours during summer months and any hour during winter months, as determined from readings of the Company's meter. In the event the meter is inaccessible to the Company, the kW used for billing shall be estimated using reasonable estimating methodology as determined by the Company. In any billing period in which the kW was estimated, the customer may request a reread and reset of the dial for a charge of $20.00 per trip as long as the request is made within three (3) days of notification from the Company that the kW dial was not read or reset.

ADJUSTMENTS

1. The Environmental Portfolio Surcharge shall be applied to every retail electric service as set forth in the Company's Rate Schedule EPS-1.

2. The bill is subject to the Power Supply Adjustment factor as set forth in the Company's Rate Schedule PSA-1 pursuant to Arizona Corporation Commission Decision No. XXXXX.

3. The bill is subject to the Transmission Adjustment factor as set forth in the Company's Rate Schedule TCA-1.

4. The bill is subject to the Competition Rules Compliance Charge as set forth in the Company's Rate Schedule CRCC-1 pursuant to Arizona Corporation Commission Decision No. XXXXX.

5. Direct Access Customers returning to Standard Offer service may be subject to a Returning Customer Direct Assignment Charge as set forth in the Company's Rate Schedule RCDAC-1 pursuant to Arizona Corporation Commission Decision No. XXXXX.

6. The bill is subject to the System Benefits Adjustment charge as set forth in the Company's Rate Schedule SBAC-1 pursuant to Arizona Corporation Commission Decision No. XXXXX.

7. The bill is subject to the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of APS and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

CONTRACT PERIOD

Any applicable contract period will be set forth in APS' standard agreement for service.

TERMS AND CONDITIONS

Service under this rate schedule is subject to the Company's Schedule 1, Terms and Conditions for Standard Offer and Direct Access Services and the Company's Schedule 10, Terms and Conditions for Direct Access. These schedules have provisions that may affect the customer's bill. In addition, service may be subject to special terms and conditions as provided for in a customer contract or service agreement.

EXHIBIT
S-2
Admitted

Staff Inquiry into the Usage Estimation, Meter Reading, and Billing Practices of Arizona Public Service Company

December 28, 2004

For the Arizona Corporation Commission

Barrington-Wellesley Group, Inc.

P.O. Box 2390 • New London, NH • 03257

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CHAPTER I

Executive Summary

This chapter is organized as follows:

A. Overview
B. Evaluative Criteria and Findings and Conclusions
C. Summary of Recommendations

A. OVERVIEW

Arizona Public Service Company (APS or the Company) provides electricity to over 900,000 customers in Arizona. APS is the largest subsidiary of the publicly traded Pinnacle West Capital Corporation. Approximately eight percent of APS' 814,000 residential customers and 93 percent of APS' 101,000 non-residential customers are served through demand meters. APS believes that it has one of the largest number of demand meters of any electric utility in the country.

The Utilities Division Staff (Staff) of the Arizona Corporation Commission (ACC or Commission) retained the Barrington-Wellesley Group, Inc. (BWG) to perform an inquiry into the usage estimation, meter reading and billing practices of APS. A significant portion of this inquiry was devoted to reviewing the process of bill estimation of demand meters because demand (kW), unlike energy consumption (kWh), cannot be trued-up in a subsequent month when an actual meter reading is obtained. These issues were precipitated by the filing of a complaint by Avis Read, who was an APS customer. The complaint alleges that APS systematically failed to follow required practices and procedures regarding meter reading, estimation and billing and harmed its customers by doing so. Our review concludes that APS did not appropriately handle the Read matter from a customer service perspective; however, our analysis also found that Ms. Read's bills were underestimated rather than overestimated.

Many of the APS deficiencies identified in this report relate to the implementation of a new Customer Information System (CIS) in 1998. APS did not devote significant attention and resources to identifying and fixing the problems resulting from the implementation of the new system. In addition, APS implemented the use of a class average load factor to estimate demand as a short-term solution to a work load problem in the Billing Services Department without giving sufficient consideration to the effect of this change in policy on individual customers and the public interest. The Company was imprudent in not later re-assessing the effect of this decision. In addition, the Company was imprudent in failing to retroactively identify and credit those customers' accounts for whom it had over-billed estimated demand.

In general, APS has effective and well-controlled usage estimation, meter reading and billing processes, and has had relatively few estimated billing problems. However, the Company has not devoted adequate resources to identifying and fixing the problems that do exist within its meter reading, usage estimation and billing processes. APS appears to

have made many improvements to these processes subsequent to, and most likely in reaction to, the Read Complaint.

In the course of our investigation, it was discovered that APS has not implemented the demand estimation methodologies identified on its residential demand tariffs EC-1 and ECT-1R. In addition, APS did not notify the Commission that the demand estimation procedures being utilized by the Company were different than those described on the Company's Commission-approved tariffs.

BWG will be providing a recommendation to the Commission regarding the appropriateness of APS' methodologies at the time of filing testimony in this proceeding. At this time, we recommend that, in addition to the fifteen detailed recommendations outlined in this report, the Commission require APS to provide a quarterly report to update Staff on the status of implementing these recommendations. In that regard, the Commission should also require APS to pay for an independent auditor, selected by the Commission Staff, to independently verify APS implementation of these recommendations.

B. SUMMARY OF RECOMMENDATIONS

The fifteen recommendations included in this report are listed below. Detailed findings and conclusions supporting these recommendations are provided in the related chapters.

Monitoring and Compliance with Commission Recommendations

APS should be required to participate in a third party audit by an independent auditor selected by Staff and funded by APS. This audit would be focused on evaluating whether the Company's meter reading, billing, and estimation practices and management processes have been improved. The audit would also evaluate whether the Company has complied with the decision in this matter. The audit would take place within twelve months of a decision in this matter.

APS should be required to file an implementation plan with the Commission within sixty days of a decision in this matter that identifies how it will comply with the decision in this matter. This implementation plan should be submitted for Commission approval.

Chapter III - Meter Reading

III-1 APS should be required to provide evidence to the Commission that new procedures have been put in place to ensure that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either smaller or remote. A report that describes the new procedures and explains how they reduce the potential for "skipped" meter readings due to staffing resource issues should be provided to the Commission within six months of a decision in this matter. [Refers to Findings III-3 and III-4.]

III-2 APS should be required to revise the "No Access Meters" report, KM06R20, to provide the following additional features:

- Report the present number of consecutive months that the meter reading department could not access the meter so that the Administrative Coordinator can track the steps required for each month of access problems and prioritize the APS response.
- Report the other instances that the meter reading department was unable to read the meter during the previous twenty-four months to simplify identification of recurring "no access" problems at the same premises.
- Prioritize accounts to focus first on demand-billed customers when working the "no access" report. APS should compile and maintain these reports for purposes of the independent audit. [Refers to Finding III-9]

III-3 APS should develop and install a performance measure to monitor the extent to which APS is complying with the Commission requirement to read meters each month (no less than twenty-five days after the last meter read and no more than thirty-five days after the last meter reading). APS should provide to the Commission a description of its performance measure and the results of its analysis within six months of a decision in this matter. [Refers to Finding III-9.]

III-4 APS should change the options settings in the Itron software in all locations so that the Itron HHC used by meter readers in each of the APS meter read shops no longer includes the last month's usage and last month's meter reading. This feature should be disabled throughout APS' service territory within 30 days of a decision in this matter. [Refers to Finding III-10.]

III-5 APS should provide the Commission with quarterly reports related to the status of the remote meter reading pilot and implementation plans. The reports should provide a description of the meter reading technology being implemented, APS' plan for implementation, the number and type of customers involved in the pilot program, the costs associated with its implementation, and the operational efficiencies associated with its implementation. [Refers to Finding III-11.]

III-6 APS should implement a pilot program to evaluate whether using an auto-dialer to communicate with "no access" account customers prior to the scheduled read date, in addition to the other methods presently used, will facilitate resolution of additional "no access" accounts. The Company should maintain records on the number of instances that the auto-dialer is used to call customers in these circumstances so that one may determine whether use of the auto-dialer improves APS' access to "no access" meters. The results of the pilot program should be reported to the Commission in quarterly reports. [Refers to Finding III-12]

III-7 APS should implement a pilot program to evaluate whether scheduling appointments with "no access" account customers results in a reduction of estimated reads due to "no access" problems. The results of the pilot program should be reported to the Commission in quarterly reports. [Refers to Finding 12]

III-8 APS should be required to implement a policy to ensure that meter reading supervisors periodically inspect meter locations reported as "no access" to verify that appropriate corrective measures are taken. APS should be required to file a

copy of this policy with the Commission within ninety days of a decision in this matter. [Refers to Finding III-12.]

Chapter IV - Usage Estimation and Billing

IV-1 APS should be required to obtain Commission approval of its estimation procedures as a tariff filing. [Refers to Finding IV-7]

IV-2 APS should evaluate the extent to which customers were over-billed or under-billed during the period 1998-2003. APS should identify those customers who are due credits because their estimated demand was not adjusted downward when the actual demand read came in less than the estimate. APS should also be required to provide a credit to customers who were over billed. Within ninety days of a decision in this matter APS should file a report that details the results of its analysis and identifies mechanisms by which it could provide refunds to customers who were overbilled. [Refers to Finding IV-8.]

IV-3 APS' Audit Services Department should include on-going testing of usage estimation, meter reading and billing practices in its annual audit plan. APS should also ensure that it has completely implemented any findings reported in previous audit reports. APS should file the results of its internal audits with the Commission. [Refers to Finding IV-11]

Chapter V. - Comparative Practices

V-1 APS should take steps to obtain actual meter readings at customer premises that have persistent "no access" problems. The Company's established practice does not include scheduling a meter reading at other than normal business hours or making an appointment for a meter reading. [Refers to Finding V-2]

V-2 APS should continue to participate in benchmarking studies that compare its practices to other utilities in the industry. APS should provide such benchmarking analysis to Staff on a quarterly basis. [Refers to Finding V-6]

Chapter VI. - Avis Read Complaint

VI-1 APS should be required to train Billing Services Representatives (BSRs) and others involved in the usage estimation, meter reading and billing process to understand that customers value an accurate bill more than an underestimated bill. APS should also train them to recognize situations in which the underestimation of usage may result in problems for their customers. APS should provide Staff with a description of the changes to its training process within six months of a decision in this matter. [Refers to Finding VI-1.]

VI-2 APS should be required to provide a clearer notice on a re-billed account. Such notice should clearly state that the new bill replaces the previously issued bill and that the customer should only pay the reissued bill amount. APS should consult with Staff in determining the appropriate language and placement on the bill within 30 days of a decision in this matter. In addition, APS should be required to

make the appropriate modifications to its billing system to implement this change within sixty days of a decision in this matter. [Refers to Finding VI-2.]

Compliance with ACC Rules and Tariff Provisions

We recognize that there are legal issues surrounding the validity of A.A.C. R14-2-210, the Commission's rule addressing estimation. BWG's analysts in this matter are not attorneys, and this report does not analyze the legal issues that may be presented by Rule 210. If the Commission were to determine that Rule 210 is both valid and applicable to APS, the following facts would appear to support a conclusion that APS has violated Rule 210.

- APS did not file a complete set of estimation procedures for Commission approval.
- APS failed to notify the Commission when it changed its demand estimation methodology to include the use of class average load factors.
- APS failed to send Avis Read a bill for a six-month period in 1999 and 2000.

Also, the following facts would appear to support a conclusion that APS violated its Commission approved tariffs.

- According to APS, the Company never implemented the Commission approved practices for estimating demand on Rate Schedules EC-1 and ECT-1R.
- At no time did APS notify the Commission that the methodologies the company was using to calculate estimated residential demand were different than described on EC-1 and ECT-1R.
- APS failed to notify the Commission when it changed its demand estimation methodology to include the use of class average load factors.

Purpose of Staff Recommendations

The recommendations in this report are designed to provide remedies to customers who may have been over billed, to provide notice to APS that it has not complied with Commission rules and tariffs, and to establish reporting and other obligations for APS so that the Commission may address these issues. Staff is evaluating additional potential remedial actions including imposition of fines, refunds, and other monetary penalties and will address this in subsequent testimony. Associated quantification of over billing, if any, will also be included in subsequent testimony.

In order to monitor compliance with a decision in this matter, APS should be required to participate in an independent audit. If at any time, APS' actions are inconsistent with the Commission's decision in this matter, the Company should be subject to further remedial action.

C. EVALUATIVE CRITERIA and FINDINGS and CONCLUSIONS

In this section, we first provide the criteria that we used to evaluate APS' performance, and then provide our specific findings and conclusions with respect to the criteria. Details supporting each finding and conclusion are provided in the respective chapters.

Meter Reading (Chapter III)

1. Are meter reading resources sufficient to ensure that meter readings are completed on a timely basis?

Generally yes. However, APS has not provided evidence that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either smaller or remote. Despite the existence of the supplemental hiring hall resources, which are not designed for immediate short-term needs, situations occur in which back-up meter reading resources are not always available.

- APS has not had significant cutbacks in meter reading-related expenditures that might have contributed to increased levels of estimated bills.
- Over the period from 1995 to 2004, meter reading headcount increased by almost 30 percent, from 111 to 158, although part of the increase in staffing levels in 2004 was due to changing job responsibilities that shifted certain activities from the service department to the meter reading department.
- While management represents that all meters are read monthly except for those that cannot be read due to access problems or safety concerns, meter reads are not obtained (i.e., "skipped") on occasion due to the unavailability of meter reading resources.
- The lack of sufficient meter reading resources to ensure that meter readings are never "skipped" does not appear to be due to planned cut-backs in the number of full-time meter readers. "Skipped" meter readings occur because back-up meter reading resources are not always available, despite the existence of the supplemental hiring hall resources (which are not designed for immediate short term needs). While the number of "skipped" reads can likely be reduced, based on our experience, the number of "skipped" reads does not appear unreasonable compared to industry practices.
- While BWG is not aware of any comprehensive meter reading benchmarking studies, APS has participated in some benchmarking or productivity studies performed by various consultants that compared the performance of the meter reading processes among several utilities. The average number of meters read per month per employee for electric utilities participating in one study was 6,382. The highest performing company in the study read 12,182 meters per employee per month.[1] Assuming that APS reads each of its approximately 1,025,000 meters

[1] Downloaded from http://www.newpower.com/p040824a.html on December 19, 2004

each month, the annual average number of meters read each month per APS meter reader is about 6,487 meters.

2. Are adequate controls in place to ensure that meter reading routes are being read on a timely basis?

Yes. However, APS was unable to provide sufficient information to enable BWG to analyze or trend the completeness or timeliness of meter reading for the period of 1995 to 2004.

- APS generally has well documented processes and procedures for meter reading, and it actively tracks meter reader performance.
- APS prescreens meter readers before hiring and provides them both computer-based and on-the-job training.
- We did not find evidence that meter reading schedules are assigned in a manner that may compel meter readers to take short cuts to complete their assigned routes.
- APS uses DB Microware route management software to develop meter reading routes that have six to six and one-half hours per day of meter reading time. Designating this approximate amount of productive meter reading time within an eight-hour workday is consistent with the practices of other meter reading departments in the electric utility industry. These time periods allow for traveling between the meter shop and the route(s) and other contingencies. Each meter reader interviewed indicated that he or she had sufficient time to read assigned routes, that he or she did not have uncomfortable pressure to complete reading the routes, and that he or she could receive assistance from other resources if it was needed to complete reading a route on time.
- APS is currently pilot testing the use of remote reading technologies and should keep the Commission Staff informed about the status of the test and its future implementation plans.

3. Are meter reading personnel taking the appropriate action to obtain actual meter readings?

Yes, although APS should continue to improve its "no access" practices, it has made improvements in obtaining access to customers' premises.

- Estimated bills as a percent of total bills issued have declined slightly from approximately 1.4 percent in 1995 to under 1.2 percent in 2004, while peaking in 1998 and 1999 at approximately 2.0 percent. Electric industry benchmarking data reflect that the best performing electric utilities read 99.6 percent of all meters while average performance is 94.50 percent.[2]

[2] Based on the results of a benchmarking study sponsored by an independent consultant in which APS participated. Based on high-low failures, these percentages could be higher than the percent of bills estimated.

- APS enhanced its "no access" policies in 2003, which contributed to the favorable trend in recent years.
- The Company's established practice does not include scheduling meter readings at other than normal business hours or making appointments for meter readings.
- Information obtained in connection with the comparative analysis indicates that several other electric utilities use remote meter reading devices to obtain actual meter readings for premises with meter access problems.

Usage Estimation and Billing (Chapter IV)

1. Does the Billing Services Department have sufficient resources and controls to process billing exceptions and perform other required billing-related activities appropriately and on a timely basis?

Yes.

- APS has had approximately the same number of Billing Services Representatives (BSRs) over the past three years.
- The Billing Services Department's budgets and actual expenditures were not significantly reduced during the period 1995-2004.
- The APS Billing Services Department has improved the documentation of its processes and is beginning to track the productivity of BSRs.
- APS implemented a quality control function within its Billing Services Department during 2003.
- The timing of APS' improvements to its billing estimation processes appears to be reactive to the ongoing litigation activities, rather than proactive in nature.

2. Are usage estimation and billing practices consistent with Commission Rules and Regulations and specific tariff provisions?

No. APS uses a seasonal average to estimate kWh rather than the customer's usage during the same month of the previous year and the customer's usage during the preceding month as specified in R14-2-210(A)(2). In addition, APS uses a combination of customer-specific kWh and class-average load factor to estimate demand rather than the kW measured since the last resetting of the kW dial as specified on its residential demand rate schedules EC-1 and ECT-1R.

- Although both the old CIS and new CIS estimate demand using load factor, the underlying information used to calculate the load factor changed in March 1999.
- APS' estimating practices have changed over time, and it has not routinely notified the Commission in advance of each change.

3. Are customers harmed by the methodologies being used to estimate demand?

Yes, although the extent of the harm has not yet been quantified.

- While APS does not adjust estimated demand upward if the subsequent actual demand reading is higher than the estimate, it has not always adjusted the demand estimate downward if the subsequent actual demand reading is lower than the estimate.
- A naturally occurring phenomenon of rising demand in months approaching summer may reduce the possibility that overestimated demand will be discovered. For example, if a demand is overestimated in May, an actual read taken in June may be unlikely to reveal the earlier overestimation, because the June demand is likely to be higher than the May demand. Therefore, it becomes less likely that such an overestimated demand will be credited as a result of a subsequent demand comparison.
- While APS claims that its demand estimating practices implemented in March 1999, which included the use of class average load factors rather than customer specific load factors, would on average result in the underestimation of demand, the Company has not properly considered the impact of the change on individual customers and the public interest.

4. Was the new CIS implemented in a manner that did not adversely affect APS' ability to estimate bills effectively?

No, there were various problems associated with estimated bills following the implementation of the new CIS.

- We could not determine whether APS, prior to its implementation, recognized that its new CIS, which was initially developed by IBM for another electric utility, had different billing exceptions for consecutive monthly estimates than required to facilitate compliance with Commission rules.
- Both the old and new CIS were unable to consistently print bills that set forth the reasons for estimates.
- Since the implementation of the new CIS in September 1998, it has taken APS significant time and effort to align the new system with desired business practices.
- The functionality of the new CIS included estimating kWh based on a customer-specific six month seasonal average rather than using a customer's prior month or same month last year usage. APS chose to accept this functionality rather than use customer specific prior month or same month last year usage similar to the old CIS.

<u>Comparative Analysis (Chapter V)</u>

1. Are APS' usage estimation, meter reading, and billing practices consistent with those of other Arizona electric utilities?

No, APS' practices for estimating both kWh and kW vary from those practices in place at other electric utilities in the State of Arizona.

- APS estimates kWh using a six-month seasonal average kWh per day, and is the only electric utility in Arizona that uses a six-month seasonal average to estimate kWh.
- While APS estimates demand using customer-specific kWh and a class average load factor, Tucson Electric Power Company (TEP) manually estimates demand using this month's actual or estimated kWh and a customer-specific load factor calculated from the same month of the prior year.

2. Are Commission Rules and Regulations regarding usage estimation, meter reading, and billing practices consistent with those of other state utility regulatory agencies?

Yes, ACC rules related to estimated billing are generally consistent with practices in other jurisdictions.

- Commission rules and regulations in other states are generally silent on the issue of demand estimation practices.
- Information obtained in response to the Staff's November 26, 2004, letter to other state utility commissions indicates that Arizona rules related to meter reading and billing are generally consistent with rules in place in other states.

3. Are APS' usage estimation, meter reading and billing practices consistent with those of comparable electric utilities?

Yes, except that APS' use of seasonal averages to estimate kWh is not consistent with the other utilities surveyed. The consistency of APS' residential demand estimation procedures could not be confirmed because there is insufficient information available to identify a common industry practice.

- While the information available suggests that APS' usage estimation, meter reading, and billing practices are generally consistent with the practices of comparable electric utilities, several use remote meter reading devices to obtain actual meter readings for premises with meter access problems.
- BWG has identified four methods to estimate demand for residential and small commercial customers and further analysis is required to determine the best process. BWG will be providing the results of its analysis to the Commission at the time of filing testimony in this proceeding.

<u>Avis Read (Chapter VI)</u>

1. Are the allegations in the Avis Read Complaint supported by the facts of the case?

Yes, in part. Our review concludes that APS did not appropriately handle the Read matter from a customer service perspective; however, our analysis also found that Ms. Read's bills were underestimated rather than overestimated.

- Contrary to the allegations contained in the Read Complaint, the main problems with the estimated bills issued to Ms. Read, primarily at her residence in Paradise Valley, are that the estimates are too low rather than too high.

- During the period from September 1999 through January 2000, APS did not mail bills to a total of 663 customers, including Ms. Read, because of a CIS problem. Some customers did not receive bills for as many as six months although approximately one-half were for only one month. APS is required to issue monthly bills to its customers. As a result of this CIS problem, APS violated Commission rules and regulations.
- The two sets of bills rendered to Ms. Read for the period from December 17, 1999 through February 17, 2000 represent standard bill/re-bill practices for the adjustment of estimated bills, but the bill notices do not clearly communicate the purpose of the reissued bills.
- The problems associated with Ms. Read's two accounts as described above and the poor customer service provided by APS to Ms. Read are disturbing. APS should not have a) allowed Ms. Read to not have received bills for utility service for the period from September 1999 through January 2000, b) allowed the number of consecutive estimated bills to be rendered without making arrangements to obtain access to the meter, and c) continued to render bills based on underestimated consumption once the actual meter reading was obtained. In addition, APS should have been more responsive to Ms. Read's concerns over her high energy consumption and to the financial hardships created as a result of the bills not issued and the high true-up bill once the actual meter reading was obtained.
- While APS claims that its demand estimating practices implemented in March 1999, which include the use of class average load factors rather than customer specific load factors, would on average result in the underestimation of demand, the Company has not properly considered the impact of the change on individual customers and the public interest.
- From September 1998 through September 2003, APS did not have a systematic method for identifying all accounts where the estimated demand proved to be higher than the actual demand reading obtained.
- Paul and Linda Schaeffer received eleven estimated bills from the time they became customers of APS in April 2002 through February 2003 when they moved.

2. Does the review of the usage estimation, meter reading and billing activities associated with the 35 customers who lodged informal complaints support the allegations?

Yes, in part. The review of the account activity for these customers indicates that APS did not take sufficient action in response to the "no access" situations identified for these accounts. While APS's "no access" practices have improved over time, they are not sufficient to ensure that actual meter readings are obtained within a reasonable timeframe.

- The thirty-five (35) customers who have lodged informal complaints with the Commission received a total of 232 estimated bills covering the period from August 1995 through October 2004. While each of these estimated bills was identified as such, not all of them stated the reason for the estimate on the bill, although this practice has improved over time. It appears that the action taken by

APS was consistent with the Company's stated practices in response to the consecutive estimated bills, although records do not exist in all instances, and these practices have improved over time.

CHAPTER II

Background

Arizona Public Service Company (APS or the Company) provides electricity to over 900,000 customers in Arizona. APS is the largest subsidiary of the publicly traded Pinnacle West Capital Corporation. Ninety-five percent of APS' 2003 revenues was derived from regulated operations while five percent was derived from the sale of competitive energy including wholesale marketing and trading. Approximately eight percent of APS' 814,000 residential customers and 93 percent of APS' 101,000 non-residential customers are served through demand meters.

The Utilities Division Staff (Staff) of the Arizona Corporation Commission (ACC or Commission) retained the Barrington-Wellesley Group, Inc. (BWG) to perform an inquiry into the usage estimation, meter reading and billing practices of APS. A significant portion of this inquiry was devoted to reviewing the process of bill estimation of demand meters. The following events led to this inquiry.

Avis Read Class Action Claim

On June 4, 2002, a class action complaint was filed in the Superior Court of the State of Arizona by Avis Read against APS (Read Complaint). The complaint alleged that APS systematically failed to follow required practices and procedures regarding meter reading, estimation and billing and that APS harmed its customers by doing so.

On August 19, 2004, the Superior Court ruled that Avis Read's claims "fall within the ACC's areas of primary jurisdiction" and that the Commission should decide the matter. Thus, on September 9, 2004, Avis Read filed a formal complaint at the Commission regarding APS' "improper estimation and billing procedures on demand meters."

The allegations in the Complaint filed with the Commission in Docket No. E-01345A-04-0657 on September 9, 2004 include the following:

- APS estimates demand in ways that are inconsistent with Arizona law resulting in overcharges to customers.
- The estimating procedures used by APS, including procedures used to estimate demand, were developed, and subsequently changed, on an *ad hoc* basis and without approval by the Commission.
- APS procedures that allow for estimated bills to be rendered for more than three consecutive months violate Commission Rules and Regulations.
- One of Avis Read's meters (Meter No. A93326) was almost never read by APS, and no arrangements were made to read the meter. Another Avis Read meter (Meter No. 906893), which included a demand component, was also estimated for months at a time.
- Estimated bills rendered by APS were consistently higher than they would have been if they had been based on actual meter readings, and they were not always represented as estimated bills.

- Estimated demand cannot be trued-up when the actual demand reading is obtained and it is impossible to know when the highest demand has occurred; therefore the actual reading is just an estimate that becomes a final charge for electricity.

APS' Declaratory Order Application

On October 22, 2003 APS filed an application with the Commission requesting a declaratory order regarding bill estimation procedures. In its application, APS asks the Commission to find that its past and present procedures for bill estimation either are exempt from or comply with the requirements of A.A.C. R14-2-210 and A.A.C. R14-2-1612 and that all estimated bills rendered using such procedures are valid and enforceable. APS sought the declaratory order because of the litigation in Superior Court (Avis Read Complaint). APS stated the following in its request:

- Rule 210 and Rule 1612 do not apply to standard offer customers of APS.
- Neither Rule 210 nor Rule 1612 invalidated the bill estimation procedures used by APS.
- The Commission should re-affirm APS' bill estimation procedures.
- Rule 210 and Rule 1612 are invalid.

On February 25, 2004 Avis Read filed a motion to intervene in APS' request for a declaratory order. The motion was granted by the Commission.

On May 26, 2004 APS amended its application for a declaratory order. The amended application includes references to the Avis Read Complaint and an updated and more comprehensive description (revised on April 21, 2004) of APS' bill estimation methodologies. APS stated the following in its amended request:

- Rule 210 and Rule 1612 are invalid absent certification by the Attorney General.
- Even assuming rules 210 and 1612 are valid, these rules do not apply to APS' standard offer customers.
- Even assuming rules 210 and 1612 are valid, neither rule invalidated APS' historical bill estimation procedures.
- The Commission should re-affirm APS' current bill estimation procedures.
- APS' interpretations of what constitutes an "estimated bill" and of the requirements of Rule 210 are appropriate.

APS filed a second amended application for a declaratory order on August 6, 2004. This second amended application includes clarifying language and corrects erroneous statements contained in APS' bill estimation methodologies previously submitted to the Commission within APS' prior amended request on May 26, 2004.

CHAPTER III

Meter Reading

This chapter discusses our review of APS' meter reading practices, including practices designed to remedy "no access" conditions.

A. BACKGROUND

Currently, APS is required to read approximately 1,025,000 meters each month. The APS service territory includes the Metropolitan Phoenix area, which is predominantly urban and suburban. The northern and southern divisions include urban, suburban and rural areas.

The type of electric meter installed at a customer premises depends on the customer's rate schedule. APS rate schedules include standard rates that are based on the amount of usage; time advantage rates that vary based on the amount of energy used during on-peak hours or off-peak hours; and demand rates that are based on kWh and peak demand. About 40 percent of APS meters are standard watt-hour meters that measure kilowatt-hours. Meter readers obtain a reading from standard meters by reading the five dials on the front of the meter. They enter meter reading data in the Itron Hand Held Computer ("Itron HHC"). The other 60 percent of APS' meters are time of use or demand meters that measure not only the energy used in kilowatt-hours, but also record the time of day that energy was used and the demand[3] in kilowatts. Of these meters, a demand meter tracks the highest (or peak) kW demand that occurred during a sixty-minute period since the demand meter was last reset. The demand meter must be reset each month to record the new demand achieved. These meters may be read either manually by viewing the five entries in the digital liquid crystal display (LCD) or by probing the meter. To probe a meter, the meter reader must physically touch the meter to obtain the readings of demand and kWh. Finally, the meter reader must reset the demand by breaking a seal that was attached during the time that the meter was last reset. Once they have reset the demand, they re-attach a new seal.

APS has divided its customer accounts into twenty-one (21) billing cycles per month.[4] Meters are organized into meter reading routes that are required to be read each billing cycle by one of the 158 APS meter readers. APS plans meter routes based on a six-hour read time and an eight-hour workday.[5] The six-hour read time assumes that a meter reader will have sufficient time to complete the route during the work day, while allotting time for lunch, breaks, and travel time. The meter readers use the Itron HHC to enter data, and a probe is used for the meters that are probeable.

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[3] The 2004 Meter Reader Manual defines demand as the amount of power a customer demands that APS supply to run the customer's electrical equipment at any one time.

[4] Based on information provided in response to Staff (DR) 1-25 and APS06440, 2004 Revenue Accounting Schedule.

[5] Based on information provided in response to Staff DR 1-29 and 1-30.

In September 1995, APS issued a no-access policy. A procedure titled "No Access Prevention and Resolution Process" was revised on July 24, 2003.[6] This procedure requires the meter reader to leave door hangers and indicate a reason for "no access." The door hanger includes the call center phone number. In the Itron HHC, the meter reader codes the account as a code 40, "left door hanger."[7] In 2003, the monthly steps (for months 1 through 6) taken by the meter reading administrative coordinator, head meter reader, or business office representative included:

Month 1. Review CIS usage history detail to confirm meter reader left door hanger and coded account "40".

Month 2. Review CIS usage history detail to confirm meter reader left door hanger and coded account "40". If not, the person working the "no access" report notifies the team leader for follow-up with the meter reader. Identify large non-residential accounts for action by Key Account representative.

Month 3. Review CIS usage history detail to confirm meter reader left door hanger and coded account "40". Accounts that have three consecutive months will download to the auto-dialer to leave a recorded "no access" message. The auto-dialer updates the account with this information.

Month 4. Mail a "No Access" postcard to the accounts with four consecutive months of "no access". This postcard instructs customers to contact the Call Center for solutions to avoid future interruption of service. The post card notifies TOU customers that their rate schedule will be changed to 0100. Review CIS usage history detail to confirm meter reader left door hanger and coded account "40".

Month 5. Accounts with five consecutive months of "no access" receive a letter notifying them about service interruption and instructing them to contact the Call Center. Research account thoroughly to check for customer communications. Generate service disconnect notice.

Month 6. (Customer has received five door hangers, auto-dialer call, postcard, and service interruption notice). Research account thoroughly to check for customer communications. Contact customer by phone; if unable to reach customer by phone, generate disconnect order. Note account "disconnect order for six consecutive months no access"; indicate reasons for "no access".

The current revision of the APS "No Access" Policy includes the revision date of March 16, 2004. APS stated that a variation of this "no access" policy has been in place since the mid-1990s.[8] Some of the changes included in this revision were:

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[6] APS0363

[7] APS03371

[8] Based on information provided in response and supplemental response to Staff DR 1-13, APS06464.

- On the first and subsequent months of "no access", the meter reading administrative coordinator will create a meter access request letter to send to the customer if the meter reader did not leave a door hanger.
- On the second and subsequent months of "no access" to a non-residential customer, the administrative coordinator will notify the key account representative for action.
- The policy specifies the names of the postcards or letters that are used to communicate with the customer at various steps.

B. WORK TASKS

As part of our review of APS' meter reading practices, BWG interviewed six meter readers and three meter reading section leaders as well as several customer service management personnel. We reviewed trends in meter reading expenditures, staffing levels, and the number of meters that could not be read by reason. We also reviewed controls in place to assure that all meters are read and that readings are accurate.

C. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

C.1. EVALUATIVE CRITERIA: ARE METER READING RESOURCES SUFFICIENT TO ENSURE THAT METER READINGS ARE COMPLETED ON A TIMELY BASIS?

1. APS has not had significant cutbacks in meter reading-related expenditures that might have contributed to increased levels of estimated bills.

    - APS meter reading expenses for 1995 through 2003 are provided in **Table III-1** and reflect that meter reading expenses have increased each year over the period.
    - When considered as a unit cost per customer, as shown in **Table III-2**, meter reading expenses have increased each year except for 2002 when they decreased by 1.5 percent over 2001. In comparing the Metro Phoenix budgets of 1999 and 1998, the primary reason for the increase during 1999 was overtime and premium pay. Overtime pay in 1999 increased by 24 percent over 1998, while premium pay increased by 35 percent[9]. APS implemented DB Microware, a software program for meter reading route management, during 2000. APS indicated that the introduction of this program allowed APS to improve productivity.[10] In 2001, the overtime pay budget for Metro Phoenix decreased by 14% over 2000, and premium pay was reduced by 6 percent.

[9] Based on information provided in the response and supplemental response to Staff DR 6-2, APS06545. APS did not provide similar budget detail for the state regions because they did not have similar reports as Metro Phoenix.

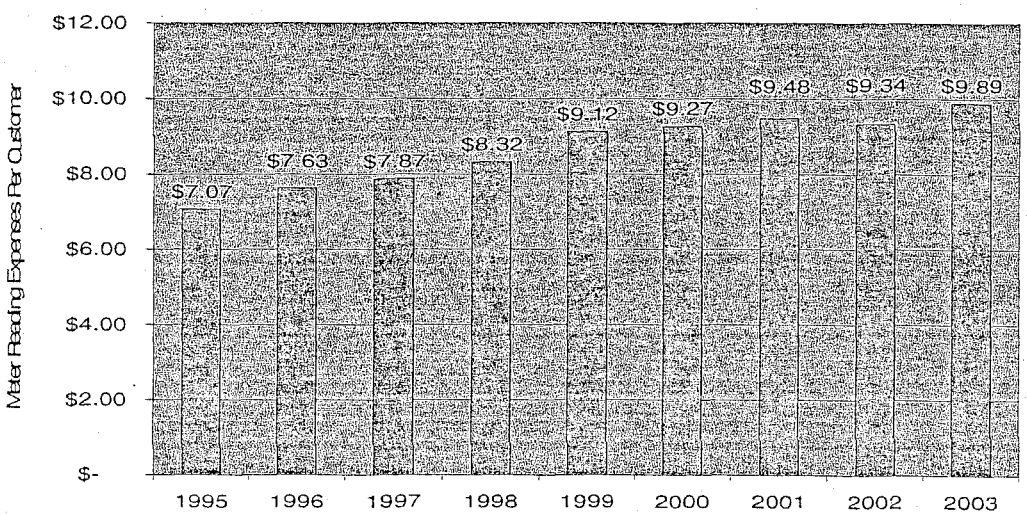
[10] See response to Staff 1-28.

Table III-1
Meter Reading Expenses, FERC Account 902
1995 - 2003

Year	Meter Reading Expenses FERC Account 902	No. of Customers	Meter Reading Costs per Customer	Percent Increase over Prior Year
1995	$4,869,783	689,132	$7.07	
1996	$5,476,235	717,614	$7.63	8.0%
1997	$5,891,416	748,070	$7.87	3.2%
1998	$6,472,757	777,613	$8.32	5.7%
1999	$7,356,029	806,659	$9.12	9.6%
2000	$7,760,367	837,063	$9.27	1.7%
2001	$8,289,315	874,537	$9.48	2.2%
2002	$8,423,848	902,029	$9.34	-1.5%
2003	$9,213,438	931,459	$9.89	5.9%

Data Source: Response to Staff DR 6-8, FERC Form 1

Table III-2
Meter Reading Expenses per Customer
1995 – 2003



Source: Response to Staff DR 6-8, FERC Form 1 Reports for 1995-2003

2. Over the period from 1995 to 2004, meter reader headcount increased by almost 30 percent, from 111 to 158.

   - However, only a portion of the increase in the number of meter readers from 2003 to 2004, as shown in Table III-3, represents additional meter reading resources. While meter reading resources have increased to meet customer growth needs, meter readers have now been trained to perform, and are performing, work such as meter reconnects and disconnects, that was previously completed by service department personnel.

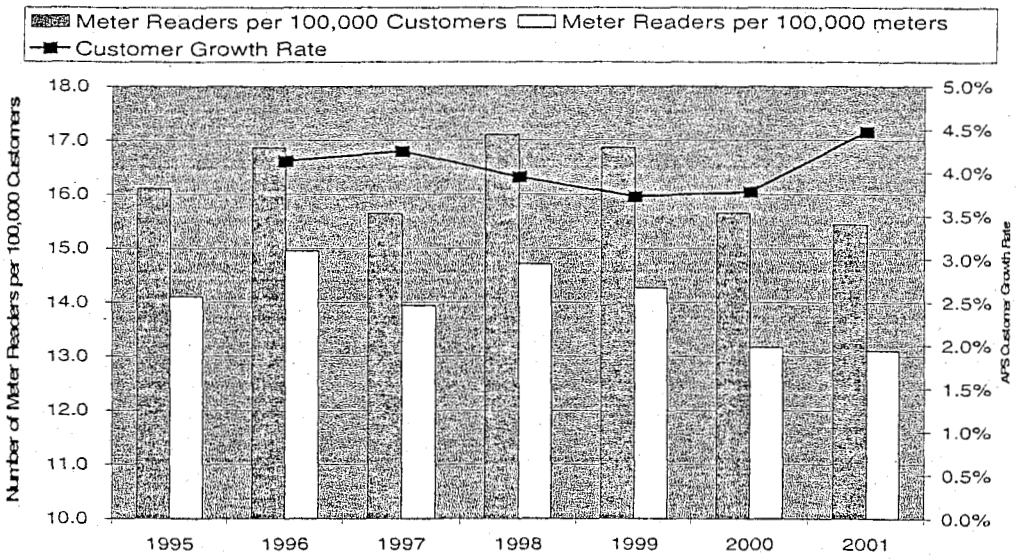
Table III-3
Headcount of APS Meter Readers
1995-2004

Year	Headcount of APS Meter Readers
1995	111
1996	121
1997	117
1998	133
1999	136
2000	131
2001	135
2002	139
2003	145
2004	158

Source: Response to Staff DR 6-5

- **Table III-4** compares changes in meter reading staffing levels to the APS customer growth rate. In 2000 and 2001, APS meter reading staff declined on a per customer basis compared to both historical staffing levels and customer growth, but recovered in 2003 and 2004. Part of the increase in staffing levels in 2004 was due to changing job responsibilities that shifted certain activities from the service department to the meter reading department as mentioned above.

Table III-4
Meter Reader Headcount vs. APS Customer Growth Rate
1995 – 2001

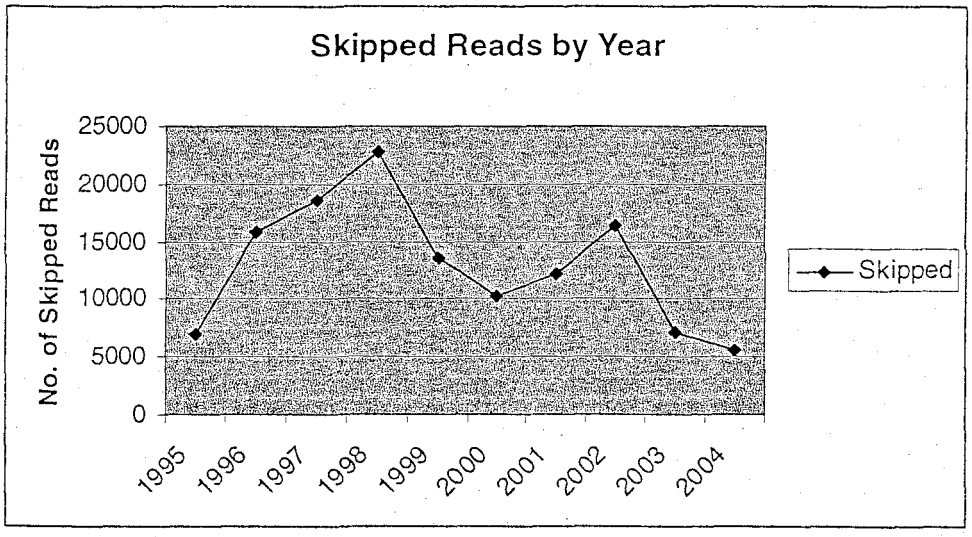


Source: Response to Staff DR 6-5 and Staff DR 6-8, FERC Form 1 Reports for 1995-2001

3. While management represents that all meters are read monthly except for those that cannot be read due to access problems or safety concerns (including bad weather), meter reads are not obtained on occasion due to the unavailability of meter reading resources (i.e., "skipped").

   - As shown on **Table III-5**, during the period from 1995 through 2004, APS has "skipped" meter readings each year. The highest number of "skipped" meter readings was 22,669 in 1998, or approximately 0.2 percent of meter readings.
   - In 2003/2004, this rate has dropped to approximately 0.06 percent of meter readings.

Table III-5
"Skipped Reads" per Year
1995 – 2004



Source: Response to Staff DR 6-11, BWG Analysis

4. The lack of sufficient meter reading resources to ensure that meter readings are never "skipped" does not appear to be due to planned cut-backs in the number of full-time meter readers. "Skipped" meter readings occur because back-up meter reading resources are not always available, despite the existence of the supplemental hiring hall resources (which are not designed for immediate short term needs). While the number of "skipped" reads can likely be reduced, based on our experience, the number of "skipped" reads does not appear unreasonable compared to industry practices.

   - APS and the International Brotherhood of Electrical Workers (IBEW), the union representing APS bargaining unit employees, have developed agreements by which supplemental meter reading resources can be provided to handle changes in meter reading workload. The supplemental resources can be brought into APS via the IBEW hiring hall after administrative processing that includes pre-employment screening such as drug testing.

- APS states that it has used supplemental meter readers to cover periods of absences caused by situations such as illness, short-term disability, or turnover caused by progression of employees to other positions at APS.
- However, during the period of March through July 2002, the Douglas and Bisbee areas periodically notified APS's Consumer Advocate's Office that those areas would have some estimated (i.e., "skipped") reads due to injury or other availability issues concerning meter reader(s). According to the APS Manager, Regulatory Affairs, the APS Consumer Advocate's Office had requested each meter shop to notify it in the event that the meter shop had "skipped" reads. Over this time period, the Bisbee office experienced seven instances where meters were not read, and reported that it had "skipped" a total of 1150 reads. The Douglas office "skipped" a total of estimated 858 reads because of eight instances where they were not able to read meters. The reasons for not reading the meter were not included in each correspondence, but they appear to be related to staffing or resource management issues including injury, family emergency, supplemental meter reader unable to finish route, or meter reader not able to report to work.[11]
- Interviews with meter readers, meter reading supervisors, managers, an administrative coordinator and the union leadership indicate that APS presently uses overtime and resource sharing among meter shops to address similar situations, when possible.

5. While BWG is not aware of any comprehensive meter reading benchmarking studies, APS has participated in some benchmarking or productivity studies performed by various consultants that compared the performance of the meter reading processes among several utilities.
   - During 1997, 2001, and 2004, APS participated in benchmarking studies to evaluate the meter reading process. These studies provided comparisons among other utilities in metrics such as unit cost, workload, productivity, accuracy, and others. Generally, the results of these studies indicated that APS had high service levels, high workloads, and a higher unit cost than the other participating utilities.
   - The standard number of meters read monthly per full-time equivalent (FTE) in the electric utility industry varies depending on geography, population density, types of meters installed, accessibility of meters, and other demographics. Meter reading productivity statistics are not standardized in the industry. Along with APS, Nashville Electric Service participated in the benchmarking study reported by Ascent Energy, Inc. during June 2004. According to a news release dated August 24, 2004, Nashville Electric Service reported that the average number of meters read per month per employee for the participating utilities was 6,382. The highest performing company in the study read 12,182 meters per employee per month.[12] Assuming that APS reads each of its approximately 1,025,000 meters

[11] Based on information provided in APS01651-APS01677, e-mail correspondence.

[12] Downloaded from http://www.newpower.com/p040824a.html on December 19, 2004. The complete benchmarking study is proprietary and not available for inclusion in this study.

each month, the annual average number of meters read each month per APS meter reader is about 6,487 meters.

- While one report indicated that workloads could be reduced for companies that read meters less often than every month, it indicated that such an approach might increase collection problems and cash flow delays. Although the report indicated that intentional estimation is a practice of some utilities, the report did not recommend the practice. APS claims that it does not consider intentional estimation an option.

Recommendation:

III-1. APS should be required to provide evidence to the Commission that new procedures have been put in place to ensure that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either smaller or remote. A report describing the new procedures and how they reduce the potential for "skipped" meter readings due to staffing resource issues should be provided to the Commission within six months of a decision in this matter. [Refers to Findings III-3 and III-4.]

C.2. EVALUATIVE CRITERIA: ARE ADEQUATE CONTROLS IN PLACE TO ENSURE THAT METER READING ROUTES ARE BEING READ ON A TIMELY BASIS?

6. While APS generally has well-documented processes and procedures for meter reading, and while it tracks meter reader performance, its "no access" and compliance reporting procedures are inadequate. In addition, performance tracking processes are not consistent among all operating divisions.

    - Metro Phoenix tracks performance measures based on individual meter reader statistics, shop totals and region totals. This area tracks numbers of meters read, number of errors, number of "no access" meters, average read time, average route time, and daily average meters read per meter reader. Generally, the divisions outside of the Metro Phoenix area track similar meter reading statistics but they report them on an individual meter reader level, without consolidating reporting by shop or division[13].

    - The administrative coordinators do not have a "no access" report that ages the "no access" accounts. If this report were available, it would simplify the identification of recurring "no access" problems at the same premises, allow the prioritization of accounts to focus first on demand-billed customers, and simplify the effort spent tracking these accounts by the Administrative Coordinator.

    - The annual meter reading schedule and the revenue accounting schedule indicate that the meter readings are scheduled to coordinate with the 21 billing cycles each month. APS does not perform what is referred to as "same-day

[13] Based on response to Staff DR, APS06618

billing". The APS 2004 Revenue Accounting Schedule plans seven or eight days between the date that a route is scheduled for meter reading and the date that the billing cycle is scheduled for billing.[14]

- APS was unable to provide management reports that demonstrated whether it tracks compliance with the Commission requirement to read meters no sooner than 25 days after the last meter reading and no later than 35 days after the last meter reading[15]. An example of a management report would include a performance measure such as percent of routes completed within the 25/35 day window or the percent of meters read within the 25/35 day window. Two other examples include the percent of meters read by the scheduled billing date and the percent of meter reading routes completed by the billing date.
- If actual reads are missed by meter readers, APS meter reading supervisors are alerted by several control reports that are reviewed daily by either the shop administrative coordinators, meter reading supervisors in small shops, or by administrative coordinators in the local offices, for example in the Yuma area. These reports track accounts with "no access," abnormal reads, route irregularities, and meters for which demands were not reset. In January 2001, the meter reading team leaders committed to review these reports more consistently.
- Designated individuals, such as an administrative coordinator in either the meter shop or a local office or the meter reading supervisor, are assigned to work the "no access" process by each meter shop. The "no access" reads report is issued daily to identify the reads that were identified as "locked out" by a meter reader. Based on an examination of data responses and interviews with route coordinators, meter reading team leaders, and an administrative coordinator, APS appears to be working the "no access" process more aggressively since January 2001.

7. APS' meter reading control processes include:
    - Written expectations for meter readers;
    - Meter Reading Manual, Computer Pro® computer-based training, and on-the-job training;
    - No tolerance policy for falsifying reads;[16]
    - Matrix of meter reader's performance targets - error rate targets or expectations for the meter reader classifications (such as first six months, second six months, third six months, and thereafter) that become progressively more difficult as the meter reader gains experience in reading meters;

[14] Based on response to Staff DR 1-25, APS06440, 2004 Revenue Accounting Schedule.

[15] Within this report, this period of time may be referred to as the "25/35 day window".

[16] Based in response to Staff DR 9-1

- Daily reports, such as the "abnormal read", "no access", "demand meters to be reset", and "three months same demand" reports;
- DB Microware tools for route management, including re-routing, route characteristics, time to read route, and time elapsed between reading meters;
- Monthly or semi-annual performance measures of productivity and accuracy;
- Restricted access to last month's read and last month's usage on the Itron HHCs in Metro Phoenix meter shops, which increases the difficulty of curbing meter readings; and
- Quarterly or semi-annual switching of routes among meter readers.

8. APS prescreens meter readers before hiring and provides them both computer-based and on-the-job training.
    - The hiring process includes a process to prescreen candidates to determine if they have the attributes to be successful meter readers.
    - Meter readers undergo several days of computer-based training followed by meter reading in the field where they perform under the direction of an experienced meter reader.
    - When meter readers are ready to perform on their own, the supervisor generally assigns them shorter routes until they progress in their experience and capability.
9. APS was unable to provide sufficient information to enable BWG to analyze or trend the completeness or timeliness of meter reading for the period of 1995 to 2004.
    - APS could not provide a complete set of meter reading statistics for each meter shop for the same time period. For example, the Metro Phoenix meter shop provided consolidated reporting of its meter shops for 2002-2004, but was missing records for two shops during six months of 2002. No records were provided for Metro Phoenix for 1996-2001. The Southeast and Southwest areas tracked meter reading performance by individual meter reader by month. These offices had records for several years, but did not consolidate statistics by meter shop. The Southeast area provided a consolidated report by meter shop for 2004, but not for prior years. The Northern areas provided individual meter reading statistics for six months of 2004.
    - When advised that its response to Staff discovery regarding performance measures or performance metrics for meter reading was non-responsive, APS indicated that the information that it had previously submitted was the extent of documentation available.
    - In response to a request that APS provide the management reports that the Vice President, Customer Service receives regarding meter reading, APS only provided a summary of the Metro Phoenix area meters read. The summary did not include the reports of the remaining divisions.
10. We did not find evidence that meter reading schedules are assigned in a manner that may compel meter readers to take short cuts to complete their assigned routes.

- Using the DB Microware route management software, APS normally plans its meter reading routes to require between six to six and one-half hours per day of meter reading time. Designating this approximate amount of productive meter reading time within an eight-hour workday is consistent with the practices of other meter reading departments in the electric utility industry. Such a schedule allows time for traveling between the meter shop and the route(s) and other contingencies. Each meter reader interviewed indicated that he or she had sufficient time to read assigned routes, that he or she did not have uncomfortable pressure to complete reading the routes, and that he or she could receive assistance from other resources if it was needed to complete reading a route on time.
- Meter reading supervisors do not receive additional pay or incentive pay for achieving specific productivity or accuracy targets in meter reading. Generally, they are measured on the same overall company targets as other management employees and do not have additional monetary incentive to achieve productivity objectives at the expense of obtaining actual and accurate meter readings.
- While not every meter reader interviewed was familiar with the expression "curbing the meter[17]," all voiced the belief that falsifying reads was not tolerated by APS policies and that they could be terminated if they falsified reads. These comments are consistent with APS management's representations of a "zero tolerance" policy.[18]
- Meter readers were generally familiar with the Itron HHC features and provided the perspective that it was harder to falsify and conceal a false read than to read the route as APS expected. In the areas outside of Metro Phoenix, the prior month's meter reading and customer usage are displayed on one of the Itron HHC screens that the meter reader may access. It could be possible for a meter reader to use this information to record a false read. The controls in place that would detect this behavior include the "abnormal read" report, the "demand meter not reset" report, and other monitoring reports that provide the time elapsed to read the route and the time elapsed between reads. Additional verification would be necessary to completely rule out whether falsification was occurring. This would include sampling the Itron HHC devices and the management reports to detect abnormalities in route completions and elapsed reading times.
- At some point during the past two years, the manager responsible for the Metro Phoenix meter reading shops evaluated whether the prior month's meter reading and the prior month's customer usage should be provided on the Itron HHC screens or whether such data should be "turned off." The manager indicated that she made the decision to "turn off" this feature in the Itron HHCs for the

[17] "Curbing the meter" refers to intentionally falsifying a meter read.

[18] Based on response to Staff DR-9-1.

Metro Phoenix area. Disabling this feature makes it more difficult for meter readers to curb meter readings.

- For the period of January 1995 through October 2004, APS reported that it has terminated one employee for "estimating/curbing" the meter. That particular employee was terminated on May 18, 1995 for "estimating/curbing" meter reads. The employee worked out of the APS meter shop located at 501 South Second Avenue. The termination was later upheld through the IBEW arbitration process.[19]
- On November 18, 2004, an APS meter reader who was assigned to the Flagstaff office turned herself in for providing questionable meter reads. APS terminated this employee during November 2004.

11. APS is currently pilot testing remote meter reading technologies and should keep the Commission Staff informed about the status of the test and its future implementation plans.
    - According to the APS Vice President of Customer Services, the results of the pilots have proven to be successful to date.
    - The VP also indicated that, if the pilot test results are successful, APS will likely begin using this technology and replace existing meters in locations where access is routinely difficult to obtain.
    - If the use of this new technology is considered to be cost justified, it can most likely be implemented in the early years within current capital budget constraints.
    - Remote meter reading technology is commonly referred to as automated meter reading (AMR) in the utility industry. AMR is used by some utilities as a means to address "no access" problems. This is discussed in more detail in Chapter VI, Comparative Practices.

Recommendations:

III-2. APS should be required to revise the "No Access Meters" report, KM06R20, to provide the following additional features:
    - Report the present number of consecutive months that the meter reading department could not access the meter so that the Administrative Coordinator can track the steps required for each month of access problems and prioritize the APS response.
    - Report the other instances that the meter reading department was unable to read the meter during the previous twenty-four months to simplify identification of recurring "no access" problems at the same premises.
    - Prioritize accounts to focus first on demand-billed customers when working the "no access" report. APS should compile and maintain these reports for purposes of the independent audit. [Refers to Finding III-9.]

[19] Based on response to Staff DR 9-1.

III-3. APS should develop and install a performance measure to monitor the extent to which APS is complying with the Commission requirement to read meters each month (no sooner than twenty-five days after the last meter reading and no later than thirty-five days after the last meter reading). APS should provide to the Commission a description of its performance measure and the results of its analysis within six months of a decision in this matter. [Refers to Finding III-9.]

III-4. APS should change the options settings in the Itron software in all locations so that the Itron HHC used by meter readers in each of the APS meter read shops no longer includes the last month's usage and last month's meter reading. This feature should be disabled throughout APS' service territory within 30 days of a decision in this matter. [Refers to Finding III-10.]

III-5. APS should provide the Commission with quarterly reports related to the status of the remote meter reading pilot and implementation plans. The reports should provide a description of the meter reading technology being implemented, APS' plan for implementation, the number and type of customers involved in the pilot program, the costs associated with its implementation, and the operational efficiencies associated with its implementation. [Refers to Finding III-11.]

C.3. EVALUATIVE CRITERIA: ARE METER READING PERSONNEL TAKING THE APPROPRIATE ACTION TO OBTAIN ACTUAL METER READINGS?

12. Estimated bills as a percent of total bills issued have declined slightly from approximately 1.4 percent in 1995 to under 1.2 percent in 2004, while peaking in 1998 and 1999 at approximately 2.0 percent. Electric industry benchmarking data reflects that the best performing electric utilities read 99.6 percent of all meters while average performance is 94.50 percent.[20] Based on high-low failures, these percentages could be higher than the percent of bills estimated.

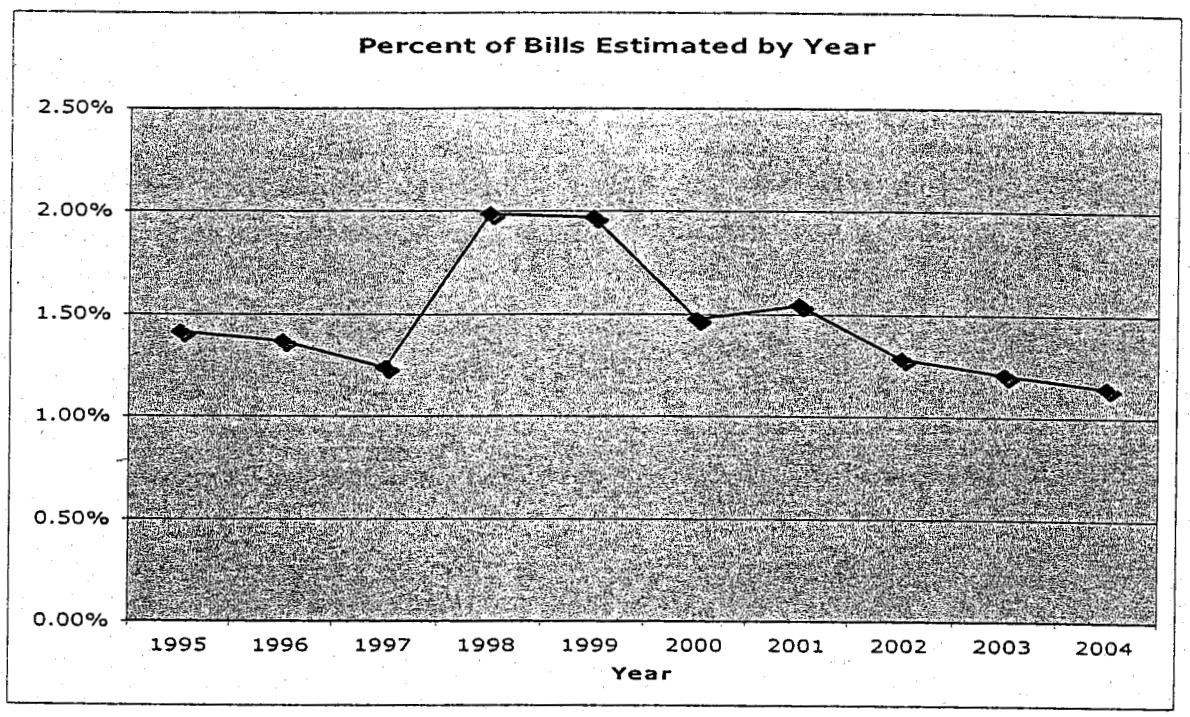
    - The number of meters which were not read peaked in the period following the implementation of the new CIS and coincidental with the time period (1998 – 2000) which is the focus of the Read Complaint.
    - APS enhanced its "no access" policies in 2003, which contributed to the favorable trend in recent years as shown in **Table III-6 and Table III-7**. Company meter readers now leave door hangers when unable to gain access to the meter location. **Tables III-8 through III-13** show trends in the percent and number of estimated bills by year by category for the two demand-billed residential rate schedules (EC-1 and ECT-1R) and the general service (E-32) demand rate schedule. **Table III-14 and Table III-15** present trends in the percent and number of estimated bills by category for rate schedule E-12, the rate schedule that represents the majority of APS's residential customers.

[20] Based on the results of a benchmarking study sponsored by an independent consultant in which APS participated.

- APS uses an auto-dialer to let customers know that arrangements need to be made to allow Company meter readers access to their premises. However, the auto-dialer is not used during the time period immediately preceding the scheduled meter read to remind customers that access needs to be provided.
- It may be possible that meter reading supervisory personnel do not routinely visit "no access" sites to ensure that all appropriate action is being taken to obtain access. After visiting the former Read residence in Paradise Valley, we believe that, if a supervisor had made a field visit to view the meter location, he or she would have been likely to develop a satisfactory solution to the problem.
- APS "no access" reads have decreased in the Metro Phoenix area since 2003. For the Metro Phoenix area, the "no access" percentage for 2000-2003 averaged 1.2 percent. The percentage dropped below one percent in November 2003, and the year to date average for 2004 is 0.9 percent.
- While completing the comparative analysis of practices in place in other jurisdictions, BWG identified one instance in which the measures required to be taken to obtain an actual meter reading include scheduling of a meter reading at other than normal business hours, making an appointment for meter reading or providing a prepaid postal card for a customer to submit an actual meter reading.
- BWG is in the process of obtaining information about the frequency of estimated bills for other Arizona electric utilities. We will provide the results of this analysis in subsequent testimony.
- Two of the companies that provided information in connection with BWG's telephone survey of comparable electric utilities also provided information related to their percentage of bills rendered based on actual meter readings. The percentages reported were 99.5 percent and 99.95 percent.[21]

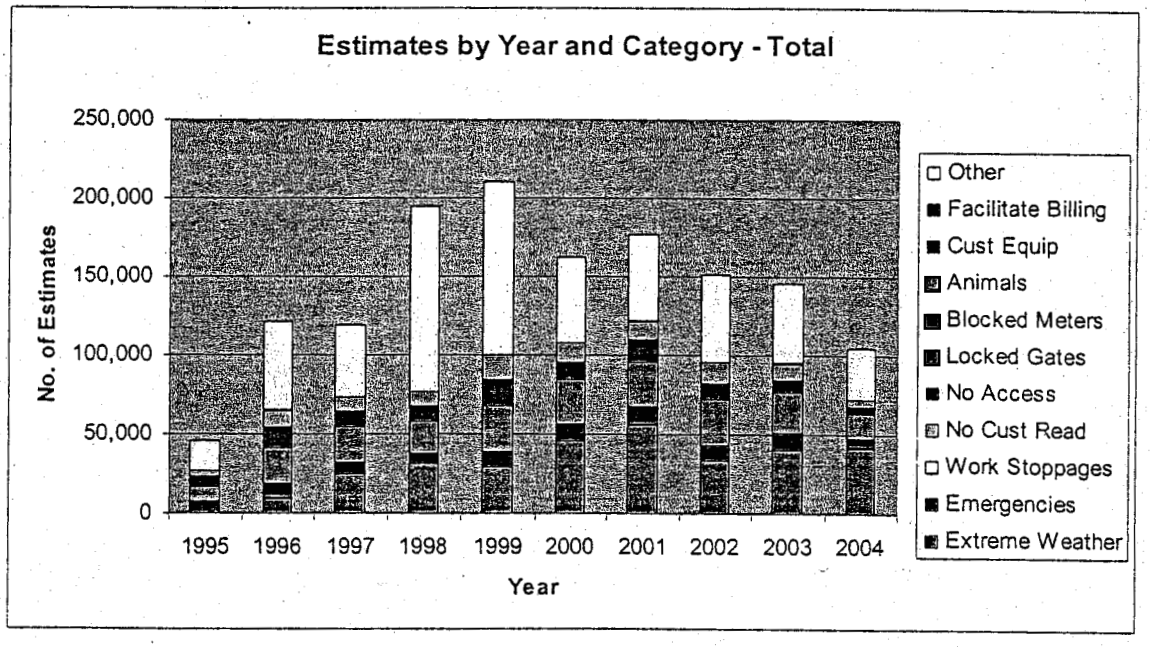
[21] Due to the nature of the telephone surveys completed, BWG did not obtain underlying data to confirm these responses.

Table III-6
Percent of Estimated Bills by Year
1995-2004



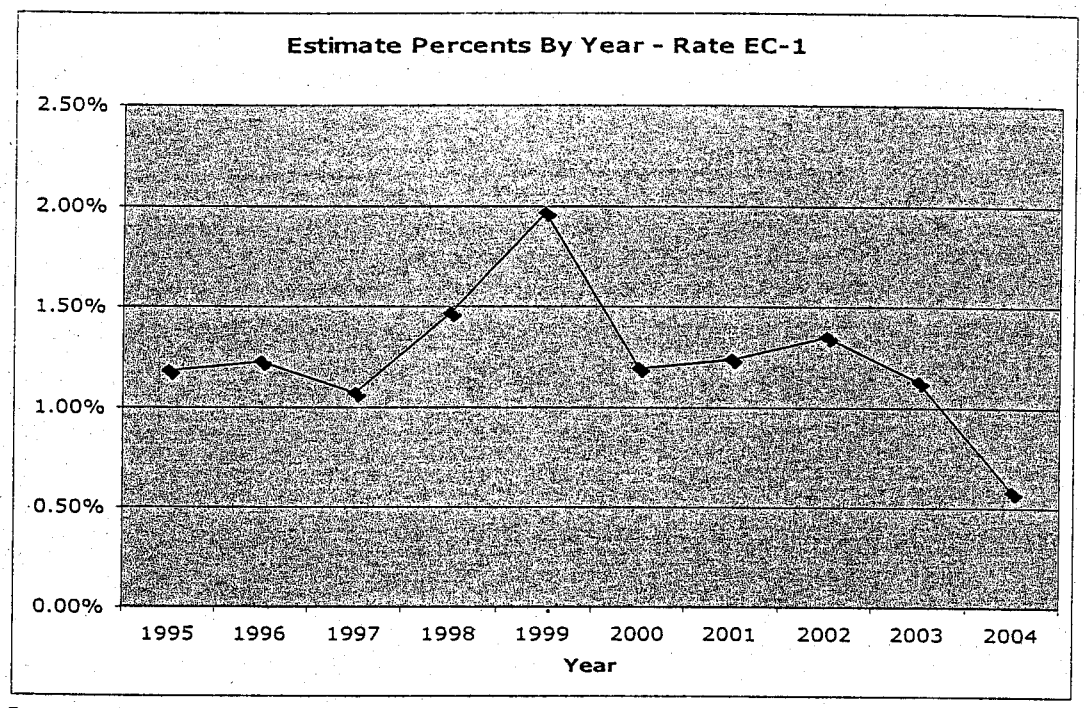
Source: Response to Staff DR 1-2 and 1-3

Table III-7
Estimated Bills by Year and Category - Total
1995 - 2004



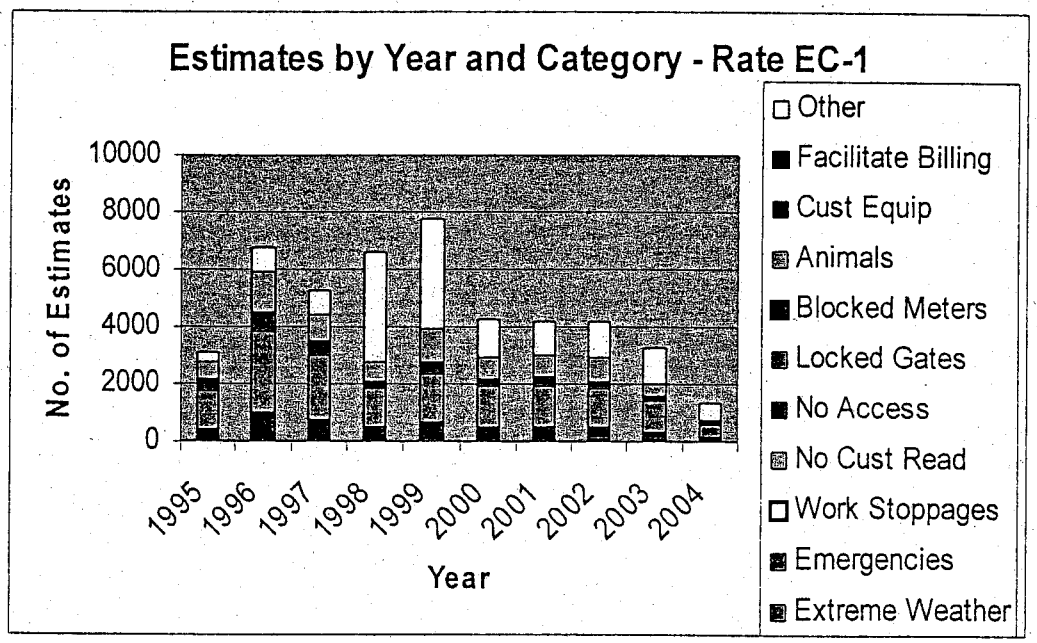
Source: Response to Staff DR 1-2.

Table III-8
Percent of Estimated Bills by Year – Rate EC-1
1995-2004



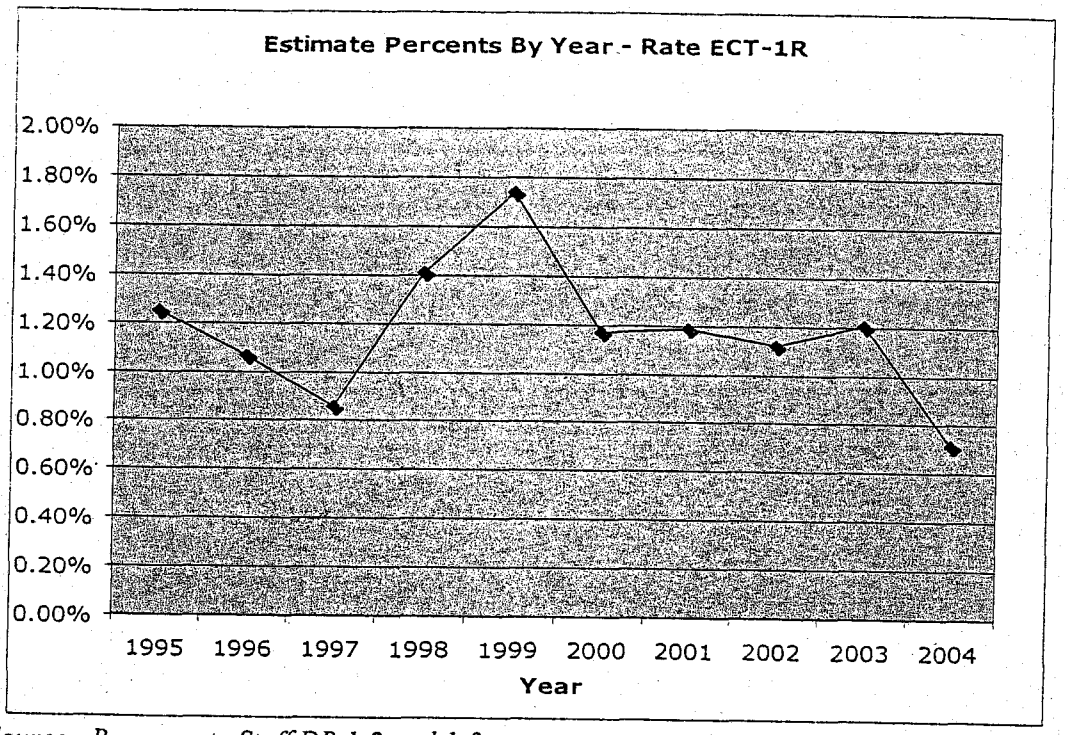
Source: Response to Staff DR 1-2 and 1-3

Table III-9
Estimated Bills by Year and Category – EC-1
1995 - 2004



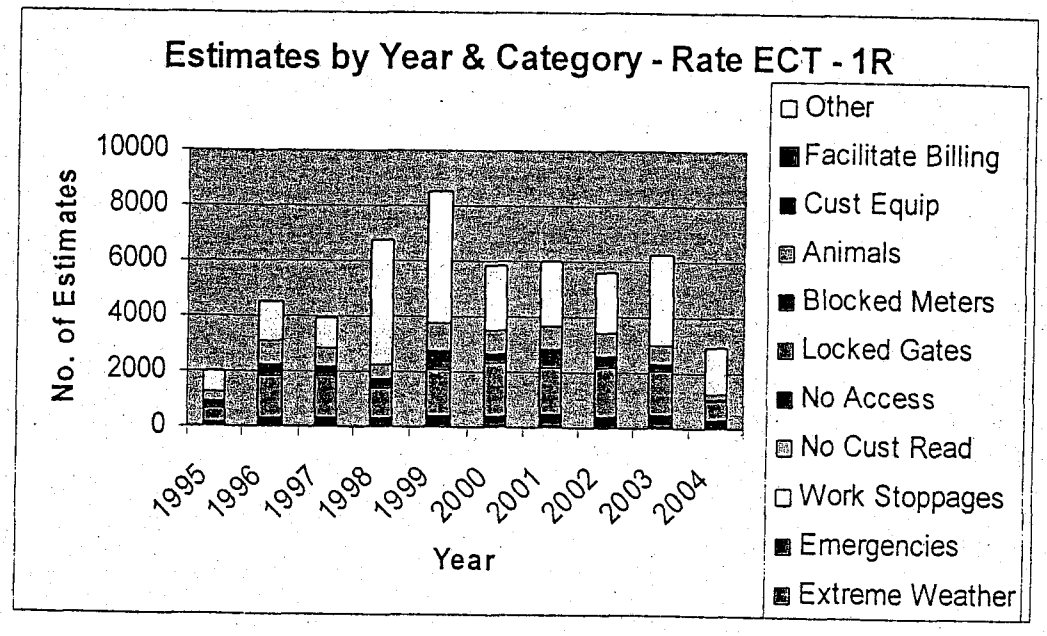
Source: Response to Staff DR 1-2.

Table III-10
Percent of Estimated Bills by Year – Rate ECT-1R
1995-2004



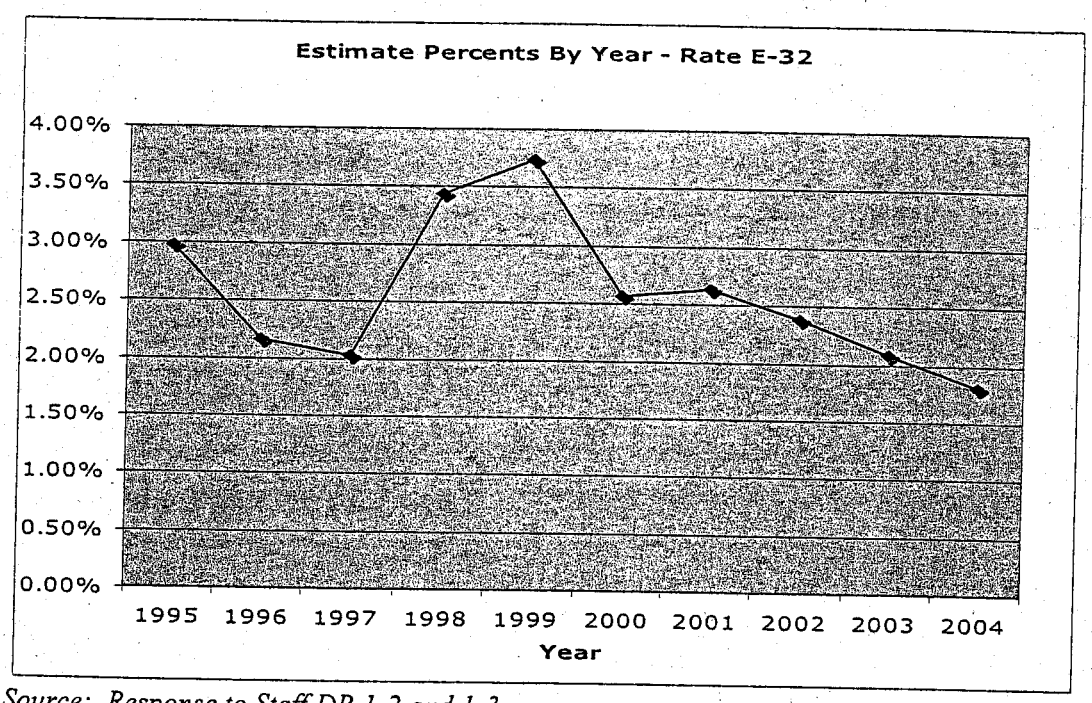
Source: Response to Staff DR 1-2 and 1-3

Table III-11
Estimated Bills by Year and Category – ECT – 1R
1995 - 2004



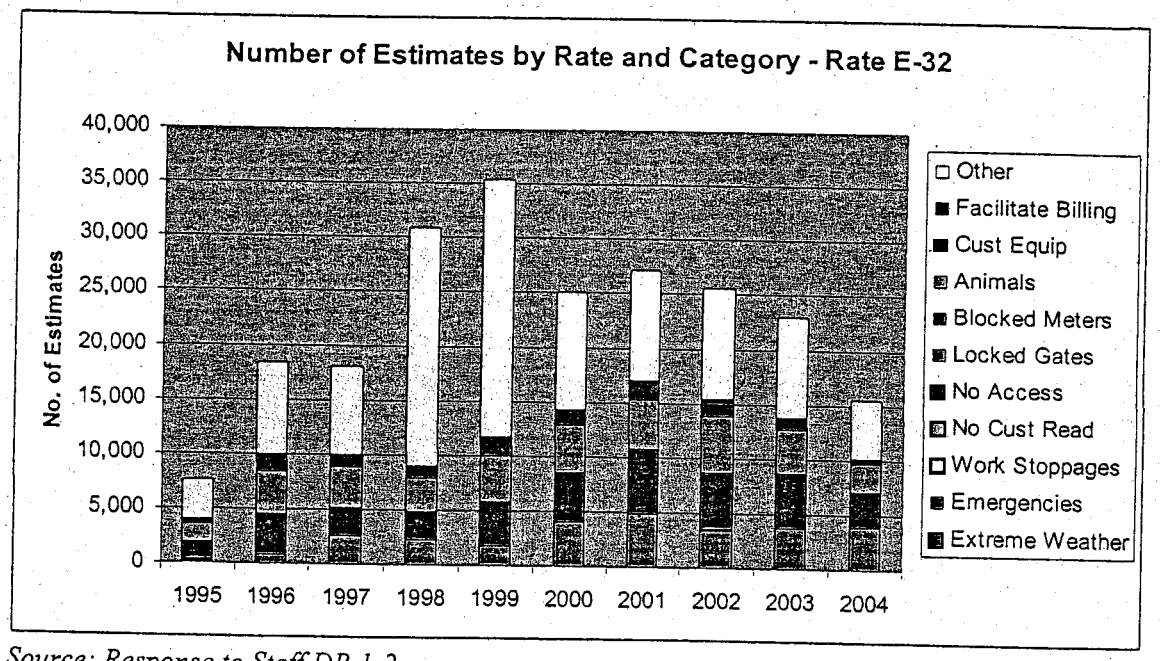
Source: Response to Staff DR 1-2.

Table III-12
Percent of Estimated Bills by Year – Rate E-32
1995-2004



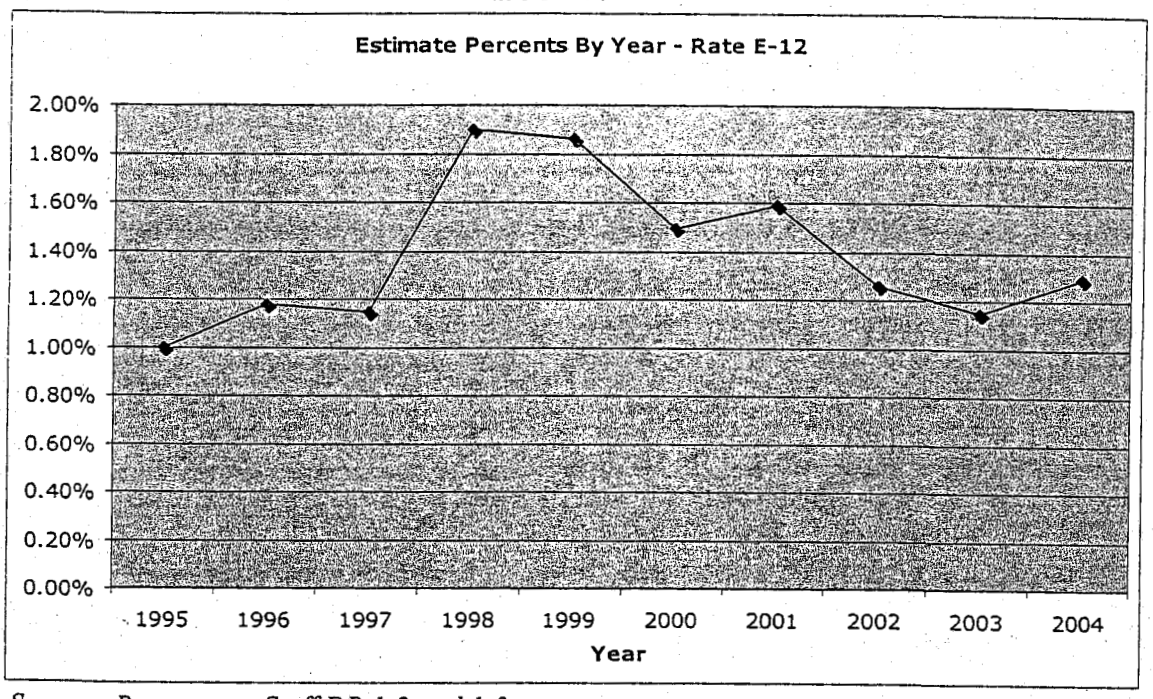
Source: Response to Staff DR 1-2 and 1-3

Table III-13
Estimated Bills by Year and Category – E-32
1995 – 2004



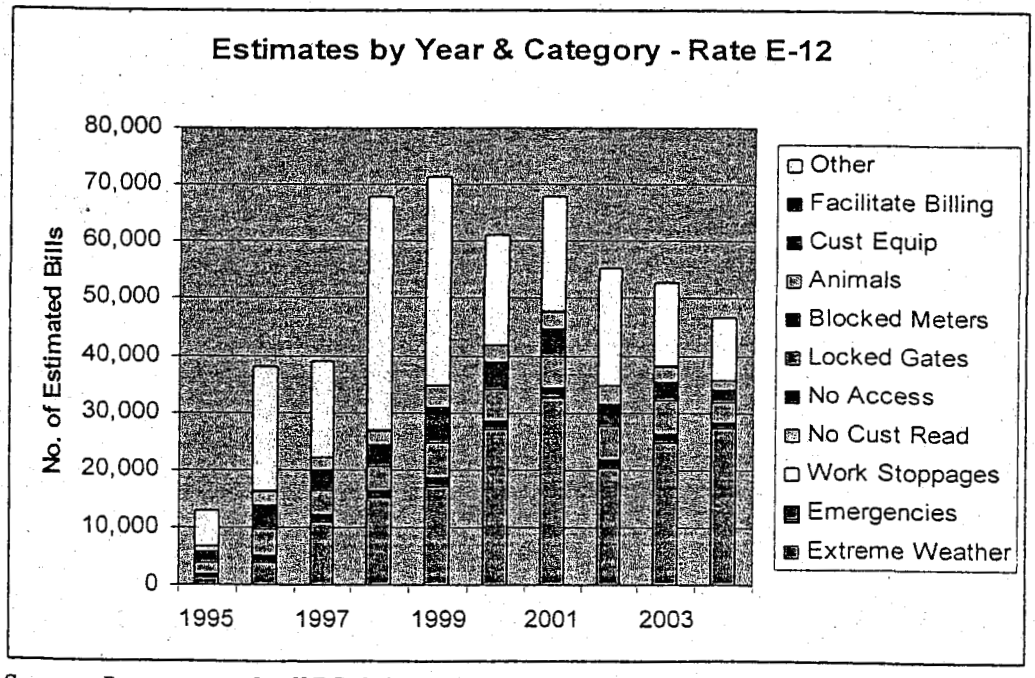
Source: Response to Staff DR 1-2.

Table III-14
Percent of Estimated Bills by Year – Rate E-12
1995-2004



Source: Response to Staff DR 1-2 and 1-3

Table III-15
Estimated Bills by Year and Category – E-12
1995 – 2004



Source: Response to Staff DR 1-2.

Recommendations:

III-6. APS should implement a pilot program to evaluate whether using an auto-dialer to communicate with "no access" account customers prior to the scheduled read date, in addition to the other methods presently used, will facilitate resolution of "no access" accounts. The Company should maintain records on the number of instances that the auto-dialer is used to call customers in these circumstances so that one may determine whether use of the auto-dialer improves APS' access to "no access" meters. The results of the pilot program should be reported to the Commission in quarterly reports. [Refers to Finding III-12]

III-7 APS should implement a pilot program to evaluate whether scheduling appointments with "no access" account customers results in a reduction of estimated reads due to "no access" problems. The results of the pilot program should be reported to the Commission in quarterly reports. [Refers to Finding III-12]

III-8 APS should be required to implement a policy to ensure that meter reading supervisors periodically inspect meter locations reported as "no access" to verify that appropriate corrective measures are taken. APS should be required to file a copy of this policy with the Commission within ninety days of a decision in this matter. [Refers to Finding III-12.]

CHAPTER IV

Usage Estimation and Billing

This chapter evaluates the practices employed by APS to estimate usage, issue bills and manage billing exceptions.

A. BACKGROUND

The Meter Reading Department provides meter reading data from routes organized on 21 billing cycles each month. Meter readers enter read data into the Itron HHC that is downloaded daily into the Customer Information System (CIS). Once the billing date is reached for the billing cycle, CIS creates bills for that cycle in a batch process.

CIS programming includes screening for accounts that do not meet specific criteria for issuing a bill. CIS identifies bills that do not pass the validation checkpoints. These are known as billing exceptions. CIS creates billing exceptions that are filed in online "in-baskets" by billing cycle. Each workday, an associate in the APS Billing Services Department assigns the billing exceptions to individual billing consultants for completion that day.

The Billing Services Department includes billing consultants, also known as billing service representatives (BSRs). The beginning classification that works simpler, less complex billing exceptions is BSR I. BSRs progress to the next classification level as openings occur and then work on the more difficult billing exceptions. The BSR is not normally an entry-level position at APS. Oftentimes, individuals transfer to the Billing Services Department after working as a customer service representative in a local office or at the call center.

The Billing Services Department provides BSRs with classroom and on-the-job training. The classroom training objectives seek to familiarize the individual with the CIS, the billing process, and Billing Services Department procedures. After receiving classroom training, the new billing consultants work under the direction of a more senior employee in the department until they are ready to tackle individual assignments. The Billing Services Manager estimated that a billing consultant gains experience and speed in processing billing exceptions after about six months on the job.

When a customer's usage (kWh) is estimated, the next actual meter reading will true-up the amount billed to represent actual kWh during the period between actual meter readings. This same true-up process is not available for demand (kW). When demand is estimated, the registered demand obtained in the next actual meter reading cannot true-up the estimated demand because it is impossible to determine in which month the high demand occurred.

There are several approaches that can be used to estimate demand. One approach uses the relationship between kWh and load factor, to provide the following formula:

Estimated Demand (kW) = (kWh usage)/ (Load Factor * No. Of Read Days * 24 hours)

Load factor is a relationship between energy usage and energy demand. Load factor indicates how efficiently the customer is using peak demand. According to the US Department of Energy - Energy Efficiency and Renewable Energy (EERE), load factor is the ratio of average energy demand (load) to maximum demand (peak load) during a specified period.[22] Load factor measures how well the electrical capacity demanded from the utility is utilized by the load over a period of time. For example, it tells whether electrical usage is reasonably stable or if it has significant peaks and valleys.[23]

A high load factor usually results in a lower average price per kilowatt-hour than a low load factor. Utility regulation allows energy suppliers to apply a demand charge to each customer's electric bill that reflects the proportionate investment in power generation capacity needed to meet that customer's maximum load requirements, or peak demand. The demand charge, unlike the energy charge, is a fixed cost that does not vary according to the number of kilowatt hours consumed during the billing period. To the extent that a customer's load factor is relatively high, meaning that their load runs consistently at or near their peak demand, the demand charge will represent a smaller percentage of the overall cost of energy consumed.

APS calculated the load factor for individual customers using a formula that is consistent with load factor formulas used in the electric utility industry. The old CIS used information to calculate estimated demand based on kWh and load factor based on the customer-specific data. Load factor was defined as the percentage of maximum kWh (based on kW) that was actually used. Load factor was calculated as:[24]

Load Factor (LF) = kWh/ [kW * Number of read days * 24 hours]

Average Load Factor (ALF) =

(First Previous Month LF + Second Previous Month LF + LF for Same Month Last Year)/3

Estimated Demand (kW) = (kWh usage)/ (ALF * No. Of Read Days * 24 hours)

Table IV-1 presents a timeline of the key changes in APS billing processes since the implementation of the new CIS in September 1998.

[22] Downloaded on 11/15/2004 from http://www.eere.energy.gov/consumerinfo/energyglossary.html#L and from http://www.retailenergy.com/articles/loadagg.htm on December 19, 2004.

[23] An example from the airline industry provides another way to consider load factor. That industry compares airline seating capacity (that is actually used and sold) with the available seating. Airlines compute load factor by dividing the number of revenue paying passenger miles flown by available seating miles flown.

[24] Based on response to Staff DR 1-5, APS06469

Table IV-1
Timeline of Key Changes in Billing Process
1998-2004

Timeframe	Change in Billing Process
9/18/1998	New CIS System implemented by APS.
3/9/1999	CIS programmed to calculate estimated demand using class average load factors for specific rate schedules.
10/2/2000	Policy on providing Blue Cards to "no access" customers was implemented.
11/21/2000	Customer Services Associate Training Guide revision was issued.
11/30/2000	Billing Services Department decided to instruct billing consultants to use the same method as CIS for calculating estimated demand.
After 12/2000	Excel Prorater spreadsheet was revised to include class average load factors.
5/8/2001	CIS modified to include four additional "no read" messages on the bill.
5/18/2001	APS determined that Billing Exception 116 "No Estimate, Consecutive Reads, and Customer Reads Exceed Limit" was not performing correctly.
6/5/2001	CIS change #6133 implemented – CIS was changed to display accounts with greater than three consecutive estimated reads.
8/9/2001	An APS team issued the Billing Exception Review final proposal after review of estimating procedures and exceptions. One conclusion reached was that one of the billing exceptions had validation parameters set too high such that many bills that should have had exceptions went directly to the customer without review.
8/13/2002	APS internal audit department issued report regarding CIS Compliance to ACC Rules and Regulations Audit. Findings included: • Current processes not designed to deal with all access issues and mainly focused on Metro Phoenix residential accounts. • Access issues exist for all service plans and are not limited to TOU accounts. Access issues for non-residential accounts have grown substantially since March 1999. • Customer accounts were being estimated for more than three consecutive months. This was fixed in July 2002. • Estimating meter readings and demands for non-residential accounts presents risk of under billing or over billing.
8/24/2002	APS changed class average load factors in CIS to lower values based on load research surveys.
9/5/2002	APS Billing System Estimating Rules drafted.
2003	APS implemented the Billing Estimator Tool that is used by billing consultants, on APS Intranet.
1/2003	Division Managers met and agreed to adopt consistent policy for addressing meter access issues.
9/2003	Billing Exception 193 implemented. It identified accounts when current kW obtained from actual read is less than estimated kW using last month.
10/2003	APS identified and corrected an error in the calculation of on-peak hours used to estimate demand for customers provided service under rate schedule ECT-1R. This error resulted in the underestimation of demand.

B. WORK TASKS

As part of our review of APS' usage estimation and billing practices, BWG interviewed two BSRs. In the presence of BWG and Commission Staff, these BSRs logged onto the CIS and demonstrated some of the procedures that APS uses for processing billing exceptions. They took actual billing exceptions that had been assigned that day from the CIS online "in-basket" and went through the steps needed to process those billing exceptions.

BWG also interviewed the billing services quality assurance coordinator and billing services department management. We reviewed trends in billing services expenditures and staffing levels, and we reviewed controls in place to assure that all billing exceptions are properly identified and worked on a timely basis. We also gained an understanding of Company procedures for estimating demand (kW) and energy consumption (kWh) and how these practices have changed over time.

C. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

C.1. EVALUATIVE CRITERIA: DOES THE BILLING SERVICES DEPARTMENT HAVE SUFFICIENT RESOURCES AND CONTROLS TO PROCESS BILLING EXCEPTIONS AND PERFORM OTHER REQUIRED BILLING-RELATED ACTIVITIES APPROPRIATELY AND ON A TIMELY BASIS?

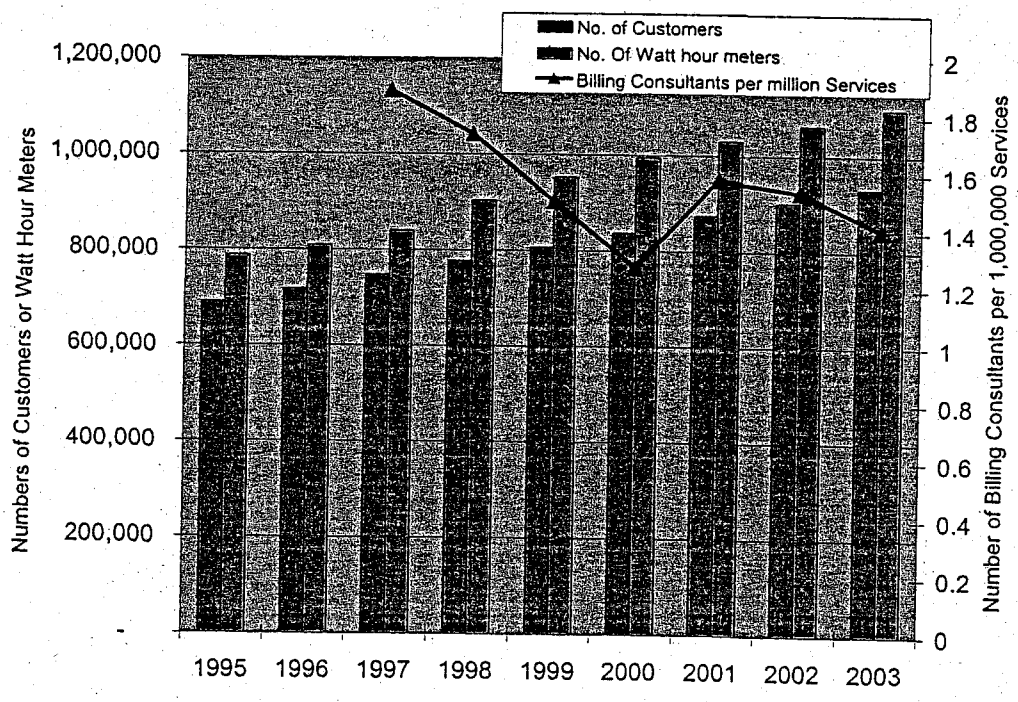
1. APS has had approximately the same number of BSRs over the past three years.
   - The number of billing consultant resources declined slightly during the years 1997-2000, but has remained relatively level during the years 2001 to 2004.
   - In 1997, there were 18 BSRs in the billing services department. In 2003, the number of billing services representatives was once again at 18 after having dropped to 14 in 2000. When normalized by numbers of services, "billing consultants per million services" declined over the years 1997 to 2000, increased during 2001, and then decreased since 2001 most likely due to annual customer growth rates of three to four percent. (See **Tables IV-2** and **IV-3** below).

Table IV-2
APS Billing Services Department Headcount Comparisons
1997-2003

Year	Billing Consultants Headcount	No. Of Customers	Number of Services	Billing Consultants per No. Of Customers	Billing Consultants per Million Services
1997	18	748,128	9,544,868	2.4	1.9
1998	17	777,674	9,790,513	2.2	1.7
1999	16	806,638	10,639,638	2.0	1.5
2000	14	837,130	10,973,097	1.7	1.3
2001	18	874,603	11,392,613	2.1	1.6
2002	18	902,096	11,705,001	2.0	1.5
2003	17	931,528	12,078,271	1.8	1.4

Source: Response to Staff 1-2, Staff 6-8 (FERC Form 1)

Table IV-3
APS Billing Services Department Headcount Compared with Numbers of Meters and Customers
1997-2003



Source: Response to Staff DR 1-2, 6-6, and 6-8 (FERC Form 1 data from 1995-2003)

Table IV-4
APS Billing Services Department Costs per Customer
1997-2003

Year	Billing Consultants Headcount	No. Of Customers	Billing Services Expenses ($000)	Billing Services Costs per Customer	Percent Increase Over Prior Year
1997	18	748,128	$ 792	$1.06	
1998	17	777,674	$ 875	$1.13	6.3%
1999	16	806,638	$ 897	$1.11	-1.2%
2000	14	837,130	$ 1,188	$1.42	27.6%
2001	18	874,603	$ 1,159	$1.33	-6.6%
2002	18	902,096	$ 1,109	$1.23	-7.2%
2003	17	931,528	$ 1,248	$1.34	9.0%

Source: Response to Staff 6-6, Staff 6-8 (FERC Form 1)

2. The Billing Services Department's budgets and actual expenditures were not significantly reduced during the period 1995-2004.

   - On a department-wide basis during the period of 1995-2004, the Billing Services Department budget increased each year, with the exception of 2002 when it decreased by two percent. However, when the departmental costs are normalized for the number of customers in the service territory, the unit costs have fluctuated over the period, with a sizeable increase in budget during 2000.
   - As indicated in **Table IV-5**, actual billing services department expenditures from 1997 through 2003 have consistently exceeded budget, which may suggest that there is no undue pressure on this department to avoid exceeding its budget.
   - Billing Services Department expenditures expressed as a cost per customer increased by 26 percent from 1997 to 2003. (See **Table IV-5**).
   - The budgets developed by APS are provided on an organizational basis, such that budgeted expenditures are provided by cost categories such as labor, overtime, materials, and loads, while costs by activity or budgeted program are not available. Consequently, BWG was not able to verify the costs of individual billing department activities.

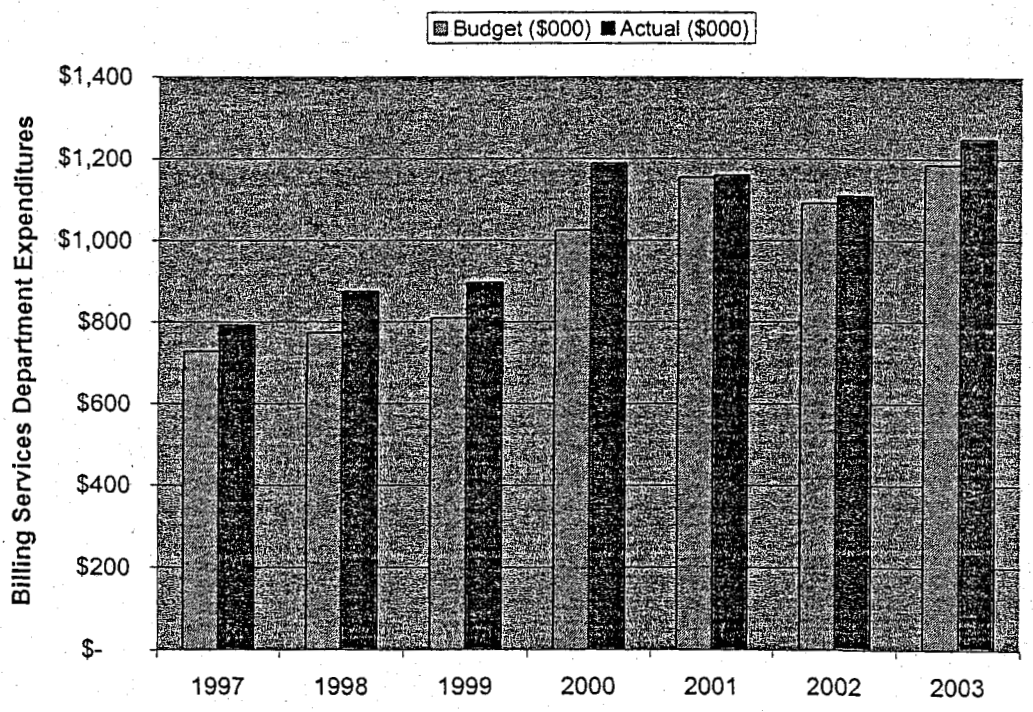
Table IV-5
APS Billing Services Department Costs per Customer
1997-2003

Year	Billing Consultants Headcount	No. Of Customers	Billing Services Expenses ($000)	Billing Services Costs per Customer	Percent Increase Over Prior Year
1997	18	748,128	$ 792	$1.06	
1998	17	777,674	$ 875	$1.13	6.3%
1999	16	806,638	$ 897	$1.11	-1.2%
2000	14	837,130	$ 1,188	$1.42	27.6%
2001	18	874,603	$ 1,159	$1.33	-6.6%
2002	18	902,096	$ 1,109	$1.23	-7.2%
2003	17	931,528	$ 1,248	$1.34	9.0%

Source: Response to Staff 6-6, Staff 6-8 (FERC Form 1)

- **Table IV-6**, however, indicates that billing services department expenditures have not kept pace with customer growth.

Table IV-6
APS Billing Services Department Budget vs. Actual Expenditures
1997 – 2003



Source: Response to Staff DR 6-6

3. The Billing Services Department has improved the documentation of its processes and is beginning to track the productivity of BSRs.

- Over the period of 1995-2004, APS has increased the extent to which it has documented policies, procedures, and processes in the Billing Services Department related to estimating and prorating bills.
- BSRs interviewed stated that during 2004 they have been able to routinely complete all billing exceptions assigned to their in-basket on a daily basis.
- The development of the Billing Estimator and Prorater software tools appear to have improved productivity as well as increased the consistency of actions taken by the BSRs. During 2004, the Billing Services Department began to record "Adjusted Exceptions Worked per Hour" by each BSR and is tracking the median and average number of adjusted exceptions worked per hour.

4. APS implemented a quality control function within its Billing Services Department during 2003.
   - The quality monitoring includes quarterly review of billing consultant work samples.
   - The quality control analyst works at a different location from the billing consultants, which limits her ability to provide face-to-face interaction with the BSRs.
   - The quality control analyst indicated that the types of errors she has noticed during the reviews have included incomplete noting of customer accounts and ensuring the correct correspondence has been sent to the customer.
5. The timing of APS' improvements to its billing estimation processes appears to be reactive to the ongoing litigation activities, rather than proactive in nature.
   - June 2002 – APS works on printing "estimate" on bills;
   - July 2002 – APS corrects CIS programming regarding Billing Exception 116, No Estimate, Consecutive Reads, and Customer Reads exceeds limit;
   - September 2002 – APS first drafts APS Billing Services Estimating Rules;
   - June 2003 – APS implements door hanger and revises "no access policy" to include steps for each month of no access; and
   - September 2003 – APS implements Billing Exception 193 that identifies accounts when the current kW demand obtained from an actual read is less than the kW demand estimated by CIS.

C.2. EVALUATIVE CRITERIA: ARE USAGE ESTIMATION AND BILLING PRACTICES CONSISTENT WITH COMMISSION RULES, REGULATIONS, AND SPECIFIC TARIFF PROVISIONS?

6. Although both the old CIS and the new CIS estimate demand based on load factor, the underlying information used to calculate the load factor changed in March 1999.
   - When the new CIS was implemented in March 1999, APS did not prepare any studies to determine the potential impact on an individual customer's bill. Using its load research data, APS assumed that overestimated accounts would

be offset by a comparable number of underestimated accounts. Yet, APS did not to our knowledge perform any analysis of this assumption until the fall of 2004, when analyses were completed and the results were provided in David J. Rumolo's November 23, 2004 testimony. At that time, Mr. Rumolo presented an analysis that calculates demand using the old CIS methodology (i.e., customer-specific load factors) and compares those results to actual demand readings. The study results presented do not describe the extent to which individual customer load factors vary from the class average. By presenting only the net dollar impact of the differences between current and historical, or tariff required, estimating practices, Rumolo's testimony does not fully describe the impact of the current estimating practices on individual customers. However, this analysis was more thorough than that performed by APS when it originally selected the class average load factor method for estimating demand.

- The old CIS used information to calculate estimated demand based on kWh and load factor. Load factor was defined as the percentage of maximum kWh (based on kW) that was actually used. Load factor was calculated as:[25]

  Load Factor (LF) = kWh/ (kW * Number of Read Days * 24 hours)

  Average Load Factor (ALF) =

  (First Previous Month LF + Second Previous Month LF + LF for Same Month Last Year) / 3

  Estimated Demand (kW) = (kWh usage) / (ALF * Number of Read Days * 24 hours)

  APS calculated individual customer load factor using a formula that is consistent with load factor formulas generally used in the electric utility industry.

- The main difference between the load factor calculations in the old CIS and the new CIS is that the old CIS calculated load factor based on individual customer data or data from similarly situated customers (such as neighbors) when reliable customer-specific data was not available. For example, the formula for load factor in old CIS used kWh from the two prior months and the same month from the prior year. In the new CIS, the load factor calculation uses class average load factor instead of customer specific load factor. BWG is currently analyzing the impact to customers of making this change.

- APS performs load research surveys periodically as part of the Pricing Department functions.[26] APS has installed interval data recorders (IDRs) at a sample of customer premises for different customer classes. APS uses data from the IDRs for its load research studies because IDRs sample load information on fifteen-minute intervals rather than the sixty-minute intervals used by many customer meters. Using the load data, the Pricing Department calculates load factors for different customer classes. BWG verified that the

[25] Based on response to Staff DR 1-5, APS06469

[26] Based on response to Staff DR 8-2.

load factor studies completed by APS subsequent to its 2002 Base Year load research study confirm the class average load factors that APS uses in the CIS. The 2002 Base Year load research data are also used in the Company's pending general rate case.

- APS stated that it believes that the use of class average load factors provides a reasonable, fair, and unbiased demand estimate when applied to energy consumption (kWh) estimated using customer specific historical data.[27] While APS indicated that individual customer demand tends to be more volatile than individual customer energy consumption, it concluded that a demand estimate methodology that utilizes only customer specific demand data does not provide a more accurate estimation of the customer's actual demand usage.

7. APS' estimating practices have changed over time, and it has not routinely notified the Commission in advance of each change.

- APS has represented that its procedures for estimating and billing demand have always differed from those provided in the tariff for EC-1 and ECT-1R[28]. The following paragraph is an excerpt from APS Rate Schedule EC-1, "Residential Service with Demand Charge", that was originally effective May 1, 1981. In his testimony dated November 23, 2004 for Docket E-01345A-03-0775, David Rumolo indicates that APS does not determine the kW demand as described in the Rate Schedule.

> "DETERMINATION OF KW CAPACITY
>
> The average kW supplied during the 60-minute period of maximum use during the month, as determined from readings of the Company's meter. In the event the meter is inaccessible to the meter reader due to locked gates or because of safety limitations, the kW shall be that measured since the last resetting of the kW dial. If the kW dial was not reset, the Customer may request a resetting to zero for a charge of $10 per trip. However, the request from the Customer must be within three (3) days of notification by APS that the meter reader was unable to reset the kW dial. The kW dial will be reset to zero, unless the registered kW at the reset time is greater than the registered kW at the last scheduled reading. The billing kW shall be the kW registered on the kW dial at the next scheduled reading."[29]

- The change to class average load factors was a further variance from the tariff language and was not approved by the Commission. APS unilaterally adopted differences in calculating demand without ACC approval. APS did not comply with its filed tariffs that included procedures for handling missing demand reads.

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[27] Based on response to Staff DR 8-3.

[28] Based on response to Staff DR 8-15, APS06611 and testimony of David M. Rumolo of November 23, 2004.

[29] Based on response to Staff DR 8-15, APS06611, rate schedules

- APS did not notify the Commission as it continued to enhance or refine its procedures when it:
  - Adopted the class average load factor in calculations of estimated demand in March 1999.
  - Decided to estimate demand rather than use the demand readings as described in the two rate schedules EC-1 and ECT-1R.
- APS has used a class average load factor to estimate demand since March 1999, approximately six months after the implementation of the new CIS.
- The old CIS in operation prior to September 14, 1998 provided information for calculating demand using individual customer load factor.
- APS assumes that the differences in use of class average as compared to individual customer load factor will not significantly impact an individual customer by either over-billing or under-billing the customer. APS did not confirm this conclusion with analyses until these analyses were completed and discussed in David J. Rumolo's testimony filed on November 23, 2004.
- At the time CIS was implemented in September 1998, and including the period prior to March 1999, APS elected not to modify CIS to include calculation of individual customer load factor.
- APS' estimation methods that use a class average load factor are not consistent with the practices of other electric utilities that use class average customer load factors only after the other alternatives for determining an appropriate customer-specific load factor have been ruled out. There is an insufficient number of electric utilities that have demand-billed residential customers to characterize any practice as an "industry standard."

Recommendation:

IV-1. APS should be required to obtain Commission approval of its estimation procedures as a tariff filing. [Refers to Finding IV-7.]

C.3. EVALUATIVE CRITERIA: ARE CUSTOMERS HARMED BY THE METHODOLOGIES BEING USED TO ESTIMATE DEMAND?

8. While APS does not adjust estimated demand upward if the subsequent actual demand reading is higher than the estimate, it has not always routinely adjusted the demand estimate downward if the subsequent actual demand reading is lower than the estimate.
   - Interviews, observations of billing consultants working on billing exceptions, and the analysis of billing estimation methods provided by the Manager of Pricing indicate that APS does not re-bill the customer when an actual demand read is higher during the month following an estimated bill.
   - The Manager of Transaction Processing indicated that the Company does not re-bill the customer using the higher demand in instances where demand is higher the month following an estimated bill. If the actual kW demand read is

lower, the billing consultants will issue a customer credit for the difference. It should be noted that the method of relying on the next actual demand read as a criterion for determining whether the previous month's demand estimation should stand has an inherent weakness due to effects of seasonality and may result in demand being overestimated.

- A naturally occurring phenomenon of rising demand that occurs in months approaching summer may reduce the possibility that overestimated demand will be discovered. For example, if a demand is overestimated in May, an actual read taken in June may not reveal the earlier overestimation because the June demand is likely to greater than the May demand. Therefore, it becomes less likely that such an overestimated demand will be credited as a result of a next month's demand comparison.
- BWG reviewed the number of estimated bills by month for the residential demand (EC-1 and ECT-1R) and general service demand (E-32) rate schedules for the period 1995 through 2004 to determine whether there were trends in the numbers of estimated bills that might suggest that APS was taking advantage of the naturally occurring phenomenon of rising demand described above. BWG found no evidence of trends to support the allegation that APS manipulates the demand estimating process to its own advantage.

- During demonstrations of the CIS, two billing consultants consistently used these procedures as they processed billing exceptions from that day's "in-basket."
- In September 2003 APS implemented a change to CIS whereby the system now routinely identifies and reports accounts where a previous month's estimated demand is higher than the actual demand reading. APS decided not to retroactively identify those customers whose accounts were not credited in similar situations.

Recommendation:

IV-2. APS should evaluate the extent to which customers were over-billed or under-billed during the period 1998-2003. APS should identify those customers who are due credits because their estimated demand was not adjusted downward when the actual demand read came in less than the estimate. APS should also be required to provide a credit to customers who were over billed. Within ninety days of a decision in this matter APS should file a report that details the results of its analysis and identifies mechanisms by which it could provide refunds to customers who were over billed. [Refers to Finding IV-8.]

C.4. EVALUATIVE CRITERIA: WAS THE NEW CIS IMPLEMENTED IN A MANNER THAT DID NOT ADVERSELY AFFECT APS' ABILITY TO ESTIMATE BILLS EFFECTIVELY?

9. We could not determine whether APS recognized prior to implementation that its new CIS, which was initially developed by IBM for another electric utility, had different billing exceptions for consecutive monthly estimates than ACC rules required.

   - Information regarding the new CIS design specifications was not available. In addition, the individuals responsible for managing the new CIS project have retired from or left the Company.
   - The other utility's version of CIS identified accounts consecutively estimated at the fourth month, rather than the third month of consecutive estimates as required to facilitate compliance with ACC rules.
   - It is not clear that this difference in compliance requirements was identified at the time of new CIS implementation. For example, billing exceptions were not generated for customers who received estimated bills for three consecutive months. Instead, until May 2000, billing exceptions were generated in the fourth consecutive month of estimating, rather than in the third month. APS intended to fix the system by May 2000; however, the problem was not completely fixed until July 2002.
   - On the other hand, it does appear that the existing functionality of the new CIS included estimating kWh based on a customer-specific six month seasonal average rather than using a customer's prior month or same month last year usage, and that APS chose to accept this functionality rather than use customer specific prior month or same month last year usage similar to the old CIS.

10. APS had problems with printing the reason for estimates on both the old and new CIS.

    - Difficulties in notifying customers of estimated bills persisted over time, despite the fact that this issue was identified in a 1996 Internal & Systems Audit report. In the report, which was requested by the APS Vice President of Customer Services, one key recommendation involved notifying customers when APS was unable to reset their demand meter or when any portion of their meter reads was estimated. The report recommended that the new CIS be designed to print "estimated" next to the portion of the reads that are estimated.
    - APS identified concerns that customers must be informed about estimated bills by printing information on the customer's bill several times between 1996 and 2002. Some issues continued to require resolution during July 1999, and were further studied during 2001.
    - According to a subsequent Internal Audit report issued in 2002, these problems were finally resolved in 2002. The Audit Services Department has no time budgeted for either 2004 or 2005 for the review of usage estimation, meter reading, or billing practices.

11. Since the implementation of the new CIS in September 1998, it has taken APS significant time and effort to align the new system with desired business practices.

- The reasons for this could include difficulties with CIS system implementation and failure to place a sufficiently high priority on resolving some inconsistencies in the processing of billing exceptions that involved prorating and estimating customers' bills.
- During the implementation of the new CIS, problems occurred with the generation of large numbers of billing exceptions and with execution of bills. Because the new CIS did not automatically estimate and generate bills for estimated demand, billing consultants performed these calculations manually.
- During the period of September 1998 to March 1999, the calculations continued to be performed manually. In November 2000, APS identified a need to bring consistency between manual calculations performed by billing consultants and automatic calculations performed by new CIS.
- Sometime after December 4, 2000, an Excel spreadsheet was modified to align the manual calculations with the system calculation. However, BWG was unable to verify that the Excel spreadsheet was developed prior to December 4, 2000. In its present form, the spreadsheet is referred to as the Prorater.
- Interviews with the quality control analyst, CIS senior programmer, Billing Services Manager, and others indicated that the new CIS implementation period was hectic.
- Billing Services workloads were affected when tasks such as training on the new system, fixing intermittent bugs, and developing changes to streamline the number of billing exceptions identified by the system were added to the regular workload.

12. APS could not provide evidence that design criteria or technical specifications for the new CIS adequately reflected requirements for estimating customer bills.
    - The system did not create a billing exception following the third consecutive estimate rather than the fourth consecutive estimate.
    - The system did not estimate demand charges in the absence of an actual demand reading.
    - The system did not generate a bill notice each time an estimated bill was rendered and properly indicate the reason for the estimate.

Recommendation:

IV-3. APS' Audit Services Department should include on-going testing of usage estimation, meter reading and billing practices in its annual audit plan, and ensure that APS has completely implemented findings reported in previous audit reports. APS should file the results of its internal audits with the Commission [Refers to Finding IV-10]

CHAPTER V

Comparative Practices

In this Chapter of the report, we compare APS' meter reading and billing practices to industry practices to determine if APS' bill estimation procedures and meter reading policies are reasonable.

A. BACKGROUND

APS has more than 160,000 customers billed both demand (kW) and usage (kWh) on a monthly basis. APS believes that it has more residential demand-billed customers than any other electric utility in the country.

B. WORK TASKS

To complete this section of the project work plan, BWG completed research, contacted other utilities, and contacted other utility regulatory commissions to identify industry practices related to usage estimation, meter reading, and billing. We then compared these industry practices to practices in place at APS to determine whether its practices are consistent with industry standards.

- On November 2, 2004, Staff sent data requests to all electric utilities operating in the State of Arizona requesting a detailed description of each utility's meter estimation process.
- BWG compiled information publicly available on state utility regulatory agency and electric utility websites related to rules and regulations and terms and conditions of service related to meter reading and billing. See **Appendix B** for a complete listing of the information compiled.
- BWG also contacted several electric utilities, including several electric utilities providing service to customers located in southern and southwestern states, to obtain more detailed information regarding their usage and demand estimation, meter reading and practices. These results are summarized below. See **Appendix E** for a complete summary of the responses received.
- In addition, on November 26, 2004, Staff sent letters to fifteen other state utility regulatory commissions requesting information related to usage estimation, meter reading, and billing practices in their jurisdictions.

C. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

C.1. EVALUATIVE CRITERIA: ARE APS' USAGE ESTIMATION, METER READING, AND BILLING PRACTICES CONSISTENT WITH THOSE OF OTHER ARIZONA ELECTRIC UTILITIES?

1. APS estimates kWh using a six-month seasonal average kWh per day, and APS is the only electric utility in Arizona that uses a six-month seasonal average to estimate kWh.

- If not available, APS will use prior month kWh. If prior month data is unreliable, APS will use the same month in the prior year. Tucson Electric Power Company (TEP) will estimate kWh based on trend data for the prior three months or will use the same month last year if trend data is not available. Absent the availability of six-month seasonal information, APS uses the average kWh per day from the previous month in the same season, or the same month in the previous year if the previous month information is unreliable.
- Prior to the implementation of the new CIS, APS estimated kWh primarily using either the prior month or the same month last year.
- Other than TEP, most electric utilities in Arizona estimate kWh using the prior month or the same month in the prior year. APS' use of a six-month seasonal average would include both the prior month (if in the same season) and the same month last year (in all cases).
- If there is no history, APS estimates kWh using a flat 20 kWh per day. TEP estimates kWh using average daily consumption for the same rate schedule. Other utilities may wait until an actual meter reading is obtained and bill for the entire period at that time.

2. While APS estimates demand using customer-specific kWh and a class average load factor, TEP manually estimates demand using this month's actual or estimated kWh and a customer-specific load factor calculated from the same month from the prior year.
   - APS is the only electric utility in Arizona that uses a class average load factor to estimate demand.
   - Other utilities use prior month(s) kW or may wait until the next actual kW reading to bill.
   - **Table V-1** presents APS' usage estimation practices for the thirteen scenarios described in Staff DR 5-1. These practices are then compared to the practices of the other Arizona electric utilities under the jurisdiction of the ACC. A compiled list of the responses received is included as **Appendix C**.

Table V-1
Comparison of APS' Estimating Practices with Other Arizona Electric Utilities

1. A kWh estimate with at least one year of history. Same customer at same premises or new customer with at least one year of premises history.	
APS	The APS CIS calculates the average usage per day for the entire season that includes the period for which there is a missing read. The resulting per day usage is multiplied by the number of days in the missing read billing period to yield the estimate of usage for that period. This seasonal average method requires retrieval of the customer's total kWh and the total number of days for the most recent six months for the season of the missing read from CIS. This method would

	include the customer's previous month and the same month of the previous year if those months are applicable, i.e., is in the same season. In all instances, it would encompass the same month from the prior year. The months in the two billing seasons are: Winter November-April Summer May-October This same procedure is used for both residential and non-residential customers on Rates E-32, E-221 and E-38. All other non-residential customers are not estimated by CIS. Because there are very few instances when these accounts have missing reads (both because there are relatively few customers on these rates and we have little or "no access" issues), a billing exception is sent to a billing representative in the Billing Services Department, who issues a request for another visit to read the meter. If a valid meter read still cannot be obtained, the account is estimated by the billing representative by using the customer's billing history, usually billing determinants from the previous month (if it is in the same season) or same month in the previous year.
TEP	TEP would generate a bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH DIVIDED BY NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE. PER DAY USAGE X NUMBER OF DAYS IN THIS MONTH'S CYCLE = EST. USAGE. OR The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from 3 prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	Combination of average kWh from same month last year, previous month, and previous three months times number of days in current billing period.
2. A kWh estimate with less than 12 months' history. Same customer at same premises.	
APS	APS follows the same formula described in Question #1 when there are at least 165 days of seasonal history for the current customer or previous tenant at the same premise. When there is less than 165 days of seasonal history, the CIS generates a billing exception and a billing representative manually estimates the bill using either the previous month method or the same month previous year method as described below. <u>Previous Month Method</u> This method is used when there is not sufficient account history to use the Seasonal Average Method, but there is account history for the previous month in the same season as the missing-read month. This method calculates the estimated daily energy usage (kWh) from the previous month and multiplies it by the number of days in the missing-

	read billing period, Same Month Previous Year Method This method is used when there is insufficient account history to use the Seasonal Average Method and the previous month's data is unreliable (e.g., instances where prior month was also estimated or where recent meter tampering is suspected) or is in a different season than the missing-read month. This method is identical to the previous month usage method described in the response to Question 2, except that usage and number of days from the same month in the previous year are used to estimate the energy usage for the missing-read period, rather than usage and number of days from the previous month in the same year. These same procedures are used for both residential and non-residential customers on Rates E-32, E-221 and E-38.
TEP	If there is at least three months of data, the CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created for each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a high and a low value for meter read validation and a usage amount for bill estimation. If three months of data do not exist, CIS will use the rate schedule average daily usage to calculate customer's bill. If manually estimated, TEP would use the prior month's data and manually estimate consumption by using the following steps: (i) calculate per day usage, (ii) prior month consumption divided by number of days in cycle, and (iii) multiply number of days in the current month's cycle by per day usage. Circumstances for est. a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	If available, average consumption per day during the prior three months will be calculated and applied to the number of days in the current billing period. If less than 3 months history is available, the prior month or 45 day period will be used.
3. A kWh estimate with less than 12 months' history. New customer with premises history.	
APS	The CIS calculates the estimated usage using the same procedures as the responses to Question #1 or Question #2 based on the history of the previous tenant at the same premise. These same procedures are used for both residential and non-residential customers on Rates E-32, E-221 and E-38.
TEP	The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. If manually estimated, TEP would use the prior month's consumption and use the following steps: (i) calculate per daily usage divided by number of days in cycle and (ii) multiply number of days in this month's cycle by per day usage. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other	If available, average consumption per day during the prior three

Arizona Utility Practices	months will be calculated and applied to the number of days in the current billing period. If less than 3 months history is available, the prior month or 45 day period will be used. Some utilities use only customer-specific, not premises-specific history to estimate consumption.
4. kWh estimate. No history.	
APS	The CIS generates a billing exception for a billing representative to estimate the bill. For customers when there are 10 or fewer days in the missing-read billing period, a bill is produced for zero usage. When there are more than 10 days in the missing-read period a bill is produced based on a flat 20 kWh per day. These same procedures are used for both residential and non-residential customers on Rates E-32, E-221 and E-38. On the very rare occasions when a new, larger E-32, E-221, or E-38 account or a new account not on these rates has missing reads, the billing representative issues a request for another visit to read the meter. If a valid meter read still cannot be obtained on the second visit, a bill for zero usage is issued and a new meter installed. The zero usage bills will be estimated and rebilled by a billing representative by using the billing data from the subsequent month's read.
TEP	The CIS will estimate based on a rate schedule average daily usage. A manual estimation would be done using new meter usage methodology. TEP would wait until it gets a good read on the new meter and use the following formula: NEW METER READ – BEGINNING READ x METER CONSTANT divided by NUMBER OF DAYS = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN PREVIOUS BILLING PERIOD = ESTIMATED USAGE. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	Most do not estimate kWh usage and will only bill the service charge / minimum bill. Some will estimate using averages from similar customer groups.
5. A kW estimate with at least one year of history. Same customer at same premises or new customer with one year of premises history.	
APS	The rate class average monthly load factor is applied to the estimated energy as described for non-TOU customers in the response to Question 1 and for TOU customers as described in the response to Question 9. The rate class average monthly load factors used for demand estimations are: Rate EC-1: 35% applied to estimated monthly energy Rate ECT-1R: 42% applied to estimated monthly on-peak energy Rate E-32, E-221, E-38: 50% applied to estimated monthly energy Estimated demands for customers on all other rate schedules are calculated manually by the billing representatives. These same procedures are used for both residential and non-residential customers on Rates E-32, E-221 and E-38.
TEP	The CIS doesn't estimate kW; therefore all situations are manually estimated. If consumption data is available the following formula is

	used: SAME MONTH LAST YEAR DEMAND divided by SAME MONTH LAST YEAR CONSUMPTION = LOAD FACTOR THIS MONTH'S CONSUMPTION x LOAD FACTOR=ESTIMATED DEMAND If consumption data is not available, TEP estimates consumption as described in the response to 1 a), then use estimated consumption in the formula. If there is a new customer at the premises, all billing demand meters are also recording interval meters. TEP uses interval premises data to estimate. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	Various methods including average kW for prior three months, the previous month only, the previous month and same month last year, or the same month last year. None mention using class average load factors. Not clear how many, if any, have demand-billed residential accounts.
6. kW estimate with less than 12 months' history. Same customer at same premises.	
APS	The rate class average monthly load factor is applied (in the manner described in the response to Question 5) to the estimated energy as described for non-TOU customers in the response to Question 2 and for TOU customers as described in the response to Question 10.
TEP	The CIS doesn't estimate kW; therefore all situations are manually estimated. If consumption data is available, the following formula is used: LAST MONTH'S DEMAND divided by LAST MONTH'S CONSUMPTION=LOAD FACTOR THIS MONTH'S CONSUMPTION x LOAD FACTOR=ESTIMATED DEMAND If consumption data is not available, consumption is estimated as described in the response to 1 a) and then estimated consumption is used in the formula. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	Various methods including average kW for prior three months, the previous month only, the previous month and same month last year, or the same month last year. None mention using class average load factors. Not clear how many, if any, have demand-billed residential accounts.
7. kW estimate with less than 12 months' history. New customer with premises history.	
APS	The rate class average monthly load factor is applied (in the manner described in the response to Question 5) to the estimated energy as described for non-TOU customers in the response to Question3 and for TOU customers as described in the response to Question 11.
TEP	The CIS doesn't estimate kW; therefore all situations are manually estimated. If there is a new customer at premises, all billing demand meter are also recording interval meters. TEP uses interval premises data to estimate. If consumption data is available, the following formula is used:

	LAST MONTH'S DEMAND divided by LAST MONTH'S CONSUMPTION=LOAD FACTOR THIS MONTH'S CONSUMPTION LOAD FACTOR=ESTIMATED DEMAND If consumption data is not available, TEP estimates consumption as in the response to 3 a), then uses estimated consumption in the formula. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	Various methods including average kW for prior three months, the previous month only, the previous month and same month last year, or the same month last year. None mention using class average load factors. Not clear how many, if any, have demand-billed residential accounts.
8. kW estimate with no history.	
APS	The rate class average monthly load factor is applied (in the manner described in the response to Question 5) to the estimated energy as described for non-TOU customers in the response to Question 4 and for TOU customers as described in the response to Question 12.
TEP	The CIS doesn't estimate kW; therefore all situations are manually estimated. The estimate is done by using like-customer data. TEP calculates like-customers load factors, and then multiplies the current month consumption by load factor to get the estimated demand. If consumption data is not available, TEP estimates consumption as described in the response to 4 a), then uses estimated consumption in the formula. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
Summary of Other Arizona Utility Practices	Some will not estimate demand; others will use similar-customer information to estimate demand.
9. Time-of-Use (TOU) estimate with at least one year of history. Same customer at same premises or new customer with at least one year of premises history.	
APS	The on-peak and off-peak energy estimates are calculated in the same manner as described in the response to Question 1 using the customer's on- and off-peak seasonal daily average kWh rather than total seasonal daily average. Non-residential TOU accounts are estimated by a billing representative using the customer's available history.
TEP	TEP would generate a manually estimated bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD=PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE=ESTIMATED USAGE The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. This would be done

	for on-peak usage and off-peak usage. If the estimation falls in a shoulder month then a manual estimation of shoulder would need to be done as the CIS doesn't estimate shoulder usage. The manual estimation would use last year's allocation factor with this year's estimated total consumption. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
Summary of Other Arizona Utility Practices	Various methods including average of last three months, previous month, same month last year, or a combination of the above. Two utilities do not have TOU meters.
10. TOU estimate with less than 12 months' history. Same customer at same premises.	
APS	Total monthly energy is estimated in the same manner as described in the response to Question 2. The TOU energy is calculated by allocating the total energy to the on- and off-peak period by the residential TOU average on- and off-peak energy percentages. The seasonal on-peak energy allocation percentages for the residential TOU rates are 40 percent and 30 percent for the summer and winter seasons, respectively. Non-residential TOU accounts are estimated by a billing representative using the customer's available history.
TEP	TEP would generate a manually estimated bill based on customer usage from the previous year using the following formula: USAGE FOR PREVIOUS MONTH divided by NUMBER OF DAYS IN BILLING PERIOD=PER DAY USAGE PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE=ESTIMATED USAGE The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. This would be done for on-peak and off-peak. If the estimation falls in a shoulder month, then a manual estimation of shoulder would need to be done as CIS doesn't estimate shoulder usage. The manual estimation would use last month's allocation factor with this month's estimated total consumption. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
Summary of Other Arizona Utility Practices	Various methods including average of last three months, previous month, same month last year, or a combination of the above. Two utilities do not have TOU meters. Some will use customer-specific only information, not premises-specific information so may not use same month prior year in the calculation.
11. TOU estimate with less than 12 months' history. New customer with premises history.	
APS	Total monthly energy is estimated in the same manner as described in the response to Question 3. The TOU energy is calculated by allocating the total energy to the on- and off-peak period by the residential TOU average on- and off-peak energy percentages. The seasonal on-peak energy allocation percentages for the residential TOU rates are 40 percent and 30 percent for the summer and winter

	seasons, respectively. Non-residential TOU accounts are estimated by a billing representative using the customer's available history.
TEP	TEP would generate a manually estimated bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD=PER DAY USAGE PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE=ESTIMATED USAGE The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. This would be done for on-peak and off-peak. If the estimation falls in a shoulder month then a manual estimation of shoulder would need to be done as CIS doesn't estimate shoulder usage. The manual estimation would use last month's or last year's allocation factor with this month's estimated total consumption. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
Summary of Other Arizona Utility Practices	Various methods including average of last three months, previous month, same month last year, or a combination of the above. Two utilities do not have TOU meters. Some will use customer-specific only information, not premises-specific information, and as a result, may not use same month prior year in the calculation.
12. TOU estimate. No history. New customer at new premises.	
APS	Total monthly energy is estimated in the same manner as described in the response to Question 4. The TOU energy is calculated by allocating the total energy to the on- and off-peak period by the residential TOU average on- and off-peak energy percentages. The seasonal on-peak energy allocation percentages for the residential TOU rates are 40 percent and 30 percent for the summer and winter seasons, respectively. On very rare occasions when a non-residential TOU account has missing reads, the billing representative issues a request for another visit to read the meter. If the new meter has failed so that a valid meter read still cannot be obtained on the second visit, a bill for zero usage is issued and a new meter installed. The zero usage bill will be estimated and rebilled by a billing representative by using the billing data from the subsequent months read.
TEP	A manual estimation would be done using new meter usage methodology. TEP would wait until it gets a good read on the new meter and use the following formula: NEW METER READ – BEGINNING READ TIMES METER CONSTANT divided by NUMBER OF DAYS = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN PREVIOUS BILLING PERIOD = ESTIMATED USAGE. This would be done for each time period value. A circumstance for estimating TOU occurs when TEP is unable to

	obtain actual meter reads.
Summary of Other Arizona Utility Practices	Most do not estimate kWh usage and will only bill the service charge / minimum bill. Some will estimate using averages from similar customer groups.
13. Should you have procedures in place to respond to circumstances not listed above, please describe both the circumstances and applicable procedures for estimation.	
APS	APS does not have any circumstances for estimating bills for missing reads other than those listed above.
TEP	TEP has no procedures in place at this time.
Summary of Other Arizona Utility Practices	NA

C.2. EVALUATIVE CRITERIA: ARE COMMISSION RULES AND REGULATIONS REGARDING USAGE ESTIMATION, METER READING, AND BILLING PRACTICES CONSISTENT WITH THOSE OF OTHER STATE UTILITY REGULATORY AGENCIES?

3. ACC rules related to estimated billing are generally consistent with practices in other jurisdictions. Unfortunately, rules and regulations in other jurisdictions are generally silent on the issue of demand estimation practices.
    - Some state regulatory agencies require the electric utilities they regulate to actively attempt to obtain an actual meter reading following two consecutive estimated bills.
    - Some states require at least one bill per year be based on an actual read.
    - One state requires that the "estimating procedures employed by the utility and any substantive changes to those procedures be approved by the Commission."
    - States consistently allow the use of estimated bills in the event of severe weather, unsafe conditions, locked premises, emergencies, work stoppages, or other circumstances beyond the control of the utility.
        - For example, Nevada Power Company's Rules for Service define circumstances beyond the control of the utility to include:
            - Severe weather;
            - The presence of an animal on the premises of the customer which prevents an employee of the utility from reading the meter without risk of injury;
            - Any other circumstances which make it unreasonably difficult to read the meter.
    - Estimated bills are generally based on the customer's actual usage in prior periods.

- For example, Nevada Power Company's Rules for Service consider the following factors in calculating a bill based upon estimated usage:
  - The usage of the customer during the same month of the preceding year;
  - Any change in temperature from the preceding month;
  - The usage during the preceding month;
  - Seasonal load factors.[30]

- None of the states or utilities included in this analysis provided descriptions of the process for estimating residential customer demand.
- In at least one instance (Utah Power & Light Company), the measures the Company shall take to obtain an actual meter reading include scheduling a meter reading at other than normal business hours, making an appointment for meter reading, or providing a prepaid postal card for a customer to submit an actual meter reading.
- In most instances, providing access to the meter location is a condition of continued electric service.

4. ACC rules do not provide for the payment of interest for over-billing. At least one utility surveyed is required to provide interest on customer payments for over-billing.
   - Utah Power & Light Company, Electric Service Regulation No. 8, requires that interest be provided on customer payments for over-billing. Interest shall be paid from the date the customer overpayment is made, until the date when the overpayment is refunded. Over-billing is defined to include, among others, incorrect meter readings and incorrectly estimated demand billings.[31]
5. Information obtained in response to the Staff's November 26, 2004, letter to other state utility commissions indicates that Arizona rules related to meter reading and billing are generally consistent with rules in place in other states.
   - State utility regulatory agencies do not generally specify methodologies for bill estimation in their rules and regulations.
   - In most cases, the electric utilities under the jurisdiction of the states responding to the Staff's letter do not have residential demand tariffs.
   - State utility regulatory agencies have not undertaken studies or investigations regarding billing estimation and meter readings, nor ordered their utilities to conduct such studies.
   - Responses were received from (or discussions were held with) the following state utility regulatory agencies:
     - Public Utilities Commission of Nevada

[30] Nevada Power Company tariff No. 1-B, Rule No. 5, Bills for Service, A.5.

[31] Utah Power & Light Company, Electric Service Regulation No. 8, Original Sheet No. 8R.5.

- Idaho Public Utilities Commission
- Florida Public Service Commission
- Kentucky Public Service Commission
- California Public Utilities Commission
- Colorado Public Utilities Commission
- Missouri Public Service Commission
- New Hampshire Public Utilities Commission
- Washington Utilities and Transportation Commission

To the extent that additional responses are received, the results will be included in BWG's subsequent testimony.

Recommendation:

V-1. APS should take steps to obtain actual meter readings at customer premises that have persistent "no access" problems. The Company's established practice does not include the scheduling of a meter reading at other than normal business hours or making an appointment for a meter reading. [Refers to Finding V-2]

C.3. EVALUATIVE CRITERIA: ARE APS' USAGE ESTIMATION, METER READING, AND BILLING PRACTICES CONSISTENT WITH THOSE OF COMPARABLE ELECTRIC UTILITIES?

6. While the information available suggests that APS' usage estimation, meter reading, and billing practices are generally consistent with the practices of comparable electric utilities, several utilities use remote meter reading devices to obtain actual meter readings for premises with meter access problems.

   - There are insufficient numbers of electric utilities that have demand-billed residential customers to determine whether the use of class-average load factors to estimate demand is a generally accepted industry practice.
   - Responses from ten electric utilities located outside the state of Arizona indicate that estimating demand is generally not an accepted practice, but we believe the context of this response is primarily focused on large volume accounts, in which case their practices are consistent with APS' practices. None of these ten utilities use class average load factors to estimate demand.
   - Based on the information provided in response to Staff DR 8-6 regarding customer complaints escalated to the APS Consumer Advocates Office, APS used to install remote ports as a solution to some "no access" situations. We did not notice the Company offering to install remote ports at the Company's expense, however, after 1999.
   - Most companies indicated that the process to obtain an actual read starts after three consecutive estimates, and can eventually lead to disconnection at the pole.

Several companies also mentioned the installation of remote meter reading devices as an option.

- Other companies do not routinely estimate kWh based on actual temperatures during the period being estimated ("degree-days" are the commonly used metric to measure changes in temperature compared to normal) to estimate kWh, similar to APS.
- None of the companies contacted indicated that they used "six month seasonal," customer-specific information to estimate kWh usage similar to APS other than seasonal considerations recognized through the use of "same month, last year" billing data.

7. BWG has identified four methods to estimate demand for residential and small commercial customers and further analysis is required to determine the best process.
   - The four estimating methods are:
     - Historical customer-specific demand
     - Historical customer-specific usage and load factor
     - Historical customer-specific usage and class average load factor
     - Historical customer-specific usage and seasonally-adjusted, class-average load factors
   - BWG will complete further analysis to determine which of these methods most closely estimates actual demand for individual residential and small commercial customers and provide its recommendation in subsequent testimony.

Recommendation:

V-2 APS should continue to participate in benchmarking studies that compare its practices to other utilities in the industry. APS should provide such benchmarking analysis to Staff on a quarterly basis. [Refers to Finding V-6]

CHAPTER VI

Avis Read Complaint

In this chapter, we present our findings and recommendations related to the allegations contained in the Avis Read Complaint.

A. BACKGROUND

On June 4, 2002, a class action complaint was filed in the Superior Court of the State of Arizona by Avis Read against APS ("Read Complaint"). The complaint alleged that APS systematically failed to follow required practices and procedures regarding meter reading, estimation, and billing and that the Company harmed its customers by doing so.

On August 19, 2004, a ruling was issued by the Superior Court regarding the Avis Read complaint. The ruling found that Avis Read's claims "fall within the Commission's areas of primary jurisdiction" and that the Commission should decide the matter. Thus, on September 9, 2004, Avis Read filed a formal complaint at the Commission regarding APS' "improper estimation and billing procedures on demand meters." The Complaint alleges "that APS has systematically deceived and overcharged Complainant and the class in the sale of electricity to them, by systematically failing to follow legally required procedures regarding estimated charges for electricity sales; by billing estimated demand readings as if they were actual readings of demand for the month being billed; and by charging the class of electricity using estimating procedures not approved by the Arizona Corporation Commission as required by law, but arbitrarily invented by APS employees."

Ms. Read occupied two premises from September 1998 through September 2000, the time period that is the subject of this complaint: the Phoenix premises (Meter No. 906893), which Ms. Read occupied from September 1998 through July 1999 and the Paradise Valley premises (Meter No. A93326), which Ms. Read occupied from March 1999 through September 2000. The Phoenix account was a demand billed account, while the Paradise Valley account was non-demand billed.

APS did not access Ms. Read's meter at the Paradise Valley premises from June 1999 through February 2000, resulting in the issuance of estimated bills. This problem was compounded by the problems with APS' CIS which resulted in the estimated bills never being issued and mailed to Ms. Read during the period from September 1999 through January 2000. A total of 663 customers were affected by this CIS problem, some for as many as six months although approximately one-half were for only one month.[32] Ms. Read had similar problems with her Phoenix account. Due to problems associated with the new-CIS, APS did not mail Ms. Read her December 1998 and January 1999 bills on this account.[33]

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[32] Based on response to Staff DR 3-19.

[33] Based on APS's Response to Complaint in Docket No. E-01345A-04-0657 on September 20, 2004.

B. WORK TASKS

BWG reviewed the specific allegations contained in the Avis Read Complaint and designed review procedures to determine the factual bases for these allegations. The work tasks included reviewing customer-specific information for Avis Read, Paul and Linda Schaeffer, and thirty-five customers who had filed informal complaints with the Commission. We also visited the Paradise Valley premises formerly occupied by Ms. Read to observe the actual conditions that created difficulties for the APS meter readers to obtain access to Ms. Read's meter when she resided at the premises.

C. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

C.1. EVALUATIVE CRITERIA: ARE THE ALLEGATIONS IN THE AVIS READ COMPLAINT SUPPORTED BY THE FACTS OF THE CASE?

1. Contrary to the allegations contained in the Read Complaint, the main problem with the estimated bills issued to Ms. Read, primarily at her residence in Paradise Valley, were that the estimates were too low rather than too high.

   - On the three occasions in which actual reads were used as the basis for billings, these reads resulted in large amounts owed for previously underestimated monthly bills. When customers such as Ms. Read are faced with a large bill as a result of the true-up of previous months' estimated bills, the bill may present a financial hardship and it reduces the likelihood that the customer, without the correct pricing signal, would have taken measures to reduce usage on a timely basis.

   - On September 20, 2004, APS filed its Response to the Avis Read Complaint in Docket No. E-01345A-04-0657. **Table VI-1** and **Table VI-2** present the analyses of the Avis Read accounts in Paradise Valley and in Phoenix as included in Exhibits E and F of the September 20, 2004 filing.

Table VI-1
Meter A93326, Paradise Valley, AZ Account

Billing Period	Days in Billing Cycle	Energy Use (kWh)	Actual Meter Dial Read	Meter Read Date
3/3/99-3/19/99	16	602	96,665	3/19/99
3/19/99-4/21/99	33	1788	98,453	4/21/99
4/21/99-5/20/99	29	3042	1,495	5/20/99
5/20/99-6/21/99	32	3493	NA	Estimated
6/21/99-7/21/99	30	3225	NA	Estimated
7/21/99-8/18/99	28	2711	NA	Estimated
8/18/99-9/17/99	30	2406	NA	Estimated
9/17/99-10/18/99	31	3492	NA	Estimated
10/18/99-11/17/99	30	2901	NA	Estimated
11/17/99-12/17/99	30	2900	NA	Estimated
12/17/99-1/19/00	33	3191	NA	Estimated
1/19/00-2/17/00	29	2013	NA	Estimated
3/02/00			37,674	Ms. Read called in meter read to the Company
2/17/00-3/21/00	33	1242	NA	Estimated
3/21/00-4/18/00	28	1788	NA	Estimated
4/18/00-5/18/00	30	3042	NA	Estimated
5/18/00-6/19/00	32	3493	NA	Estimated
6/19/00-7/19/00	30	12707	57,429	7/19/00
7/19/00-8/18/00	30	2904	NA	Estimated
8/18/00-9/18/00	31	9855	70,188	9/18/00

- APS did not access Ms. Read's meter at the Paradise Valley premises from June 1999 through February 2000. According to APS, its meter readers attempted to obtain meter readings during this time period[34] but could not due to a locked gate. This problem was compounded by problems with APS' CIS which resulted in the estimated bills never being issued and mailed to Ms. Read during the period from September 1999 through January 2000.
- In Chapter III, Meter Reading, we discuss our findings related to Company meter reading practices. In our opinion, APS practices related to establishing meter reader routes and ensuring that sufficient meter reading resources are

[34] Based on response to Staff DR 1-33, APS05331 Page 3.

available to read all meters assigned to these meter reading routes has not contributed to the "no access" problems experienced by Ms. Read.

- On February 24, 2000, APS finally mailed bills to Ms. Read for electric services provided to her Paradise Valley residence during the period from September 1999 through January 2000. These bills totaled $1,709.42. This represented estimated usage for the period from August 18, 1999 through February 17, 2000. Compounding the problem was an amount owed from the bill issued on August 23, 1999 of $4,627.04, bringing the total amount due to $6,336.46. Ms. Read was unaware that these amounts were owed because of APS' billing system problems and, as a result, had not remitted payments for amounts owed.

- This large bill prompted Ms. Read to call APS on March 2, 2000, and provide the Company with a meter reading. APS then reissued the prior three months bills representing a total of 7,330 kWh using the actual meter reading reported by Ms. Read on March 2, 2000.

- As a result, the estimated kWh in CIS for the period May 20, 1999 through November 17, 1999 was likely understated, and the adjusted kWh for the three months ended February 17, 2000 was likely overstated since the periods adjusted were winter season, not summer season months.

- When the bills were reissued, the following notice appeared on her bill.

IMPORTANT NOTICE

This month's energy usage was calculated based on a meter read obtained either before or after the meter read date shown on this bill.

- This notice does not explain why Ms. Read received a second set of bills and could easily create confusion as to which bills to pay and what amount was in fact owed.

- The July 19, 2000, scheduled actual meter reading also resulted in a large bill, but based on the bills rendered it does not appear that prior month kWh was prorated and rebilled.

- During a field visit to the former home of Ms. Avis Read in Paradise Valley, BWG noted that the electric meter was in the rear yard of the property, behind a chain link fence that was about 4.5 to five feet high. If approached from the front of the house, the electric meter is behind a five-foot wooden fence that is latched. Assuming this is not problematic to the neighbor, the meter can be read from the adjoining neighbor's property which is directly accessible by walking across an undeveloped lot. However, it is unclear to what extent the meter location may have been obscured by vegetation during 2000 and whether that would have prevented the meter from being read from the adjoining property. Alternatively, the rear yard could be accessed from the right-hand side of the

property that is fenced by an approximate four foot locked chain link fence and walking to the meter location. Ms. Read had offered to let the Company replace the lock on the gate with a Company lock. We have not been able to determine whether the Company took advantage of this opportunity to gain access.[35] The property owner informed us that the latched wooden gate at the front of the property did not hold a lock, that the tenant, Ms. Read was normally at home, was not incapacitated from opening the door, answered phone calls, and additionally had a caretaker at her home. According to APS, its meter readers attempted to obtain meter readings during this time period but could not due to a locked gate. BWG intends to interview the actual meter reader primarily responsible for reading Ms. Read's Paradise Valley meter and will include the results of this interview in subsequent testimony. However, in interviews with other APS meter readers, these meter readers had described that when they have a no access situation, they attempt to find another way to get in. Given the circumstances at this premises, it is not clear whether other access alternatives were properly considered. For example, the meter reader may have been able to cross the undeveloped lot next to the Avis Read backyard and read the meter from over the fence or the meter reader supervisor may have been able to have phoned or arranged to visit the Avis Read home and discuss obtaining an APS lock on either fence (wooden or chain link).

Table VI-2

Meter No. 906893, Phoenix, AZ Account

Billing Period	Days in Billing Cycle	Energy Use (kWh)	Demand (kW)	Meter Read Date	Bill Amount	Cost per Day
9/21/98-10/21/98	29	3633	9.9	10/21/98	$282.59	$9.74
10/21/98-11/20/98	30	2900	9.7	11/20/98	$195.26	$6.51
11/20/98-12/22/98	32	3602	9.5	12/22/98	$219.28	$6.85
12/22/98-1/22/99	31	3184	8.6	1/22/99	$197.07	$6.35
1/22/99-2/19/99	28	2860	8.7	Estimated	$186.02	$6.64
2/19/99-3/19/99	28	3577	11.9	3/19/99	$238.28	$8.51
3/19/99-4/21/99	33	3356	10.2	Estimated	$216.37	$6.55
4/21/99-	29	3622	11.0	Estimated	$295.10	$10.17

[35] Based on response to DR 1-46, APS00231, CIS Site notes.

Billing Period	Days in Billing Cycle	Energy Use (kWh)	Demand (kW)	Meter Read Date	Bill Amount	Cost per Day
5/20/99						
5/20/99-6/21/99	32	4148	12.0	Estimated	$329.63	$10.30
6/21/99-7/8/99	15	4416	23.6	7/8/99	$333.91	$22.26

- The primary problem associated with estimating kWh on the Avis Read accounts is that the estimates were consistently too low. For Ms. Read's account in Paradise Valley, on each of the three occasions during the period from May 1999 through September 2000 when actual meter readings were obtained, large adjustments were required to previously estimated usage to true-up the amounts billed to the actual kWh used. APS did not prorate kWh for the entire estimated period. As a result, the kWh recorded in CIS for the unadjusted months would continue to be understated and continue to result in underestimated bills to the extent used to estimate consumption in subsequent periods.
- Following the actual meter reading in March 2000, the BSR working Ms. Read's account could have coded the account as "Do Not Estimate" so the account would have a billing exception the next time it was estimated, and the proper consideration given to the underestimation of kWh given CIS's routine kWh estimation algorithms.
- On April 7, 2000, following the large adjustment based on an actual meter reading telephoned in by Ms. Read on March 2, 2000, the 86 year old Ms. Read wrote a letter to APS stating:

> *I am in dire need of your assistance on a matter of an APS bill, and hope that you will come to my aid to resolve the problem...I have received numerous bills from APS with separate accounts, one for [Paradise Valley] and one for my former residence. It has escalated to over $7,000, and now I am being harassed and threatened with collection and credit problems, which I have never had in the very long time I have been a customer of APS – since the early fifties...I have explained the problem at great length to various supervisors and troubleshooters at APS, to no avail....*[36].

- On September 26, 2000, Ms. Read called APS to discuss bills related to her Paradise Valley account. Ms. Read was advised by the customer solution center representative that she should "have air conditioning checked if going to continue using and other major appliances – extremely high usage."[37] This followed a call on September 5, 2000 at which time Ms. Read questioned her estimated bill, believing that it was too high. Ms. Read was advised that "once

[36] Based on response to Staff DR 1-46, APS00532.

[37] Based on response to Staff DR 1-46, APS00232, CIS Site Notes for Avis Read account, Paradise Valley

meter is read the bill will adjust and possibly credit the account."[38] Thus, Ms. Read was unprepared for another large adjustment. Furthermore, without the usage and billing information that may have enabled her to make lifestyle or other changes, she did not have a reason to reduce her energy usage. The APS Customer Solution Center did not provide Ms. Read with a solution to her problem.

- If APS used its auto-dialer to alert consistent "no access" customers of the scheduling of their next meter reading, customers such as Ms. Read would more likely have arranged access on the day the meter was scheduled to be read.
- APS provided escalated customer complaints and the Company's response to those complaints in response to Staff DR 8-6. BWG noticed several additional instances in which customers complained of high bills following several consecutive months of estimated bills. In each of these instances, APS offered these customers extended payment plans.

2. During the period from September 1999 through January 2000, APS did not mail bills to a total of 663 customers, including Ms. Read, because of CIS problem. Some customers did not receive bills for as many as six months although approximately one-half were for only one month.[39] APS is required to issue monthly bills to its customers. As a result of this CIS problem, APS violated Commission rules and regulations.
3. The two sets of bills rendered to Ms. Read for the period from December 17, 1999 through February 17, 2000 represent standard bill/re-bill practices for the adjustment of estimated bills, but the bill notices do not clearly communicate the purpose of the reissued bills.
   - The Read Complaint alleges that Ms. Read received two sets of bills for the billing periods December 17, 1999 through February 17, 2000, for Meter No. A93326, one set of which indicated that her meter was read, and the other indicating that her meter was estimated. The second set of bills sent to Ms. Read resulted from the actual meter reading provided by Ms. Read to APS and the subsequent rebilling of three months previously estimated.
   - BWG reviewed both sets of bills for this time period. The language on the reissued bills does not clearly explain the reason for the new bills covering kWh during a time period previously billed.
   - The customer bill contains instructions and a telephone number regarding who a customer should call in the event they have questions about the bill.
4. The problems associated with Ms. Read's two accounts as described above and the poor customer service provided by APS to Ms. Read are disturbing. APS should not have a) allowed Ms. Read to not have received bills for utility service for the period from September 1999 through January 2000, b) allowed the number of consecutive

[38] Based on response to Staff DR 1-46, APS00231, CIS Site Notes for Avis Read account, Paradise Valley

[39] Based on response to Staff DR 3-19.

estimated bills to be rendered without making arrangements to obtain access to the meter, and c) continued to render bills based on underestimated consumption once the actual meter reading was obtained. In addition, APS should have been more responsive to Ms. Read's concerns over her high energy consumption and to the financial hardships created as a result of the bills not issued and the high true-up bill once the actual meter reading was obtained.

5. While APS claimed that its demand estimating practices implemented in March 1999, which included the use of class-average load factors rather than customer-specific load factors, would result in the underestimation of demand on average, the Company has not properly considered the impact of this change on individual customers.
   - APS does not appear to have identified the extent by which individual customer load factors differ from class average load factors and the impact this may have on individual customers when estimating demand. As a result, the use of class average load factors rather than customer specific load factors may not be in the public interest.
   - Further analysis is required to determine the extent to which individual customers have been harmed through the use of a class average load factor rather than customer specific load factors.
   - While APS did not obtain Commission approval before making the change to the use of class average load factors in early 1999, APS applied a generosity factor to the class average load factor. APS claimed that the intended purpose of adjusting the class average load factor was to provide assurance that customers, on average, would not be harmed. Several internal APS e-mails included comments recognizing the importance of having a demand estimation practice that would withstand Commission scrutiny, and believing that APS had such a practice in place.
6. From September 1998 through September 2003, APS did not have a systematic method for identifying all accounts where the estimated demand proved to be higher than the actual demand reading obtained.
   - APS made the conscious decision not to retroactively identify and credit those customers who were over-billed demand.
   - APS stated that adopting the policy to automatically credit customer accounts for the overestimation of demand exacerbates the underestimation problem.
   - According to the Company, its policy was to credit a customer's account for demand overestimation when discovered through other processes or when questioned by a customer.
   - Some of the demand overestimations would have been identified through the working of other billing exceptions or through calls from customers.
7. Paul and Linda Schaeffer, who were also parties to the amended complaint, received eleven estimated bills from the time they became customers of APS in April 2002 through February 2003 when they moved.

- During the eleven-month period from April 2002 through February 2003, they received ten estimated bills. Four of the estimates were due to an unsafe condition (dog) and six were due to a locked gate ("no access").[40] There were repeated efforts by both parties to resolve the unsafe conditions and "no access" problems.
- APS sent the customer bill notices in all eleven months and these bill notices identified the bill as "estimated" and also provided the reason for the estimate.
- Starting with the third consecutive month in which bills were estimated, the Company also began to use the auto-dialer (five months) and send blue cards (two instances) to notify the Schaeffers that access to their meter was required. They also provided the Schaeffers with several copies of the Company's meter reading schedule.
- On several occasions the Schaeffers contacted the Company directly to discuss the "no access" situation.
- Six of the estimated bills were CIS-generated and five were manually-generated by the Billing Services Department.
- In August 2002, the customer was switched from a time-of-use (TOU) rate to a standard rate. APS continued to be unable to secure a Company-read meter read during the two months the customer was on the standard rate. BWG has not visited the Schaeffer premises to determine whether the Company should have been able to read the meter without gaining direct access to the meter – one of the presumed benefits for switching rate plans. However, the customer did provide access in October 2002 at which time the time-of-use rate was restored.
- The standard rate bill issued on August 16, 2002 was replaced with a corrected, standard rate bill on August 23, 2002, which in turn was replaced with a TOU rate bill on August 29, 2002. The August bill was based on a customer provided meter reading, but was considered an estimated bill since the read date was outside the 25/35 day window and had to be prorated by the Company.
- The customers contacted the Company following the receipt of an estimated bill indicating the reason for the estimate was a "locked gate." They stated that the gate was not locked but simply latched from the inside. Rather than agree to reach over the gate to unlatch it from the inside, the Company requested the Schaeffers move the latch to the outside.
- The Schaeffers were not on a demand rate, so there are no issues related to estimating demand associated with their account.

8. BWG will expand the analyses and review the load research data to identify the degree to which load factors for specific customers vary from the class average load factor. The use of a class average load factor, while potentially unbiased, may result in individual customers being significantly over or undercharged for demand. The result of this review and analysis will be included in subsequent testimony.

[40] Based on information provided by APS in response to Staff DR 1-39.

Recommendations:

VI-1. APS should be required to train BSRs and others involved in the usage estimation, meter reading and billing process to understand that customers value an accurate bill more than an underestimated bill. APS should also train its personnel to recognize situations in which the underestimation of usage may result in problems for their customers. APS should provide Staff with a description of the changes to its training process within six months of a decision in this matter. [Refers to Finding VI-1]

VI-2. APS should be required to provide a clearer notice on a re-billed account. The notice should clearly state that the new bill replaces the previously issued bill and that the customer should only pay the reissued bill amount. APS should consult with Staff in determining the appropriate language and placement on the bill within 30 days of a decision in this matter. In addition, APS should be required to make the appropriate modifications to its billing system to implement this change within sixty days of a decision in this matter. [Refers to Finding VI-2]

See Chapters III and V for recommendations related additional steps that should be taken to reduce the number of "no access" meters.

C.2. EVALUATIVE CRITERIA: DOES THE REVIEW OF THE USAGE ESTIMATION, METER READING, AND BILLING ACTIVITIES ASSOCIATED WITH THE THIRTY-FIVE CUSTOMERS WHO FILED INFORMAL COMPLAINTS SUPPORT READ'S ALLEGATIONS?

9. The thirty-five (35) customers who have filed informal complaints with the Commission received a total of 232 estimated bills covering the period from August 1995 through October 2004. Although each estimated bill reviewed was identified as such on the customer bill, not all estimated bills had the reason for the estimate stated on the bill, although this practice improved over time. It appears that the action taken by APS was consistent with the Company's stated practices in response to the consecutive estimated bills, although records did not exist in all instances,[41] and that these practices have improved over time. However, these practices are not sufficient to ensure that "no access" problems are resolved, or actual meter readings obtained, in a timely manner.

   - The number of estimated bills received by these customers ranged from zero for one customer to thirty (30) for another customer. The median is four estimated bills; the mean is 6.6 estimated bills.
   - The customer receiving thirty (30) estimated bills had one streak of four consecutive reads and one streak of three consecutive reads. The primary stated reason for "no access" was a locked gate. The customer received 15 bill

[41] Based on information provided by APS in response to Staff DR 2-1.

notices, five door hangers, four auto-dialer calls, and was sent the annual meter reading schedule two times.

- Another customer received 25 estimated bills, with one streak of eleven (11) consecutive months and another streak of five consecutive months. The stated reason for the "no access" situation was a blocked meter. This customer received 21 bill notices, five no access letters, five "blue cards," and five auto-dialer calls.
- Another customer received 18 estimated bills, including two streaks of three consecutive reads. The primary stated reason for the "no access" situation was a locked gate. This customer received 17 bill notices, one "no access" letter, one "blue card," and two auto-dialer calls.
- Another customer received eight estimated bills, all in consecutive months. The customer's meter was reported to have been changed two times during this period. This customer received eight bill notices, two auto-dialer calls, and one policy allowance of $50 – the only policy allowance given to this group of customers during this period.
- The Company was unable to provide copies of bills rendered earlier than mid-1999, so BWG could not verify whether the reason for the estimate was shown on those bills. For subsequent periods, it is clear that the inclusion of reasons for estimating bills became a more common practice over time.
- Only one of the customers had enough consecutive months (based on the Company's policies) to warrant changing the meter to the standard rate or disconnecting the customer's electric service. This did not occur.
- A complete summary of the billing history for the 35 customers (names redacted) is provided in **Appendix D** to this report.

Appendix A – TIMELINE of Key Events at APS Related to Meter Reading and Billing Processes

Following is a timeline of key events that have occurred at APS related to the meter reading and billing process. These key events, and the impact of these events on APS's usage estimation, meter reading and billing processes will be discussed in more detail in the appropriate sections of the report that follow. The timeline is presented here to provide a perspective of these events and the timeframe in which they have occurred.

Time Period	Events
1-6-1987	System Description of the Customer Information System (CIS)[1] included formulas or calculations or definitions for: • Formula for load factor that included the use of individual customer data; • Calculation of estimated demand; and • Definition of high/low validation checks.
2-18-1995	Metro Phoenix Area adopted new "no access" procedure for residential customers in metropolitan Phoenix area. "No access" accounts are those for which no meter reading could be obtained due to reasons such as a locked gate, dangerous animal and vegetation.
2-1996	The APS Vice President of Customer Services requested a Meter Reading Operational Review.
4-4-1996	Pinnacle West/APS Internal & Systems Audit Department issued Meter Reading Operational Audit as requested by the APS Vice President of Customer Services. The audit report recommended notifying customers when APS was unable to reset their demand meter or when any portion of their meter reads was estimated. The report recommended that the new CIS system should be designed to print "estimated" next to the portion of the reads that are estimated.
9-3-1996	APS Meter Reading/Billing Task Force issued report.
12-10-1996	Detailed Order Docket no. U-1345-96-162 (Ciccone v. Arizona Public Service Co.) references the estimating procedure used by old CIS.

[1] The term "Old CIS" refers to the Customer Information System that was operational prior to September 14, 1998. The term "New CIS" refers to the CIS that was implemented as of September 14, 1998.

Time Period	Events
Since 1998	APS embarked on a number of improvement initiatives for Billing Services and Meter Reading: • Developed electronic work queue, AT Hudson Productivity Review, Billing Services Webpage, online rebilling statements, employee statistics tracking, "Billing Rep Direct" online billing procedures, web interface for customer documentation fulfillment, Quality Control function, and queries to assist daily work. • PACE meter reading Benchmarking study, implemented DB Microware routing software, AT Hudson meter reading review, Coffelt Housing Project ERT pilot, Itron P4, Safety committee, second AMR pilot, Cost per Meter read analysis, updated meter reading training, developed queries for meter reading.
9-14-1998	Various methods used by billing consultants and associates to estimate demands.
9-14-1998	APS implemented new CIS system.
9-14-1998	According to the 4/23/2003 deposition of an APS computer programmer, when APS got the new CIS system, CIS did not include programming to automatically estimate demand.
9-14-1998 to 3-9-1999	It appears that during this time period, APS billing service representatives (BSRs) had manually calculated estimated demand.
1998 or 1999	Pricing Department was requested to provide better guidelines to Information Services for system estimating. Pricing Department decided to use class average load factor based on load research survey data.
3-9-1999	CIS was programmed to calculate an estimated demand using class average load factors: • 45% for EC-1 rate customers, • 50% for ECT-1R customers • 60% for non-residential customers with a C or G meter type. An APS computer programmer performed the programming based on load factors provided by a rate consultant in the APS Pricing Department. The programmer estimated that the change required about 24 hours of programming. These class average load factors included what APS has referred to as a "10% generosity factor".
1999	According to the deposition of the Manager, Regulatory Affairs, no one ever asked her to submit the change in residential class average load factor to the Commission.
7-14-1999	According to an e-mail, the Manager, APS Consumer Advocate's Office, was concerned that "estimate" was not printing on the bills and that the fix should be expedited.

Time Period	Events
8-1999 – 2-2000	The time period during which Avis Read's energy bills were estimated by APS.
3-2-2000	APS received actual meter reading from Avis Read
5-18-2000	Rules for High Exceptions for Billing Exceptions 181-182 revised: 181 - Reference table for all service plans of non-residential accounts used "Highest Usage x 5"; 182- Reference table for all service plans, residential accounts and irregular accounts, used "Estimated usage x 10" as the usage limit.
8-10-2000	Emails document some discussions about irregular users. APS issued defect/enhancement regarding services experiencing no kW demand and incorrect system estimates.
8-14-2000	The date that CIS began issuing a billing exception upon the third consecutive estimate. Previously CIS issued the billing exception upon the fourth consecutive estimate.
10-06-2000	Effective date for the Billing Services Department policies and procedures regarding "Mailing Out Blue Cards" to notify the "no-access" customers that APS needed to read the meter.
11-17-2000	APS held meeting to discuss ACC Commitments of 1996.
11-30-2000	APS noted inconsistencies in the methods being used to estimate and prorate bills. The rate consultant proposed that when the BSRs manually calculated estimates, they should be using the same calculation for estimating demand that the CIS system used.
11-30-2000	An APS email documented that the meter reading managers agreed to begin more consistent "rotation" of reading assignments, every three to four months. The meter reading managers committed to work customer access reports on a regular basis.
11-2000	During November 2000, APS began testing an auto-dialer for "no access" accounts that had "no access" for three or more consecutive months.
12-4-2000	Sometime after this date, APS intended to use the 45 percent, 50 percent, 60 percent load factors that had been adjusted to include what APS referred to as a "generosity factor" in the Excel "Prorater" spreadsheet used by the billing service representatives.
11-2000	"No access" Call Campaign adopted.
11-21-2000	The Instructor Guide for the Customer Service Associate Training chapter regarding inquiry was revised.

Time Period	Events
12-28-2000	The Metro Phoenix area agreed to work the two daily reports received in meter reading more thoroughly.
Early 2001	Metro Phoenix activated auto-dialer for when an account reaches third consecutive month of "no access."
6-5-2001	The CIS change titled "Change 6133" of June 5, 2001 was revised to display customer accounts with greater than or equal to three consecutive estimated reads.
8-9-2001	An APS team issued the Billing Exception Review – Final Proposal which examined estimation procedures and evaluated billing exceptions to determine additions, revisions, or deletions needed.
8-9-2001	"Validation Parameters set too high" many bills which should have received a billing exception were going to the customers without review.
2-14-2002	APS makes a compliance filing in accordance with Decision 64180 in which it provides the number of initial and final bills that have been estimated and the Company's procedures for estimating initial and final bills.
3-12-2002	In an email, the APS Consumer Advocate's office expressed concerns about estimates created by APS, and expected that the ACC would be surprised at the volume of estimates.
4-16-2002	Billing date on Linda Schaeffer's first APS energy bill.
6-4-2002	Class action complaint filed by Avis Read.
6-19-2002	Change to CIS requested by a member of the APS Pricing Department. The change involved changing the class average residential TOU load factor from 50 percent to 35 percent.
6-29-2002	According to e-mails, APS detected that Billing Exception #116 – "No Estimate, Consecutive Reads, and Customer Read Exceeds Limit" needed to be changed to trigger on the third month of consecutive estimated reads rather than the fourth month of consecutive reads.
7-26-2002	According to an APS report, APS detected that CIS was issuing billing exception 116 on the fourth consecutive month of estimated reads instead of the third month. APS had detected that the CIS system was allowing accounts coded with an irregular use code to estimate more than three consecutive months without creating a billing exception. CIS was changed to fix this problem.

Time Period	Events
8-22-2002	Date on excerpt of BL/19 Estimating, High/Low checking rounding. At this time, CIS was performing high/low checking in the following ways: Low side is 50 percent of Current Usage Pattern System (CUPS), if able to calculate CUPS for this service account or 50 percent of usage for same month last year. High side is three times CUPS Estimate or three times previous highest usage.
8-24-2002	Date that the change in the value of the load factors became effective in CIS.
9-5-2002	A rate consultant circulated a draft of the APS Billing System Estimating Rules.
2-18-2002	An email from an APS rate consultant stated that the APS Pricing Department was asked to come up with something Information Services could quickly get into CIS for automatically calculating estimated demand.
2003	During 2003, the Billing Services Department implemented the Billing Estimater on the APS Intranet. This tool assisted the billing service representatives with estimating or pro-rating.
4-23-03	In a deposition for the Avis Read case, the Manager, Regulatory Compliance stated that she had not been asked to file anything with the Commission seeking approval of the estimating process. (APS04764)
6-2003	During June 2003, APS changed the "no access" policy to add steps for each estimated read. Under this new no-access policy, the meter reader must leave a door hanger at each premises where the meter reader was not able to access the meter to obtain a read. The policy indicates that the meter reader must leave a door hanger each month that the meter can not be read.
6-2003	Meter readers begin to leave door hangers to notify customers that they could not read the meter due to lack of access to the meter.
9-2003	Implemented Billing Exception 193 regarding estimated demand readings. Automatic billing exception identifies accounts when current kW obtained from actual read is less than estimated kW used last month.
2004	Options in Itron software changed for Metro Phoenix Meter Reading. Last month's read and last month's usage no longer appear on handheld device in Metro Phoenix area. (This change was not implemented outside of Metro Phoenix.)
8-2-2004	Second revision of "Methodologies for Estimating Customer Usage", (revised 08-02-2004) issued.

AEP TEXAS CENTRAL COMPANY &
SOUTHWESTERN ELECTRIC POWER COMPANY
Service Rules and Regulations Relating to Access Delivery System of Company by Competitive Retailers

4.7 Measurement and Metering of Service

4.7.2 Meter Reading

- Company is responsible for reading Company's meter. If an actual Meter Reading is not obtained, Company shall estimate the Meter Reading for invoicing purposes in accordance with this Chapter, the Rate Schedules in Section 6.1, RATE SCHEDULES, and Applicable Legal Authorities.

4.8.1.4 Estimated Usage

- Estimated usage must be identified as "Estimated" in the SET transactions. If requested, Company shall provide the reason for estimation and the estimation method used. If an estimation methodology is developed by the Commission, Company shall use that methodology.

ALABAMA PUBLIC SERVICE COMMISSION
GENERAL RULES
Rule 10
Meter Reading and Bill Forms – Electric, Gas, Steam, and Water Utilities

(D) From time to time, it will be necessary to estimate meter readings to avoid a long billing period. As nearly as practicable, utilities shall avoid rendering a customer two consecutive estimated bills. In cases where more than two successive estimated bills have been rendered, utilities shall notify the customers, stating the number of billing periods in which an estimated bill was rendered and reasons for the estimations. Bills rendered on the basis of estimated meter readings may be for reasons such as inclement weather, vicious animals, impassable roads, locked premises, or other causes beyond the reasonable control of the Utility. When a bill is estimated, this fact will be so indicated by a code or other designation on such bill.

AMERICAN ELECTRIC POWER Kentucky
SCHEDULE OF TARIFFS, TERMS AND CONDITIONS OF SERVICE GOVERNING SALE OF ELECTRICITY
P.S.C. Electric No. 7

14. Monitoring Usage

At least once annually the Company will monitor the usage of each customer according to the following procedure:

1. The customer's monthly usage will be compared with the usage of the corresponding period of the previous year.
2. If the monthly usage for the two periods are substantially the same or if any difference is known to be attributed to unique circumstances, such as unusual weather conditions, common to all customers, no further review will be made.
3. If the monthly usage is not substantially the same and cannot be attributed to a readily identified common cause, the Company will compare the customer's monthly usage records for the 12-month period with the monthly usage for the same months of the preceding year.
4. If the cause for the usage deviation cannot be determined from analysis of the customer's meter reading and billing records, the Company will contact the customer to determine whether there have been changes that explain the increased usage.
5. Where the deviation is not otherwise explained, the Company will test the customer's meter to determine whether it shows an average error greater than 2 percent fast or slow.
6. The Company will notify the customers of the investigation, its findings, and any refunds or backbilling in accordance with 807 KAR 5:006, Section 10(4) and (5).

APPLACHIAN POWER COMPANY
V.A.S.C.C. Tariff No. 18
Terms and Conditions of Standard Service
Sheet 3-6

If the customer has been incorrectly billed because of errors other than meter accuracy, the Company shall estimate the electricity used during the entire period of incorrect registration based on all known relevant facts, the billing will be calculated based on the estimated use of the electricity, and the customer shall pay to the Company such estimated amount.

ARKANSAS PUBLIC SERVICE COMMISSION
Part III. Rate Schedule No. 1

Monthly Bills

The Company makes a special effort to read all meters every month. Sometimes due to adverse weather conditions, dog hazards, damaged equipment, etc., it is not possible to obtain a meter reading and the bill may be estimated. Bill estimation is calculated based upon any one or combination of the following factors:

(1) history of use at the service location, (2) actual weather conditions during the billing period, (3) changes in electrical equipment used by the customer during periods under review, (4) usage of service locations of the same class and similar electrical service characteristics. Estimated bills are designated with an "E" on the bill under code "CD." Customers served under rates that have both gross and net rates will be billed both the gross and net amounts for electric service each month. Where bills are paid on or before the last due date, only the net bill will be paid. Where a bill is paid after the last due date, the gross bill will be paid.

PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO
Rules Regulating the Service of Electric Utilities
4 Code of Colorado Regulations (CCR) 723-3

Nothing on meter reading or estimated bills.

INDIANA MICHIGAN POWER COMPANY
State of Indiana
I.U.R.C. No. 14, Second Revised Sheet No. 3
Terms and Conditions of Service

Bills for Electric Service

It may be necessary for the Company to render a bill on an estimated basis if extreme weather conditions, emergencies, work stoppage, or other circumstances of force majeure prevent actual meter readings. Any bill rendered on an estimated basis shall be clearly and conspicuously identified.

In the event of the stoppage of or the failure of any meter to register an accurate amount of energy consumed, the customer will be charged or credited for such period on an estimated consumption based upon his use of energy in a similar period of like use. The estimation shall include adjustments for changes in customer's load during the period the meter was not registering properly. All such billing errors will be adjusted to the known date of error or for a period of one year, whichever is shorter.

INDIANA MICHIGAN POWER COMPANY
State of Michigan
M.P.S.C. 13 – Electric
ORIGINAL SHEET NO. 3.63

Terms and Conditions of Standard Service

Estimated Billing Rule 12

1. A utility may estimate the bill of a residential customer every other billing month. A utility may estimate the bills more or less often upon a finding by the Commission that those procedures assure reasonable

billing accuracy. A bill that is rendered on an estimated basis shall be clearly and conspicuously identified as such. A utility shall not render an estimated bill unless the estimating procedures employed by the utility and any substantive changes to those procedures have been approved by the Commission.

2. A utility may render estimated bills to seasonally billed customers in accordance with the tariffs approved by the Commission.
3. Notwithstanding the provisions of sub rule (1) of this rule, a utility may estimate the bill of a customer if extreme weather conditions, emergencies, work stoppages, or other circumstances beyond the control of the utility prevent an actual meter reading.
4. If the utility is unable to gain access to read a meter, then the utility shall use reasonable alternative measures to obtain an actual reading, including mailing or leaving postage-paid, pre-addressed postcards upon which the customer may note the reading. If the customer fails to comply with those alternative measures or makes reading the meter unnecessarily difficult, then the utility may transmit an estimated bill notwithstanding the provisions of sub rule (1) of this rule. If a utility cannot obtain an actual reading under this sub rule, then the utility shall maintain records of the reasons and its efforts to secure an actual reading.

Customer Meter Reading – Rule 13

A utility shall provide each customer with the opportunity to read and report energy usage as long as the customer reports energy usage on a regular and accurate basis. A utility shall provide postage-paid, pre-addressed postcards for this purpose upon request. At least once every 12 months, a utility shall obtain an actual meter reading of energy usage to verify the accuracy of readings reported in this manner. Notwithstanding the provisions of this rule, a utility may read meters on a regular basis.

LOUISIANA PUBLIC SERVICE COMMISSION
GENERAL ORDER
In Re: Prohibition Against Estimating Utility Bills

This Commission is mindful that controversies have arisen between utility companies and consumers over the practice of some companies estimating utility bills, often resulting in billing for utility services not actually utilized or exceptionally high monthly bill when the meter is read and reconciled with the previous reading.

Accordingly, this Commission hereby orders that utilities utilizing meters shall not bill a customer for utility consumption except on the basis of actual meter readings. This order shall not be applicable to utilities whose member-customers provide the meter reading services. Exceptions may be granted in those cases when meters are read pursuant to mutual agreement between the utility and the customer or the monthly meter readings are not feasible.

NEVADA
CHAPTER 704 – REGULATION OF PUBLIC UTILITIES GENERALLY
NAC 704.337 Billing based upon estimated usage. (NRS 703.025, 704.210)

1. Except as otherwise provided in subsection 4, if a utility is unable, because of circumstances beyond its control, to read the meter of a customer on the date scheduled, it may bill the customer based upon his estimated usage for the billing period.
2. For the purpose of this section, circumstances beyond the control of a utility include:
   a) Severe weather;
   b) The presence of an animal on the premises of the customer which prevents an employee of the utility from reading the meter without risk of injury; or
   c) Any other circumstance which makes it unreasonably difficult to read the meter.
3. A utility shall consider the following factors in calculating a bill based upon estimated usage:
   a) The usage of the customer during the same month of the preceding year;
   b) Any change in temperature from the preceding month;
   c) The usage during the preceding month; and
   d) Seasonal load factors.
4. A utility which issues three consecutive bills to a customer based upon estimated usage, or five such bills for a customer in the area surrounding Lake Tahoe, shall notify the customer of its right of access to the premises of the customer. Thereafter, any additional and consecutive bill based upon estimated usage may be issued only under extraordinary circumstances.
5. A utility shall:
   a) Adjust the estimated usage upon the first reading of a meter after an estimated reading;
   b) Print the word "estimate" on each bill which is based upon estimated usage; and
   c) Notify customers of its right to issue bills based upon estimated usage. (Added to NAC by Public Service Comm'n, eff. 1-5-89)

NEVADA POWER COMPANY
Tariff No. 1-B, PUCN Sheet No. 60
Rule No. 5
Bills for Service

3. Except as otherwise provided in Section 6, if a utility is unable because of circumstances beyond its control, to read the meter of a customer on the

date scheduled it may bill the customer based upon his estimated usage for the billing period.

4. Circumstances beyond the control of the utility include:

   a. Severe weather;

   b. The presence of an animal on the premises of the customer which prevents an employee of the utility from reading the meter without risk of injury; or

   c. Any other circumstances which make it unreasonably difficult to read the meter.

5. A utility shall consider the following factors in calculating a bill based upon estimated usage:

   a. The usage of the customer during the same month of the preceding year;

   b. Any change in temperature from the preceding month;

   c. The usage during the preceding month; and

   d. Seasonal load factors.

6. A utility which issues three consecutive bills to a customer, based upon estimated usage, shall notify the customer of its right of access to the premises of the customer. Thereafter any additional and consecutive bill based upon estimated usage may be issued only under extraordinary circumstances.

F. Adjustments of Bills for Errors

4. Bills for this purpose shall be based upon: a) Customer's prior use; b) Customer's subsequent use correctly metered; c) Utility's experience with other Customers of the same rate class, and d) the general characteristics of Customer's operations.

NORTHERN STATES POWER COMPANY
WISCONSIN ELECTRIC RATE BOOK, VOLUME NO. 7
SHEET NO. E 83
Rules and Regulations
Section 3.0 Rate Application and Billing Rules and Regulations

Section 3.3 Billing

Bills will normally be rendered monthly. Meters are scheduled to be read monthly at approximately 30-day intervals. If the Company is unable to read a meter, the customer's usage will be estimated by a computer programmed to take into account the

pattern of customer's use and seasonal factors. Bills rendered without an actual meter reading will specify that the usage is estimated. The Company may permit the customer to supply the meter readings, provided the Company reads the meter at least once each 6 months and when there is a change of customers.

PACIFIC GAS and ELECTRIC COMPANY
San Francisco, California
Cal. P.U.C. Sheet No. 14877-E
RULE 9 – RENDERING AND PAYMENT OF BILLS

C. ESTIMATED BILLS

If, because of unusual conditions or for reasons beyond the meter reading entity's control, the customer's meter cannot be read on the scheduled reading date, or if for any reason accurate usage data are not available, PG&E will bill the customer for estimated consumption during the billing period. Estimated consumption for this purpose will be calculated considering the customer's prior usage, PG&E's experience with other customers of the same class in that area, and the general characteristics of the customer's operations.

PSI ENERGY
IURC No. 13
General Terms & Conditions for Electric Service

12. Rendering and Payment of Bills

12.6 When Company is unable to obtain the reading of a meter and after reasonable effort, it may estimate the reading and render a bill, so marked.

12.7 In the event Company's meter fails to register properly for any reason, Company shall estimate Customer's energy use and/or maximum load during the period of failure based on such factors as Customer's normal load and energy usage during a like corresponding period.

PUBLIC SERVICE COMPANY OF OKLAHOMA
SCHEDULE: Facts About Your Electric Service Rules, Regulations and Conditions of Service - P. 4 of 13

9. ELECTRIC SERVICE BILLS

Meters furnished, installed and maintained by PSO are used to determine your monthly bills (except for unmetered contracts).

Meters are read and bills are submitted at monthly intervals. Whenever it is not possible to read your meter for a billing period, we may submit an estimated bill based on

previous usage and other available information. You will receive no more than two consecutive estimated bills without PSO reading your meter.

PUGET SOUND ENERGY
Electric Tariff G
Schedule 80
General Rules and Provisions

13. BILLING – The provisions of this Schedule are applicable, with the exceptions noted below, to all Customers served under rate schedules for electric service filed in this tariff.

a. Bi-Monthly Billing – The Company generally reads meters and issues billings to its customers on a bi-monthly basis. The following procedure is used in applying monthly rate schedules on a bi-monthly basis:

1. The rates per kWh in the monthly rate schedules remain in effect; the kWh blocks to which these rates apply are multiplied by two (2) for computing the bi-monthly kWh charges.
2. The rates for fixed KW Demand in the monthly rate schedules are multiplied by two (2) for computing the bi-monthly Demand charges.
3. The basic or minimum charges in the monthly rate schedules, whether fixed or based on maximum KW Demand or connected load, are multiplied by two (2) for computing the bi-monthly basic or minimum charges.

b. Other than Bi-Monthly Billing

1. Monthly Billing – Indicating and recording Demand meters used for billing purposes will be read and billings issued on a monthly basis. The Company may, at its option, read meters and issue billings on a monthly basis to certain customers who would customarily be billed on a bi-monthly basis under 13.a. above.

20. METERING

a. An accurate record shall be kept by the Company of all meter readings and such record shall be the basis for determination of all bills rendered for service. Should any meter fail to register correctly the amount of electricity used by the Customer, the amount of such use will be estimated by the Company from the best available information.

SAN DIEGO GAS & ELECTRIC COMPANY
Cal. P.U.C. Sheet No. 15695-E
RULE 9
Rendering and Payment of Bills

A. Rendering of Bills

5. If the utility is unable to read the customer's meter on the scheduled reading date, the utility may bill the customer for estimated consumption during the billing period, and make any necessary corrections when a reading is obtained. Estimated consumption for this purpose will be calculated considering the customer's prior usage, the utility's experience with other customers of the same class in that area, and the general characteristics of the customer's operations. Adjustments for any under-estimate or over-estimate of a customer's consumption will be reflected on the first regularly scheduled bill rendered and based on an actual reading following the period of inaccessibility.

SIERRA PACIFIC POWER COMPANY
Tariff No. Electric No. 1, 3rd Revised PSCN Sheet No. 22
Rule No. 5
Bills for Service

A. Rendering of Bills

2. Estimated Bills

a. If the utility is unable, because of circumstances beyond its control, to read the meter of a customer on the date scheduled, the utility may bill the customer based upon his estimated usage for the billing period.

Circumstances beyond the Utility's control include:

1. Severe weather
2. The presence of animal on the premises of the Customer which prevents an employee of the Utility from reading the meter without risk of injury.
3. Any other circumstance which makes it unreasonably difficult to read the meter including, but not limited to, remote service locations, difficult or no access to the meter, etc.

b. The following factors are considered in calculating a bill based upon estimated usage:

1. The usage of the Customer during the same month of the preceding year.
2. Any change in temperature from the preceding month.
3. The usage during the preceding month.
4. Seasonal load factors.

c. A Utility which issues three consecutive bills to a Customer based upon estimated usage, or five such bills for a customer in the areas that are prone to heavy snow or remote, shall either notify the Customer of its right of access to the premises of the Customer or of the specific circumstance which makes it unreasonably difficult to read the meter. Thereafter, any additional and consecutive bill based upon estimated usage may be issued only if the circumstances causing such estimated bill cannot be reasonably remedied.

d. The Utility shall adjust the estimated usage upon the first reading of a meter after an estimated reading. In cases where the meter's location or other circumstances make it unreasonably difficult to access, the Utility will read the meter at least once a year and correspondingly adjust the bill.

e. If, for reasons beyond its control, Utility is unable to read the Customer's meter on the scheduled reading date, the Utility may bill Customer the estimated consumption during the billing period, subject to adjustment at the time the meter is next read.

f. In circumstances where usage has been underestimated, the Utility will allow the Customer to pay off the under-estimate over a time period equivalent to the time period when the under-estimate occurred, if requested by the Customer.

SOUTHERN CALIFORNIA EDISON
Rosemead, California
Cal. PUC Sheet No. 29956-E
RULE 9
RENDERING AND PAYMENT OF BILLS

Nothing about meter reading or estimated billing.

SOUTHERN INDIANA GAS & ELECTRIC COMPANY
P.S.C.I. No. E-10 N.S.
General Terms and Conditions Applicable to Electric Service

9. Meter Reading and Billing

Bills will be rendered monthly based on metered or estimated usage. When the Company is unable to read the meter, the usage for the month will be estimated on the basis of past service records or other available data. Bills rendered for electric service in months in which meters are not read shall have the same force and effect as those based on actual readings. Any Customer who desires not to receive a bill for estimated usage may read his meter and send the readings to the Company on appropriate forms which will be provided by the Company upon request.

Should a meter fail to register the amount of electricity supplied during any period, the usage will be estimated based upon the use during similar periods or on other available information and a bill rendered accordingly.

PUBLIC UTILITY COMMISSION TEXAS

§25.25 Issuance and Format of Bills

d) Estimated Bills

1. An electric utility may submit estimated bills for good cause provided that an actual meter reading is taken no less than every third month. In months where the meter reader is unable to gain access to the premises to read the meter on regular meter reading trips, or in months when meters are not read, the electric utility must provide the customer with a postcard and request the customer to read the meter and return the card to the electric utility. If the postcard is not received by the electric utility in time for billing, the electric utility may estimate the meter reading and issue a bill.

2. If an electric utility has a program in which customers read their own meters and report their usage monthly, and no meter reading is submitted by a customer, the electric utility may estimate the customer's usage and issue a bill. However, the electric utility must read the meter if the customer does not submit readings for three consecutive months so that a corrected bill may be issued.

UTAH POWER & LIGHT COMPANY
P.S.C.U. No. 45
ELECTRIC SERVICE REGULATION NO. 8
STATE OF UTAH

BILLINGS

3. RESIDENTIAL ESTIMATED BILLING
Bills will be rendered regularly at monthly or bimonthly intervals to permanent continuous non-seasonal customers. The Company at its option may use an estimated billing procedure. If a meter reader is unable to gain access to a meter for the purpose of making an actual reading, the Company shall take appropriate additional measures in an effort to obtain an actual meter reading. These measures shall include, but are not limited to, scheduling of a meter reading at other than normal business hours, making an appointment for meter reading or providing a prepaid postal card with a notice of instruction upon which an account holder may record a meter reading. In addition, when mutually agreed upon and at the Customer's expense, a remote device may be installed. If after two regular route

visits access has not been achieved, the Company will notify the customer that he/she must make arrangements to have the meter read as a condition of continuing service.

If after complying with the above provisions, the Company is unable to make an actual meter reading within a two month period, it may again render an estimated bill for the current billing cycle.

OVERBILLING

a) Standards and Criteria for Overbilling

Billing under any of the following conditions constitutes overbilling.

1. a meter registering more than two percent fast, or a defective meter;
2. use of an incorrect watthour constant;
3. incorrect service classification, provided that the information supplied by the customer was not erroneous or deficient;
4. billing based on a switched meter condition where the customer is billed on the incorrect meter.
5. meter turnover, or billing for a complete revolution of a meter which did not occur;
6. a delay in refunding payment to a customer pursuant to rules providing for refunds for line extensions;
7. incorrect meter reading or recording by the Company; and
8. incorrectly estimated demand billings by the Company.

b) Interest Rate

1. The Company shall provide interest on customer payments for overbilling. The interest rate shall be the greater of the interest rate paid by the Company on customer deposits, or the interest rate charged by the Company for late payments.

2. Interest shall be paid from the date when the customer overpayment is made, until the date when the overpayment is refunded. Interest shall be compounded during the overpayment period.

WISCONSIN POWER & LIGHT COMPANY

Rules and Regulations Applicable to Electric, Gas, Water Service
Volume II, 2nd Revision, Sheet No. 46.00

Amendment 421, Schedule Xr-7

Billing When Unable to Read Meter

When the Company is unable to secure a meter reading after reasonable effort, the Customer will be billed on estimated consumptions and the difference adjusted when the meter is again read. The basis of such estimates shall be normal energy consumptions for similar periods in other years and normal consumptions of preceding months.

When an actual meter reading indicates that a previous estimated bill(s) were abnormally high or low, the bill may be re-calculated for the period(s) in which estimated bills occurred since the last actual reading. Consumption will be distributed over this period to reflect the normal usage pattern of the customer. The previous estimated charge(s) will be deducted from the re-calculated total. If there is evidence to indicate that actual use was not uniform throughout the period, the billing shall be adjusted according to available information.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

1. A kWh estimate with at least one year of history. Same customer at same premises or new customer with at least one year of premises history.

AJO Improvement Company	AJO Improvement Company (AIC) only estimates usage if a meter stops working or if AIC does not have access to the meter due to unforeseen circumstances, such as a locked gate. Estimates are typically done on a one-time basis due to unique circumstances and AIC does not have any customers where it estimates usage on a continuing basis.
Columbus Electric Cooperative, Inc.	(a) The CIS system would estimate the consumer's bill based on the three most recent month's avg. consumption. (b) If the consumers three most recent month's consumption were 512 kWh, 565 kWh & 595 kWh, the calculation would be: (512+565+595)/3+359 kWh. The CIS system does not estimate the kW demand for large commercial and industrial customer classes. It does however estimate kWh based on the same calculation. In cases where there is no demand reading, the Cooperative contacts the consumer and the billing demand is mutually agreed upon, based on history or data collection equipment is installed on the consumer business to determine kW demand. (c) The same would be true if this were a time-of-use consumer, the consumer's day and night consumptions would be calculated independent of each other in the manner previously described. (d) The kWh calculations are the same for both residential and non-residential accounts (e) This same procedure applies under any circumstance when a customer's bill is estimated. (f) Anytime a consumer has at least three months of history this procedure always applies. (g) CEC makes every effort to read all of the cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate residential and small commercial meter readings. (h) The computer system never estimates the first month's kWh consumption. It would bill the system charge and associated taxes and not bill kWh until the following month. The final bill is never estimated because the meter is removed, a reading is taken and the meter is taken to the meter shop for testing and calibration.
Duncan Valley Electric Cooperative, Inc.	Average of: Same month, previous year; Previous month; Last three month average.
Garkane Energy Cooperative	An average of the last three months kWh used.
Graham County Electric Cooperative	kWh with at least 1 (one) year history: <1> same customer at same premises – use prior year's usage same month, calculate daily rate, apply to current days read for estimated kWh <2> new customer with at least 1 (one) year premises history – use history of premises usage same month, calculate daily rate, apply to current days read for estimated kWh.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

1. A kWh estimate with at least one year of history. Same customer at same premises or new customer with at least one year of premises history.

Mohave Electric Cooperative, Inc.	For same customer or new customer at same premises with at least one year of premises history, Mohave uses: a) last month's history; b) last three month's average usage; c) usage this month last year. Add results of a, b and c and divide by the number of answers obtained in a, b and c. This amount will be the estimated usage for this account. If the meter has stopped, the meter will be changed, and the estimated usage will be adjusted by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated kWh usage.
Morenci Water & Electric Company	1a) Compare last month this year to last year last month and last year this month. 1b) Estimate = (this month last year) * (last month last year) / (last month this year). 1c) MW & E does not have time-of-use tariff
Navopache Electric Co-op	Navopache uses previous month history with same customer same premises. New customer no premises history is used and 0 kWh is billed, customer charge is pro-rated.
Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history & same month previous year with same and new customer at same premises.
Trico Electric Cooperative, Inc.	The CIS system calculates the estimate using the kWh, same month one year prior, from the same premises.
Tucson Electric Power Company	TEP would generate a bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH DIVIDED BY NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE. PER DAY USAGE X NUMBER OF DAYS IN THIS MONTH'S CYCLE = EST. USAGE. OR The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from 3 prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. Circumstances for est. a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	The customer Information System ("CIS") would generate a bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE = ESTIMATED USAGE Circumstances for estimating a meter read occur when UNS Electric, Inc. ("UNS Electric") is unable to obtain an actual meter read.

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STAFF 1-1 QUESTIONS

2. A kWh estimate with less than 12 months' history. Same customer at same premises.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) If the CIS system had more than three months history it would be estimated in the manner previously described. If there is no meter reading in the first month, residential and small commercial consumer accounts are not billed for kWh until the following month. They are only billed for the customer charge and applicable taxes. If the consumer has more than one month's history but less than three, then the consumer's kWh is estimated manually. (b) If the consumer has 45 days of consumption history and the next billing period averaged 30 days, the calculation would be: (765 kWh/45 days)*30 days=510kWh. kW demand is estimated in the manner described in the answer to the previous question. (c) The same would be true if this were a time-of-use consumer, the consumer's day and night consumptions would be calculated independent of each other in the manner previously described. (d) The kWh calculations are the same for both residential and non-residential accounts. (e) This same procedure applies under any circumstance when a consumer's bill is estimated. (f) Anytime a consumer has at least three months of history the CIS system estimates the bill and under circumstances where there are less than three months, bills are estimated manually. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003, CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) As previously described, the first and final months bills are never estimated.
Duncan Valley Electric Cooperative, Inc.	Average of: Previous month usage; Last three month average.
Garkane Energy Cooperative	An average kWh usage of the last three months, of if less than three months history, then the last month's usage.
Graham County Electric Cooperative	kWh estimate with less than 12 (twelve) months' history same customer at same premises – use prior month's usage, calculate daily rate, apply to current days read for estimated kWh.
Mohave Electric Cooperative, Inc.	For same customer at same premises with less than one year of premises history, Mohave uses: a)last month's history; and b) last three month's average usage. Add results of a) and b) and divide by the number of answers obtained in a) and b). Last month's usage would be used if less than three months usage history is available. If the meter has stopped, the meter will be changed, and the estimated usage will be adjusted by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated usage:

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STAFF 1-1 QUESTIONS

2. A kWh estimate with less than 12 months' history. Same customer at same premises.

Morenci Water & Electric Company	2a) From the data available, up to 3 months usage, a daily average usage is calculated and multiplied by the number of days in the billing cycle. 2b) Estimate – (Sum of Monthly historical usage/number of history days) * number of days in billing cycle. 2c) MW & E does not have a time-of-use tariff.
Navopache Electric Co-op	Navopache uses previous month history.
Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history.
Trico Electric Cooperative, Inc.	The CIS system calculates the estimate using the average kWh of the past three months from the same premises.
Tucson Electric Power Company	If there is at least three months of data, the CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created for each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the Consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a high and a low value for meter read validation and a usage amount for bill estimation. If three months of data does not exist, CIS will use the rate schedule average daily usage to calculate customer's bill. If manually estimated, TEP would use the prior month's data and manually estimate consumption by using the following steps: (i) calculate per day usage, (ii) prior month consumption divided by number of days in cycle, and (iii) multiply number of days in the current month's cycle by per day usage. Circumstances for est. a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	If the bill was less than six days, the bill would be held over to the next billing month. If the bill was for six days or more, the CIS would generate a bill based on customer usage from the previous month using the following formula: LAST MONTH'S USAGE divided by NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE. PER DAY USAGE X NUMBER OF DAYS IN THIS MONTH'S CYCLE = ESTIMATED USAGE.

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STAFF 1-1 QUESTIONS

3. A kWh estimate with less than 12 months' history. New customer with premises history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) The CIC system would estimate the consumer's bill if there is at least three months history. If there is less than three months history, bills are estimated manually. Bills are never estimated based on the historical premises consumption. Electrical equipment and use patterns may differ significantly. (b) The bill calculations would be the same as answered in questions (1) & (2). (c) The same would be true if this were a time-of-use customer, the consumers day and night consumptions would be calculated independent of each other in the manners previously described. (d) The calculations are the same for both residential and non-residential accounts. (e) This same procedure applies under any circumstance when a consumer's bill is estimated. (f) Anytime a consumer has at least three months of history this procedure always applies. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) first and final month's bills are never estimated.
Duncan Valley Electric Cooperative, Inc.	Use customer/premises history using average of: Same month, previous year; Previous month; Last three month average.
Garkane Energy Cooperative	An average kWh usage of the last three months, or if less than three months history, then the last month's usage.
Graham County Electric Cooperative	3. kWh estimate with less than 12 (twelve) months' history new customer with premises history – use prior month's premises usage, calculate daily rate, apply to current days read for estimated kWh.
Mohave Electric Cooperative, Inc.	For new customer at same premises with less than one year of premises history, Mohave uses: a) last month's history; and b) last three month's average usage. Add results of a) and b) and divide by the number of answers obtained in a) and b). Last month's would be used if less than three months usage history is available. If the meter has stopped, the meter will be changed, and the estimated usage will be adjusted by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated usage.
Morenci Water & Electric Company	3a) From the premises data available, a daily average usage is calculated and multiplied by the number of days in the billing cycle. 3b) Estimate + (Sum of Monthly historical usage/number of history days) * number of days in billing cycle. 3c) MW & E does not have a time of use tariff.
Navopache Electric Co-op	New customer no premises history is used and 0 kWh is billed, customer is pro-rated.

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3. A kWh estimate with less than 12 months' history. New customer with premises history.

Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history.
Trico Electric Cooperative, Inc.	The CIS system calculated the estimate using the average kWh of the past three months from the same premises.
Tucson Electric Power Company	The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. If manually estimated, TEP would use the prior month's consumption and use the following steps: (i) calculate per daily usage divided by number of days in cycle and (ii) multiply number of days in this month's cycle by per day usage. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	If the bill was for less than six days, the bill would be held over to the next bill cycle. If the bill was for six days or more, the CIS would generate a bill based on premises usage from the previous months using the following formula: LAST MONTH'S USAGE divided by NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE = ESTIMATED USAGE.

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4. kWh estimate. No history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) This example would assume that this is the consumer's first month's billing. The Cooperative does not estimate the first month's kW billing. Residential and small commercial consumers would be billed only the customer charge and the applicable taxes. The Cooperative would at this point determine why the meter was unable to be read and take corrective action eliminating the likelihood of a second month's estimated bill. Large commercial and industrial accounts kW and kWh estimates are estimated in the manner previously described. (b) Because the Cooperative does not estimate the first month's bill there is no calculation. (c) The same would be true if this were a time-of-use customer. (d) The calculations are the same for both residential and non-residential accounts. (e) This same procedure always applies. (f) The CIS system estimates meter readings when a consumer has at least three months history, otherwise the estimates are made manually. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) The Cooperative never estimates first or final bills.
Duncan Valley Electric Cooperative, Inc.	Average usage from similar class customer with similar premises, for same month.
Garkane Energy Cooperative	No estimation, customer would pay minimum bill.
Graham County Electric Cooperative	4. kWh with no history - use appropriate peak usage value or the average usage for the rate schedule.
Mohave Electric Cooperative, Inc.	With no history, Mohave will base estimated usage on actual usage for similar services similar customers for the same period. If the meter has stopped, the meter will be changed, and the estimated usage will be determined by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated usage.
Morenci Water & Electric Company	4 a) Bill minimum service charge until a meter reading can be acquired, customer contacted by phone, door hanger to call office.
Navopache Electric Co-op	Navopache bills 0 kWh and prorates the customer charge.
Sulphur Springs Valley Electric Cooperative	SSVEC will attempt all possible means for read. If unable to secure "hard read" for "normal" billing cycle; SSVEC will move customer account to next billing cycle(s). If still unable to secure read, SSVEC will bill account as NO READ with Base Charge.
Trico Electric Cooperative, Inc.	If no history exists the CIS system will bill the fixed monthly charge only. The kWh will be billed with the next valid read.

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STAFF 1-1 QUESTIONS

4. kWh estimate. No history.

Tucson Electric Power Company	The CIS will estimate based on a rate schedule average daily usage. A manual estimation would be done using new meter usage methodology. TEP would wait until it gets a good read on the new meter and use the following formula: NEW METER READ – BEGINNING READ x METER CONSTANT divided by NUMBER OF DAYS = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN PREVIOUS BILLING PERIOD = ESTIMATED USAGE. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	If the bill was for less than six days, the bill would be held until the next billing cycle. If the bill was for six or more days, a service order would be issued and a manual estimation would be done, using new meter usage methodology. UNS Electric would wait until it gets a good read on the new meter and use the following formula: NEW METER READ – BEGINNING READ TIMES METER CONSTANT divided by NUMBER OF DAYS = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN PREVIOUS BILLING PERIOD = ESTIMATED USAGE.

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5. A kW estimate with at least one year of history. Same customer at same premises or new customer with one year of premises history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	This situation is applicable to large commercial and industrial consumers as they are the only consumers billed on a demand and energy rate. The CIS system does not estimate peak kW demand. In these cases the Cooperative contacts the consumer and the demand to be billed is mutually agreed upon based on seasonal history or from data collection equipment that may be installed for an agreed upon number of days to gather peak demand information during typical operating conditions. (b) There is no average calculation. (c) A time-of-use consumer is only billed for peak demand during on-peak hours; however, the previously stated approach for estimating peak billing demand would apply. (d) The calculations are the same for both residential and non-residential accounts; however, the situation is only applicable to non-residential accounts. (e) This same procedure applies under any circumstance when a consumer's bill is estimated. (f) These estimates are always performed manually. (g) CEC makes every effort to read all of the Cooperative's meters every month. With the exception of damaged or meter failure, this has eliminated the need to estimate meters. (h) First and final months billing would be handled in the same manner.
Duncan Valley Electric Cooperative, Inc.	Average of: Same month, previous year; Previous month; Last three month average.
Garkane Energy Cooperative	An average kW usage of the last three months.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	Mohave uses previous month's history with same customer or new customer at same premises with at least one year of history.
Morenci Water & Electric Company	MW & E does not have a tariff for demand.
Navopache Electric Co-op	Navopache uses previous month's history with same customer same premises. New customer no premises history is used and 0 kWh are billed. Large commercial and industrial accounts would also be billed 0 kWh if no customer internal data is useful and bill future adjustment based on actual new customer history.
Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month and same month previous year with same and new customer and same premises.
Trico Electric Cooperative, Inc.	The CIS system calculates the estimate using the kW, same month one year prior, from the same premises.

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STAFF 1-1 QUESTIONS

5. A kW estimate with at least one year of history. Same customer at same premises or new customer with one year of premises history.

Tucson Electric Power Company	The CIS doesn't estimate kW, therefore all situations are manually estimated. If consumption data is available the following formula is used: SAME MONTH LAST YEAR DEMAND divided by SAME MONTH LAST YEAR CONSUMPTION = LOAD FACTOR THIS MONTH'S CONSUMPTION x LOAD FACTOR=ESTIMATED DEMAND If consumption data is not available, TEP estimates consumption as described in the response to 1 a), then uses estimated consumption in the formula. If there is a new customer at the premises, all billing demand meters are also recording interval meters. TEP uses interval premises data to estimate. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	The CIS doesn't estimate kW, so all situations are manually estimated. If consumption data is available the following formula is used: SAME MONTH LAST YEAR DEMAND divided by SAME MONTH LAST YEAR CONSUMPTION = LOAD FACTOR. THIS MONTH'S CONSUMPTION x LOAD FACTOR = ESTIMATED DEMAND. If consumption data is not available, UNS Electric estimates consumption as described in the response to 1 a), then use estimated consumption in the formula. If there is only premises information then customer is billed on zero demand. Circumstances for estimating a meter read occur when UNS Electric is unable to obtain an actual meter read.

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STAFF 1-1 QUESTIONS

6. kW estimate with less than 12 months' history. Same customer at same premises.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	The response to this question is the same as the response to question # 5.
Duncan Valley Electric Cooperative, Inc.	Average of: Previous month; Last three month average.
Garkane Energy Cooperative	An average kW usage of the last three months, or if less than three months history, then the last month's kW usage.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	Mohave uses previous month's history with same customer at same premises.
Morenci Water & Electric Company	MW & E does not have a tariff for demand.
Navopache Electric Co-op	Navopache uses previous month history with same customer same premises.
Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history with same customer same premises.
Trico Electric Cooperative, Inc.	The CIS system calculates the estimate using the average kW of the past three months from the same premises.
Tucson Electric Power Company	The CIS doesn't estimate kW, therefore all situations are manually estimated. If consumption data is available the following formula is used: LAST MONTH'S DEMAND divided by LAST MONTH'S CONSUMPTION=LOAD FACTOR THIS MONTH'S CONSUMPTION x LOAD FACTOR=ESTIMATED DEMAND If consumption data is not available, consumption is estimated as described in the response to 1 a) and then estimated consumption is used in the formula. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	The CIS doesn't estimate kW, therefore all situations are manually estimated. If consumption data is available, the following formula is used: LAST MONTH'S DEMAND divided by LAST MONTH'S CONSUMPTION = LOAD FACTOR. THIS MONTH'S CONSUMPTION x LOAD FACTOR = ESTIMATED DEMAND. If consumption data is not available, UNS Electric estimates consumption as described in the response to 1 a), then estimated consumption is used in the formula. Circumstances for estimating a meter read occur when UNS Electric is unable to obtain an actual meter read.

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7. kW estimate with less than 12 months' history. New customer with premises history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	The response to this question is the same as question #5. The Cooperative does not estimate kW demand based on a previous owner's history.
Duncan Valley Electric Cooperative, Inc.	Use customer/premises history using average of: Same month, previous year; Previous month; Last three month average.
Garkane Energy Cooperative	An average kW usage of the last three months, or if less than three months history, then the last month's kW usage.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	Mohave uses previous month's history with new customer at same premises.
Morenci Water & Electric Company	MW & E does not have a tariff for demand.
Navopache Electric Co-op	New customer no premises is used and 0 kW are billed. Large commercial and industrial accounts would also be billed 0 kW if no customer internal data is useful and bill future adjustment based on actual new customer history.
Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history with new customer with premises history.
Trico Electric Cooperative, Inc.	The CIS system calculates the estimate using the average kW of the past three months from the same premises.
Tucson Electric Power Company	The CIS doesn't estimate kW, therefore all situations are manually estimated. If there is a new customer at premises, all billing demand meters are also recording interval meters. TEP uses interval premises data to estimate. If consumption data is available the following formula is used: LAST MONTH'S DEMAND divided by LAST MONTH'S CONSUMPTION=LOAD FACTOR THIS MONTH'S CONSUMPTION LOAD FACTOR=ESTIMATED DEMAND If consumption data is not available, TEP estimates consumption as in the response to 3 a), then uses estimated consumption in the formula. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	The CIS doesn't estimate kW, therefore all situations are manually estimated. If it is a new customer they are billed for zero kW. If consumption data is not available, UNS Electric estimates consumption as in the response to 3 a). Circumstances for estimating a meter read occur when UNS Electric is unable to obtain an actual meter read.

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8. kW estimate with no history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) This situation would be applicable only to the first month's billing. The Cooperative would make arrangements to install monitoring equipment on the consumer's premises to gather peak demand information during typical operating and seasonal conditions for a predetermined mutually agreed upon time frame. (b) There would be no averaging calculation under this circumstance. (c) The same would be true if this were a time-of-use consumer, the Cooperative would gather on-peak kW demand information. (d) The calculation are the same for both residential and non-residential accounts. (e) This same procedure applies when a large commercial or industrial consumer's first month kW demand requires estimation. (f) This procedure always applies to first month billings within these customer classes. (g) CEC makes every effort to read all the Cooperative's meter every month. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) First and final month's bills are never estimated.
Duncan Valley Electric Cooperative, Inc.	Average usage from a similar class customer with similar premises, for same month. For customer with known horsepower, kW calculation is made. For customer with no similar premises or no known horsepower we would come to agreement with customer for an estimated bill.
Garkane Energy Cooperative	No estimation, customer would pay minimum bill.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	If data for similar customers is available and relevant, estimate is based on kW for similar customers for same billing period, and this estimated kW will be adjusted based on actual new customer history during the next billing period.
Morenci Water & Electric Company	MW & E does not have a tariff for demand.
Navopache Electric Co-op	0 kW is billed. Large commercial and industrial accounts would also be billed 0 kW if no customer internal data is useful and bill future adjustment based on actual new customer history.
Sulphur Springs Valley Electric Cooperative	Exhaust all means to secure hard read, move customer account to different billing cycle(s), bill NO READ with Base Charge.
Trico Electric Cooperative, Inc.	The CIS system does not estimate, a service order is issued for a meter technician to extract valid read.
Tucson Electric Power Company	The CIS doesn't estimate kW, therefore all situations are manually estimated. The estimate is done by using like-customer data. TEP calculates like-customers load factors, then multiplies the current month consumption by load factor to get the estimated demand. If consumption data is not available, TEP estimates consumption as described in the response to 4 a), then uses estimated consumption in the formula. Circumstances for estimating a meter read occur when TEP is unable to obtain an actual meter read.
UNS Electric, Inc.	The CIS doesn't estimate kW, therefore all situations are manually estimated. The customer would be billed with zero kW. If consumption data is not available, UNS Electric estimates consumption as described in the response to 4 a). Circumstances for estimating a meter read occur when UNS Electric is unable to obtain an actual meter read.

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STAFF 1-1 QUESTIONS

9. Time-of-Use (TOU) estimate with at least one year of history. Same customer at same premises or new customer with at least one year of premises history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) The Cooperative does not estimate kWh consumption based on the premises history. In the scenario of same consumer same premises, the CIS system would estimate the consumer's bill based on the three most recent month average consumption. The three months on-peak and off-peak consumption would be averaged independent of each other. (b) If the consumers three most recent month's on or off-peak consumption were 512 kWh, 565 kWh & 595 kWh, the calculation would be (512 + 565 + 595)/3=359kWh. (c) The same procedure applies to all time-of-use consumers. (d) The calculations are the same for both residential and non-residential accounts. (e) This same procedure applies under any circumstances when residential or small commercial consumer's bill is estimated. (f) Anytime a consumer has at least three months of history this procedure always applies. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) First and final bills for residential or small commercial accounts are not estimated.
Duncan Valley Electric Cooperative, Inc.	N/A – No TOU rates.
Garkane Energy Cooperative	Average kWh & kW usage of the last three months.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	For same customer or new customer at same premises with at least one year of premises history, Mohave uses: a) last month's history; b) last three month's average usage; c) usage this month last year. Add results of a, b and c and divide by the number of answers obtained in a , b and c. This amount will be the estimated usage for this account. If the meter has stopped, the meter will be changed, and the estimated usage will be determined by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated kWh usage.
Morenci Water & Electric Company	MW & E does not have a time-of-use tariff.
Navopache Electric Co-op	Navopache uses previous month history with same customer same premises. New customer no premises history is used and 0 kWh is billed, customer charge is pro-rated.

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9. Time-of-Use (TOU) estimate with at least one year of history. Same customer at same premises or new customer with at least one year of premises history.

Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month and same month previous year history.
Trico Electric Cooperative, Inc.	Time-of-Use has two readings, "on-peak" and "off-peak". The CIS system calculates the estimate using the "on-peak" and "off-peak" kWh, same month one year prior from the same premises.
Tucson Electric Power Company	TEP would generate a manually estimated bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD=PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE=ESTIMATED USAGE The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. This would be done for on-peak usage and off-peak usage. If the estimation falls in a shoulder month then a manual estimation of shoulder would need to be done as the CIS doesn't estimate shoulder usage. The manual estimation would use last year's allocation factor with this year's estimated total consumption. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
UNS Electric, Inc.	The CIS system ("CIS") would generate a bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE = ESTIMATED USAGE. This would be done for on-peak usage and off-peak usage. A circumstance for estimating TOU occur when UNS Electric is unable to obtain an actual meter read.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

10. TOU estimate with less than 12 months' history. Same customer at same premises.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) The CIS system would estimate the consumer's bill based on the three most recent month average consumption. Consumer accounts with more than one month's history but less than three months history are calculated manually utilizing the methodology previously described. (b) If the consumer had three months of historical consumption, the calculation would be: 512 kWh, 565 kWh & 595 kWh, the calculation would be: (512 + 565 + 595)/3=359 kWh. If the consumer had more than one month's history but less than three, the calculation would be the same as described in the response 2 (b). (c) This applies to all time-of-use consumers. The consumers day and night consumptions would be calculated independent of each other in the manner previously described. (d) The calculations are the same for both residential and non-residential accounts. (e) This same procedure applies under any circumstance when a consumer's bill is estimated. (f) Anytime a consumer has at least three months of history, the CIS system estimates kWh consumption. If consumers have less than three months of history, the kWh is manually estimated. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) First and final bill kWh or kW is never estimated.
Duncan Valley Electric Cooperative, Inc.	N/A – No TOU rates.
Garkane Energy Cooperative	Average kWh & kW usage of the last three months, or if less than three months history, then the last month's kWh & kW usage.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	For same customer at same premises with less than one year of premises history, Mohave uses: a) last month's history; and b) last three month's average usage. Add results of a) and b) and divide by the number of answers obtained in a) and b). Last month's usage would be used if less than three months usage history is available. If the meter has stopped, the meter will be changed, and the estimated usage will be determined by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated kWh usage.
Morenci Water & Electric Company	MW & E does not have a time-of-use tariff.
Navopache Electric Co-op	Navopache uses previous month history.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

10. TOU estimate with less than 12 months' history. Same customer at same premises.

Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history.
Trico Electric Cooperative, Inc.	Time-of-Use has two readings, "on-peak" and "off-peak". The CIS system calculates the estimate using the "on-peak" and "off-peak" kWh of the past three months form the same premises.
Tucson Electric Power Company	TEP would generate a manually estimated bill based on customer usage from the previous year using the following formula: USAGE FOR PREVIOUS MONTH divided by NUMBER OF DAYS IN BILLING PERIOD=PER DAY USAGE PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE=ESTIMATED USAGE The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. This would be done for on-peak and off-peak. If the estimation falls in a shoulder month then a manual estimation of shoulder would need to be done as CIS doesn't estimate shoulder usage. The manual estimation would use last month's allocation factor with this month's estimated total consumption. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
UNS Electric, Inc.	The CIS system ("CIS") would generate a bill based on customer usage from the previous month using the following formula: USAGE FOR PREVIOUS MONTH divided by NUMBER OF DAYS IN BILLING PERIOD = PER DAYS USAGE. PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE = ESTIMATED USAGE. This would be done for on-peak and off-peak. Circumstances for estimating TOU occur when UNS Electric is unable to obtain an actual meter read.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

11. TOU estimate with less than 12 months' history. New customer with premises history.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	(a) The CIS system would estimates the consumer's bill if there is more than three months history. If there is more than one month's history but less than three, the kWh is estimated manually. Consumption is never estimated based on premises history. (b) The formulas are the same as previously described. (c) The consumer's day and night consumptions would be calculated independent of each other in the manner previously described. (d) The calculations are the same for both residential and non-residential kWh estimates. (e) This same procedure applies under any circumstance when a consumer's kWh consumption is estimated. (f) The CIS system estimates kWh consumption when there are three or more months of history. If there is more than one month's history but less than three, the estimates are performed manually. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve readings from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) First and final bills are never estimated.
Duncan Valley Electric Cooperative, Inc.	N/A – No TOU rates.
Garkane Energy Cooperative	Average kWh & kW usage of the last three months, or if less than three months history, then the last month's kWh & kW usage.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	For new customer at same premises with less than one year of premises history, Mohave uses: a) last month's history; and b) last three month's average usage. Add results of a) and b) and divide by the number of answers obtained in a) and b). Last month's usage would be used if less than three months usage history is available. If the meter has stopped, the meter will be changed, and the estimated usage will be determined by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated kWh usage.
Morenci Water & Electric Company	MW & E does not have a time-of-use tariff.
Navopache Electric Co-op	New customer no premises history is used and 0 kWh is billed, customer charge is pro-rated.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

11. TOU estimate with less than 12 months' history. New customer with premises history.

Sulphur Springs Valley Electric Cooperative	SSVEC uses previous month history.
Trico Electric Cooperative, Inc.	Time-of-Use has two readings, "on-peak" and "off-peak". The CIS system calculates the estimate using the "on-peak" and "off-peak" kWh of the past three months form the same premises.
Tucson Electric Power Company	TEP would generate a manually estimated bill based on customer usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD=PER DAY USAGE PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE=ESTIMATED USAGE The CIS would generate a bill based on trend. Within TEP's CIS, a trend record is created from each billed service. This record becomes part of a trend table. During estimation, consumption from three prior bill cycles is compared to the consumption from the same cycle in the previous month to determine a trend. This trend, plus a tolerance, is used to create a usage amount for bill estimation. This would be done for on-peak and off-peak. If the estimation falls in a shoulder month then a manual estimation of shoulder would need to be done as CIS doesn't estimate shoulder usage. The manual estimation would use last month's or last year's allocation factor with this month's estimated total consumption. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
UNS Electric, Inc.	The CIS system ("CIS") would generate a bill based on premises usage from the previous year using the following formula: LAST YEAR'S USAGE FOR SAME MONTH divided by NUMBER OF DAYS IN BILLING PERIOD = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN THIS MONTH'S CYCLE = ESTIMATED USAGE. This would be done for on-peak and off-peak. Circumstances for estimating TOU occur when UNS Electric is unable to obtain an actual meter read.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

12. TOU estimate. No history. New customer at new premises.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	This would assume that this is the customer's first month's billing. Residential and small commercial accounts kWh are not estimated in the first month's billing. They are billed only the customer charge and applicable fees. Large commercial and industrial account estimates are performed in the manner previously described. (b) There is no calculation for this process. (c) This process applies to all time-of-use customers. (d) The process is the same for both residential and non-residential accounts. (e) This same procedure applies under any circumstance when a consumer's bill may require estimation. (f) This procedure applies to all consumer accounts when it is a first month estimate with no account history. (g) CEC makes every effort to read all of the Cooperative's meters every month, however there were cases in the past when residential meters were estimated due to locked gates, bad dogs, etc. In 2003 CEC began utilizing the ERTZ remote meter reading system, which allows our meter readers to retrieve reading from as far as a mile from their vehicles. With the exception of damaged or meter failure, this system has eliminated the need to estimate meters. (h) The first and final bills are never estimated.
Duncan Valley Electric Cooperative, Inc.	N/A – No TOU rates.
Garkane Energy Cooperative	No estimation, customer would pay minimum bill.
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	With no history, Mohave will base estimated usage on actual usage for similar services similar customers for the same period. If the meter has stopped, the meter will be changed, and the estimated usage will be determined by taking actual usage on the new meter for seven days, and then applying the average daily usage times the number of days in the original billing period and then using eighty percent (80%) of this result as the adjusted estimated kWh usage.
Morenci Water & Electric Company	MW & E does not have a time-of-use tariff.
Navopache Electric Co-op	Navopache bills 0 kWh and pro-rates the customer charge.
Sulphur Springs Valley Electric Cooperative	Exhaust all means to secure hard read, move customer account to different billing cycle(s), bill NO READ with Base Charge.
Trico Electric Cooperative, Inc.	If no history exists the CIS system will bill the fixed monthly charge only. The kWh will be billed with the next valid read.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

12. TOU estimate. No history. New customer at new premises.

Tucson Electric Power Company	A manual estimation would be done using new meter usage methodology. TEP would wait until it gets a good read on the new meter and use the following formula: NEW METER READ – BEGINNING READ TIMES METER CONSTANT divided by NUMBER OF DAYS = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN PREVIOUS BILLING PERIOD = ESTIMATED USAGE. This would be done for each time period value. A circumstance for estimating TOU occurs when TEP is unable to obtain actual meter reads.
UNS Electric, Inc.	A manual estimation would be done using new meter usage methodology. UNS Electric would wait until it gets a good read on the new meter and use the following formula: NEW METER READ – BEGINNING READ x METER CONSTANT divided by NUMBER OF DAYS = PER DAY USAGE. PER DAY USAGE x NUMBER OF DAYS IN PREVIOUS BILLING PERIOD = ESTIMATED USAGE. This would be done for each time period value. Circumstances for estimating TOU occur when UNS Electric is unable to obtain an actual meter read.

AZ UTILITY RESPONSES TO STAFF'S FIRST SET OF DATA RESPONSES

STAFF 1-1 QUESTIONS

13. Should you have procedures in place to respond to circumstances not listed above, please describe both the circumstances and applicable procedures for estimation.

AJO Improvement Company	See response to (1) above.
Columbus Electric Cooperative, Inc.	Columbus Electric Cooperative, Inc. makes every effort to read all the meters served by the system every month. All new single phase meters purchased are ERTZ meters, which can be read from a distance, eliminating such things as dog and gate problems. Meter damage or failure happen on rare occasions but the processes for dealing with those issues are explained in detail in the response to the above questions. Large commercial estimating processes differ from residential and small commercial accounts because these types of accounts historically use more energy.
Duncan Valley Electric Cooperative, Inc.	Seasonal usage patterns are taken into consideration when performing estimates / averaging. When in doubt, lower numbers are used for averaging. Where there is no clear cut pattern of usage, customer is contacted and we come to an agreement on an estimated bill.
Garkane Energy Cooperative	N/A
Graham County Electric Cooperative	N/A
Mohave Electric Cooperative, Inc.	If consumer can provide verifiable information regarding usage during a billing period that included estimated usage, this estimate will be adjusted based on customer provided information.
Morenci Water & Electric Company	MW & E has not encountered circumstances where it would need to estimate usage except when it is denied access to the meter or the meter stops working.
Navopache Electric Co-op	None.
Sulphur Springs Valley Electric Cooperative	None.
Trico Electric Cooperative, Inc.	None.
Tucson Electric Power Company	TEP has no procedures in place at this time.
UNS Electric, Inc.	UNS Electric has no procedures in place at this time.

APS Usage Estimation, Meter Reading and Billing Inquiry Estimated *Bill Review – 35 Customers with Informal Complaints*

Staff DR 2-1 Cust. Ref.[1]	Period	No. of Estimates (Consecutive)	Reasons for Estimates	Action Taken	Reason for Estimate Shown on Bill?
1)	9/97 – 10/00	6 (3 – 1x)	Cooler in way	1 – no access letter 5 – bill notices[2] 1 – no record[3]	No
2)	1/01	1 (1)	Snow	1 – bill notice	Yes
3)	1/01	1 (1)	Rain	1 – bill notice	Yes
4)	8/00 – 11/00	4 (4 – no usage estimated in 4th month - manual)	Dirty meter glass (2) Flood (2)	1 – no access letter 4 – bill notice	Yes – Flood No – Dirty Meter Glass
5)	3/97 – 4/04	12 (3 – 2x)	Estimate (2) Rain (5) Under read (2) Meter removed (1) Snow (1) Dog (1)	7 – no record 5 – bill notice 1st 3 month consecutive read – no record 2nd 3 month consecutive read – bill notice (weather)	Yes – Rain (3) Yes – Snow (1) No – Meter change (11/00) No Record – Oct 99 and earlier
6)	NA	None	NA	NA	NA
7)	8/95 – 6/02	12 (2)	No answer at door (5) Dog (1) Locked gate (5) Irrigation (1)	4 – no record 8 – bill notice 1 – dialer	Yes No record – May 99 and earlier
8)	3/01 – 7/01	3 (2)	Locked gate (3)	3 – bill notice	Yes
9)	9/98 – 9/04	13 (3 – 2x)	Foliage (1) Error code (4) No reason (1)	12 – bill notice 3 – meter change (but last meter change	Yes – Locked gate (1x) No – Other occasions (11) No record – Sept 98

[1] See Page 6 for questions asked in Staff DR 2-1.
[2] "Bill Notice" refers to the notice provided on the customer bill that the bill was based on an estimated meter reading.
[3] "No Record" refers to information related to actions taken and copies of customer bills not available in all periods (1999 and earlier).

Staff DR 2-1 Cust. Ref.[1]	Period	No. of Estimates (Consecutive)	Reasons for Estimates	Action Taken	Reason for Estimate Shown on Bill?
			Faded screen (1) Blank display (4) Locked gate (2)	occurred one year after faded screen message and four blank displays	
10)	9/01	1	Dead meter	Damaged meter adjustment sent with statement and letter	Reported as "unmeasured usage" – letter sent with bill
11)	9/00 – 11/04	7 (2)	Locked gate (1) Dog (1) No answer at door (3) Defective meter (2)	7 – bill notices 1 – meter change	Yes – Locked gate (1) Yes – Dog (1) Yes – No answer at door (3) No – Defective meter
12)	7/00 – 8/01	6 (2)	Meter change (1) Locked gate (3) Business not open (1) No key (1)	5 – bill notices 1 – meter read schedule mailed	Yes – except for meter change
13)	7/00 – 10/04	4 (1)	Under read (2) Locked gate (1) Frozen meter (1)	4 – bill notices 1 – meter change	Yes – Locked gate No - Other
14)	12/95 – 5/03	21 (2)	Locked gate (15) Other (1) Blocked meter (1) Meter change (2) Unable to locate (2)	11 – no record (all but one prior to 1999) 8 – bill notices 1 – dialer 2 – no access letters	Yes – Locked gate (2) Yes – Blocked meter (1) Yes – Meter change (1) No – No reason (3) No – No record (13)
15)	11/98 – 6/03	25 (5 – 1x, 11 – 1x)	Blocked (24) Dog (1)	4 – no record (prior to Sept 99) 21 - Bill notice 5 - No access letters 5 - Blue card	Yes – Blocked meter (17) Yes – Dog (1) No – No record (4)

Staff DR 2-1 Cust. Ref.[1]	Period	No. of Estimates (Consecutive)	Reasons for Estimates	Action Taken	Reason for Estimate Shown on Bill?
				5 - Dialer	
16)	7/96 – 1/02	17 (5 – 2x)	Dog (15) Blocked meter (2)	13 - Bill notices 2 – Blue card 1- Sent meter read schedule 1 – No access letters 0 - Dialer calls 8 – Field visits (2 possibly i/c/w returned checks)	Yes – Dog (11) Yes – Blocked meter (1) No – No record (5)
17)	12/01 – 9/04	2 (1)	Under read (1) Meter change (1)	2 – Bill notices	No
18)	1/01 – 11/01	5 (2)	Dog (3) Gate locked (1) Meter change (1)	5 – Bill notices	Yes – Dog (2) No – No reason (3)
19)	7/99 – 2/02	7 (3 – 1x)	Rain (2) Snow (3) Estimate (2)	6 – Bill notices 1 – Dialer 1 – No record (7/99)	Yes – Snow (3) Yes – Rain (1) No – No reason (2) No – No record (1)
20)	10/98 – 9/04	30 (4 -1x, 3-1x)	Locked gate (18) Gate latch out of reach (8) Gate not accessible (1) Blocked meter (1) No key (1) Dog (1)	15 – Bill notices 5 - Door hanger 2 – Sent meter reading schedule (2) 4 – Dialer 7 – No record (prior to 9/99)	Yes – Locked gate (7) Yes – Gate latch out of reach (8) Yes – Gate not accessible (1) Yes – No key (1) Yes – Blocked meter (1) Yes – No key (1) No – No reason (3) No – No record (9)

Staff DR 2-1 Cust. Ref.[1]	Period	No. of Estimates (Consecutive)	Reasons for Estimates	Action Taken	Reason for Estimate Shown on Bill?
21)	1/02 – 5/04	4 (1)	Other (1) Rain (1) Blocked (2)	4 – Bill notices	Yes – Blocked meter (2) Yes – rain (1) No – No reason (1)
22)	4/02	1	Dead meter (1)	3 corrected bills issued	NA
23)	7/02	1	Rain (1)	1 - Bill notice	Yes
24)	7/02 – 8/02	2	Other (2)	2 – Bill notices 1 – Dialer	No – No reason (2)
25)	10/02	1	Dead meter (1)	NA	NA
26)	8/98 – 5/03	6 (2)	Locked gate (1) Foliage (2) Other/safety (1) Unable to locate (1) RV (1)	5 – Bill notices 1- Customer call (safety)	Yes – Foliage (1) No – No reason (4) No – No record (1)
27)	7/02 – 2/03	8 (8)	No peak read (1) Locked gate (3) Meter change (2) Other (2)	8 – Bill notices 2 – Dialer 1 - Policy allowance - $50	Yes – Locked gate (3) No – No reason (5)
28)	12/02	1	Snow (1)	1 – Bill notice	Yes
29)	7/00 – 10/04	18 (3 – 2x)	Locked gate (13) No answer (4) Dog (1)	17 – Bill notice 2 – Dialer 5 – Door hanger 1 – No access letter 1 – Blue card	Yes – Locked gate (12) Yes – No answer (3) Yes – Dog (1) No – No reason (2)
30)	10/03	1	Correct over read	NA	NA
31)	3/98	1	Not available	NA	NA
32)	4/01 – 4/04	3 (1)	Other (1) Rain (2)	3 – Bill notices	Yes – Rain (2) No – No reason (1)

Staff DR 2-1 Cust. Ref.[1]	Period	No. of Estimates (Consecutive)	Reasons for Estimates	Action Taken	Reason for Estimate Shown on Bill?
33)	4/04 – 5/04	2 (2)	Foliage (2)	2 – Bill notices 1 – Customer call	Yes – Foliage (1) No – No reason (1)
34)	5/04	1	Meter issue (1)	1 - Bill notice 1 – Meter change	No
35)	2/99 – 7/04	5 (2)	Low peak (1) No key (1) High demand (1) Blank display (2)	3 – No record (July 99 and earlier) 2 – Bill notices 1 – Meter change	No – No record (3) No – No reason (1) Yes – Meter change (1)

Staff 2-1 Please answer questions "a" through "g" for each of the (35) customers listed on the accompanying attachment.

a. Identify and provide a copy of all estimated bills sent to these customers since 1990. Also, provide the bills from the month before and the month after each estimated bill.

b. For each estimated bill, explain in detail why it was estimated.

c. For reason identified in response to part b, identify the ACC regulation that permits the estimation. (Use both old rule 210 and most recent rule 210).

d. Please list any bills that were estimated but that do not specifically fall within the parameters listed in either old rule 210(A)(5) or most recent rule 210(A)(3).

e. For each estimated bill, please identify the rate schedule to which the customer subscribed. In addition, please indicate whether the estimation was for demand only, kWh only, TOU only, or a combination. If a combination, please identify all usage elements that were estimated.

f. For each estimated bill, please provide a worksheet that describes the process and calculations by which the estimation was determined. Please include a narrative description of the process.

g. Please indicate which, if any, of these customer's bills were automatically estimated using billing software. Please indicate which bills, if any, were manually estimated.

APPENDIX E

OTHER ELECTRIC UTILITY METER READING AND BILLING PRACTICES

	Company F (Southeast)	Company G (Southwest)	Company H (Mountain)	Company I (Southeast)	Company J (Midwest)
1) Describe practices used to estimate usage (kWh) and demand (kW) when a meter reading is not obtained. ○ Are degree days or historical consumption per day (perhaps seasonal averages) used to estimate usage? ○ Is customer specific information or class averages, or a combination (e.g. customer specific but a class average load factor), used to estimate demand?	System automatically estimates energy accounts based on historical use. Algorithm is now being changed to make use of Automatic Meter Reading (AMR) reads. Special service accounts (SSA's), i.e. demand accounts, are read daily and not estimated.	Estimate energy use based on use in the same time period of previous year. Adjust use based on temperature. Do not estimate demand accounts.	Estimate energy use based on last year's current month or the average of last year and year before. Use is not adjusted for degree-days. All estimates are "signed off on" by a person in billing. They do not estimate demand. Demand bills are delayed until they can get an actual read.	Estimate use based on historical use adjusted for weather patterns and degree-days. Estimating formula can be adjusted for extensive power outages such as the hurricanes this last season. In North and South Carolina they maintain a read rate of 0.25 to 0.50 missed reads per 1000 meters. Demand is also estimated (very seldom).	Estimated use per day is calculated based on individual historical use adjusted by heating and cooling degree-days. Demand not normally estimated. Demand bills may be delayed pending actual read.
2) Describe practices used to adjust estimated demand and usage when actual readings are obtained.	Estimated bill only adjusted if subsequent actual bill fails normal high/low checks.	When an actual read is obtained following and estimated bill, a two month bill is issued (estimated bill cancelled) automatically.	The estimated bill is not rebilled when an actual read is taken in the subsequent month. Any correction is allowed in the current month (month with actual reading).	Based on normal irregularity checks of the system, an estimated bill may be rebilled if the subsequent actual read bill is way off. Particularly for commercial and industrial accounts.	Energy use is allowed to "true up" with next actual read. Normal high/low bill checks are applied. Demand is checked via meter interval data and will be rebilled if not reasonable.
3) What practices are followed to secure an actual meter reading following several consecutive months of estimated bills (that is, other than the normal monthly meter readings)?	Customer contacts are initiated after several consecutive estimates. Action may include conversion to AMR.	Can estimate meter for two months. They force a meter read for the third month. Meter may be changed to an AMR meter in hard to access areas.	They pursue actual readings each month.	After 3 estimates, the customer is called and sent letters to obtain reading. May use customer postcard read and may install Automatic Meter Reading (AMR) meter.	For multi-month estimates, phone calls and personal contacts are attempted to arrange appointments for special reading. These become more aggressive each month and may lead to service disconnection at pole or curb.

Disclaimer – Based on an informal telephone survey. Not intended to represent an official company response.

4) Are meters read and billed monthly?	Meters are read and billed monthly.	Meters are read and billed monthly.	Meters are read and billed monthly.	Meters are read and billed monthly.	Most meters are read daily (AMR and general primary) or monthly. Some meters are read bi-monthly. Billing for all meters is monthly.

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	Company A (Western)	Company B (Southwest)	Company C (Northwest)	Company D (Western)	Company E (Southwest)
1) Describe practices used to estimate usage (kWh) and demand (kW) when a meter reading is not obtained. **o Are degree days or historical consumption per day (perhaps seasonal averages) used to estimate usage?** **o Is customer specific information or class averages, or a combination (e.g. customer specific but a class average load factor), used to estimate demand?**	1. a) Our CIS will automatically estimate some kWh meters. Those that can't be estimated come out on an exception report and rereads are issued. After an account is estimated twice an actual read must be obtained. 1. b) In general terms we don't estimate demand. We issue rereads. If a kW account has gone unbilled for a long period of time or can't be billed for some reason, we will use prior history to estimate a bill.	1 a). Estimate based on previous month's consumption or same month last year. Do not adjust for weather (degree days). 1 b). Estimated demand (kW) based on load factor.	1 a). Makes use of AMR read up to 6 days prior to bill date. If no AMR read CIS estimates based on use in same month of previous year adjusted for degree-days. Change being made to make estimating algorithm more precise by using weather patterns by zip codes. 1 b). Generally do not estimate demand. Delay bill until read obtained. In rare cases a manual estimate may be used.	Estimate energy (kWh) based on same month last year or last month or average of last 3 months or average of last 12 months (whichever period has actual reads). Use a base line factor by region. Compare estimate to composite. Do not use degree-days. Do not estimate demand (kW).	Delay energy (kWh) bills up to 5 days to obtain read before estimating. Estimate meters individually based on average of 2 prior months use and use 12 and 13 month's prior. No degree-day adjustment. Can estimate demand (manually) but it is very rare. Overall have only 5.36 estimates per 1000 reads.
2) Describe practices used to adjust estimated demand and usage when actual readings are obtained.	The estimates stand unless there is a significant variance. In that case, we cancel the prior estimated bills and issue a new bill based upon current use.	When an actual read is obtained following an estimate, if estimated use is within + or – 35% of ½ total use for two months, leave estimate as is. If outside of 35%, estimate is rebilled (two month bill issued).	Do not rebill previous estimate based on subsequent actual read – system automatically "true-up" reads.	If actual read after the estimate triggers normal high/low checks, previous estimate is rebilled. Rebill rate is less than 0.5%.	Actual read after an estimated read can be up to 500 kWh under the estimate before the estimate is rebilled. System can bill negative use up to 500 kWh.
3) What practices are followed to secure an actual meter reading following several consecutive months of estimated bills (that is, other than the normal monthly meter readings)?	We have a staff of reread personnel that work to resolve access issues. We have a number of options for customers including but not limited to: o Sending a notice of the read date for the customer to provide access (put dogs away, leave gate unlocked, etc).	After several estimates (starting at 3 sequential estimates) send registered letter to gain access. Process may lead to disconnection at the pole.	After three estimates meter is referred to special team to obtain read. They initiate special contacts and letters. May disconnect if no access to meter is provided.	Allow a maximum of 3 estimates for residential and 6 estimates for commercial accounts. Company initiates contact process for access to the meter. Process may include installing remote read device, drive by read device or moving meter outside.	Start calls to customer and site visits after 3 consecutive estimates. Process can actually lead to disconnection at the pole.

Disclaimer – Based on an informal telephone survey. Not intended to represent an official company response.

	o Angle adaptors so the meter can be read over a fence or from the neighbor's yard. o Hexagram meters with remote scan disc. o RF meters (new this year). o Customer read card. o Customer provided key for access				
4) Are meters read and billed monthly?	We bill for water and electric service along with sewer, trash and city tax. Residential customers are billed bi-monthly and commercial/industrial are billed monthly.	Meters are read and billed monthly.	Meters are read daily (AMR) and bill monthly.	Meters are read and billed monthly. Read rate is over 99.87%.	Meters are read and billed monthly.

Disclaimer – Based on an informal telephone survey. Not intended to represent an official company response.

EXHIBIT
S-3
Admitted

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

AVIS READ; individually, and on Behalf of All Others Similarly Situated, Complainants, v. ARIZONA PUBLIC SERVICE COMPANY, Respondent.	DOCKET NO. E-01345A-04-0657
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A DECLARATORY ORDER REGARDING BILL ESTIMATION PROCEDURES	DOCKET NO. E-01345A-03-0775

DIRECT

TESTIMONY

OF

JOEL F. JEANSON

PRINCIPAL

BARRINGTON-WELLESLEY GROUP, INC.

JANUARY 24, 2005

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INTRODUCTION

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

A. My name is Joel F. Jeanson. I am a principal with the Barrington-Wellesley Group, Inc. BWG is a general management consulting firm which performs a significant portion of its work in the electricity, gas, and telephone industries. My business address is 2137 South Clubhouse Drive, New Berlin, Wisconsin 53151.

Q. Please describe your educational background and professional experience.

A. I have over twenty-five years of experience in utility finance and accounting, financial and operational auditing, internal control review and assessment, corporate performance, capital and O&M budgeting and management reporting. This experience includes auditing customer billing processes, including the impact of estimated meter readings, reviewing and recalculating customers' bills, revenue forecasting, revenue accounting, and reviewing bill estimating algorithms.

I am a member of the American Institute of CPAs, the Wisconsin Institute of CPAs, and the Institute of Management Accountants. I am a past president of the Indianapolis Chapter of the Institute of Internal Auditors. During my business career, I have directed the accounting, budgeting, corporate performance and auditing departments at a major investor owned LDC headquartered in Indiana. I began my professional career with Arthur Andersen & Co.

I received a Bachelor of Science degree in Accounting, with distinction, from Indiana University and have continued my studies with course work at the Indiana University Graduate School of Business. I am also a graduate of the Wabash Executive Program.

My complete resume is included as Schedule JFJ-1.

Q. Did you participate in the preparation of the December 28, 2004 Staff Report?

A. Yes.

Q. Are you sponsoring the December 28, 2004 Staff Report?

A. Yes, I am.

Q. Does this conclude your direct testimony?

A. Yes, it does.

EXHIBIT 1

JOEL F. JEANSON, CPA

Principal ***BARRINGTON-WELLESLEY GROUP***

Summary of Qualifications

Mr. Jeanson, CPA, has extensive experience in utility finance and accounting, financial and operational auditing, internal control review and assessment, corporate performance, capital and O&M budgeting and management reporting. This experience includes auditing customer billing processes, including the impact of estimated meter readings, reviewing and recalculating customers' bills, revenue forecasting, revenue accounting, and reviewing bill estimating algorithms.

Mr. Jeanson is a member of the American Institute of CPAs, the Indiana CPA Society, and the Institute of Management Accountants and is a past president of the Indianapolis Chapter of the Institute of Internal Auditors. During his business career, Mr. Jeanson has directed the accounting, budgeting, corporate performance and auditing departments at a major investor owned LDC headquartered in Indiana. He began his career with a Big Five public accounting firm.

Mr. Jeanson received a Bachelor of Science degree in Accounting, with distinction, from Indiana University. He has continued his studies with course work at the Indiana University Graduate School of Business and is also a graduate of the Wabash Executive Program.

Auditing and Consulting Experience

- Lead consultant for the analysis of variances by FERC account for the four utility operating company subsidiaries of a major Midwestern utility holding company in connection with the Companies' applications for authority to increase utility rates. Variances are attributable to operating efficiencies and other synergies from a recent merger, changes in allocation methodologies, and accounting inconsistencies. (2004)
- Lead consultant for the review of budgeting and accounting issues associated with the focused management audit of Kentucky Utility's and Louisville Gas & Electric's earnings sharing mechanism for the Kentucky Public Service Commission. (2003)
- Lead Consultant for the program evaluation of SBX1 5 energy efficiency and low-income assistance funds performed for the CPUC. Reviewed and tested SDG&E and Southern California Gas' program costs, administration and compliance with CPUC and Legislative requirements. (2003)
- Lead Consultant for the review of financial, human resources, information technology, and customer service functions in connection with the comprehensive management study of a large municipal water and wastewater utility (2003)
- Lead Consultant for the audit of Atlantic City Electric's (ACE) restructuring-related Deferred Balances performed for New Jersey Board of Public Utilities (NJ BPU). Developed the regulatory framework for the audit and assessed ACE's compliance with NJ BPU Orders and guidelines. (2002)

- Lead Consultant for BWG's audit of the Los Angeles Department of Water & Power (LADWP) performed for the City of Los Angeles. Assessed LADWP's financial management and control environment and assisted with the review of workforce planning policies and procedures. (2002)

Utility Industry Experience

- Directed the accounting department with responsibility for financial (SEC, GAAP and regulatory) and management reporting, budgeting, financial controls, and financial information systems.
- Directed the corporate business planning and budgeting process. Integrated the strategic and operational planning processes so that departmental plans, capital and O&M budgets and performance measures would be focused on both continuous improvement and the accomplishment of corporate objectives – which included both financial and non-financial measures.
- Directed the capital budgeting process, including the capital variance reporting process.
- Developed responsibility reporting process, budgets (capital and O&M), and management reports for Vectren Corporation for first year post-merger that reflected merger-related costs and savings.
- Financial lead in Vectren merger integration efforts for the various financial areas, including identification of staffing levels and cost savings opportunities and making recommendations to provide structure and direction for the company's financial organization.
- Project director for activity-based management initiative focused on internal products and services. ABM used to assess performance against other service providers, measure performance, and improve decision-making.
- Updated and enhanced monthly financial report used to review actual and projected operating results, and set direction as to action required to meet corporate financial objectives.
- Directed team that established capital expenditure guidelines, policies and procedures for new business capital investments. Introduced discounted cash flow modeling to decision-making process.
- Developed quarterly performance measurement reports that included non-financial as well as financial measures that tracked performance over time and across operating regions as well as against external benchmarks.
- Led customer service business process improvement initiative that assessed performance and made recommendations for improvement of all customer service processes including the customer billing process, leading to improved customer service and reduced costs. Facilitated the development of customer service standards.
- Key member of team that completed a study to identify the services, and levels of service, that customers are willing to pay for. This study resulted in significant changes in how the company delivered services to its customers.

- Directed the service technician performance management pilot project to evaluate customer satisfaction and identify cost savings opportunities. This pilot project ultimately led to establishing processes to evaluating operating performance and quality for the entire bargaining unit workforce.
- Directed the internal audit department which included responsibility for testing the accuracy of customer billing as well as operational reviews of field meter reading processes.

Work Experience

- Principal, Barrington-Wellesley Group (2001 - present)
- Director of Accounting, Budgeting and Management Reporting, Vectren (1996 - 2001)
- Director of Corporate Performance, Indiana Gas (1992 - 1996)
- Financial Director of Marketing and Operations, Indiana Gas (1989 - 1992)
- Director of Internal Audit. (1983 - 1989)
- Senior Auditor, Arthur Andersen (1979 – 1983)

EXHIBIT
S-4
Identified

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
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Commissioner

AVIS READ; individually, and on Behalf of All Others Similarly Situated, Complainants, v. ARIZONA PUBLIC SERVICE COMPANY, Respondent.	DOCKET NO. E-01345A-04-0657
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A DECLARATORY ORDER REGARDING BILL ESTIMATION PROCEDURES	DOCKET NO. E-01345A-03-0775

DIRECT

TESTIMONY

OF

PERRY L. WHEATON

CO-PRESIDENT

BARRINGTON-WELLESLEY GROUP, INC.

JANUARY 24, 2005

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EXECUTIVE SUMMARY
ARIZONA PUBLIC SERVICE COMPANY
DOCKET NOS. E-01345A-04-0657 & E-01345A-03-0775

The Utilities Division Staff (Staff) of the Arizona Corporation Commission (ACC or Commission) retained the Barrington-Wellesley Group, Inc. (BWG) to perform an inquiry into the usage estimation, meter reading, and billing practices of Arizona Public Service Company (APS or Company). On December 28, 2004, the initial report related to this inquiry was filed with the Commission.

The purpose of this testimony is to provide the results of work completed since the issuance of the December 28, 2004 report. The results of our additional work have not changed the conclusions and recommendations included in our initial report. In this testimony, we present additional findings and recommendations. The key additional recommendations are as follows.

- The Commission should require APS to refund overestimated demand charges totaling at least $171,686 plus interest.
- The Commission should require APS to change its current methodology for estimating demand to one using customer-specific, prior month kW to estimate demand.
- The Commission should require APS to commence an internal audit of its compliance with Commission rules and Commission-approved tariffs within three months of the close of this proceeding and complete the audit, with a copy of the audit report to be filed with the Commission, within twelve months of the close of this proceeding.

This testimony also provides additional support for some of the recommendations set forth in the December 28, 2004 report. A complete summary of Staff recommendations related to the inquiry into the usage estimation, meter reading, and billing practices of APS, including the recommendations contained in Staff's report dated December 28, 2004, is provided in Section Nine of this testimony.

INTRODUCTION

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

A. My name is Perry L. Wheaton. I am the Co-President and Co-Founder of the Barrington-Wellesley Group, Inc. BWG is a general management consulting firm which performs a significant portion of its work in the electricity, gas, and telephone industries. My business address is P.O. Box 2390, New London, New Hampshire 03257.

Q. Please describe your educational background and professional experience.

A. I have over thirty years of diversified management consulting and auditing experience and have performed financial, operations, and/or affiliate interest reviews for over twenty-five utilities. I have directed twenty-five management reviews of public utilities for state regulatory commissions. In my twelve years as an auditor and consultant with Coopers and Lybrand, I had extensive experience in the financial and systems operations of utilities, financial services companies, energy services companies, and manufacturers. I have an AB from Hamilton College and an MBA in public accounting from Rutgers University. My complete resume is included as Schedule PLW-1.

Q. What is the scope of your testimony in this case?

A. I am the BWG engagement director for the inquiry into the usage estimation, meter reading, and billing practices of APS on behalf of the Staff.

Our initial report was filed on December 28, 2004. This testimony presents findings, conclusions, and recommendations based on work completed since the initial report was prepared. This testimony also provides additional explanations and support for some of the recommendations set forth in the December 28, 2004 Report.

SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. Briefly summarize the organization of your testimony.

A. My testimony is organized into nine sections as described below.

1. Section One discusses the results of our analyses related to demand estimating methodologies. In addition, this section contains our response to David Rumolo's testimony regarding demand estimation, which was provided in his November 23, 2004 testimony. Schedule PLW-2 presents the results of the analyses completed.
2. Section Two discusses APS' kWh estimation practices; specifically, we discuss whether those practices are biased toward the overestimation of kWh usage.
3. Section Three discusses the quantification of the unadjusted overbilling of demand and our recommendation related to crediting customers' accounts.
4. Section Four discusses the information provided by other Arizona electric utilities in response to Staff's second set of data requests dated January 3, 2005.
5. Section Five presents supplemental information received from other state utility regulatory agencies.
6. Section Six presents the results of our additional review of the Company's meter reading practices, including our discussion with the meter reader assigned to read the meter at Ms. Read's Paradise Valley premises during 1999 and 2000, the results of our discussions with meter reading personnel, and the review of meter reading reports at APS' Flagstaff and Surprise offices.
7. Section Seven discusses the revenue requirement impact of APS' usage estimation methodology, which tends to underestimate demand.
8. Section Eight lists all recommendations resulting from the Staff inquiry into the usage estimation, meter reading, and billing practices of APS.
9. Section Nine presents additional, miscellaneous information.

Q. Has BWG proposed any additional recommendations contained in this testimony that resulted from work completed after the issuance of Staff's December 28, 2004 Report?

A. Yes, BWG has five additional recommendations.

1. APS should be required to change the methodology that it uses to estimate demand from one using class average load factors to one using customer-specific, prior month kW. The use of customer specific demand history results in more accurate demand estimates.
2. APS should be required to refund to customers the overbilled demand charges plus interest that occurred from September 1998 with the implementation of the new CIS through September 2003 when changes were made to the Company's CIS to correct this problem. There were 9,056 residential customers who were overbilled based upon inaccurate demand estimation, and the overbilling was not subsequently credited to the customer's account. The amount of the overbilling which should be credited to the appropriate residential customers' accounts totals $171,686. APS is still compiling similar data for general service customers. Staff will update this testimony once it receives that information. APS' calculation of these refunds will be subject to verification as part of the independent audit recommended by Staff. In general, based on our analyses, we recognize that APS' demand estimating methodology more often resulted in underbilled demand than overbilled demand during this period.
3. BWG has four recommendations related to meter reading.
   a. APS should be required to develop and install performance measures to document the efforts that it has taken to comply with the Commission requirement that "(a)fter the second consecutive month of estimating the

customer's bill for reasons other than severe weather, the utility will attempt to secure an accurate reading of the meter." (R14-2-210. A. 3.).

b. APS should specifically include the use of EZ-Read as one of the steps taken to resolve a "no access" situation.

c. APS should utilize available DB Microware reports to review lock-outs by route to monitor trends in lock-outs and reduce the number of "no access" meters.

d. APS should establish an internal process whereby after three consecutive estimates, continued instances of consecutive estimates due to "no access" situations are reported and made visible to increasing levels of APS management.

4. APS should perform an analysis to determine whether the inclusion of May as a summer season month for purposes of estimating kWh is appropriate. This analysis should be filed with the Commission within 90 days of the conclusion of this matter. In reviewing the detailed analyses supporting Mr. Rumolo's November 23, 2004 Testimony, we noticed that estimated kWh consumption is generally higher than the actual kWh consumption in the month of May. May is the first month of the summer season; therefore, CIS estimates consumption billed in May using the summer seasonal average. Due to cycle billing, approximately one-half of consumption billed in May will represent energy used in April. This trend is reversed to some degree in the early winter season months.

5. APS should enhance its "no access" resolution process to include the sending of certified letters at the time it notifies customers that continued "no access" will result in the possible discontinuance of service.

Q. Did the visit to Avis Read's Paradise Valley premises, the interview of the meter reader assigned to Avis Read's property, and the interview with the meter reading supervisor change Staff's findings related to Company actions to obtain access to Ms. Read's meter?

A. No. If anything, it is now clearer that APS had reasonable remedies that it failed to implement to resolve the "no access" situation at Ms. Read's premises in Paradise Valley. For example, APS failed to contact Ms. Read to arrange for the replacement of the lock key that she had made available to the meter reader and failed to respond to Ms. Read's offer to allow APS to replace her lock with an APS lock. This is discussed in more detail in Section Seven of my testimony.

Q. Do you have any additional recommendations?

A. Yes, we have two additional recommendations. First, APS should be required to commence an internal audit of its compliance with Commission rules and Commission-approved tariffs within three months of the close of this proceeding and complete the audit, with a copy of the audit report to be filed with the Commission, within twelve months of the close of this proceeding. APS completed a "CIS Compliance to ACC Rules and Regulations Audit" in August 2002; however, this audit failed to identify that APS was not estimating usage for residential demand in conformance with the tariff provisions for Rate Schedules EC-1 and ECT-1R.

Second, APS should be required to provide documentation that lists the customers who were not issued three or more bills as a result of APS' CIS problems during late 1999 and early 2000. This documentation should also describe all the circumstances surrounding these customers' accounts so that the Commission may evaluate whether they were impacted in a manner similar to Avis Read. For example, this report should indicate whether APS offered customers extended payment terms once the backbill was issued,

describe what terms were offered, and discuss whether APS communicated with these customers to make them aware of the billing problems.

Q. What was the overall affect of APS' class average load factor estimating methodology?

A. In general, our analysis shows that customers receiving bills that contain estimated demand charges have more often been underbilled demand than overbilled demand since March 1999. The results of our analyses are discussed in more detail in the following section of my testimony. APS' use of a class average load factor to estimate demand more frequently underestimates demand than overestimates demand, and during the period from March 1999 to August 2002, when APS added a "generosity factor" to the class average load factor, this tendency towards underestimation was exacerbated.

SECTION ONE: DEMAND ESTIMATION METHODOLOGIES

Q. Which alternative demand estimation methodologies were evaluated in forming your recommendation related to demand estimation?

A. We evaluated the following five demand estimating methodologies in forming our recommendation related to demand estimation:

- Class average load factors
- Seasonal class average load factors
- Customer specific load factors
- Customer specific historical kW – prior month
- Customer specific historical kW – same month prior year

Q. Please describe the class average load factor demand estimating methodology.

A. In March 1999, APS began using class average load factors to estimate demand for residential customers (rate schedules EC-1 and ECT-1R) and certain general service customers (rate schedule E-32). Class average load factors are used in conjunction with customer-specific kWh consumption to estimate demand using calculations described in detail in Chapter IV of the December 28, 2004 Report. "Load factor" represents the ratio of a customer's average hourly usage to the customer's peak hourly usage. APS calculated load factors for each of these three customer classes (EC-1 - residential, ECT-1R - residential time-of-use, and E-32 – general service under 3 MW). APS used metering information from Interval Data Recording (IDR) devices installed at 99 residential (EC-1) customer premises, 56 residential time-of-use (ECT-1R) customer premises, and 949 general service (E-32) customer premises to calculate the class average load factors.

Q. Please describe the seasonal class average load factor demand estimating methodology.

A. The seasonal class average load factor methodology is a variation of the class average load factor demand estimating methodology described above. Using information provided by APS, we determined the extent to which class average load factors for the winter and summer seasons varied from the annual class average load factor calculated by APS and applied the seasonal differences to the annual class average load factors currently being used. As expected, the summer class average load factors for residential customers were higher than the winter class average load factors. However, for general service customers, we calculated no variance in winter and summer seasonal class average load factors. As a result, we did not estimate demand using a seasonal class average load factor for general service customers billed under rate schedule E-32.

Q. Please describe the customer specific load factor demand estimating methodology.

A. The customer specific load factor demand estimating methodology was used by APS when demand was estimated by the "old CIS" prior to September 1998. This methodology uses customer specific information to calculate load factor when this information is available. The "old CIS" calculated customer-specific load factors by averaging the load factors from the two previous months and the same month of the prior year. BWG used this same calculation to evaluate the customer specific load factor demand estimation methodology.

Q. Please describe the customer specific historical kW (prior month) demand estimating methodology.

A. The Commission-approved tariffs for rate schedules EC-1 and ECT-1R contain language describing the "determination of kW capacity." The tariff language states that "in the event the meter is inaccessible to the meter reader due to locked gates or because of safety limitations, the kW shall be that measured since the last resetting of the kW dial." While the use of the word "since" in this sentence is somewhat confusing, the language suggests that APS should estimate demand using the last actual demand reading. We included this methodology in our analysis to evaluate the accuracy of usage estimations performed under the aforementioned Commission-approved tariff language.

Q. Please describe the customer specific historical kW (same month, prior year) demand estimating methodology.

A. Rule R14-2-210 Billing and collection, Section A 2 states that "if the utility is unable to read the meter on the scheduled meter read date, the utility will estimate the consumption for the billing period giving consideration to the following factors where applicable:

a. The customer's usage during the same month of the previous year.

b. The amount of usage during the preceding month."

We included this methodology in our analysis to determine the effect of applying the provisions of this rule to kW as well as kWh.

Q. Please describe in more detail the process used to analyze the five alternative demand estimation methodologies.

A. To evaluate these alternative demand estimation methodologies, we selected a sample of demand-billed customers from a listing prepared by APS in response to Staff DR 7-6. From the population of all demand billed customers, we selected approximately every 400th customer to ensure a sample size of at least 300 accounts. The actual number of customers included in the sample that we tested is as follows.

Rate Schedule	Number of Customers in Sample	Number of Individual Bills Tested – Class Average Load Factor	Required Sample Size to Achieve a 99 Percent Confidence Level – Assumed Mean of 2 kW	Required Sample Size to Achieve a 99 Percent Confidence Level – Using Calculated Mean of Sample
EC-1	54	1255	11	32
ECT-1R	140	2747	18	1226
E-32	193	3630	2453	3466

The increased sample size for rate schedule E-32 reflects the greater variability in usage among customers in this rate class.

APS then provided twenty-four months' meter reading and billing history for the customer, if available.

We developed calculations using an Excel spreadsheet to estimate demand using each of the five methodologies described above. These estimates of demand were then compared to the actual demand to determine the degree of accuracy of the demand estimation methodology.

Q. Under which of these five methodologies are customers likely to receive the least accurate estimate of demand?

A. As can be seen in the following tables, the use of class average load factors is the least accurate method of estimating demand. However, the results of our analysis appear to support APS' assertion that the use of a class average load factor will result in the underestimation of demand more often than the overestimation of demand.

Q. Under which of these five methodologies are customers likely to receive the most accurate estimate of demand?

A. As can be seen in the following tables, the use of customer specific kW from the prior month is the most accurate method of estimating demand. In addition, the use of the customer specific kW from the previous month effectively addresses the issue of the naturally occurring phenomenon of rising demand that occurs in the months approaching summer as discussed in finding IV-8 in Staff's December 28, 2004 Report. The use of other demand estimating techniques makes it less likely that overestimated demand will be properly credited as a result of the next month's demand comparison. The use of customer-specific kW from the previous month to estimate demand also enhances the likelihood that customer-specific demand history will be available on which to base the demand estimate.

Q. How should demand be estimated if customer-specific history is not available?

A. If customer-specific kW from the previous month is used to estimate demand, the only instances in which customer-specific history will not be available are when the bill is the customer's initial bill or when the prior month's bill was estimated. For initial bills covering a period of less than fifteen days, we believe that APS should not bill demand until the actual demand reading is obtained in the following month. In this case, the

customer should be billed a pro rata amount for the initial billing period. For initial bills covering a period of fifteen or more days, demand should be billed using actual premises history from the prior month unless the Company knows that the general characteristics of the previous customer's operations vary significantly from those of the current customer. If the prior month's bill was estimated, APS should use the same month from the prior year as the basis for the estimated demand reading. In the event this historical information is not available, APS should consider its experience with other customers of the same class in that area with the general characteristics of the customer's operations.

Q. Please summarize the results of these analyses.

A. The following tables present by rate schedule the differences between kW estimated using each of the five methodologies described above and the actual kW demand readings. These results are presented in more detail in Schedule PLW-2.

Rate EC-1 – kW Differences

Methodology	Class Average Load Factors	Seasonal Class Average Load Factors	Customer Specific Load Factors	Customer Specific kW – Prior Month	Customer Specific kW – Same Month Prior Year
Percent Within +/- 2 kW	55.7%	59.4%	75.4%	81.3%	77.2%
Percent Within +/- 4 kW	88.6%	92.0%	96.5%	95.9%	93.5%
Percent Within +/- 8 kW	99.3%	99.4%	99.8%	99.8%	99.5%
Percent Within +/- 16 kW	100.0%	100.0%	100.0%	100.0%	100.0%
Percent Within +/- 32 kW	100.0%	100.0%	100.0%	100.0%	100.0%
Percent Underestimated	66.7%	65.9%	51.5%	46.3%	53.8%
Percent – No Difference	1.6%	2.1%	0.2%	6.4%	3.8%
Percent Overestimated	31.7%	32.0%	48.3%	47.3%	42.4%

Rate ECT-1R – kW Differences

Methodology	Class Average Load Factors	Seasonal Class Average Load Factors	Customer Specific Load Factors	Customer Specific kW – Prior Month	Customer Specific kW – Same Month Prior Year
Percent Within +/- 2 kW	53.3%	63.1%	71.0%	73.7%	74.2%
Percent Within +/- 4 kW	84.6%	89.3%	92.1%	92.5%	93.4%
Percent Within +/- 8 kW	97.2%	98.3%	99.4%	99.0%	99.1%
Percent Within +/- 16 kW	99.7%	99.9%	99.8%	99.9%	99.9%
Percent Within +/- 32 kW	100.0%	100.0%	100.0%	100.0%	100.0%
Percent Underestimated	60.6%	60.7%	48.3%	48.2%	51.0%
Percent – No Difference	1.3%	2.0%	0.0%	3.8%	3.4%
Percent Overestimated	38.2%	37.3%	51.7%	48.0%	45.6%

Rate E-32 – kW Differences

Methodology	Class Average Load Factors	Customer Specific Load Factors	Customer Specific kW – Prior Month	Customer Specific kW – Same Month Prior Year
Percent Within +/- 2 kW	33.0%	57.7%	73.4%	68.6%
Percent Within +/- 4 kW	51.2%	73.7%	82.7%	80.2%
Percent Within +/- 8 kW	73.5%	86.5%	90.3%	89.6%
Percent Within +/- 16 kW	88.0%	92.8%	95.1%	93.9%
Percent Within +/- 32 kW	93.3%	96.6%	97.9%	96.9%
Percent Underestimated	73.2%	51.8%	31.5%	40.5%
Percent – No Difference	6.8%	0.2%	37.6%	28.6%
Percent Overestimated	20.0%	48.0%	30.8%	30.9%

The following tables summarize by rate schedule the result of these analyses for estimated dollar differences from the actual demand charges billed. These results are presented in more detail in Schedule PLW-2.

Rate EC-1 – Dollar Differences

Methodology	Class Average Load Factors	Seasonal Class Average Load Factors	Customer Specific Load Factors	Customer Specific kW – Prior Month	Customer Specific kW – Same Month Prior Year
Percent Within +/- $10	35.1%	29.9%	51.8%	65.6%	60.3%
Percent Within +/- $20	64.7%	53.0%	83.4%	85.1%	81.6%
Percent Within +/- $40	93.8%	80.6%	97.4%	97.5%	95.3%
Percent Within +/- $80	99.4%	94.0%	99.8%	99.8%	99.5%
Percent Within +/- $160	100.0%	99.7%	100.0%	100.0%	100.0%
Percent Underestimated	66.7%	47.8%	51.5%	46.3%	53.6%
Percent – No Difference	1.6%	1.6%	0.2%	6.4%	3.8%
Percent Overestimated	31.7%	50.6%	48.3%	47.3%	42.4%

Rate ECT-1R – Dollar Differences

Methodology	Class Average Load Factors	Seasonal Class Average Load Factors	Customer Specific Load Factors	Customer Specific kW – Prior Month	Customer Specific kW – Same Month Prior Year
Percent Within +/- $10	28.9%	36.8%	46.8%	49.1%	48.5%
Percent Within +/- $20	54.9%	63.1%	71.8%	73.4%	75.3%
Percent Within +/- $40	84.6%	88.2%	92.0%	92.9%	92.2%
Percent Within +/- $80	97.0%	98.2%	99.5%	99.0%	99.0%
Percent Within +/- $160	99.6%	99.9%	99.9%	99.8%	100.0%
Percent Underestimated	60.6%	60.7%	48.3%	48.2%	51.0%
Percent – No Difference	1.3%	2.0%	0.0%	3.8%	3.4%
Percent Overestimated	38.2%	37.3%	51.7%	48.0%	45.6%

Rate E-32 – Dollar Differences

Methodology	Class Average Load Factors	Customer Specific Load Factors	Customer Specific kW – Prior Month	Customer Specific kW – Same Month Prior Year
Percent Within +/- $10	66.8%	83.1%	87.5%	85.8%
Percent Within +/- $20	84.1%	90.9%	93.1%	92.5%
Percent Within +/- $40	91.6%	95.4%	96.9%	96.0%
Percent Within +/- $80	95.8%	97.8%	98.7%	97.7%
Percent Within +/- $160	98.2%	99.1%	99.5%	99.1%
Percent Underestimated	56.4%	39.4%	27.4%	34.3%
Percent – No Difference	27.6%	21.6%	45.7%	39.5%
Percent Overestimated	16.0%	38.9%	26.9%	26.2%

Q. Please explain why the Rate ECT-1R "kW Differences" table appears to indicate that Customer-Specific kW – Same Month Prior Year is more accurate than Customer Specific kW – Prior Month, while the Rate ECT-1R "Dollar Differences" table appears to indicate that Customer Specific kW – Prior Month is more accurate than Customer-Specific kW – Same Month Prior Year.

A. I would first like to point out that the differences in the degree of accuracy between both customer-specific kW demand estimating methodologies are not significant for this rate schedule. In addition, the stratification of data selected to present the results of these analyses can result in minor differences. While a recommendation regarding which customer-specific kW demand estimating methodology may be "too close to call" for Rate ECT-1R, we believe the other advantages (see the answer to the second question on page 11 of this testimony) associated with the use of the customer-specific kW demand estimating methodology are sufficient to 'break the tie" and that there are advantages to having a consistent demand estimating methodology across rate schedules, such as employee training and customer communications.

Q. Did APS consider the use of customer specific historical kW to estimate demand when selecting the use of class average load factors to estimate demand?

A. No. Based on interviews with APS Pricing and Regulation department personnel, no detailed analyses of alternative demand estimation methodologies were completed prior to the implementation of the methodology using class average load factors in March 1999. The Company considered the use of class average load factors to be unbiased and implemented a generosity factor to ensure this methodology would tend to result in underestimated demand.

In addition, no subsequent analyses of alternative demand estimation methodologies were completed by the Company to confirm the appropriateness of its use of class average load factors until the completion of the studies summarized in David Rumolo's Testimony on behalf of APS' application for a declaratory order on November 23, 2004.

Q. Will the use of customer-specific previous month kW eliminate the possibility that demand may be significantly over or under-estimated?

A. No demand estimating methodology can accurately predict customer behavior and the resulting energy use all of the time. As shown in the above tables, however, the use of customer-specific previous month kW to estimate demand reduces the number of instances in which demand is significantly over or under-estimated compared to the use of class average load factors.

Q. What is the most effective means of determining accurate usage?

A. The most effective means to improve the accuracy of demand billing is to increase the percentage of times that demand billing is based on an actual demand meter reading. Staff's December 28, 2004 report contains a number of recommendations targeted at

reducing the number of instances in which usage is estimated due to "no access" situations.

Q. Is Mr. Rumolo's description of APS' demand estimating methodology as being based on a load factor "calculated using an average figure based on all customers in that particular rate class" accurate?

A. No, APS calculated class average load factors based on a sample, not based on all customers.

Q. Do you agree with Mr. Rumolo's representation that the procedures used to estimate reads under the "old CIS" and "new CIS" are essentially the same?

A. No, we believe that the change from the use of customer specific load factors to class average load factors represents a significant change in estimating procedures. As can be observed by reviewing the information in the above tables, the accuracy of the two methodologies is not similar. One of the problems associated with APS' implementation of class average load factors in March 1999 was that the Company did not perform any analyses at that time to confirm that the use of class average load factors is as accurate as the use of customer-specific load factors or other possible demand estimation methodologies. In fact, APS initially implemented the use of class average load factors with a "generosity factor" to provide assurance that demand would not be overestimated.

Q. Do you agree with Mr. Rumolo's statement that "the use of a class average load factor does not bias the estimated demands and appropriately scales the demand to the estimated energy by avoiding customer-specific anomalies that may produce significant distortions in the estimated demand"?

A. In part. We agree that the use of class average load factors does not appear to bias the estimation of demand. We also agree that the use of class average load factors avoids customer-specific anomalies, although we question the implication that these anomalies occur frequently enough to be a significant factor in the selection of a demand estimation methodology. However, we dispute the importance placed on these two issues compared to the importance of using a demand estimating methodology that most accurately estimates demand. In our opinion, it is inappropriate to select a demand estimating methodology on the basis of its ability to be unbiased and avoid customer-specific anomalies without determining whether this same approach most accurately estimates customer demand.

Q. Finally, do you agree with Mr. Rumolo's contention that "the tariff language provides perverse incentives to customers to deny APS access"?

A. Mr. Rumolo contends that "a customer could deny access to APS during the hottest months of the summer and would be billed on the last demand reading that may have occurred before the high use periods." We agree that in some circumstances the use of the last actual demand reading may provide a customer with an incentive to deny access to APS. APS is currently allowed to convert a customer to a non-demand billed rate schedule in the event that a customer denies access to the meter. If the Company suspects that the customer is gaming the system, it should be able to use this existing remedy to address the "no access" problem.

Q. Should APS be required to adjust past usage estimations to reflect the customer-specific kW method?

A. Although we conclude that usage estimation methodologies based upon customer-specific kW produce more accurate results than APS' class average load factor method, we do not

find that the use of class average load factors to estimate demand is completely unreasonable. Usage estimations calculated with the class average load factor method will not be as accurate as those calculated with customer-specific kW methods. The improvement in accuracy is significant enough to lead us to recommend that the Commission require APS to adopt the customer-specific kW method for future use. However, the class average load factor method used by the Company is not so problematic as to lead us to recommend that past usage estimations be adjusted. We think that such a process would not produce meaningful benefits to customers because it would require significant resources to accomplish and result in little difference on a net basis in the amounts that customers pay.

Q. Was APS unjustly enriched at the expense of Avis Read and other customers as a result of its usage estimation practices?

A. No, we found no evidence of the purposeful overbilling of customers, and we found that APS' usage estimation methodology tends to result in underbills. However, we disagree with APS' decision to not retroactively identify and credit those customers whose accounts were not corrected for the overestimation of demand when the actual demand reading was less than estimated demand billed. This issue is discussed in more detail in Section Three of this testimony.

As discussed in detail in the December 28, 2004 Report, Chapter IV, Finding 8, the naturally occurring phenomenon of rising demand that occurs in months approaching summers may reduce the possibility that overestimated demand will be discovered. However, we reviewed the numbers of estimated bills by month for the residential demand (EC-1 and ECT-1R) and general service demand (E-32) rate schedules for the period 1995 through 2004 and found no evidence of trends to support the allegation that APS manipulates the demand estimating process to its own advantage.

SECTION TWO: KWH ESTIMATION METHODOLOGIES

Q. Please describe APS' kWh estimation procedures.

A. Since the implementation of APS' new customer information system in September 1998, APS has been estimating kWh consumption using seasonal customer-specific consumption per day times the number of days in the current billing period if the account history is available. The use of a six month seasonal average will always include consumption from the same month of the prior year. If there is insufficient history to use the seasonal average method, that is, if the customer has been a customer for less than one year, the consumption estimate will be based on the actual per day consumption from the previous month. If the previous month is in a different season, per day consumption will be calculated using the actual consumption from the same month of the prior year.

Q. Are the issues related to over- or under-estimation of kWh consumption the same as the issues related to the over- or under-estimation of kW demand?

A. Not completely. While customers prefer for their utility bills to be based on actual kW and kWh consumed, the over- or under-estimation of kWh consumption is trued-up in most instances in the subsequent period when the actual meter reading is obtained. This is not true with kW demand.

Q. Is APS' kWh consumption estimation methodology reasonable?

A. Yes, with one possible exception. The use of a customer specific seasonal consumption-per-day average is a reasonable methodology for estimating consumption and is based on customer-specific history, not class averages. Theoretically, we know of no reason why the use of this methodology should be biased in favor of over or under-estimation of consumption. However, in reviewing the detailed analyses supporting Mr. Rumolo's

November 23, 2004 Testimony, we noticed that estimated kWh consumption is generally higher than the actual kWh consumption in the month of May. May is the first month of the summer season; therefore, CIS estimates consumption billed in May using the summer seasonal average. Due to cycle billing, approximately one-half of consumption billed in May will represent energy used in April. We recommend that APS should perform an analysis to determine whether the inclusion of May as a summer season month for purposes of estimating kWh is appropriate. This analysis should be filed with the Commission within 90 days of the conclusion of this matter. This trend is reversed to some degree in the early winter season months. When viewing consumption for a complete twelve month period, we did not find that estimated consumption for the twelve month period was consistently overstated.

Commission rules specify that electric utilities shall estimate usage by considering, where applicable, the customer's usage during the same month of the previous year and the customer's usage during the preceding month. While the seasonal average will not include the amount of usage during the preceding month if the previous month is in a different season, it always considers the consumption from the same month in the previous year if the customer had service at the same premises during that period.

We reviewed all billing-related complaints sent to either the Commission or the APS Consumer Advocate's Office during the period 1995 through 2004. There were no observable trends related to the over or under-estimation of kWh consumption. In fact, it appeared that there were as many or more complaints related to underestimated consumption as overestimated consumption. As noted in the December 28, 2004 Report, the problem with the Avis Read account was that consumption was underestimated rather than overestimated.

We also reviewed selected customer information to determine if kWh consumption was estimated more accurately using one of these three kWh estimating methodologies –

seasonal averages, same month prior year, and previous month. Based on the analyses completed, it appears that the use of prior month consumption per day provides the most accurate kWh estimate, however, the use of seasonal customer-specific consumption per day results in the net underestimation of kWh on average of only 1.9 percent for those customers reviewed.

SECTION THREE: UNADJUSTED OVERBILLING OF DEMAND

Q. Please explain why you believe that refunds are due to customers as the result of APS' over-billing of demand.

A. In September 2003, APS programmed its customer information system (CIS) to automatically identify and report as a billing exception those instances in which the actual demand reading was less than the previously estimated demand. This programming change allowed the Company to routinely identify those instances in which estimated demand exceeded actual demand so the customer's account could be credited for the difference. Before this programming change, these instances could not be routinely identified. APS decided not to apply this change retroactively. As a result, there were customers whose demand was over-estimated prior to September 2003 and whose accounts were not credited for the overbilling.

Q. What is the dollar amount due customers as a result of the overbilling of demand?

A. Based on information provided by the Company in response to Staff DR 11-2, there are 9,056 residential customers affected by the uncorrected overbilling of demand. The amount to be adjusted totals $171,686. APS is still in the process of determining the required adjustment for general service customers. APS' calculation of these refunds will be subject to verification as part of the independent audit recommended by Staff.

Q. Should APS be required to credit customers' accounts for interest accrued on the over-billed demand?

A. Yes. In this instance, APS knew that some of its customers may have been over-billed. APS knowingly decided not to retroactively refund customers' overpayments of estimated demand and has had the interest-free use of customers' funds for several years.

Q. What interest rate should be used to calculate interest on overbilling?

A. APS should calculate interest on overbilling using the same rate it currently uses to calculate interest on customers' deposits.

Q. What should APS be required to do if the customers who were over-billed demand are no longer active customers?

A. APS should take reasonable steps to locate those customers who are no longer active customers. For those customers located, APS should issue refund checks for the amount of the unadjusted overbilling and related interest. We recognize, however, that it is not reasonable for APS to incur costs to locate customers when the amount of the potential refund is insignificant. Therefore, we recommend that APS be required to make refunds to inactive customers only in those instances in which the potential refund is greater than $5.00. APS should be required to maintain documentation of steps taken to locate individual inactive customers.

Q. How does this relate to the unadjusted overbilling of demand recommendation included in Staff's December 28, 2004 Report?

A. The December 28, 2004 Report contained the following recommendation.

> "APS should evaluate the extent to which customers were over-billed or under-billed during the period 1998-2003. APS should

identify those customers who are due credits because their estimated demand was not adjusted downward when the actual demand read came in less than the estimate. APS should also be required to provide a credit to customers who were over billed. Within ninety days of a decision in this matter APS should file a report that details the results of its analysis and identifies mechanisms by which it could provide refunds to customers who were overbilled."

Since the report was issued, APS has identified the number of residential customers and the amounts overbilled related to this recommendation. These are the amounts discussed above as having been provided in response to Staff DR 11-2.

SECTION FOUR: COMPARATIVE PRACTICES – OTHER ARIZONA ELECTRIC UTILITIES

Q. Did Staff request additional comparative information from other Arizona electric utilities subsequent to the issuance of the December 28, 2004 Staff report?

A. Yes. Staff has asked other Arizona electric utilities to provide the total number of customer bills estimated by month by rate schedule as well as the reasons for the estimates for the period 1995 to the present. Staff also asked each utility to describe its practice for securing an actual meter reading and its business rules used for exception reporting of high and low consumption.

Q. How does APS' percent of estimated bills compare with other Arizona electric utilities?

A. APS' estimated bills as a percent of total bills declined slightly from approximately 1.4 percent in 1995 to under 1.2 percent in 2004, while peaking in 1998 and 1999 at approximately 2.0 percent. Please refer to Chapter III of the December 28, 2004 Report for a more detailed discussion of APS' percent of estimated bills.

The following table summarizes the responses received from the other Arizona electric utilities.

Utility	Average Percent of Estimated Bills – Range per Year
Duncan Valley Electric Cooperative, Inc.	0.00% - 0.15%
Garkane Energy Cooperative, Inc.	No estimates
Graham County Electric Cooperative, Inc.	0.21% - 0.52%
Mohave Electric Cooperative, Inc.	3.9% (data available for 2004 only)
Navopache Electric Cooperative, Inc.	0.06% - 1.28%
Trico Electric Cooperative, Inc.	0.33% - 0.60%
Tucson Electric Power Company	0.12% - 1.22%
UNS Electric, Inc.	0.35% - 0.39%

APS' percent of bills estimated is generally higher than that of the other Arizona electric utilities. Mohave Electric, the only Arizona electric utility with a higher percentage of estimated meter reads, had a high percentage of estimated meter reads in 2004 due to the termination of its contract with a contract meter reading company in December without a sufficient number of replacement meter readers available to avoid rendering customers' bills based on estimated usage. APS has significantly more demand-billed customers, both in numbers and as a percent of total, than the other Arizona utilities. These demand meters must be physically probed in order to reset demand, thereby requiring access to the meter. As a result, APS presumably has fewer opportunities to "scope" the meter reading

compared to the other utilities in the event access to the meter is restricted. This would contribute to the observed differences in the percents of bills estimated.

Q. How do APS' practices to secure an actual meter reading compare with the practices of other Arizona electric utilities?

A. APS's practices to secure an actual meter reading are also described in detail in Chapter III of the December 28, 2004 Report. The practices of the other Arizona electric utilities, as described by each individual utility, are shown in the following table.

Utility	"No Access" Practices
Duncan Valley Electric Cooperative, Inc.	Meter readers will visit customer premises as many times as practical during the meter reading cycle to obtain an actual meter reading. We may also call the customer and ask to have them read the meter. Obtaining a reading from every meter can at times be difficult where we have a number of meters located at remote mountain tops and ranches. We have installed power line carrier AMR meters at most of these locations, but there are still times when the AMR meters fail to read. Since we are small and have only one billing cycle per month, when we connect a customer at these remote locations we explain that it may become necessary to estimate a reading so as to not delay a billing cycle. The operations manager tries to contact customer by phone to describe the nature of the problem. If necessary, the operations manager will visit the customer premises to more clearly explain the issue. If phone or visits cannot be made a certified mailing is sent notifying the customer of the nature of the problem and to make contact with the Cooperative to discuss options.
Garkane Energy Cooperative, Inc.	NA – no meters are estimated. In remote areas of the system, Garkane has installed Turtle Meters which send an electronic meter reading.
Graham County Electric Cooperative, Inc.	If access to a meter is hindered the meter reader contacts the office and asks them to attempt to reach the owner. If the owner is unavailable then additional attempts during the cycle are made to gain access and to contact the owner. If all attempts are unsuccessful then an estimate is made.
Mohave Electric Cooperative, Inc.	During the past year, there have been no situations where an actual meter reading was not obtained when there was an access issue. No readings were estimated during 2004 due to a lack of access to the meter. Documentation for situations prior to 2004 is not available. Historically, access issues have been rare, but when such issues have occurred, standard procedure initially requires an attempt to contact the customer by telephone. If unsuccessful, the telephone call is followed by a certified letter to the customer.

Utility	"No Access" Practices
Navopache Electric Cooperative, Inc.	When a meter reader cannot access a meter it is flagged and reported to Safety and Loss Control. This department contacts the customer. No further attempt is made by the meter reader to get a reading. If the meter is a 3-phase or demand meter, several attempts are made, if the reading is still unavailable the customer is contacted immediately and we work with the customer until a reading is secured.
Trico Electric Cooperative, Inc.	After the second consecutive month of estimating the consumer's bill for reasons other than severe weather, the Cooperative will make every attempt to secure an accurate meter reading. The first billing cycle (month) will show as an estimate on the bill with the reason. If this is an access issue, i.e. blocked meter, vicious animal, locked gate, etc., we will then send a letter restating the reason and asking the customer to change the condition. If no change by the third month, another letter is sent, and if by the fourth month there has been no resolution we notify the customer of our right to disconnect service to their location.
Tucson Electric Power Company	1. Field personnel fill-out door tag in detail and leave at customer's residence. Turn-in form with specific access information to group leader. 2. Group leader / supervisor refers information to Customer Service No Access Desk. 3. Customer Service Representative places telephone call to customer within 4 days of receiving written information. Two telephone attempts must be made. Attempts must take place on two different days at different times of the day. Document dates and times phone calls are made / messages left. 4. Customer Service sends Letter A to customer within 2 days of phone call being completed. 5. Customer Service sends Letter B to customer within 2 days of receiving notice of 2nd accessibility failure. 6. Customer Service sends Letter C, by certified mail, within 2 days of receiving notice of 3rd accessibility failure. 7. Disconnect, if necessary, on or after date specified in Letter C. Note: Letters B and C notify customer of possible discontinuance of service and that reconnection will not occur until the accessibility issue has been resolved to the satisfaction of TEP and customer pays reconnect charge of $150.
UNS Electric, Inc.	This process is followed for residential rate customers and small general rate customers. If a large general rate customer read is involved, a read is pursued until successful. No large general rate customer/demand metered customers are estimated. As provided in the tariffs, we will estimate no more than two consecutive bills. First time: 1. The account of a no-access read is noted on the customer's account. 2. A postcard is mailed to the customer explaining that UNS Electric did not have access for a meter read and that their bill will be estimated. Second time: 1. due to a no-access read again, the customer's account is noted again.

Utility	"No Access" Practices
	2. A second postcard is mailed to the customer indicating this is the second notice and they are to please contact the office for resolution. Third time: 1. The account of a no-access read is noted on the customer's account. 2. A service order is generated for a customer service person to be sent out to the address, obtain a read and make contact with the customer. Issues are usually resolved at this point. However, if they are not resolved, listed below are the different steps that can be taken: 1. If the customer service person comes back and has the read and had no trouble getting the read, the meter reader is informed that a read is expected in the future. 2. If the customer service person discovers it is indeed an access issue, he/she negotiates a resolution with the customer and returns with a read and a plan which is conveyed to the Bill technician and the Meter Reader for future reads. 3. If the customer service person is unable to negotiate a resolution, that information is reported back to the Bill Technician. The Bill Technician will make an attempt via telephone to contact the customer, explain the situation and obtain satisfaction for future access. 4. If the customer is uncooperative (none in the last year or so), as a last resort, a standard letter is sent to the customer, along with the tariff that indicates that UNS Electric has a right to safe access to its meter for meter read and maintenance purposes. The tariff and letter indicate clearly the consequences and includes that they can be cut at the pole if an access problem is not resolved or continues.

APS' practices to secure an actual meter reading do not appear significantly different than those practices in place at other Arizona utilities. However, TEP will ultimately send the customer a certified letter indicating that access must be provided or that service will be disconnected. APS does not send certified letters as part of its access resolution process.

Q. Based on this information, are there practices that you believe should be adopted by APS?

A. Yes, we believe that APS should enhance its "no access" resolution process to include the sending of certified letters at the time it notifies customers that continued "no access" will result in the possible discontinuance of service.

Q. How do APS' business rules used for exception reporting of high and low consumption compare with the practices of other Arizona electric utilities?

A. APS' business rules used for exception reporting of high and low consumption have changed over time. The "old CIS" reported exceptions if kWh usage was nine (9) times higher or less than one-ninth the kWh of the comparable period. Under the "new CIS," the business rules changed to ten (10) times higher or less than one-seventh (0.14) the comparable kWh using six-month seasonal information. In September 2003, the business rule was changed to seven (7) times higher for residential customers using seasonal information.

The following business rules are used by other Arizona electric utilities for consumption exception reporting:

Utility	Consumption Exception Reporting Business Rules
Duncan Valley Electric Cooperative, Inc.	A reading that results in a usage change of +/- 50% will generate an exception report.
Garkane Energy Cooperative, Inc.	If the monthly kWh consumption exceeds 1.99 times the average monthly usage or 1/2 the average low consumption.
Graham County Electric Cooperative, Inc.	The Company writes an exception report on each read cycle that shows high and low consumption. The customer is reported high if the billing amount exceeds the high billing amount specified in a rate file. The customer is reported low if the billing amount is below the minimum specified in the rate file.
Mohave Electric Cooperative, Inc.	The billing software used by Mohave develops a "normal" or average usage for each customer each month. Mohave has then selected high and low variance limits based on the season of the year. These high and low variance limits are used by the software to generate variance reports that identify all accounts which fail the high-low variance test. During summer months, a usage that is over 200% higher than normal or over 35% lower than normal will be placed on a variance report for review. During the winter months, the variance percentages are set at 175% and 35%. These variance percentages are based on a determination of what are reasonable variances considering the temperature extremes experienced in the area.
Navopache Electric Cooperative, Inc.	Navopache's computer generates high and low consumption exception reports. This report is reviewed by revenue class and exceptions investigated. Navopache has a large base of seasonal members, variations in this revenue class are not

Utility	Consumption Exception Reporting Business Rules
	unusual.
Trico Electric Cooperative, Inc.	Trico's exception reporting is called a Prebill report, which is run daily. Accounts are flagged when they fall into the high/low percentage determined by our rate schedules. Flagging also occurs if consecutive months have the same kWh usage or if the maximum kWh usage by rate for that account is exceeded.
Tucson Electric Power Company	There are parameters defined in the CIS which produce a billing error if outside parameters. If a current bill is 2.5 times higher than the previous month's bill or 0.75 times less than the previous month it comes out on the Billing Errors for an Account (BERA) List. An exception billing administration specialist then determines if an investigation order should be issued or if the bill is acceptable.
UNS Electric, Inc.	UNS Electric's method of HILO value creation is to compare current month's premises usage to last year same month premises usage. If last year's data is missing, the current month is compared to last month's premises usage. Lacking both, current month consumption is compared to a peer estimate value created in the UGEN batch, using the same last year/last month values as stated above.

These responses suggest that APS' parameters for high-low consumption exception reporting are less restrictive than those practices in place at the other Arizona electric utilities. Therefore, it is possible that APS will have a higher percentage of bills based on inaccurate meter readings mailed directly to customers without billing department review than other Arizona electric utilities.

Q. Why are these business rules important?

A. These rules are important because they determine which bills are exception-reported. When exception-reported, billing services representatives will manually review the reported consumption and may issue a request for a field-verified read if the reported consumption is considered to be out-of-line. In other instances, the representative may determine that the index was misread and may correct a meter reading without having the meter reading field-verified. These activities ensure that customers receive bills based on accurate meter readings.

SECTION FIVE: COMPARATIVE PRACTICES – OTHER JURISDICTIONS

Q. Has Staff received additional information from other state utility regulatory agencies?

A. Yes, Staff received responses from the State of Michigan Public Service Commission and the Missouri Public Service Commission.

Q. Is the information received from these Commissions pertinent to this inquiry?

A. Yes, the information received from these commissions is consistent with some of the findings in the December 28, 2004 Report. However, neither state provides information related to demand estimation since neither state has electric tariffs that include a residential demand charge.

Q. Please summarize the Michigan and Missouri rules related to estimated billing.

A. The Michigan rules allow a utility to estimate the bill of a residential customer every other month, and may allow a utility to estimate the bills more or less often depending upon a finding by the Commission that those procedures assure reasonable billing accuracy. However, estimating procedures employed by a utility and any substantive changes to those procedures must be approved by the Commission. A utility may also estimate bills if extreme weather conditions, work stoppages, or other circumstances beyond the control of the utility prevent an actual meter reading. If the utility is unable to gain access to read a meter, then the utility shall use reasonable alternative measures to obtain an actual reading, including mailing or leaving postage-paid, pre-addressed postcards. If a utility cannot obtain an actual reading, then the utility shall maintain records of the reasons and its efforts to secure an accurate reading.

The Missouri rules allow a utility to render a bill based on estimated usage when extreme weather conditions, emergencies, labor agreements, or work stoppages prevent actual meter readings and when a utility is unable to obtain access to the customer's premises. If a utility is unable to obtain an actual meter reading, it shall undertake reasonable alternatives if practicable to obtain a customer reading of the meter, such as mailing or leaving postpaid, preaddressed postcards upon which the customer may note the reading unless the customer requests otherwise. A utility shall not render a bill based on estimated usage for more than three (3) consecutive billing periods. Under no circumstances shall a utility render a bill based on estimated usage unless the estimating procedures employed and any substantive changes to those procedures have been approved by the Commission. A utility shall maintain accurate records of the reasons for the estimate and the effort made to secure an actual reading. Based on discussions with Missouri Staff, utilities generally estimate usage using historical customer specific information (prior month or same month prior year), but may also trend or weather-normalize usage. There are no demand-billed residential customers in Missouri.

SECTION SIX: METER READING PRACTICES

Q. Please describe the results of your interview of the meter reader and meter reading supervisor responsible for the Avis Read account in Paradise Valley in 1999 and 2000.

A. We interviewed the primary meter reader assigned to read the meter at Avis Read's Paradise Valley premises in 1999 and 2000. The meter reader described the reasons he was unable to access the meter at Avis Read's residence. While Ms. Read had provided APS with a key to her gate, eventually the gate key provided by Avis Read went missing. The meter reader stated that it is APS' policy that meter readers make "reasonable"

attempts to gain access to the meter, although "reasonable" practices do not include knocking on the customer's door. The meter reader stated that "no access" practices include leaving a door hanger and coding the meter as locked.

The meter reading supervisor was not made aware of the "no access" situation at the Avis Read property until January 2005 when we requested this interview. He did not think that he had ever been to the Avis Read residence, and he did not make contact with Avis Read during the period of 1999-2000 to discuss alternatives to resolve the "no access" problem. Neither the meter reader nor meter reading supervisor could recall whether APS telephoned Avis Read to arrange for the replacement of the missing key or to replace the gate lock with an APS lock. According to notes recorded in CIS, Ms. Read had offered to allow her lock to be replaced with an APS lock.

The meter reader indicated that many additional "no access" situations could be remedied if APS installed more of the EZRead 90-degree elbows. These elbows change the angle of the meter and facilitate reading meters. In response to this suggestion, the meter reading supervisor indicated that meter reading shop personnel make site visits to each customer's premises reported by meter readers as locations where "no access" problems could be solved through the installation of an EZRead 90-degree elbow to determine the feasibility of installing these devices.

Q. Please describe the work completed to determine if APS meter readers are curbing meter reads.

A. We interviewed the route coordinators and meter reading supervisor (or head meter reader) at the Flagstaff and Surprise meter reading shops to identify practices in place to detect the curbing of meter reads, evaluate individual meter reader performance, and monitor lock-outs. We also reviewed selected Itron reports provided by APS and did not detect instances of curbing. While APS reviews individual meter reader performance

reports for evidence of excessive lock-outs by meter reader, they do not consistently review reports to track lock-outs by meter reading route. Using available DB Microware reports to review lock-outs by route provides management with another valuable tool to monitor trends in lock-outs and reduce the number of "no access" meters. DB Microware is the software used by APS to manage meter reading routes.

In addition, we reviewed descriptions of the disciplinary actions taken against meter readers during the period 1994 through 2004. During that time period, there were three instances in which meter readers were terminated for "curbing" meter reads, one in late 2004, the other two in 1994 and 1995. Chapter III, Finding 10 of the December 28, 2004 Report (pages III-10 to12) provides additional discussion of controls in place related to the "curbing" of meter reads.

Q. Do meter readers have access to prior month usage on the Itron hand-held meter reading units that could facilitate the curbing of meter reading?

A. In our December 28, 2004 Report, we mention that in areas outside of Metro Phoenix the prior month's meter reading and customer usage are displayed on one of the Itron screens that meter readers can access. Having access to this information provides meter readers with information that could facilitate the curbing of meter reading. We recommended in the December report that this feature be disabled. Recent discussions with Flagstaff meter reading personnel have confirmed that APS has recently issued instructions to disable this feature.

Q. Do you have any additional recommendations related to meter reading based on the additional work completed?

A. Yes, we have four additional recommendations related to meter reading. First, APS should be required to develop and install performance measures to document the efforts

taken by APS to comply with the Commission requirement that "(a)fter the second consecutive month of estimating the customer's bill for reasons other than severe weather, the utility will attempt to secure an accurate reading of the meter. (R14-2-210. A. 3.). Second, APS should specifically include the use of EZ-Read as one of the steps taken to resolve a "no access" situation. Third, APS should utilize available DB Microware reports to review lock-outs by route to monitor trends in lock-outs and to reduce the number of "no access" meters. Fourth, APS should establish an internal process whereby after three consecutive estimates, continued instances of consecutive estimates due to "no access" situations are reported and made visible to increasing levels of APS management.

SECTION SEVEN: REVENUE REQUIREMENT IMPACT

Q. What is the revenue requirement impact of the Company's demand estimating methodologies?

A. During 2002, the Company estimated 25,510 E-32 (general service) customer bills, 4,201 EC-1 (residential) customer bills, and 5,589 ECT-1R (residential TOU) customer bills. Using 2002 data for our test period and using information provided by APS that supported the analyses included in David Rumolo's November 23, 2004 testimony, related to the over and under billing of demand using the class average load factors in place during 2002, BWG estimates that APS underbilled its E-32 customers by approximately $245,000, underbilled its EC-1 customers by approximately $45,000, and underbilled its ECT-1R customers by approximately $165,000, for a total underbilling of approximately $455,000. If Staff's recommended estimation methodology had been in use in 2002, revenues would have been $455,000 higher.

Q. Please describe in more detail BWG's calculation of the impact of APS' demand estimating methodology on APS' revenues.

A. The following table presents the detail supporting BWG's calculation of the impact of APS' demand estimating methodology on test year revenues.

Rate Schedule	Customer Class	APS Estimate of Net Under Billing for 12 Months ended August 2004	Number of Estimated Bills – 12 Months ended August 2004	Number of Estimated Bills – Calendar 2002	Dollar Impact – Calendar 2002
EC-1	Residential	$22,271	2,052	4,201	$45,539
ECT-1R	Residential TOU	$143,117	4,797	5,589	$166,746
E-32	General Service	$205,283	21,452	25,510	$244,116
Total		$370,671	28,302	35,300	$456,401

In August 2002, the Company adjusted the class average load factors to remove the "generosity factor." As a result, BWG's calculation of the net underestimation for 2002 prorated the results of the APS analyses using the demand estimating methodology implemented in March 1999 and the methodology implemented in August 2002. The class average load factor used to estimate demand for rate ECT-1R was also adjusted in April 2004 to correct an error in the calculation of the on-peak load factor.

SECTION EIGHT: SUMMARY OF STAFF RECOMMENDATIONS

Q. Please summarize all the recommendations related to the Staff inquiry into the usage estimation, meter reading, and billing practices of Arizona Public Service Company.

A. A complete list of all recommendations related the Staff inquiry into the usage estimation, meter reading, and billing practices of Arizona Public Service Company follows.

Monitoring and Compliance with Commission Recommendations

- APS should be required to participate in a third party audit by an independent auditor selected by Staff and funded by APS. This audit would be focused on evaluating whether the Company's meter reading, billing, and estimation practices and management processes have been improved. The audit would also evaluate whether the Company has complied with the decision in this matter. The audit would take place within twelve months of a decision in this matter.
- APS should be required to file an implementation plan with the Commission within sixty days of a decision in this matter that identifies how it will comply with the decision in this matter. This implementation plan should be submitted for Commission approval.
- APS should be required to commence an internal audit of its compliance with Commission rules and Commission-approved tariffs within three months of the close of this proceeding and complete the audit, with a copy of the audit report to be filed with the Commission, within twelve months of the close of this proceeding. APS completed a "CIS Compliance to ACC Rules and Regulations Audit" in August 2002; however, this audit failed to identify that APS was not estimating usage for residential demand in conformance with the tariff provisions for Rate Schedules EC-1 and ECT-1R.
- APS should be required to provide documentation that lists the customers who were not issued three or more bills as a result of APS' CIS problems during late 1999 and early 2000. Staff believes that three or more missed bills might indicate a systemic problem that may warrant further investigation. This documentation should also describe all the circumstances surrounding these customers' accounts so that the Commission may evaluate whether they were impacted in a manner similar to Avis Read. For example, this report should indicate whether APS offered customers

extended payment terms once the backbill was issued, describe what terms were offered, and discuss whether APS communicated with these customers to make them aware of the billing problems.

Meter Reading

- APS should be required to provide evidence to the Commission that new procedures have been put in place to ensure that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either smaller or remote. A report that describes the new procedures and explains how they reduce the potential for "skipped" meter readings due to staffing resource issues should be provided to the Commission within six months of a decision in this matter.
- APS should be required to revise the "No Access Meters" report, KM06R20, to provide the following additional features:
  - Report the present number of consecutive months that the meter reading department could not access the meter so that the Administrative Coordinator can track the steps required for each month of access problems and prioritize the APS response.
  - Report the other instances that the meter reading department was unable to read the meter during the previous twenty-four months to simplify identification of recurring "no access" problems at the same premises.
  - Prioritize accounts to focus first on demand-billed customers when working the "no access" report. APS should compile and maintain these reports for purposes of the independent audit.
- APS should be required to develop and install performance measures to document the efforts it has taken to comply with the Commission requirement that "(a)fter the second consecutive month of estimating the customer's bill for reasons other than

severe weather, the utility will attempt to secure an accurate reading of the meter. (R14-2-210. A. 3.).

- APS should specifically include the use of EZ-Read as one of the steps taken to resolve a "no access" situation.
- APS should utilize available DB Microware reports to review lock-outs by route to monitor trends in lock-outs and reduce the number of "no access" meters.
- APS should establish an internal process whereby after three consecutive estimates, continued instances of consecutive estimates due to "no access" situations are reported and made visible to increasing levels of APS management.
- APS should enhance its "no access" resolution process to include the sending of certified letters at the time it notifies customers that continued "no access" will result in the possible discontinuance of service.
- APS should develop and install a performance measure to monitor the extent to which APS is complying with the Commission requirement to read meters each month (no less than twenty-five days after the last meter read and no more than thirty-five days after the last meter reading). APS should provide to the Commission a description of its performance measure and the results of its analysis within six months of a decision in this matter.
- APS should change the options settings in the Itron software in all locations so that the Itron HHC used by meter readers in each of the APS meter read shops no longer includes the last month's usage and last month's meter reading. This feature should be disabled throughout APS' service territory within 30 days of a decision in this matter.
- APS should provide the Commission with quarterly reports related to the status of the remote meter reading pilot and implementation plans. The reports should provide a description of the meter reading technology being implemented, APS' plan for implementation, the number and type of customers involved in the pilot program, the

costs associated with its implementation, and the operational efficiencies associated with its implementation.

- APS should implement a pilot program to evaluate whether using an auto-dialer to communicate with "no access" account customers prior to the scheduled read date, in addition to the other methods presently used, will facilitate resolution of additional "no access" accounts. The Company should maintain records on the number of instances that the auto-dialer is used to call customers in these circumstances so that one may determine whether use of the auto-dialer improves APS' access to "no access" meters. The results of the pilot program should be reported to the Commission in quarterly reports.
- APS should implement a pilot program to evaluate whether scheduling appointments with "no access" account customers results in a reduction of estimated reads due to "no access" problems. The results of the pilot program should be reported to the Commission in quarterly reports.
- APS should be required to implement a policy to ensure that meter reading supervisors periodically inspect meter locations reported as "no access" to verify that appropriate corrective measures are taken. APS should be required to file a copy of this policy with the Commission within ninety days of a decision in this matter.

Usage Estimation and Billing

- APS should be required to change the methodology used to estimate demand from one using class average load factors to one using customer specific historical demand. The use of customer specific demand history results in more accurate demand estimates.
- APS should perform an analysis to determine whether the inclusion of May as a summer season month for purposes of estimating kWh is appropriate. This analysis should be filed with the Commission within 90 days of the conclusion of this matter. In reviewing the detailed analyses supporting Mr. Rumolo's November 23, 2004

Testimony, we noticed that in the month of May that estimated kWh consumption was generally higher than the actual kWh consumption. May is the first month of the summer season, therefore, CIS estimates consumption billed in May using the summer seasonal average. Due to cycle billing, approximately one-half of consumption billed in May will represent energy used in April. This trend is reversed to some degree in the early winter season months.

- APS should be required to refund to customers the overbilled demand charges plus interest that occurred during the period starting in September 1998 with the implementation of the new CIS through September 2003 when changes were made to the Company's CIS to correct this problem. There were 9,056 residential customers overbilled based upon inaccurate demand estimation and the overbilling was not subsequently credited to the customer's account during this period. The amount of the overbilling which should be credited to the appropriate residential customers' accounts totals $171,686. APS is still compiling data for general service customers. APS' calculation of these refunds will be subject to verification as part of the independent audit recommended by Staff.
- APS should be required to obtain Commission approval of its estimation procedures as a tariff filing.
- APS' Audit Services Department should include on-going testing of usage estimation, meter reading and billing practices in its annual audit plan. APS should also ensure that it has completely implemented any findings reported in previous audit reports. APS should file the results of its internal audits with the Commission.

Comparative Practices

- APS should take steps to obtain actual meter readings at customer premises that have persistent "no access" problems. The Company's established practice does not include

scheduling a meter reading at other than normal business hours or making an appointment for a meter reading.

- APS should continue to participate in benchmarking studies that compare its practices to other utilities in the industry. APS should provide such benchmarking analysis to Staff on a quarterly basis.

Avis Read Complaint

- APS should be required to train Billing Services Representatives (BSRs) and others involved in the usage estimation, meter reading and billing process to understand that customers value an accurate bill more than an underestimated bill. APS should also train them to recognize situations in which the underestimation of usage may result in problems for their customers. APS should provide Staff with a description of the changes to its training process within six months of a decision in this matter.
- APS should be required to provide a clearer notice on a re-billed account. Such notice should clearly state that the new bill replaces the previously issued bill and that the customer should only pay the reissued bill amount. APS should consult with Staff in determining the appropriate language and placement on the bill within 30 days of a decision in this matter. In addition, APS should be required to make the appropriate modifications to its billing system to implement this change within sixty days of a decision in this matter.

SECTION NINE: MISCELLANEOUS

Q. Please explain why it is important that APS be required to participate in a third party audit by an independent auditor.

A. We have completed numerous independent audits of utilities for utility regulatory commissions. Based on our experience, the benefits of requiring APS to participate in a

third party audit by an independent auditor are two-fold. First, the audit will provide additional incentive to APS to implement the recommendations listed above on a timely basis. Second, the audit will provide the Commission with an independent assessment of and assurance that the actions taken by APS were responsive to the recommendations ordered by the Commission.

Q. Please explain why it is important that APS' estimating procedures be dealt with as a tariff item.

A. It is important that APS' estimating procedures be dealt with as a tariff item for two reasons. First, providing additional language in the Company's tariff will clearly specify Commission requirements related to the methodology used to render customers' bills. Second, the inclusion of specific tariff language will hold APS to a greater degree of accountability for compliance with the Commission's intentions related to the desired usage estimating procedures.

Q. Are you familiar with Resolution G-3372 approved by the California Public Utilities Commission (CPUC) on January 13, 2005?

A. Yes. This Resolution, which was approved by the CPUC on January 13, 2005, requires changes to Pacific Gas and Electric Company's (PG&E) tariff. These tariff changes limit a residential customer's exposure to three months for under-billings resulting from a failure to issue a bill or from underestimating consumption. The failure to issue a bill and the issuance of bills based on estimated usage for situations within the control of PG&E are now defined as "billing errors." The Resolution excludes estimated bills resulting from "inaccessible roads, the customer, the customer's agent, other occupant, animal or physical condition of the property preventing access to PG&E's facilities on the

customer's premise, other causes within control of the customer, or a natural or man-made disaster such as a fire, earthquake, flood or severe storms."

As background, the CPUC received numerous complaints from PG&E customers in 2003 and 2004 claiming that PG&E failed to bill them for actual gas or electric use on a regular monthly basis or that PG&E allegedly estimated a customer's bills for several months and later rendered a back bill for undercharges. In 2003, PG&E issued a relatively large number of delayed bills (i.e., bills issued more than sixty (60) days after gas or electric usage occurred) due to problems associated with the implementation of PG&E's new Customer Information System.

The CPUC ordered PG&E to file a report explaining the reasons for the large number of delayed and estimated bills over the past five years and a plan for reducing the number of these bills. While the CPUC has not yet ordered a review of PG&E's past billing practices, the CPUC has stated that "if this review is undertaken it may include consideration of whether PG&E should be ordered to make refunds on, or adjustments to, previously rendered bills."

In addition, this Resolution requires PG&E to include a message on the estimated bill that identifies the reason for requiring that the bill be estimated.

Q. Did you participate in the preparation of the Staff's December 28, 2004 Report.

A. Yes.

Q. Are you sponsoring the Staff's December 28, 2004 Report?

A. Yes.

Q. Does this conclude your direct testimony?

A. Yes, it does.

EXHIBIT 1

PERRY L. WHEATON, CMC, CPA

Co-Founder and Co-President *BARRINGTON-WELLESLEY GROUP*

SUMMARY OF QUALIFICATIONS

Mr. Wheaton, a CMC, has over thirty years of diversified management consulting and auditing experience and has performed financial operations and/or affiliate interest reviews for over twenty-five utilities. He has directed twenty-four management reviews of public utilities for regulatory commissions. A Certified Management Consultant, he has served as chairman of the General Committee of Management Services for the New York State Society of CPAs and as regional vice president and director of the Institute of Management Consultants.

Mr. Wheaton was a senior vice president of the Putnam Financial Services Company where he was responsible for the information systems operations of this major mutual fund investment management company. In his twelve years as an auditor and consultant with an international accounting firm, he had extensive experience in reviewing the financial and systems operations of utilities, financial services companies, energy companies, and manufacturers. Mr. Wheaton has an AB from Hamilton College and an MBA in public accounting from Rutgers University.

Utility Consulting Experience

- Directed the deferred balance account prudence audit of three NJ electric utilities-PSE&G, JCP&L and Atlantic City Electric—for the NJ BPU for the period from August 1, 1999 to July 31, 2003. (2002- 2004)
- Directed a diagnostic management audit of United Illuminating for the Connecticut DPUC. (2003)
- Directed the review of Pacific Gas & Electric's financial condition for the California PUC in the midst of the California energy crisis. The audit addressed holding company, power purchases, and non-regulated subsidiary activities in the California energy markets. (2001)
- Directed a project for Public Service Electric & Gas to prepare its affiliate interests compliance plan which was filed with the New Jersey BPU during the second quarter of 2000. (2000)
- Directed a management audit of the affiliate relations of Southern Connecticut Gas Company for the Connecticut DPUC. A major focus of this audit was to assess questionable activities performed by the utility's non-regulated affiliates. (2000)
- Directed the review of Connecticut Light & Power Company's (CL&P) financial condition for the Connecticut DPUC in the midst of Northeast Utilities' (CL&P's parent) financial crisis, which was precipitated by the Millstone nuclear crisis. Also assisted the DPUC in developing a strategy for dealing with the crisis and to prepare for industry deregulation. (1998)

- Directed the review of the financial impact of the Three Mile Island accident on its owners, Metropolitan Edison and Penelec, for the Pennsylvania PUC. Served as a lead witness before the PUC and a special US congressional committee investigating the accident. (1980)
- Directed a prudence review of the Maine Yankee Atomic Power Company for the Maine PUC. Subsequently reviewed the prudence of the decision to shut down the plant prematurely. (1997)
- Project director for the financial/management audit of Pacific Gas & Electric's $600 million of expenditures, from 1990 to 1992, for demand-side management for the California Public Utilities Commission (CPUC). (1994)
- Project director for the financial/management audit of Southern California Edison's Research, Demonstration and Development Department's $300 million of expenditures from 1988 to 1992 for the CPUC. (1993)
- Lead consultant for determining net merger-related savings in the management audit of the merger of SBC and Ameritech for the Illinois Commerce Commission. (2000)
- Reviewed the affiliate relationships of Peoples Natural Gas with its parent, Consolidated Natural Gas, as part of the audit of Peoples for the Pa PUC. (1994)
- Reviewed the affiliate relationships of New Jersey Natural Gas with its parent New Jersey Resources Corporation and its seven affiliated companies as part of the management audit for the New Jersey BRC. (1993)
- Developed a plan to integrate the accounting and financial operations of Northeast Utilities (NU) and Public Service Company of New Hampshire (PSNH). (1991)
- Technical advisor for the review of financial management and involvement of United Illuminating and Northeast Utilities in the Seabrook Nuclear project in the retrospective audit of the project for the Connecticut DPUC. (1987)
- Directed a review of the financial functions of General Public Utilities (GPU) and its five subsidiaries as part of a system-wide "Expenditure Analysis Program." Reviewed cost allocation methods used by GPU to account for transactions among its five subsidiaries. Study resulted in the reorganizing and downsizing of the financial functions and a streamlining of management reports. (1989)
- Co-director of a study mission of utility executives that visited the United Kingdom to assess the privatization and deregulation of the electric utility industry in Great Britain. (1991)

Regulatory Audit Experience

Project Director for the following commission-mandated management reviews:

- United Illuminating – Comprehensive (2002)
- Pacific Gas & Electric - Financial Condition -- California PUC (2001)
- California Electric Utilities - PX Prices -- California PUC (2000)
- Philadelphia Gas Works -- PA PUC (2001)

- Southern Connecticut Gas - Affiliate Relations -- CT DPUC (2000)
- Connecticut Light & Power - Financial Condition -- CT DPUC (1998)
- Maine Yankee Atomic Power -- Maine PUC (1997)
- Northeast Utilities - Nuclear Operations -- CT DPUC (1997)
- Connecticut Light & Power - Diagnostic Audit -- CT DPUC (1996)
- Pacific Gas & Electric - DSM -- California PUC (1994)
- Los Angeles Department of Water and Power -- LA City Council (1994)
- Southern California Edison - RD&D -- California PUC (1993)
- Maryland Natural Gas -- Maryland PSC (1990)
- Consolidated Edison Company -- New York PSC (1988)
- Apollo/Carnegie Gas Companies -- Pennsylvania PUC (1988)
- General Public Utilities -- Pennsylvania PUC (1980)
- Northeast Utilities - Gas Properties -- CT DPUC (1981)
- Central Hudson Gas & Electric -- New York PSC (1980)
- New York State Electric & Gas -- New York PSC (1979)
- Pennsylvania Gas & Water -- Pennsylvania PUC (1978)
- United Illuminating --CT DPUC (1977)
- Salem Nuclear Project -- Public Advocate of New Jersey (1977)
- Nine Mile Two Prospective -- New York PSC (1981)
- Seabrook Phase I -- CT DPUC (1987)
- New York Tel/Construction Program Planning -- New York PSC (1986)

Expert Witness Experience

Mr. Wheaton has appeared as an expert witness with respect to the following audits:

- Southern Connecticut Gas -- CT DPUC (2001)
- Pacific Gas & Electric -- California PUC (2001)
- Maine Yankee Atomic Power - Maine PUC (1997)
- General Public Utilities - PA PUC and US Congressional Subcommittee (1980)
- New York State Electric & Gas - New York PSC (1979)
- United Illuminating - CT DPUC (1977)
- Salem Nuclear Project - NJ BPU and PA PUC (1977)
- Nine Mile Two Prospective - New York PSC (1981)

Work Experience

- Managing Director and Founder, Barrington-Wellesley Group, Inc. (1990 - present)
- Vice President and Board Member, Theodore Barry & Associates. (1976 - 1981, 1985 - 1990)
- Senior Vice President, Putnam Investor Services, Inc. Responsible for information resource management activities. (1982 - 1985)
- Manager, Management Consulting. Coopers & Lybrand. (1964 – 1976)

EXHIBIT 2

Rate Schedule 300 (E-32)

Scope: 193 Customers

PLW-2

Class Averages			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	31	0.9%	56.4%
$80-160	52	1.4%	55.5%
$40-80	83	2.3%	54.1%
$20-40	232	6.4%	51.8%
$10-20	551	15.2%	45.4%
$0-10	1098	30.2%	30.2%
=$0	1003	27.6%	
$0 to -10	325	9.0%	9.0%
-$10 to -20	75	2.1%	11.0%
-$20 to -40	40	1.1%	12.1%
-$40 to -80	72	2.0%	14.1%
-$80 to -160	34	0.9%	15.0%
<-$160	34	0.9%	16.0%
	3630	100.0%	
+/- $10	66.8%		
+/- $20	84.1%		
+/- $40	91.6%		
+/- $80	95.8%		
+/- $160	98.2%		

Customer Specific Load Factor			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	7	0.4%	39.4%
$80-160	12	0.7%	39.0%
$40-80	24	1.5%	38.2%
$20-40	41	2.6%	36.7%
$10-20	53	3.3%	34.2%
$0-10	495	30.9%	30.9%
=$0	347	21.6%	
$0 to -10	490	30.6%	30.6%
-$10 to -20	72	4.5%	35.1%
-$20 to -40	31	1.9%	37.0%
-$40 to -80	14	0.9%	37.9%
-$80 to -160	10	0.6%	38.5%
<-$160	7	0.4%	38.9%
	1603	100.0%	
+/- $10	83.1%		
+/- $20	90.9%		
+/- $40	95.4%		
+/- $80	97.8%		
+/- $160	99.1%		

KW History - Previous Month			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	10	0.3%	27.4%
$80-160	16	0.5%	27.1%
$40-80	32	0.9%	26.7%
$20-40	67	1.9%	25.8%
$10-20	101	2.9%	23.9%
$0-10	736	21.0%	21.0%
=$0	1603	45.7%	
$0 to -10	730	20.8%	20.8%
-$10 to -20	96	2.7%	23.5%
-$20 to -40	67	1.9%	25.5%
-$40 to -80	32	0.9%	26.4%
-$80 to -160	12	0.3%	26.7%
<-$160	6	0.2%	26.9%
	3508	100.0%	
+/- $10	87.5%		
+/- $20	93.1%		
+/- $40	96.9%		
+/- $80	98.7%		
+/- $160	99.5%		

KW History - Same Month Prior Year			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	9	0.5%	34.3%
$80-160	13	0.8%	33.7%
$40-80	24	1.5%	32.9%
$20-40	39	2.4%	31.5%
$10-20	65	4.0%	29.1%
$0-10	412	25.1%	25.1%
=$0	648	39.5%	
$0 to -10	347	21.2%	21.2%
-$10 to -20	44	2.7%	23.9%
-$20 to -40	18	1.1%	25.0%
-$40 to -80	5	0.3%	25.3%
-$80 to -160	10	0.6%	25.9%
<-$160	5	0.3%	26.2%
	1639	100.0%	
+/- $10	85.8%		
+/- $20	92.5%		
+/- $40	96.0%		
+/- $80	97.7%		
+/- $160	99.1%		

Rate Schedule 300 (E-32)

Scope: 193 Customers

PLW-2

Class Averages

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	73.3%
80 to 100%	455	12.5%	73.3%
60 to 80%	601	16.6%	60.7%
40 to 60%	696	19.2%	44.2%
20 to 40%	523	14.4%	25.0%
0 to 20%	383	10.6%	10.6%
=0%	246	6.8%	
0 to -20%	261	7.2%	7.2%
-20 to -40%	200	5.5%	12.7%
-40 to -60%	152	4.2%	16.9%
-60 to -80%	44	1.2%	18.1%
-80 to -100%	43	1.2%	19.3%
<-100%	24	0.7%	20.0%
	3628	100.0%	

Customer Specific Load Factor

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	52.0%
80 to 100%	12	0.8%	52.0%
60 to 80%	14	0.9%	51.2%
40 to 60%	57	3.6%	50.3%
20 to 40%	193	12.1%	46.8%
0 to 20%	555	34.7%	34.7%
=0%	3	0.2%	
0 to -20%	481	30.1%	30.1%
-20 to -40%	157	9.8%	39.9%
-40 to -60%	53	3.3%	43.2%
-60 to -80%	21	1.3%	44.5%
-80 to -100%	15	0.9%	45.5%
<-100%	38	2.4%	47.8%
	1599	100.0%	

KW History - Previous Month

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	31.7%
80 to 100%	24	0.7%	31.7%
60 to 80%	28	0.8%	31.0%
40 to 60%	90	2.6%	30.2%
20 to 40%	221	6.4%	27.6%
0 to 20%	738	21.2%	21.2%
=0%	1312	37.8%	
0 to -20%	681	19.6%	19.6%
-20 to -40%	185	5.3%	24.9%
-40 to -60%	71	2.0%	27.0%
-60 to -80%	34	1.0%	28.0%
-80 to -100%	45	1.3%	29.3%
<-100%	44	1.3%	30.5%
	3473	100.0%	

KW History - Same Month Prior Year

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	41.1%
80 to 100%	25	1.5%	41.1%
60 to 80%	16	1.0%	39.5%
40 to 60%	76	4.7%	38.6%
20 to 40%	152	9.4%	33.8%
0 to 20%	395	24.4%	24.4%
=0%	449	27.8%	
0 to -20%	301	18.6%	18.6%
-20 to -40%	82	5.1%	23.7%
-40 to -60%	46	2.8%	26.5%
-60 to -80%	22	1.4%	27.9%
-80 to -100%	21	1.3%	29.2%
<-100%	31	1.9%	31.1%
	1616	100.0%	

Rate Schedule 300 (E-32)

Scope: 193 Customers

PLW-2

Class Averages

KW Diff	No. of Entries	% of Entries	Cumulative
>32	131	3.6%	73.2%
16 - 32	143	3.9%	69.6%
8 - 16	470	12.9%	65.7%
4 - 8	735	20.2%	52.7%
2 - 4	558	15.4%	32.5%
0 - 2	621	17.1%	17.1%
=0	246	6.8%	
0 to -2	332	9.1%	9.1%
-2 to -4	100	2.8%	11.9%
-4 to -8	76	2.1%	14.0%
-8 to -16	56	1.5%	15.5%
-16 to -32	49	1.3%	16.9%
<-32	113	3.1%	20.0%
	3630	100%	
+/- 2 kW	33.0%		
+/- 4 kW	51.2%		
+/- 8 kW	73.5%		
+/- 16 kW	88.0%		
+/- 32 kW	93.3%		

Customer Specific Load Factor

KW Diff	No. of Entries	% of Entries	Cumulative
>32	33	2.1%	51.8%
16 - 32	32	2.0%	49.8%
8 - 16	49	3.1%	47.8%
4 - 8	102	6.4%	44.7%
2 - 4	127	7.9%	38.4%
0 - 2	488	30.4%	30.4%
=0	3	0.2%	
0 to -2	435	27.1%	27.1%
-2 to -4	129	8.0%	35.2%
-4 to -8	102	6.4%	41.5%
-8 to -16	53	3.3%	44.9%
-16 to -32	28	1.7%	46.6%
<-32	22	1.4%	48.0%
	1603	100.0%	
+/- 2 kW	57.8%		
+/- 4 kW	73.7%		
+/- 8 kW	86.5%		
+/- 16 kW	92.8%		
+/- 32 kW	96.6%		

KW History - Previous Month

KW Diff	No. of Entries	% of Entries	Cumulative
>32	42	1.2%	31.5%
16 - 32	47	1.3%	30.3%
8 - 16	88	2.5%	29.0%
4 - 8	132	3.8%	26.5%
2 - 4	170	4.9%	22.7%
0 - 2	621	17.8%	17.8%
=0	1313	37.6%	
0 to -2	627	18.0%	18.0%
-2 to -4	153	4.4%	22.4%
-4 to -8	135	3.9%	26.2%
-8 to -16	78	2.2%	28.5%
-16 to -32	52	1.5%	30.0%
<-32	30	0.9%	30.8%
	3488	100.0%	
+/- 2 kW	73.4%		
+/- 4 kW	82.7%		
+/- 8 kW	90.3%		
+/- 16 kW	95.1%		
+/- 32 kW	97.9%		

KW History - Same Month Prior Year

KW Diff	No. of Entries	% of Entries	Cumulative
>32	33	2.0%	40.5%
16 - 32	36	2.2%	38.5%
8 - 16	43	2.6%	36.3%
4 - 8	103	6.3%	33.7%
2 - 4	99	6.0%	27.4%
0 - 2	350	21.4%	21.4%
=0	468	28.6%	
0 to -2	306	18.7%	18.7%
-2 to -4	91	5.6%	24.2%
-4 to -8	50	3.1%	27.3%
-8 to -16	28	1.7%	29.0%
-16 to -32	14	0.9%	29.9%
<-32	17	1.0%	30.9%
	1638	100.0%	
+/- 2 kW	68.6%		
+/- 4 kW	80.2%		
+/- 8 kW	89.6%		
+/- 16 kW	93.9%		
+/- 32 kW	96.9%		

Rate Schedule 160 (EC-1)
Scope: 54 Customers

PLW-2

Class Averages			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	66.7%
$80-160	3	0.2%	66.7%
$40-80	38	3.0%	66.5%
$20-40	264	21.0%	63.4%
$10-20	275	21.9%	42.4%
$0-10	257	20.5%	20.5%
=$0	20	1.6%	
$0 to -10	163	13.0%	13.0%
-$10 to -20	97	7.7%	20.7%
-$20 to -40	102	8.1%	28.8%
-$40 to -80	31	2.5%	31.3%
-$80 to -160	5	0.4%	31.7%
<-$160	0	0.0%	31.7%
	1255	100.0%	
+/- $10	35.1%		
+/- $20	64.7%		
+/- $40	93.9%		
+/- $80	99.4%		
+/- $160	100.0%		

Seasonal Class Averages			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	47.8%
$80-160	3	0.2%	47.8%
$40-80	42	3.3%	47.6%
$20-40	208	16.6%	44.2%
$10-20	165	13.1%	27.6%
$0-10	182	14.5%	14.5%
=$0	20	1.6%	
$0 to -10	173	13.8%	13.8%
-$10 to -20	125	10.0%	23.7%
-$20 to -40	138	11.0%	34.7%
-$40 to -80	127	10.1%	44.9%
-$80 to -160	68	5.4%	50.3%
<-$160	4	0.3%	50.6%
	1255	100.0%	
+/- $10	29.9%		
+/- $20	53.0%		
+/- $40	80.6%		
+/- $80	94.0%		
+/- $160	99.7%		

Customer Specific Load Factor			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	51.5%
$80-160	1	0.2%	51.5%
$40-80	6	1.0%	51.4%
$20-40	42	6.7%	50.4%
$10-20	111	17.8%	43.7%
$0-10	162	25.9%	25.9%
=$0	1	0.2%	
$0 to -10	161	25.8%	25.8%
-$10 to -20	86	13.8%	39.5%
-$20 to -40	46	7.4%	46.9%
-$40 to -80	9	1.4%	48.3%
-$80 to -160	0	0.0%	48.3%
<-$160	0	0.0%	48.3%
	625	100.0%	
+/- $10	51.8%		
+/- $20	83.4%		
+/- $40	97.4%		
+/- $80	99.8%		
+/- $160	100.0%		

KW History - Previous Month			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	46.3%
$80-160	2	0.2%	46.3%
$40-80	16	1.3%	46.1%
$20-40	85	7.0%	44.8%
$10-20	108	8.9%	37.8%
$0-10	351	28.9%	28.9%
=$0	78	6.4%	
$0 to -10	368	30.3%	30.3%
-$10 to -20	129	10.6%	40.9%
-$20 to -40	66	5.4%	46.3%
-$40 to -80	12	1.0%	47.3%
-$80 to -160	0	0.0%	47.3%
<-$160	0	0.0%	47.3%
	1215	100.0%	
+/- $10	65.6%		
+/- $20	85.1%		
+/- $40	97.5%		
+/- $80	99.8%		
+/- $160	100.0%		

KW History - Same Month Prior Year			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	53.8%
$80-160	2	0.3%	53.8%
$40-80	16	2.5%	53.5%
$20-40	57	9.0%	50.9%
$10-20	77	12.2%	41.9%
$0-10	188	29.7%	29.7%
=$0	24	3.8%	
$0 to -10	169	26.7%	26.7%
-$10 to -20	58	9.2%	35.9%
-$20 to -40	29	4.6%	40.5%
-$40 to -80	11	1.7%	42.2%
-$80 to -160	1	0.2%	42.4%
<-$160	0	0.0%	42.4%
	632	100.0%	
+/- $10	60.3%		
+/- $20	81.6%		
+/- $40	95.3%		
+/- $80	99.5%		
+/- $160	100.0%		

Rate Schedule 160 (EC-1)

Scope: 54 Customers

PLW-2

Class Averages			
KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	64.8%
80 to 100%	6	0.5%	64.8%
60 to 80%	52	4.0%	64.4%
40 to 60%	202	15.6%	60.3%
20 to 40%	289	22.4%	44.7%
0 to 20%	288	22.3%	22.3%
=0%	19	1.5%	
0 to -20%	189	14.6%	14.6%
-20 to -40%	121	9.4%	24.0%
-40 to -60%	56	4.3%	28.4%
-60 to -80%	21	1.6%	30.0%
-80 to -100%	2	0.2%	30.1%
<-100%	46	3.6%	33.7%
	1291	100.0%	

Seasonal Class Averages			
KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	66.2%
80 to 100%	3	0.2%	66.2%
60 to 80%	44	3.5%	66.0%
40 to 60%	173	13.9%	62.4%
20 to 40%	287	23.0%	48.6%
0 to 20%	320	25.6%	25.6%
=0%	25	2.0%	
0 to -20%	222	17.8%	17.8%
-20 to -40%	108	8.6%	26.4%
-40 to -60%	43	3.4%	29.9%
-60 to -80%	18	1.4%	31.3%
-80 to -100%	5	0.4%	31.7%
<-100%	1	0.1%	31.8%
	1249	100.0%	

Customer Specific Load Factor			
KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	51.7%
80 to 100%	0	0.0%	51.7%
60 to 80%	3	0.5%	51.7%
40 to 60%	19	3.0%	51.2%
20 to 40%	99	15.9%	48.2%
0 to 20%	201	32.3%	32.3%
=0%	0	0.0%	
0 to -20%	183	29.4%	29.4%
-20 to -40%	86	13.8%	43.2%
-40 to -60%	20	3.2%	46.4%
-60 to -80%	10	1.6%	48.0%
-80 to -100%	2	0.3%	48.3%
<-100%	0	0.0%	48.3%
	623	100.0%	

KW History - Previous Month			
KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	46.5%
80 to 100%	1	0.1%	46.5%
60 to 80%	8	0.7%	46.4%
40 to 60%	23	1.9%	45.7%
20 to 40%	122	10.1%	43.8%
0 to 20%	408	33.7%	33.7%
=0%	74	6.1%	
0 to -20%	390	32.3%	32.3%
-20 to -40%	122	10.1%	42.3%
-40 to -60%	31	2.6%	44.9%
-60 to -80%	12	1.0%	45.9%
-80 to -100%	4	0.3%	46.2%
<-100%	14	1.2%	47.4%
	1209	100.0%	

KW History - Same Month Prior Year			
KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	54.3%
80 to 100%	0	0.0%	54.3%
60 to 80%	5	0.8%	54.3%
40 to 60%	25	4.0%	53.5%
20 to 40%	83	13.3%	49.5%
0 to 20%	227	36.3%	36.3%
=0%	24	3.8%	
0 to -20%	182	29.1%	29.1%
-20 to -40%	52	8.3%	37.4%
-40 to -60%	18	2.9%	40.3%
-60 to -80%	6	1.0%	41.2%
-80 to -100%	0	0.0%	41.2%
<-100%	4	0.6%	41.9%
	626	100.0%	

Rate Schedule 160 (EC-1)

Scope: 54 Customers

PLW-2

Class Averages

KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	66.7%
16 - 32	0	0.0%	66.7%
8 - 16	4	0.3%	66.7%
4 - 8	102	8.1%	66.4%
2 - 4	306	24.4%	58.2%
0 - 2	425	33.9%	33.9%
=0	20	1.6%	
0 to -2	254	20.2%	20.2%
-2 to -4	107	8.5%	28.8%
-4 to -8	32	2.5%	31.3%
-8 to -16	5	0.4%	31.7%
-16 to -32	0	0.0%	31.7%
<-32	0	0.0%	31.7%
	1255	100.0%	
+/- 2 kW	55.7%		
+/- 4 kW	88.6%		
+/- 8 kW	99.3%		
+/- 16 kW	100.0%		
+/- 32 kW	100.0%		

Seasonal Class Averages

KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	65.9%
16 - 32	0	0.0%	65.9%
8 - 16	5	0.4%	65.9%
4 - 8	75	6.0%	65.5%
2 - 4	313	24.9%	59.5%
0 - 2	434	34.6%	34.6%
=0	26	2.1%	
0 to -2	286	22.8%	22.8%
-2 to -4	96	7.6%	30.4%
-4 to -8	18	1.4%	31.9%
-8 to -16	2	0.2%	32.0%
-16 to -32	0	0.0%	32.0%
<-32	0	0.0%	32.0%
	1255	100.0%	
+/- 2 kW	59.4%		
+/- 4 kW	92.0%		
+/- 8 kW	99.4%		
+/- 16 kW	100.0%		
+/- 32 kW	100.0%		

Customer Specific Load Factor

KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	51.5%
16 - 32	0	0.0%	51.5%
8 - 16	1	0.2%	51.5%
4 - 8	9	1.4%	51.4%
2 - 4	72	11.5%	49.9%
0 - 2	240	38.4%	38.4%
=0	1	0.2%	
0 to -2	230	36.8%	36.8%
-2 to -4	60	9.6%	46.4%
-4 to -8	12	1.9%	48.3%
-8 to -16	0	0.0%	48.3%
-16 to -32	0	0.0%	48.3%
<-32	0	0.0%	48.3%
	625	100%	
+/- 2 kW	75.4%		
+/- 4 kW	96.5%		
+/- 8 kW	99.8%		
+/- 16 kW	100.0%		
+/- 32 kW	100.0%		

KW History - Previous Month

KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	46.3%
16 - 32	0	0.0%	46.3%
8 - 16	2	0.2%	46.3%
4 - 8	28	2.3%	46.1%
2 - 4	97	8.0%	43.8%
0 - 2	435	35.8%	35.8%
=0	78	6.4%	
0 to -2	475	39.1%	39.1%
-2 to -4	80	6.6%	45.7%
-4 to -8	19	1.6%	47.2%
-8 to -16	1	0.1%	47.3%
-16 to -32	0	0.0%	47.3%
<-32	0	0.0%	47.3%
	1215	100.0%	
+/- 2 kW	81.3%		
+/- 4 kW	95.9%		
+/- 8 kW	99.8%		
+/- 16 kW	100.0%		
+/- 32 kW	100.0%		

KW History - Same Month Prior Year

KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	53.8%
16 - 32	0	0.0%	53.8%
8 - 16	2	0.3%	53.8%
4 - 8	27	4.3%	53.5%
2 - 4	63	10.0%	49.2%
0 - 2	248	39.2%	39.2%
=0	24	3.8%	
0 to -2	216	34.2%	34.2%
-2 to -4	40	6.3%	40.5%
-4 to -8	11	1.7%	42.2%
-8 to -16	1	0.2%	42.4%
-16 to -32	0	0.0%	42.4%
<-32	0	0.0%	42.4%
	632	100.0%	
+/- 2 kW	77.2%		
+/- 4 kW	93.5%		
+/- 8 kW	99.5%		
+/- 16 kW	100.0%		
+/- 32 kW	100.0%		

Rate Schedule 1800 (ECT-1R)

Scope: 140 Customers

PLW-2

Class Averages			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	2	0.1%	60.6%
$80-160	12	0.4%	60.5%
$40-80	137	5.0%	60.1%
$20-40	513	18.7%	55.1%
$10-20	512	18.6%	36.4%
$0-10	488	17.8%	17.8%
=$0	35	1.3%	
$0 to -10	272	9.9%	9.9%
-$10 to -20	200	7.3%	17.2%
-$20 to -40	304	11.1%	28.2%
-$40 to -80	204	7.4%	35.7%
-$80 to -160	60	2.2%	37.9%
<-$160	8	0.3%	38.2%
	2747	100.0%	
+/- $10	28.9%		
+/- $20	54.9%		
+/- $40	84.6%		
+/- $80	97.0%		
+/- $160	99.6%		

Seasonal Class Averages			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	2	0.1%	60.7%
$80-160	17	0.6%	60.6%
$40-80	160	5.8%	60.0%
$20-40	472	17.2%	54.2%
$10-20	472	17.2%	37.0%
$0-10	545	19.8%	19.8%
=$0	54	2.0%	
$0 to -10	412	15.0%	15.0%
-$10 to -20	250	9.1%	24.1%
-$20 to -40	219	8.0%	32.1%
-$40 to -80	114	4.1%	36.2%
-$80 to -160	29	1.1%	37.3%
<-$160	1	0.0%	37.3%
	2747	100.0%	
+/- $10	36.8%		
+/- $20	63.1%		
+/- $40	88.2%		
+/- $80	98.2%		
+/- $160	99.9%		

Customer Specific Load Factor			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	48.3%
$80-160	1	0.1%	48.3%
$40-80	32	2.5%	48.2%
$20-40	112	8.7%	45.7%
$10-20	170	13.3%	37.0%
$0-10	304	23.7%	23.7%
=$0	0	0.0%	
$0 to -10	296	23.1%	23.1%
-$10 to -20	150	11.7%	34.8%
-$20 to -40	148	11.5%	46.3%
-$40 to -80	63	4.9%	51.2%
-$80 to -160	5	0.4%	51.6%
<-$160	1	0.1%	51.7%
	1282	100.0%	
+/- $10	46.8%		
+/- $20	71.8%		
+/- $40	92.0%		
+/- $80	99.5%		
+/- $160	99.9%		

KW History - Previous Month			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	2	0.1%	48.2%
$80-160	9	0.3%	48.2%
$40-80	102	3.9%	47.8%
$20-40	282	10.7%	43.9%
$10-20	319	12.1%	33.2%
$0-10	555	21.1%	21.1%
=$0	100	3.8%	
$0 to -10	636	24.2%	24.2%
-$10 to -20	320	12.2%	36.3%
-$20 to -40	233	8.9%	45.2%
-$40 to -80	59	2.2%	47.4%
-$80 to -160	12	0.5%	47.9%
<-$160	2	0.1%	48.0%
	2631	100.0%	
+/- $10	49.1%		
+/- $20	73.4%		
+/- $40	92.9%		
+/- $80	99.0%		
+/- $160	99.8%		

KW History - Same Month Prior Year			
$ Diff	No. of Entries	% of Entries	Cumulative
>$160	0	0.0%	51.0%
$80-160	8	0.6%	51.0%
$40-80	52	4.1%	50.4%
$20-40	122	9.5%	46.3%
$10-20	181	14.1%	36.8%
$0-10	291	22.7%	22.7%
=$0	44	3.4%	
$0 to -10	287	22.4%	22.4%
-$10 to -20	162	12.6%	35.0%
-$20 to -40	95	7.4%	42.4%
-$40 to -80	35	2.7%	45.2%
-$80 to -160	5	0.4%	45.6%
<-$160	0	0.0%	45.6%
	1282	100.0%	
+/- $10	48.5%		
+/- $20	75.3%		
+/- $40	92.2%		
+/- $80	99.0%		
+/- $160	100.0%		

Rate Schedule 1800 (ECT-1R)

Scope: 140 Customers

PLW-2

Class Averages

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	60.7%
80 to 100%	12	0.4%	60.7%
60 to 80%	96	3.5%	60.3%
40 to 60%	390	14.2%	56.8%
20 to 40%	614	22.4%	42.5%
0 to 20%	552	20.1%	20.1%
=0%	35	1.3%	
0 to -20%	412	15.0%	15.0%
-20 to -40%	348	12.7%	27.7%
-40 to -60%	182	6.6%	34.4%
-60 to -80%	62	2.3%	36.6%
-80 to -100%	29	1.1%	37.7%
<-100%	9	0.3%	38.0%
	2741	100.0%	

Seasonal Class Averages

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	60.9%
80 to 100%	16	0.6%	60.9%
60 to 80%	71	2.6%	60.3%
40 to 60%	310	11.3%	57.7%
20 to 40%	576	21.0%	46.4%
0 to 20%	695	25.4%	25.4%
=0%	54	2.0%	
0 to -20%	545	19.9%	19.9%
-20 to -40%	324	11.8%	31.7%
-40 to -60%	99	3.6%	35.3%
-60 to -80%	41	1.5%	36.8%
-80 to -100%	7	0.3%	37.1%
<-100%	3	0.1%	37.2%
	2741	100.0%	

Customer Specific Load Factor

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	48.3%
80 to 100%	2	0.2%	48.3%
60 to 80%	10	0.8%	48.1%
40 to 60%	48	3.7%	47.3%
20 to 40%	170	13.3%	43.6%
0 to 20%	389	30.3%	30.3%
=0%	0	0.0%	
0 to -20%	379	29.6%	29.6%
-20 to -40%	180	14.0%	43.6%
-40 to -60%	67	5.2%	48.8%
-60 to -80%	19	1.5%	50.3%
-80 to -100%	9	0.7%	51.0%
<-100%	9	0.7%	51.7%
	1282	100.0%	

KW History - Previous Month

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	48.3%
80 to 100%	4	0.2%	48.3%
60 to 80%	32	1.2%	48.1%
40 to 60%	95	3.6%	46.9%
20 to 40%	357	13.6%	43.3%
0 to 20%	781	29.7%	29.7%
=0%	97	3.7%	
0 to -20%	753	28.7%	28.7%
-20 to -40%	276	10.5%	39.2%
-40 to -60%	106	4.0%	43.2%
-60 to -80%	48	1.8%	45.0%
-80 to -100%	39	1.5%	46.5%
<-100%	40	1.5%	48.0%
	2628	100.0%	

KW History - Same Month Prior Year

KW Diff/ Billed KW, %	No. of Entries	% of Entries	Cumulative
>100%	0	0.0%	51.0%
80 to 100%	2	0.2%	51.0%
60 to 80%	21	1.6%	50.9%
40 to 60%	52	4.1%	49.2%
20 to 40%	176	13.7%	45.2%
0 to 20%	403	31.4%	31.4%
=0%	44	3.4%	
0 to -20%	357	27.8%	27.8%
-20 to -40%	137	10.7%	38.5%
-40 to -60%	53	4.1%	42.7%
-60 to -80%	19	1.5%	44.1%
-80 to -100%	7	0.5%	44.7%
<-100%	11	0.9%	45.6%
	1282	100.0%	

Rate Schedule 1800 (ECT-1R)

Scope: 140 Customers

PLW-2

Class Averages			
KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	60.6%
16 - 32	2	0.1%	60.6%
8 - 16	17	0.6%	60.5%
4 - 8	172	6.3%	59.9%
2 - 4	556	20.2%	53.6%
0 - 2	917	33.4%	33.4%
=0	35	1.3%	
0 to -2	512	18.6%	18.6%
-2 to -4	305	11.1%	29.7%
-4 to -8	174	6.3%	36.1%
-8 to -16	52	1.9%	38.0%
-16 to -32	5	0.2%	38.2%
<-32	0	0.0%	38.2%
	2747	100.0%	
+/- 2 kW	53.3%		
+/- 4 kW	84.6%		
+/- 8 kW	97.2%		
+/- 16 kW	99.7%		
+/- 32 kW	100.0%		

Seasonal Class Averages			
KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	60.7%
16 - 32	3	0.1%	60.7%
8 - 16	13	0.5%	60.6%
4 - 8	152	5.5%	60.1%
2 - 4	499	18.2%	54.6%
0 - 2	1001	36.4%	36.4%
=0	54	2.0%	
0 to -2	678	24.7%	24.7%
-2 to -4	221	8.0%	32.7%
-4 to -8	95	3.5%	36.2%
-8 to -16	30	1.1%	37.3%
-16 to -32	1	0.0%	37.3%
<-32	0	0.0%	37.3%
	2747	100.0%	
+/- 2 kW	63.1%		
+/- 4 kW	89.3%		
+/- 8 kW	98.3%		
+/- 16 kW	99.9%		
+/- 32 kW	100.0%		

Customer Specific Load Factor			
KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	48.3%
16 - 32	1	0.1%	48.3%
8 - 16	1	0.1%	48.2%
4 - 8	34	2.7%	48.1%
2 - 4	128	10.0%	45.5%
0 - 2	455	35.5%	35.5%
=0	0	0.0%	
0 to -2	455	35.5%	35.5%
-2 to -4	143	11.2%	46.6%
-4 to -8	59	4.6%	51.2%
-8 to -16	5	0.4%	51.6%
-16 to -32	1	0.1%	51.7%
<-32	0	0.0%	51.7%
	1282	100.0%	
+/- 2 kW	71.0%		
+/- 4 kW	92.1%		
+/- 8 kW	99.4%		
+/- 16 kW	99.8%		
+/- 32 kW	100.0%		

KW History - Previous Month			
KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	48.2%
16 - 32	2	0.1%	48.2%
8 - 16	10	0.4%	48.2%
4 - 8	104	4.0%	47.8%
2 - 4	258	9.8%	43.8%
0 - 2	895	34.0%	34.0%
=0	100	3.8%	
0 to -2	944	35.9%	35.9%
-2 to -4	236	9.0%	44.8%
-4 to -8	68	2.6%	47.4%
-8 to -16	13	0.5%	47.9%
-16 to -32	1	0.0%	48.0%
<-32	0	0.0%	48.0%
	2631	100.0%	
+/- 2 kW	73.7%		
+/- 4 kW	92.5%		
+/- 8 kW	99.0%		
+/- 16 kW	99.9%		
+/- 32 kW	100.0%		

KW History - Same Month Prior Year			
KW Diff	No. of Entries	% of Entries	Cumulative
>32	0	0.0%	51.0%
16 - 32	0	0.0%	51.0%
8 - 16	6	0.5%	51.0%
4 - 8	46	3.6%	50.5%
2 - 4	152	11.9%	47.0%
0 - 2	450	35.1%	35.1%
=0	44	3.4%	
0 to -2	457	35.6%	35.6%
-2 to -4	94	7.3%	43.0%
-4 to -8	28	2.2%	45.2%
-8 to -16	4	0.3%	45.5%
-16 to -32	1	0.1%	45.6%
<-32	0	0.0%	45.6%
	1282	100.0%	
+/- 2 kW	74.2%		
+/- 4 kW	93.4%		
+/- 8 kW	99.1%		
+/- 16 kW	99.9%		
+/- 32 kW	100.0%		

EXHIBIT
S-5
Admitted

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

AVIS READ; individually, and on Behalf of All Others Similarly Situated, Complainants, v. ARIZONA PUBLIC SERVICE COMPANY, Respondent.	DOCKET NO. E-01345A-04-0657
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A DECLARATORY ORDER REGARDING BILL ESTIMATION PROCEDURES	DOCKET NO. E-01345A-03-0775

TESTIMONY

OF

PERRY L. WHEATON

BARRINGTON-WELLESLEY GROUP, INC.

IN SUPPORT OF THE PROPOSED SETTLEMENT AGREEMENT

MARCH 18, 2005

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Exhibit PLW-1: Summary of Original Recommendations

EXECUTIVE SUMMARY
ARIZONA PUBLIC SERVICE COMPANY
DOCKET NOS. E-01345A-04-0657 & E-01345A-03-0775

The Utilities Division Staff (Staff) of the Arizona Corporation Commission ("ACC" or "Commission") retained the Barrington-Wellesley Group, Inc. ("BWG") to perform an inquiry into the usage estimation, meter reading, and billing practices of Arizona Public Service Company ("APS" or "Company"). On December 28, 2004, the initial report related to this inquiry was filed with the Commission. On January 24, 2005, BWG filed testimony which provided the results of work completed subsequent to the issuance of the December 28, 2004 report.

In this testimony, we describe the recommendations contained in the proposed Settlement Agreement and how they compare to the recommendations contained in the December 28, 2004 report and the January 24, 2005 testimony.

INTRODUCTION

Q. Please state your name and occupation.

A. My name is Perry L. Wheaton. I am the Co-President and Co-Founder of the Barrington-Wellesley Group, Inc.

Q. Have you previously filed testimony in this docket?

A. Yes, I filed testimony in this docket on January 24, 2005.

Q. What is the scope of this testimony?

A. I am the BWG engagement director for the inquiry into the usage estimation, meter reading, and billing practices of APS on behalf of Commission Staff. I, along with Joel F. Jeanson and Joyce I. Steingass, who are two of my associates, produced a report in this matter which was filed on December 28, 2004. On January 24, 2005, I filed testimony that presented additional findings, conclusions, and recommendations based on work completed since the initial report was prepared.

My testimony in support of the settlement agreement describes certain recommendations contained in the Proposed Settlement Agreement, compares them to our original recommendations, and explains why they are reasonable and in the public interest.

Q. Please identify those paragraphs in the Proposed Settlement Agreement that will be addressed in your testimony.

A. This testimony will address the following paragraphs:

Estimation Issues: 12-15, 17, 19-21

Meter Reading Issues: 32-33

Compliance: 39-41

SECTION ONE – ESTIMATION ISSUES

Q. Please describe the recommendations pertaining to demand estimation contained in the "Estimation Issues" Section of the Proposed Settlement Agreement.

A. In the Proposed Settlement, APS agrees to adopt the demand estimation methodology proposed by our January 24th testimony, subject to certain minor modifications. Specifically, APS shall use customer specific kW from the prior month to estimate demand for all of its demand tariffs when the appropriate information is available. The Proposed Settlement also addresses how APS shall estimate demand in situations where customer specific kW from the prior month is not available. This methodology is addressed in Paragraphs 12-15 of the Proposed Settlement Agreement.

Q. In what respects do your original recommendations differ from those proposed by the settlement agreement?

A. The recommendations included in the Proposed Settlement provide additional detail describing the estimation process in order to address circumstances not fully covered by our original recommendations.

Q. Please describe how the Proposed Settlement differs from your original recommendations for initial bills to new customers.

A. Our recommended method for demand estimation is to use the customer's actual kW reading from the previous month. For new customers, no customer-specific kW reading will be available from the prior month because the new customer would have resided at a different premises during the prior period. For estimates

of initial bills covering a period of fewer than fifteen days, we recommended that APS bill the customer a pro rata amount for the initial billing period based on the actual demand reading obtained in the following month. By contrast, the Proposed Settlement provides that initial bills covering periods of fewer than eleven days will not be billed kW.

The Proposed Settlement also describes how customers will be billed the basic service charge and kWh for initial bills covering periods of fewer than eleven days. This detail was not provided in our original recommendations.

Q. Are these changes reasonable?

A. Yes, the Proposed Settlement is more favorable to customers than our original recommendation, which provided that APS should prorate kW when estimating an initial bill that covers fewer than fifteen days. The Proposed Settlement provides that customers will not be billed kW for initial bills covering fewer than eleven days. As a result, customers should be billed fewer kW under the settlement than they would have been billed under our original recommendation. In addition, the processes described in the Proposed Settlement for billing basic service charges and kWh for initial bills covering fewer than eleven days are reasonable.

Q. Do these changes materially alter the substance of your recommendation?

A. The recommendations set forth in the Proposed Settlement Agreement are consistent with the recommendations included in our December 28th report and our January 24th testimony, a summary of which is attached as Exhibit PLW-1.

Q. Why are the recommendations set forth in Paragraphs 12-15 of the Proposed Settlement Agreement important?

A. Our evaluation considered a total of five methods for estimating demand, including two different methods based upon historical customer specific demand (one using customer specific kW from the prior month and the other using historical kW from the same month in the prior year). In our statistical samples, estimating demand based on customer specific kW from the previous month produced more accurate results than the other four methodologies that we examined. We therefore concluded that using customer specific kW from the previous month to estimate demand in place of the Company's class average load factor method will reduce the number of instances in which demand is significantly overestimated or underestimated. Because the use of customer specific demand from the prior month will result in more accurate demand estimates, we believe that the adoption of this method for all APS rate schedules, as the Settlement proposes, is in the public interest. In addition, the use of customer specific kW from the prior month effectively addresses the naturally occurring phenomenon of rising demand that occurs in the months approaching summer. The use of this method will also enhance the likelihood that customer specific demand history will be available.

Q. What are the customer benefits associated with Paragraphs 12-15?

A. These paragraphs will benefit customers because the adoption of Staff's recommended demand estimation methodology will improve the accuracy of estimated bills.

Q. Please describe the recommendations pertaining to kWh estimation contained in the "Estimation Issues" section of the proposed Settlement Agreement.

A. Paragraph 17 requires APS to conduct a study to determine the impact of reclassifying May as a non-summer month for purposes of kWh estimation. APS is required to file a report by December 30, 2005 that discusses the results of the study and that discusses whether revisions to its bill estimation procedures are desirable.

Q. In what respects does your original recommendation pertaining to kWh estimation differ from that proposed by the Settlement Agreement?

A. Except for the due date, Paragraph 17 is identical to our original recommendation. We had originally recommended that the Commission require APS to file the report within ninety days of the issuance of a Commission decision in this matter.

Q. Does this change materially alter the substance of your recommendation?

A. No, I do not view the change in the due date as a material change.

Q. Why are the recommendations set forth in Paragraph 17 of the Proposed Settlement Agreement important?

A. During our review of customer billing data in connection with our analysis of alternative demand estimation methodologies, it appeared to us that kWh may be estimated more accurately if the month of May is considered to be a non-summer month.

Q. What are the customer benefits associated with Paragraph 17?

A. If the study recommended in Paragraph 17 confirms that reclassifying May as a non-summer month for purposes of kWh estimation will result in more accurately estimated bills, then customers will benefit by having more accurate bills in both May and the subsequent month, when actual reads are obtained and kWh is trued-up to the actual meter reading.

Q. Please describe the recommendations pertaining to refunding overbilled demand included in the "Estimation Issues" section of the Proposed Settlement Agreement.

A. APS' policy is to credit a customer's account when a demand estimate turns out to be higher than the following meter read. We agree that this is an appropriate practice. However, APS failed to implement this practice for a period of time following the implementation of its customer information system. Paragraph 19 of the Proposed Settlement Agreement requires APS to credit all customers who, between September 1, 1998 and October 1, 2003, had an actual demand reading that was lower than the preceding estimate. Credits shall include interest. Paragraphs 20 and 21 address how credits shall be handled for customers who have left APS' system.

Q. In what respects do your original recommendations differ from those proposed by the settlement agreement?

A. Exhibit A to the Proposed Settlement includes an estimate of the potential refund due to general service customers that was not available when we filed our testimony. In addition, the settlement describes the efforts required by APS to

locate customers who have left its system and provides for the disposition of funds associated with credits for customers who cannot be located.

Q. Do these changes materially alter the substance of your recommendations?

A. These paragraphs are consistent with the recommendations included in our January 24th testimony related to the refund of overbilled demand. Exhibit PLW-1 provides a summary of our original recommendations.

Q. Why are the recommendations set forth in Paragraphs 19-21 of the Proposed Settlement Agreement important?

A. APS should be required to credit customers any overbilled demand charges plus interest that occurred from September 1998, when the new customer information system was implemented, through September 2003, when changes were made to correct the problem. Without these adjustments, customers who are entitled to refunds within this period of time will not receive them.

Q. What are the customer benefits associated with Paragraphs 19-21?

A. Although the total amount of the refunds will be subject to certain offsets, these paragraphs currently estimate that refunds will total approximately $2 million for general service customers and approximately $170,000 for residential customers.

SECTION TWO- METER READING ISSUES

Q. Please describe the recommendations contained in the "Meter Reading Issues" section of the proposed Settlement Agreement related to decreasing the incidence of "no access" to customers' meters.

A. Paragraph 32 of the Proposed Settlement contains twelve separate recommendations related to decreasing the incidence of "no access" to customers' meters. These twelve recommendations are almost identical to recommendations contained in our December 28th report and in our January 24th testimony. A summary of our original meter reading recommendations as contained in the December 28th report and the January 24th testimony is attached to this testimony as Exhibit PLW-1.

Q. In what respects do your original recommendations differ from those proposed by the settlement agreement?

A. The requirements contained in paragraph 32 of the Proposed Settlement Agreement are identical to our original recommendations except as noted below.

- In Paragraph 32 (e), the Proposed Settlement requires APS to provide the Commission with biannual reports related to the status of APS' remote meter reading pilot program. Originally, we had recommended that APS provide these reports quarterly.
- In Paragraph 32 (f), the Proposed Settlement requires APS to implement a pilot program to evaluate whether using an auto-dialer to communicate with customers who have experienced two consecutive months of "no access" will facilitate resolution of access issues. In our December 28th Report, we had recommended that APS should place these calls "prior to the scheduled

read date." By contrast, the Settlement Agreement requires APS to place these calls "within ninety-six hours before the scheduled read date."

- In Paragraph 32 (g), the Proposed Settlement requires APS to implement a policy to ensure that meter reading supervisors <u>or their designees</u> periodically inspect meter locations reported as "no access" to verify that corrective measures are taken. The Proposed Settlement adds the phrase "or their designees" to our original recommendation.
- In Paragraph 32 (h), the Proposed Settlement requires APS to participate in benchmarking studies that compare APS' practices to those of other utilities. This paragraph also requires APS to provide these analyses to the Commission within ninety days of their completion. In our December 28th Report, we had recommended that the studies be provided to the Commission "on a quarterly basis," instead of "within ninety days of the completion of such studies," as is provided in the Proposed Settlement.

In addition, two of our original recommendations are not included in the proposed settlement agreement. These recommendations relate to the use of certified letters to notify customers that continued "no access" may result in discontinuance of service and to the implementation of a pilot program to schedule appointments with "no access" customers.

Q. Do these changes materially alter the substance of your recommendations?

A. I do not view the changes embodied in Paragraphs 32(e) through 32(h) as material.

Although the omission of the two recommendations referred to in my previous answer is a material change, it is nonetheless a reasonable outcome. Upon further

discussion with APS regarding the potential costs of implementing these two recommendations and upon consideration of the incremental benefits that they would achieve, especially in light of the other requirements included in the proposed settlement, we believe that the potential benefits of these recommendations do not outweigh the likely implementation costs.

Q. Why are the recommendations set forth in Paragraph 32 of the Proposed Settlement Agreement important?

A. Paragraph 32 of the Proposed Settlement Agreement sets forth measures that are designed to decrease the incidence of "no access" to customer meters. While the use of customer-specific kW from the previous month as the primary method for estimating demand, as described in Paragraphs 12-15 of the Proposed Settlement, will reduce the number of instances in which demand is significantly over or under-estimated, no demand estimating methodology can accurately predict customer behavior and the resulting energy use all the time. The most effective means to improve the accuracy of demand billing is to increase the percentage of times that demand billing is based on an actual demand meter reading. The measures set forth in Paragraph 32 are designed to achieve this result.

Q. What are the customer benefits associated with Paragraph 32?

A. The measures set forth in Paragraph 32 are designed to decrease APS' incidence of "no access" to meters. Decreasing the incidence of "no access" should decrease the frequency of estimated bills.

Q. Please describe the recommendations contained in the "Meter Reading Issues" section of the Proposed Settlement Agreement related to improving APS' communications with its customers.

A. Paragraph 33 of the Proposed Settlement contains two recommendations related to improving APS' communications with its customers. These two recommendations are almost identical to recommendations contained in our December 28, 2004 report. A summary of our original recommendations as contained in the December 28th report is attached to this testimony as Exhibit PLW-1.

Q. In what respects do your original recommendations differ from those proposed by the settlement agreement?

A. The recommendations contained in Paragraph 33 are substantially the same as our original recommendations.

Paragraph 33 (a) requires APS to train its personnel to appreciate that customers value an accurate bill, to recognize that underestimation of kW and kWh may result in problems for customers, and to understand applicable Commission rules and tariffs. Paragraph 33(a) adds language that our original recommendation did not include; specifically, it defines "usage" to mean both kW and kWh and adds language stressing "the importance of APS' adherence to Commission rules and APS tariffs."

Paragraph 33 (b) requires APS to clarify its billing notice for instances in which a new bill replaces a previously issued bill. Paragraph 33(b) does not include our original language that would have required APS to consult with Staff on the bill

notice language related to re-billed amounts. Although Paragraph 33(b) omits this language, Paragraph 27 contains similar provisions.

Q. Do these changes materially alter the substance of your recommendations?

A. No, the changes do not materially alter the substance of our recommendations.

Q. Why are the recommendations set forth in Paragraph 33 of the Proposed Settlement Agreement important?

A. Through the investigation of the Avis Read complaint, we identified opportunities for APS to both reduce the incidences of "no access" to meters and to improve its customer service. Recommendations related to decreasing the incidence of "no access" to meters are included in Paragraph 32 of the proposed settlement. The measures set forth in Paragraph 33 are intended to improve APS' customer service by improving APS' communications with its customers. These issues are important because effective communications with customers may enable both the Company and its customers to more readily resolve billing issues and perhaps avoid protracted disputes.

Q. What are the customer benefits associated with Paragraph 33?

A. Customers will benefit by receiving bills that more accurately reflect consumption in the period being billed. By training Billing Services Representatives to understand that customers value an accurate bill more than an underestimated bill, APS will be able to reduce the instances in which true-up bills reflect large adjustments to previously under-estimated amounts.

Customers also benefit when APS fully adheres to all applicable Commission rules and tariffs. The training program required by Paragraph 33 will provide greater assurance that APS will adhere to all applicable Commission rules and tariffs.

When an actual read in a subsequent period indicates that an estimated bill was significantly over- or under-estimated, APS cancels the estimated bill and issues a new bill (or re-bill) based on the actual meter reading in the subsequent period. In these instances, the customer may be confused over which bill to pay. By providing a clearer notice on the re-billed amount, the likelihood that a customer will pay both the original estimated bill and the rebilled amount are reduced.

SECTION THREE - COMPLIANCE

Q. Please describe the recommendations contained in the "Compliance" section of the Settlement Agreement.

A. The "Compliance" section of the Settlement Agreement contains three recommendations: Paragraphs 39 and 40 are related to internal audits or reviews that are required to be completed by APS to ensure compliance with Commission tariffs, rules, and regulations; Paragraph 41 is related to a possible third-party audit. These three recommendations are substantially the same as the recommendations contained in our December 28th report and January 24th testimony. A summary of our original recommendations as contained in the December 28th report and the January 24th testimony is attached to this testimony as Exhibit PLW-1.

Q. In what respects do your original recommendations differ from those proposed by the settlement agreement?

A. Our recommendations envisioned that the internal audits would be performed by APS' internal audit department and included in the Audit Services Department's annual audit plan. Our original recommendations also required APS to implement any findings reported in previous audit reports and to file the results of its internal audits with the Commission. By contrast, the Proposed Settlement provides that these internal audits and/or reviews shall be performed by APS' Regulatory Compliance Department at least once every three years. The proposed settlement also provides that APS shall either implement the audit's recommendations or provide the Commission with a written explanation as to why any recommendations were not implemented.

In addition, we had originally recommended that the Commission require a third-party audit to evaluate whether the Company's billing-related processes have improved. Paragraph 41 of the Proposed Settlement Agreement essentially defers the issue of whether the Commission desires a third-party audit to a later time.

Q. Do these changes materially alter the substance of your recommendations?

A. No. While we believe that the Audit Services Department is likely to possess certain auditing expertise, we also believe that audits completed by APS' Regulatory Compliance Department can be effective. We trust the Commission's good judgment as to whether a third-party audit by an independent auditor is required.

Q. Why are the recommendations set forth in Paragraph 39-41 of the Proposed Settlement Agreement important?

A. These recommendations will ensure that APS complies with any Commission order issued in this case, that APS' meter reading, billing practices, estimation methods, and related management processes are adequate, and that APS has effectively implemented internal processes to ensure compliance with Commission rules, regulations, and tariffs on an on-going basis.

Q. What are the customer benefits associated with Paragraphs 39-41?

A. The requirements of the Proposed Settlement provide many benefits to APS' customers. These benefits are described throughout my testimony. The audits required by Paragraphs 39-41 provide assurance that the requirements of the Proposed Settlement will be implemented as intended.

SECTION FOUR – MISCELLANEOUS

Q. Do you have any corrections to information provided in your January 24, 2005 testimony and December 28, 2004 report?

A. Yes, subsequent to the filing of my January 24th testimony, we received supplemental information from Tucson Electric Power Company ("TEP") that corrected previously provided information regarding the number of estimated bills. In that testimony, I reported that the range of the average percent of estimated bills during the period 1995 through 2004 was 0.12% - 1.22%. For the ten year period, TEP estimated 180,323 bills, or 0.55% of the total number of bills issued.

Using the corrected information provided by TEP on February 3, 2005, the range of the average percent of estimated bills during the period 1995 through 2004 is 0.16% - 1.22%. For the ten year period, TEP estimated 205,231 bills, or 0.63% of the total number of bills issued.

SECTION FIVE – CONCLUSION

Q. What is your overall conclusion regarding the Proposed Settlement Agreement?

A. I believe that the Proposed Settlement is reasonable, appropriate, and in the public interest. The proposed settlement agreement includes all substantive requirements of our original recommendations and, when implemented, should result in noticeable improvements in APS' meter reading, billing, and usage estimation processes.

Q. Does this conclude your direct testimony?

A. Yes, it does.

SUMMARY OF RECOMMENDATIONS

CONTAINED IN THE DECEMBER 28, 2004 REPORT

AND JANAURY 25, 2005 TESTIMONY

OF THE BARRINGTON-WELLESLEY GROUP, INC.

ESTIMATION ISSUES

1. APS should be required to change the methodology that it uses to estimate demand from one using class average load factors to one using customer-specific, prior month kW. The use of customer specific demand history results in more accurate demand estimates.

2. If customer-specific kW from the previous month is used to estimate demand, the only instances in which customer-specific history will not be available are when the bill is the customer's initial bill or when the prior month's bill was estimated. For initial bills covering a period of less than fifteen days, we believe that APS should not bill demand until the actual demand reading is obtained in the following month. In this case, the customer should be billed a pro rata amount for the initial billing period. For initial bills covering a period of fifteen or more days, demand should be billed using actual premises history from the prior month unless the Company knows that the general characteristics of the previous customer's operations vary significantly from those of the current customer.

3. If the prior month's bill was estimated, APS should use the same month from the prior year as the basis for the estimated demand reading. In the event this historical information is not available, APS should consider its experience with other customers of the same class in that area with the general characteristics of the customer's operations."

4. APS should perform an analysis to determine whether the inclusion of May as a summer season month for purposes of estimating kWh is appropriate. This

analysis should be filed with the Commission within 90 days of the conclusion of this matter. In reviewing the detailed analyses supporting Mr. Rumolo's November 23, 2004 testimony, we noticed that estimated kWh consumption is generally higher than the actual kWh consumption in the month of May. May is the first month of the summer season; therefore, CIS estimates consumption billed in May using the summer seasonal average. Due to cycle billing, approximately one-half of consumption billed in May will represent energy used in April. This trend is reversed to some degree in the early winter season months.

5. APS should be required to refund to customers the overbilled demand charges plus interest that occurred from September 1998 with the implementation of the new CIS through September 2003 when changes were made to the Company's CIS to correct this problem. There were 9,056 residential customers who were overbilled based upon inaccurate demand estimation, and the overbilling was not subsequently credited to the customer's account. The amount of the overbilling which should be credited to the appropriate residential customers' accounts totals $171,686. APS is still compiling similar data for general service customers. Staff will update this testimony once it receives that information. APS' calculation of these refunds will be subject to verification as part of the independent audit recommended by Staff.

6. APS should calculate interest on overbilling using the same rate it currently uses to calculate interest on customers' deposits.

7. APS should take reasonable steps to locate those customers who are no longer active customers. For those customers located, APS should issue refund checks

for the amount of the unadjusted overbilling and related interest. We recognize, however, that it is not reasonable for APS to incur costs to locate customers when the amount of the potential refund is insignificant. Therefore, we recommend that APS be required to make refunds to inactive customers only in those instances in which the potential refund is greater than $5.00. APS should be required to maintain documentation of steps taken to locate individual inactive customers."

METER READING ISSUES

8. APS should be required to develop and install performance measures to document the efforts that it has taken to comply with the Commission requirement that "(a)fter the second consecutive month of estimating the customer's bill for reasons other than severe weather, the utility will attempt to secure an accurate reading of the meter." (R14-2-210. A. 3.).

9. APS should specifically include the use of EZ-Read as one of the steps taken to resolve a "no access" situation.

10. APS should utilize available DB Microware reports to review lock-outs by route to monitor trends in lock-outs and reduce the number of "no access" meters.

11. APS should establish an internal process whereby after three consecutive estimates, continued instances of consecutive estimates due to "no access" situations are reported and made visible to increasing levels of APS management.

12. APS should be required to provide evidence to the Commission that new procedures have been put in place to ensure that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either smaller or remote. A report that describes the new procedures and explains how they reduce the potential for "skipped" meter readings due to staffing resource issues should be provided to the Commission within six months of a decision in this matter.

13. APS should be required to revise the "No Access Meters" report, KM06R20, to provide the following additional features:

    a. Report the present number of consecutive months that the meter reading department could not access the meter so that the Administrative Coordinator can track the steps required for each month of access problems and prioritize the APS response.

    b. Report the other instances that the meter reading department was unable to read the meter during the previous twenty-four months to simplify identification of recurring "no access" problems at the same premises.

    c. Prioritize accounts to focus first on demand-billed customers when working the "no access" report. APS should compile and maintain these reports for purposes of the independent audit.

14. APS should develop and install a performance measure to monitor the extent to which APS is complying with the Commission requirement to read meters each

month (no less than twenty-five days after the last meter read and no more than thirty-five days after the last meter reading). APS should provide to the Commission a description of its performance measure and the results of its analysis within six months of a decision in this matter.

15. APS should change the options settings in the Itron software in all locations so that the Itron HHC used by meter readers in each of the APS meter read shops no longer includes the last month's usage and last month's meter reading. This feature should be disabled throughout APS' service territory within 30 days of a decision in this matter.

16. APS should provide the Commission with quarterly reports related to the status of the remote meter reading pilot and implementation plans. The reports should provide a description of the meter reading technology being implemented, APS' plan for implementation, the number and type of customers involved in the pilot program, the costs associated with its implementation, and the operational efficiencies associated with its implementation.

17. APS should implement a pilot program to evaluate whether using an auto-dialer to communicate with "no access" account customers prior to the scheduled read date, in addition to the other methods presently used, will facilitate resolution of additional "no access" accounts. The Company should maintain records on the number of instances that the auto-dialer is used to call customers in these circumstances so that one may determine whether use of the auto-dialer improves APS' access to "no access" meters. The results of the pilot program should be reported to the Commission in quarterly reports.

18. APS should be required to implement a policy to ensure that meter reading supervisors periodically inspect meter locations reported as "no access" to verify that appropriate corrective measures are taken. APS should be required to file a copy of this policy with the Commission within ninety days of a decision in this matter.

19. APS should continue to participate in benchmarking studies that compare its practices to other utilities in the industry. APS should provide such benchmarking analysis to Staff on a quarterly basis.

20. APS should be required to train Billing Services Representatives (BSRs) and others involved in the usage estimation, meter reading and billing process to understand that customers value an accurate bill more than an underestimated bill. APS should also train them to recognize situations in which the underestimation of usage may result in problems for their customers. APS should provide Staff with a description of the changes to its training process within six months of a decision in this matter.

21. APS should be required to provide a clearer notice on a re-billed account. Such notice should clearly state that the new bill replaces the previously issued bill and that the customer should only pay the reissued bill amount. APS should consult with Staff in determining the appropriate language and placement on the bill within 30 days of a decision in this matter. In addition, APS should be required to make the appropriate modifications to its billing system to implement this change within sixty days of a decision in this matter.

22. APS should enhance its "no access" resolution process to include the sending of certified letters at the time it notifies customers that continued "no access" will result in the possible discontinuance of service.

23. APS should implement a pilot program to evaluate whether scheduling appointments with "no access" account customers results in a reduction of estimated reads due to "no access" problems. The results of the pilot program should be reported to the Commission in quarterly reports.

COMPLIANCE

24. APS should be required to participate in a third party audit by an independent auditor selected by Staff and funded by APS. This audit would be focused on evaluating whether the Company's meter reading, billing, and estimation practices and management processes have been improved. The audit would also evaluate whether the Company has complied with the decision in this matter. The audit would take place within twelve months of a decision in this matter.

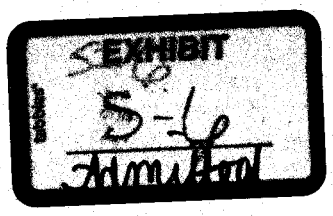
25. APS should be required to file an implementation plan with the Commission within sixty days of a decision in this matter that identifies how it will comply with the decision in this matter. This implementation plan should be submitted for Commission approval.

26. APS should be required to commence an internal audit of its compliance with Commission rules and Commission-approved tariffs within three months of the close of this proceeding and complete the audit, with a copy of the audit report to

be filed with the Commission, within twelve months of the close of this proceeding.

27. APS' Audit Services Department should include on-going testing of usage estimation, meter reading and billing practices in its annual audit plan. APS should also ensure that it has completely implemented any findings reported in previous audit reports. APS should file the results of its internal audits with the Commission.

BEFORE THE ARIZONA CORPORATION COMMISSION



JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

AVIS READ; individually, and on Behalf of All Others Similarly Situated, Complainants, v. ARIZONA PUBLIC SERVICE COMPANY, Respondent.	DOCKET NO. E-01345A-04-0657
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A DECLARATORY ORDER REGARDING BILL ESTIMATION PROCEDURES	DOCKET NO. E-01345A-03-0775

TESTIMONY

OF LINDA A. JARESS

IN SUPPORT OF THE PROPOSED SETTLEMENT AGREEMENT

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

MARCH 18, 2005

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EXECUTIVE SUMMARY
ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. E-01345A-03-0437

Ms. Jaress' testimony discusses the proposed Settlement Agreement, provides the rationale behind settlement of several issues and explains why Staff believes that adoption of the Settlement Agreement by the Commission is in the public interest.

INTRODUCTION

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

A. My name is Linda A. Jaress. I am an Executive Consultant III in the Utilities Division of the Arizona Corporation Commission ("ACC" or "Commission"). My business address is 1200 West Washington Street, Phoenix, Arizona 85007.

Q. Please state your educational background and professional experience.

A. I received a Bachelor of Arts Degree from Michigan State University and a Master of Business Administration Degree from the University of Hawaii. I was employed as a Research Analyst for the Hawaii Trucking Association from 1977 through 1978 and as a Financial Analyst for the State of Hawaii, Division of Consumer Advocacy from 1980 through 1985. In 1985, I was employed by the Commission as a Senior Rate Analyst and received a promotion to Manager, Financial Analysis in 1991. I also served as the Acting Chief of the Accounting and Rates Section. On January 1, 2001, I was promoted to the position of Executive Consultant III.

Q. Please list your duties and responsibilities as Executive Consultant III.

A. I complete special projects for the Director and Assistant Directors. Among those projects are the writing of reports and testimony and oversight of the RFP process for many of the RFPs issued by the Utilities Division.

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to explain why approval of the Proposed Settlement Agreement among Arizona Public Service Company ("APS" or "the Company"), the Estate of the late Mrs. Avis Read ("Ms. Read") and the Staff of the Arizona Corporation

Commission ("Staff") is in the public interest. I will also compare the Settlement Agreement to the recommendations set forth by Staff in its Staff Report and direct testimony.

Q. What were Staff's concerns in this matter?

A. The allegations in Ms. Read's action filed in Superior Court and her complaint filed with the Commission were of concern to Staff. These allegations raised concerns about APS' meter reading resources, billing language, demand and usage estimation practices and about the accuracy of APS' bills to its customers.

During the course of Staff's inquiry into the billing and meter reading practices of APS that was prompted by Ms. Read's complaint, more concerns came to light. Staff discovered issues related to APS' implementation of its 1998 Customer Information System ("CIS"). Staff also learned that there were instances in which APS failed to appropriately credit customers when a demand estimate turned out to be higher than a subsequent meter read. Staff was also very concerned about APS' apparent non-compliance with sections of rate schedules EC-1 and ECT-1R that apply to residential customers taking service through demand meters. These findings generated an overall concern with APS' compliance with Commission-approved tariffs, in general.

Staff was also concerned about the expense of the remedy of these problems and how the expenses would be recovered.

Q. What were the results of Staff's inquiry?

A. First, Staff concluded that the logical, root cause of most of the issues raised by the Read complaint and Staff's inquiry was APS' ability to attain a meter read. If access to all meters is maintained and APS has a sufficient number of meter readers, no meter reads would be missed. Therefore, no estimated bills would result.

Staff found that Ms. Read, although the recipient of poor customer service from APS, was underbilled rather than overbilled. Staff concluded that, contrary to Ms. Read's allegations, APS' estimation practices most commonly result in underestimations, rather than overestimations. Staff also determined that APS employs an adequate number of meter readers.

However, Staff also concluded that rather than using the method for estimating demand included in its tariff, APS has used and currently uses customer class average load factors in its calculation of estimated demand. Staff compared APS' method to four other methods to determine which produced the most accurate results and found that the use of customer specific demand from the prior month produces the most accurate estimates of the following month's demand.

Staff found that approximately 8 percent of APS' residential customers and 93 percent of non-residential customers are served through demand meters and that this constitutes a high number of demand meters compared to other electric utilities. Thus, problems arising from non-access to demand meters and estimation of demand are significant in both impacts on the customer and on APS' costs of achieving a meter read.

Finally, Staff concluded that the implementation of APS' new CIS caused certain deficiencies in the bill estimation process and caused APS to miss sending bills to certain customers for a limited time period.

THE SETTLEMENT AGREEMENT

Q. How does the Settlement Agreement address Staff's concerns and the results of the inquiry?

A. Paragraph 23 of the Settlement Agreement directly addresses meter access problems emanating from lack of physical access to meters by requiring APS to invest $600,000 in an Access Improvement Program. The details of the Program will be determined when APS files the program for Commission approval, but its purpose is to invest in remote or other alternative meter reading equipment whereby access to meters will be improved. The Program replaces the recommendation within Staff's direct testimony for a $573,000 fine against APS for its failure to send bills to Ms. Read for five months and for non-compliance with the demand estimation methodology set forth in its EC-1 and ECT-1R tariffs for over twenty years. Staff believes that the Program will be a positive step toward reducing the number of bill estimations for all customers, not only those with demand meters.

Within the Settlement Agreement in Paragraph 6, APS agrees that it did not implemented the demand estimation methodology for residential customers with demand meters contained in APS Rate Schedules EC-1 and ECT-1R when it designed its bill estimation procedures for its CIS. The Agreement also sets forth the most accurate method of those studied for estimating demand for all demand-metered customers and APS agrees to use

that method in Paragraph 12. These paragraphs resolve Staff's concerns regarding APS' demand estimation procedures.

Paragraph 25 addresses potential costs of training, audits, reports and implementation of improvements adopted by the Agreement and requires that they be absorbed by the Company in most instances. Therefore, Staff's concerns about customers absorbing the costs of remediation are allayed.

Several paragraphs of the Settlement Agreement call for ongoing audits and reporting to aid the Commission in its oversight of APS' compliance with the decision in this case, Commission rules and APS' own tariff. These paragraphs address Staff's concerns about APS' current and future compliance with Commission rules, APS' tariff and with the decision in this matter.

Finally, Paragraph 27 addresses Staff's concerns about billing language by adopting all the recommendations made in the direct testimony of Staff Witness Matt Rowell. That testimony recommended certain clarifying language be added to APS' estimated bills. Paragraph 14 also requires APS to collaborate with Staff to develop appropriate language to be used on estimated bills.

Q. Why is the Settlement Agreement in this case in the public interest?

A. This Settlement Agreement addresses and resolves the Read complaint and problems associated with APS' meter reading and bill estimation procedures. It benefits all customers by requiring an Access Improvement Program that should ultimately reduce costs associated with no access to customers' meters. The Agreement also would

institute bill credits that could total over $2.0 million for customers who were overbilled due to APS' Customer Information System. Finally, the complaint of Ms. Read would also be resolved by the Commission's adoption of the Settlement Agreement. For these reasons, Staff believes the Settlement Agreement to be in the public interest.

COMPARISON OF STAFF'S DIRECT CASE TO THE SETTLEMENT AGREEMENT

Q. Does the Settlement Agreement reflect Staff's recommendations as set forth in the Staff Report dated December 28, 2004 and Staff's direct testimony dated January 24, 2005?

A. Yes. The Settlement Agreement reflects the vast majority of Staff's recommendations that appeared in the Staff Report and Staff's direct testimony.

Q. Please summarize Staff's recommendations as set forth in the Staff Report and direct testimony.

A. Over twenty-five recommendations were made by Staff in its direct testimony and the Staff Report. They included recommendations to set in place better meter reading policies and procedures, to initiate more complete bill information, to require ongoing reporting and audits, to require refunds to customers and to issue a fine against the Company. They are listed on pages 37 through 43 of Perry Wheaton's direct testimony, and on pages 18 and 19 and pages 27 and 28 of the direct testimony of Matt Rowell. The March 18, 2005 testimony of Perry Wheaton provides a further discussion of Staff's original recommendations.

Q. What is the most significant difference between Staff's recommendations and the Settlement Agreement?

A. First and foremost, Staff's recommendation of a fine was eliminated in favor of a more constructive remedy. Instead of the fine, the Settlement Agreement requires APS to develop a "cost-effective Access Improvement Program to achieve a reduction in the number of instances of kW and kWh estimation due to 'no access' issues" and to spend $600,000 on the Program. The $600,000 investment in the Access Improvement Program encompasses an amount equal to the recommended fine for APS' non-compliance with its tariff and for the five-month non-billing of Ms. Read and includes an additional $27,000. The Settlement Agreement, in paragraphs 22 and 23, is careful to ensure that the expenditures will be for assets or technology, in other words "specific remedies" rather than studies, planning or administrative costs.

Staff believes that although this is a significant change from the recommendation for a fine, it is a constructive change. Although a fine may have punitive aspects and serve as a deterrent, a fine may not contribute to improvements in customer service to the same degree as the Access Improvement Program. Also, the Access Improvement Program directly addresses the root of the bill estimation issue, access to meters, which a fine would not.

Q. One of Staff's recommendations was that APS send certified letters to customers whose service may be discontinued due to denial of APS' access to their meter. Why did Staff agree to a Settlement Agreement that did not include this recommendation?

A. The expense and ultimate effectiveness of sending certified letters are the reasons Staff agreed to their exclusion from the Settlement Agreement. The additional costs related to this recommendation could ultimately be absorbed by all customers, including those who

consistently allow unrestricted access to their meters as required by the Commission rules. The cost of sending a certified letter is $2.67, not including APS' labor or overhead. APS already provides notice of potential service termination via regular mail so any benefit from the additional notice may be marginal at best.

Q. Another recommendation was that APS be ordered to implement a pilot program whereby APS would make meter reading appointments with customers who have a history of not facilitating APS' access to their meters. Why did Staff agree to a Settlement Agreement that did not include this recommendation?

A. The potential expense, along with the possibly perverse incentive that such a program might send to customers are the reasons Staff agreed to this recommendation's exclusion from the Settlement Agreement. Certainly, APS should make reasonable efforts to achieve access to customers' meters. But the implementation of meter-reading appointments would result in additional labor costs of meter reading supervisors to redesign meter reading routes and costs of special trips by meter readers.

Furthermore, pursuant to A.A.C. R14-2-209(D), customers must provide "safe ingress...and egress" to the utility at the customer's premises to read the meter. Ultimately, access to the meter is the responsibility of the customer. If a pilot program were offered in which APS makes appointments with customers to read their meters, customers may begin to believe that they may restrict APS' meter reading to times of the customers' choosing.

Q. Please describe other Staff recommendations not included or modified within the Settlement Agreement.

A. Staff's direct case and the Settlement Agreement differ in how they address audits and compliance issues. Staff's original recommendations included a "third-party" independent audit within 12 months of the Commission's decision that would evaluate whether the Company's meter reading, billing and estimation practices and management processes have improved and whether the Company has complied with the Commission's decision in this matter. Staff also recommended that APS file an implementation plan for Commission approval. Staff further recommended an internal audit be performed by APS that would review its compliance with all Commission rules and tariffs and file the results of the audit with the Commission twelve months from the close of the proceeding.

The Settlement Agreement somewhat modifies these requirements. In place of filing an implementation plan, APS will file an Access Improvement Program for the Commission's approval. Fifteen months after the Program's implementation, APS will file a report regarding its success. This change reflects the Settlement Agreement's adoption of the Access Improvement Program in place of the less defined "implementation plan."

The Staff Report recommended that APS include on-going testing of usage estimation, meter reading, and billing practices in an annual audit. By contrast, Paragraph 39 of the Proposed Settlement Agreement requires APS' Regulatory Compliance Department to conduct an audit of kW and kWh estimation, meter reading, and billing practices after the Commission issues a final order in this matter and at least once every three years thereafter.

The Staff Report also recommended that APS arrange for a third party audit with an independent auditor selected by Staff and funded by APS. Staff intended for this audit to evaluate whether the Company's meter reading, billing, and estimation practices have improved and whether the Company has complied with the Commission's decision in this matter. By contrast, Paragraph 41 of the Proposed Settlement Agreement defers the Commission's decision of whether a third party audit is necessary to a later date.

Staff agreed to these changes with an eye toward reducing costs. However, when APS presents its internal audit results to the Commission, the Commission may decide that a third-party, independent audit should be conducted.

Q. **Staff's original recommendations included a requirement for APS to provide a list of customers who were not issued three or more bills as a result of APS' Customer Information System problems during late 1999 and early 2000. Why did Staff agree to omit this requirement from the Settlement Agreement?**

A. Paragraph 38 of the Settlement Agreement recognizes that the rights of other customers besides Ms. Read, who were not issued bills, are not diminished by the Proposed Settlement Agreement. The number of customers who were not issued three or more bills due to CIS problems during late 1999 and early 2000 is 143. In February 2000, APS resolved the deficiencies in the CIS related to non-billing. In contrast, the number of bills affected by APS failure to appropriately credit customers when a demand estimate turned out to be higher than a subsequent meter was over 24,000. Due to the limited scope of the non-billing problem and the suitable response by APS, Staff agreed not to request the list of customers.

CONCLUSION

Q. Does Staff recommend that the Commission approve the Settlement Agreement?

A. Yes, Staff believes the Settlement Agreement is in the public interest and should be approved by the Commission.

Q. Does this conclude your direct testimony?

A. Yes, it does.

EXHIBIT
SZ-7
Admitted

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

AVIS READ; individually, and on Behalf of All Others Similarly Situated, Complainants, v. ARIZONA PUBLIC SERVICE COMPANY, Respondent.	DOCKET NO. E-01345A-04-0657
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A DECLARATORY ORDER REGARDING BILL ESTIMATION PROCEDURES	DOCKET NO. E-01345A-03-0775

DIRECT

TESTIMONY

OF

JOYCE I. STEINGASS

SENIOR ASSOCIATE

BARRINGTON-WELLESLEY GROUP, INC.

JANUARY 24, 2005

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SCHEDULES

Steingass Resume JIS-1

INTRODUCTION

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

A. My name is Joyce I. Steingass. I am a Senior Associate with the Barrington-Wellesley Group, Inc. BWG is a general management consulting firm which performs a significant portion of its work in the electricity, gas, and telephone industries. My business address is 975 Hutchinson Road, Walnut Creek, California 94598.

Q. Please describe your educational background and professional experience.

A. I have more than twenty years of utility consulting and industry experience. I am a licensed mechanical engineer, and have experience consulting with large investor-owned gas and electric utilities in California, New York, Washington D.C., Illinois and South Carolina. I am an accomplished project manager and quality improvement specialist, and have demonstrated effectiveness at organizing and managing projects and conducting operational, financial, and management reviews in the areas of regulatory compliance, business ethics, customer services, and gas and electric utility operations.

Prior to entering consulting in 1999, I was employed by Pacific Gas & Electric (PG&E) for seventeen years including two years as director of distribution quality assurance and four years as director of operational compliance. I have a B.S. in mechanical engineering from the University of California, Berkeley and have taken graduate courses in business administration at Golden Gate University.

My complete resume is included as Schedule JIS-1.

Q. Did you participate in the preparation of the December 28, 2004 Staff Report?

A. Yes.

Q. Are you sponsoring the December 28, 2004 Staff Report?

A. Yes, I am.

Q. Does this conclude your direct testimony?

A. Yes, it does.

EXHIBIT 1

JOYCE I. STEINGASS, P.E.

Senior Associate *BARRINGTON-WELLESLEY GROUP*

Summary of Qualifications

Mrs. Steingass has more than twenty years of utility consulting and industry experience. A licensed mechanical engineer, she has experience consulting with large investor-owned gas and electric utilities in California, New York, Washington D.C., Illinois and South Carolina. An accomplished project manager and quality improvement specialist, she has demonstrated her effectiveness at organizing and managing projects and conducting operational, financial, and management reviews in the areas of regulatory compliance, business ethics, customer services, and gas and electric utility operations.

Prior to entering consulting in 1999, she was employed by Pacific Gas & Electric (PG&E) for seventeen years including two years as director of distribution quality assurance and four years as director of operational compliance. Mrs. Steingass has a B.S. in mechanical engineering from the University of California, Berkeley and has taken graduate courses in business administration at Golden Gate University.

Representative Utility Consulting Engagements

Regulatory Compliance Auditing - Utility Customer Service, Meter Reading or Billing

- As Director of Operational Compliance at PG&E, performed management assessments and conducted operational compliance reviews for the Customer Energy Services Business Unit. Raised awareness and initiated action to strengthen the company's commitment to full compliance with laws, regulatory requirements, and utility standards. Selected and trained a diverse team of specialists to evaluate distribution unit operations. Mobilized teams to evaluate business concerns in the areas of customer service and marketing, gas and electric operations, and tariff rates and rules on short notice. Identified over $16 million in savings, avoided costs, or errors. (1994-1997)
- Supervised a short lead-time project to investigate tariff compliance regarding customer meter reading and billing procedures that were used to estimate final bills when accounts were opened and closed in eighteen customer service headquarters throughout the service territory. Communicated recommendations for process improvements and supported process improvement teams with quality control practices. (1995)
- Investigated tariff compliance on the subject of assigning utility rate schedules to customer accounts. (1997)
- Assisted corporate project teams to review and evaluate revenue cycle processes such as measurement, billings, and collections during an extensive process redesign effort, to incorporate stronger checks and balances into new processes. (1996)
- Acted as a project steering committee member to evaluate the introduction of a late payment fee, including risk assessment and developing new processes. (1997)

- Performed assessment of processes for setting up new customer billing accounts and recording new facilities on operating; evaluated processes for calculating franchise fee payments prior to litigation brought by some California cities or counties regarding accurate franchise fees. (1992 and 1994)
- As an independent consultant to PG&E, summarized the history of PG&E's experience with the franchise fee payment process in advance of litigation brought by two California counties. (1999)

Consulting - Utility Management, Operations, or Regulatory Compliance

- Supported an electric utility client undergoing an extensive regulatory commission investigation after a significant operating incident. Services included ensuring accurate and timely response to data requests provided to the commission, technical analysis of information submitted, preparing client personnel in advance of interviews, and developing strategies for and responding to the final report. (2000)
- Redesigned the regulatory compliance process for an electric utility's distribution system. Responsibilities included application design using SAP's enterprise resource planning system. Evaluated processes, controls, and performance monitoring to ensure regulatory compliance and to coordinate compliance controls with the enterprise resource management system. (2000)
- For a southern public utility commission, monitored the implementation of recommendations of a focused regulatory commission safety and management audit of a local gas distribution company's design, construction, operations, and maintenance practices. Provided advice and recommendations based on industry best practices, reviewed proposed process changes, and tracked progress compared to the original audit findings. (2000)
- Designed and implemented an operations compliance program for a Midwestern energy delivery unit. Focused on strengthening compliance with regulatory requirements affecting maintenance and operations. Conducted initial focused compliance audits to indoctrinate the client with the new processes. (2001)
- Served as lead consultant for an audit of Duke Power Company's power restoration and maintenance procedures on behalf of the South Carolina Public Service Commission. The audit included an exhaustive review of the company's preventive maintenance programs, including analysis of the impact of personnel cutbacks in contributing to extended outages, as well as any adverse affects stemming from the company's pole and cable replacement program and tree trimming activities. (2003)

Quality Improvement and Quality Assurance

- Directed the development of the Standards Task Force to develop or revise PG&E customer energy services policies and standards. Provided leadership and guidance to the steering committee involved in making enterprise-wide changes to standard operating procedures, ensuring consistency and adequate controls. (1997)

- As PG&E's Director of Quality Assurance, established and directed electric distribution system audits. Also evaluated design, construction, maintenance, and inspection methods and procedures for compliance with company and California Public Utility Commission (CPUC) Code standards. (1997-1998)

Other Representative Experience - Benchmarking and Industry Restructuring

- Provided research and comparisons of industry restructuring from other states for a client undergoing market re-structuring (2004)
- Working group member for developing data accuracy and metering monitoring methods for California utilities and evaluated proposed regulations (1996-1999).
- Developed benchmarking survey instrument for Navigant Consulting, Inc.'s International Distribution Enterprise Consortium to benchmark gas and electric companies in financial management, system reliability, customer service, activity-based costs, and workforce practices. (1999)
- Performed distribution reliability benchmarking of investor-owned electric utilities, such as System Average Interruption Frequency Indices (SAIFI), System Average Interruption Duration Indices (SAIDI), and Customer Average Interruption Duration Indices (CAIDI) for twenty-five major electric utilities. (2001)

Work Experience

Barrington-Wellesley Group, Inc. Senior Associate (2003-present)

Navigant Consulting, Inc. Senior Engagement Manager (1999-2002)

Independent consultant (1998-1999)

Pacific Gas and Electric Company (1981 - 1998)

1997-1998	Director, Distribution Quality Assurance
1993-1997	Director, Operational Compliance.
1992-1993	Senior Operations Analyst
1988-1991	Pipeline Replacement Superintendent
1986-1988	Senior Distribution Engineer
1985-1986	Distribution Engineer
1981-1985	Engineer, Nuclear Quality Assurance

Licenses and Professional Affiliations

Professional Engineer, Mechanical Engineering, State of California M25178

American Society for Quality

EXHIBIT
S-8
Admitted

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
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DIRECT

TESTIMONY

OF

MATTHEW ROWELL

CHIEF ECONOMIST

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

JANUARY 24, 2005

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EXEXUTIVE SUMMARY

This testimony provides a discussion of Staff's chief concerns regarding Avis Read's complaint against APS ("the Read Complaint") filed with the Commission September 9, 2004. This testimony will also address APS' compliance with A.A.C. R14-2-210, which is one of the Commission's regulations; it will also address APS' compliance with two of its Commission-approved tariffs, ECT-1 and ECT-1R. This testimony will also respond to certain portions of APS witness David J. Rumolo's testimony filed on November 23, 2004; specifically, this testimony will address Mr. Rumolo's request for clarification on ten "situations" and Mr. Rumolo's assertion that APS' meter estimation practices were provided to the Commission. Additionally, this testimony will explain Staff's position on applicable fines and penalties regarding APS' actions.

I INTRODUCTION

Q. Please state your name and business address for the record.

A. My name is Matthew Rowell. My business address is Arizona Corporation Commission, 1200 W. Washington St., Phoenix, Arizona 85007.

Q. What is your position at the commission?

A. I am the Chief of the Telecommunications and Energy section of the Commission's Utilities Division.

Q. Please describe your education and professional background.

A. I received a BS degree in economics from Florida State University in 1992. I spent the following four years doing graduate work in economics at Arizona State University where I received a MS degree and successfully completed all course work and exams necessary for a Ph.D. My specialized fields of study were Industrial Organization and Statistics. Prior to my Commission employment I was employed as a lecturer in economics at Arizona State University, as a statistical analyst for Hughes Technical Services, and as a consulting research analyst at the Arizona Department of Transportation. I was hired by the Commission in October of 1996 as an Economist II. I was promoted to the position of Senior Rate Analyst in November of 1997 and to Chief Economist in July of 2001. In my current position I am responsible for supervising nine professionals who work on a variety of telecommunications and energy matters.

Q. What is the purpose of your testimony?

A. My testimony provides a discussion of Staff's chief concerns regarding Avis Read's complaint against APS ("the Read Complaint") filed with the Commission September 9, 2004. My testimony will also address APS' compliance with A.A.C. R14-2-210, which is one of the Commission's regulations; I will also address APS' compliance with two of its Commission-approved tariffs, ECT-1 and ECT-1R. My testimony will also respond to certain portions of APS witness David J. Rumolo's testimony filed on November 23, 2004; specifically, my testimony will address Mr. Rumolo's request for clarification on ten "situations" and Mr. Rumolo's assertion that APS' meter estimation practices were provided to the Commission. Additionally, my testimony will explain Staff's position on applicable fines and penalties regarding APS' actions.

Q. What aspects of the Read Complaint caused the most concern for Staff?

A. While much of the discussion in this case has dealt with meter read estimation procedures and APS' compliance with rules and tariffs dealing with meter read estimation, Staff's chief concern is not how Ms. Read's meter reads were estimated. Staff's chief concern is the fact that Ms. Read received *no* bill (estimated or otherwise) for five months (September 1999 thru January 2000.) Additionally, when Ms. Read's bills were eventually rendered on February 24, 2000 they were unreasonably confusing. The bill that Ms. Read finally did receive was for over $6,000, an amount that, even for a well off individual, could create a cash flow problem. In spite of all this (APS' failure to send bills for five months, the confusing nature of the bills when they did arrive, and the financial burden of the bill), APS was not willing to work with Ms. Read on an extended payment plan for anything beyond three months (APS' standard for extended payment plans.)

Q. Ms. Read's February 24, 2000 bill was for a total of $6,336.46. What time period did that bill cover?

A. That bill included charges for September 1999 thru January of 2000 totaling $1,709.42. It also included $4,627.04 from a prior balance.

Q. Why does Staff believe that when Ms. Read's bills were finally rendered they were unreasonably confusing?

A. Ms. Read received multiple bills at one time. She received bills for each month as well as a total cumulative bill. APS provided these bills to Staff in response to a data request. There was no explanation of the situation included with these bills. Both Staff and Staff's consultants, who have experience with the electric utility industry, were confused by the bills. It took considerable effort on Staff's part to determine what had occurred based on the content of the bills. Thus, it is reasonable to conclude that Ms. Read would have found the bills confusing.

Additionally, Ms. Read received two sets of bills for the time periods December 17, 1999 thru February 17, 2000. Bills for this time period were reissued based on a meter read that Ms. Read had called in. These reissued bills contained a notice that did not explain why the bills were reissued or that they superceded the original bills. (See the December 28, 2004 Staff Report page VI-4.)

Q. What are Staff's general observations about the above-described events that led to the Read complaint?

A. From a customer service perspective, the treatment Ms. Read received from APS was inadequate. At several points during the time period discussed above, APS could have taken steps to lessen the burden on Ms. Read. Specifically, when APS realized it was not fulfilling its obligation to send bills on a monthly basis, it could have at least sent clear notice to the affected customers that there was a problem that was preventing bills from

going out. When the bills finally were sent, they could have been accompanied by clear notice explaining the situation. When Ms. Read contacted APS concerning her bill in excess of $6,000, APS could have clearly explained the situation to Ms. Read and offered her a payment plan other than the standard three month plan. In short, in spite of APS' failure to fulfill its obligation to send timely bills to Ms. Read, APS seems to have taken no action to lessen the impact to Ms. Read.

Q. Is it reasonable to expect that APS could have taken the steps listed in your previous answer (or other steps aimed at mitigating the impact on its customers associated with its billing problems)?

A. Yes. At the time in question APS knew it was having trouble with sending timely bills. It is reasonable to expect that this inability to properly bill would result in customer confusion *and* eventual financial burdens on customers. APS could have taken pro-active measures to alleviate the impact on customers. For instance, APS could have instituted a policy that extended the standard three-month period for installment payments. Staff understands that APS did inform its customer service representatives that there was a billing problem that would result in increased calls from customers. However, it does not seem that APS actually changed any of its policies in a way that would allow the customer service representatives to address customers' problems.

In response to Staff's 15th set of data requests, APS provided a newspaper article dated December 12, 1998 that indicates that APS had sent letters to its customers apologizing for the billing problems associated with implementing a new billing system. Staff believes that such letters are certainly a good idea and that sending them does qualify as a proactive step to alleviate customer confusion. However, these letters were sent a full fourteen months prior to Ms. Read's February 24, 2000 bill. Thus, had Ms. Read received

one of these letters, it is not reasonable to believe that she would have had it on hand or remembered its content in February of 2000.

II APS' COMPLIANCE WITH A.A.C. R14-2-210 AND ITS FILED TARIFFS

Q. What does A.A.C. R14-2-210 address?

A. This rule, which I will subsequently refer to as "Rule 210," addresses billing and estimation. Before discussing this subject, I want to acknowledge that APS and Ms. Read have disputed the validity of the rule in the Superior Court case that preceded Ms. Read's complaint to the Commission. I am not an attorney, and I cannot address those legal issues. If the Commission were to conclude that Rule 210 is in effect, the following information may be helpful to the Commission when evaluating Ms. Read's complaint.

Q. Why does Ms. Read believe that APS has violated Rule 210?

A. She contends that Rule 210 requires APS to obtain Commission approval of its bill estimation procedures. She further contends that APS does not have Commission-approved bill estimation procedures and that APS has therefore violated the rule.

Q. At pages 17 thru 20 of his testimony APS witness Rumolo argues "the amendments to Rule 210 that required submittal of bill estimation procedures were never intended to apply to incumbent utilities." What is Staff's position on the applicability of Rule 210 to APS?

A. This is a difficult issue. Several factors imply that Rule 210 in its entirety would apply to APS, yet other factors imply that APS' belief that it did not apply is not wholly unreasonable.

Q. What are the factors that imply that Rule 210 did apply to APS?

A. The principal factor is the plain language of the rule. R14-2-210(A)(5)(a) is the section of the rule at issue and it reads as follows:

> "A utility or billing entity may not render a bill based on estimated usage if:
> a. The estimation procedures employed by the utility or billing entity have not been approved by the Commission."

"Utility" is defined in R14-2-201(45) as:

> "The public service corporation providing electric service to the public in compliance with state law…"

Clearly, APS is a utility and thus R14-2-210(A)(5)(a) was applicable to it.

Another factor that implies that R14-2-210(A)(5)(a) applied to APS is the fact that on August 23, 2001 the Process Standardization Working Group ("PSWG") filed a joint application for a waiver from two subsections of this same rule, R14-2-210(A)(5)(b) and R14-2-210(A)(5)(c). APS was a member of the PSWG at the time. The members of the PSWG, including APS, must have believed that R14-2-210(A)(5)(b) and R14-2-210(A)(5)(c) applied to them or they would not have asked for a waiver. R14-2-210(A)(5)(b) and R14-2-210(A)(5)(c) rely on the same definition of "utility" as R14-2-210(A)(5)(a).

Q. What factors imply that APS' belief that R14-2-210(A)(5)(a) did not apply to it is not wholly unreasonable?

A. All of the incumbent utilities had meter estimation procedures in place at the time that R14-2-210(A)(5)(a) was established. Yet the rule did not specify how existing meter

estimation procedures were to be handled. It is not unreasonable to suggest that had the Commission intended 210(A)(5)(a) to apply to incumbent utilities a provision would have been added to the rules to account for the interregnum between when the rules were enacted and when the incumbent utilities estimation procedures were approved.

Q. What is Staff's conclusion regarding the applicability of R14-2-210(A)(5)(a)?

A. Staff believes that the plain language of R14-2-210(A)(5)(a) indicates that the rule was intended to apply to APS. And while APS may have believed that R14-2-210(A)(5)(a) did not apply to it, this does not justify inaction on its part. If, APS believed that the rule did not apply to it (in spite of the plain language of the rule), APS could have and should have sought clarification of the rule from the Commission.

Q. Does APS have Commission-approved bill estimation procedures?

A. APS has Commission-approved bill estimation procedures for Rate Schedules ECT-1 and ECT-1R. Apparently, APS has not implemented the methods approved in these tariffs, but has instead used a different method. Staff has not been able to identify any Commission order that explicitly approves APS' existing meter read estimation procedures.

Q. Page 5 line 23 of APS' application for a Declaratory Order, indicates that APS had submitted its estimation procedures to Staff on October 15, 2002. Please comment on this filing.

A. The filing on October 15, 2002 (Attachment 1 to this testimony) was made in compliance with Commission Decision No. 64180. This filing contained a brief description of the estimation procedures utilized when a first or final bill is estimated. Although this filing was consistent with Commission Decision No. 64180, it was not comprehensive and only

included procedures for the estimation of kWh. Any procedures related to first or final bill demand estimations were not included in this filing.

Q. As previously discussed, in Commission Decision No. 64180, APS and other members of the PSWG received a joint wavier from R14-2-210(A)(5)(b) and (c). Please explain the provisions of that decision.

A. This decision granted a waiver from the provisions in the rule which would prohibit a utility or billing entity from rendering an estimated bill if the bill would be the customer's first or final bill or the customer is a direct access customer requiring load data. A provision in the decision also required the utilities to file reports indicating the number of estimations, the reasons why a read could not be obtained, and the method used to estimate the read specifically for the two situations for which the waiver applied.

Q. When did APS file a more comprehensive list of estimation procedures?

A. On October 10, 2003, APS made a filing in compliance with Decision No. 64180 (Attachment 2 to this testimony.) This second filing was a further modification to APS' estimation procedures and included additional information not provided in APS' first filing. It included procedures used for estimations other than first or final bill along with demand estimation methodologies. This filing was made only twelve days before APS filed its application for a Declaratory Order with the Commission, which requested among other things approval of its estimation procedures. More specifically, Staff was not made aware of any changes to APS demand estimation methodologies until twelve days before the filing of APS' application for a Declaratory Order. In addition, the application for a Declaratory Order contained additional information that was not included in the company's October 10, 2003 filing.

Q. Does Staff believe that including its estimation procedures in a compliance filing constitutes an application for Commission or Staff approval of APS' estimation procedures?

A. No. It would be unusual for Staff to evaluate these types of filings in the same manner as an application for Commission approval. Staff's review of compliance filings focuses on whether those filings comply with the provisions of the relevant Commission order. If a company provides additional information in a compliance filing and provides no notice of its intentions regarding that additional information, it is not reasonable to expect Staff or the Commission to understand the company's intention. In other words, "slipping in" information in a compliance filing is not appropriate and does not constitute proper notice. Had APS intended to provide the Commission or Staff with its estimation procedures for review and approval it should have provided the Commission or Staff with appropriate notice. Typically, a utility would make a filing through Docket Control for initial approval of or a change to existing utility processes or procedures for which it required Commission approval. Often this type of filing is filed with the Commission as an application for approval of a tariff or an amendment to an existing tariff.

Q. Does the Commission's decision in the Ciccone complaint (Decision No. 59919) constitute Commission approval of APS' bill estimation procedures?

A. No. Decision No. 59919 contains no findings regarding bill estimation procedures, and APS' bill estimation procedures were not the subject of the Ciccone complaint. APS' bill estimation procedures are mentioned only in passing in Decision No. 59919.

Q. If the Commission were to determine that Rule 210(A)(5)(a) is in effect, has APS violated that rule?

A. Yes. The terms of that rule require utilities to obtain Commission approval of bill estimation procedures before issuing estimated bills. Staff has not been able to identify, and APS has not been able to provide, any Commission order that explicitly approves APS' current meter read estimation procedures.

Q. Does APS' current bill estimation method comply with R14-2-210A(2)?

A. Yes. R14-2-210A(2) provides that:

> "If the utility or Meter Reading Service Provider is unable to obtain an actual reading, the utility or billing entity may estimate the consumption for the billing period giving consideration to the following factors where applicable:
>
> a. The customer's usage during the same month of the previous year.
>
> b. The amount of usage during the preceding month."

Staff believes that this rule is addressing the estimation of kWh. The Arizona Administrative Code does not contain a definition of "consumption." However, Staff believes that the term "consumption" generally applies to kWh *not* kW when it is used in the electric utility industry. Staff understands that APS' bill estimation method does consider the customer's kWh consumption (i.e., "energy") from the same month in the prior year and from the preceding month. However, for customers with demand meters APS does not consider the customer's kW (i.e., "demand") from the same month in the prior year or from the preceding month. Another issue concerning the applicability of R14-2-210A(2) is whether the term "usage" means kWh, kW, or both. The Arizona Administrative Code does not contain a definition of "usage." However, Staff believes that the term "usage" generally applies to kWh *not* kW when it is used in the electric utility industry. Also, the Commission's decision in the Ciccone complaint (Decision No. 59919) defines the "usage portion" of a customer's consumption as kWh and the "demand

portion" as kW.[1] Staff is not aware of any other authoritative definition of the term "usage" as it pertains to the electric utility industry. Because of its general use in the industry and because of the language of the Ciccone Decision, Staff believes that the term "usage" as used in R14-2-210A(2) refers to kWh. Because APS' bill estimation method considers the customer's kWh consumption from the same month in the prior year and from the preceding month, it complies with R14-2-210A(2).

Q. Does APS' estimation method comply with its Tariffs?

A. No. The EC-1 and ECT-1R tariffs[2] provide that if an estimate of kW is necessary it will be set equal to the last month's kW read. APS has clearly not followed the demand estimation procedures laid out in tariffs EC-1 and ECT-1R. In his testimony, APS witness Rumolo essentially admits that APS was not (and is not) complying with its EC-1 and ECT-1R tariffs.[3] In fact, Mr. Rumolo testifies that APS has never complied with these tariffs since they became effective in 1983. Mr. Rumolo implies that the estimation procedure required by the EC-1 and ECT-1R tariffs is inferior to the estimation procedures APS actually has been using. Staff witness Perry L. Wheaton addresses the merits of various meter read estimation techniques in his testimony. However, regardless of the merits of the tariffed procedure, APS has an obligation to comply with the tariff *or* to file a revised tariff.

III. APPLICABLE REMEDIES

Q. The Read Complaint appears to recommend that *all* revenue collected by APS from estimated bills be returned to customers. Does Staff agree with this proposal?

[1] See Decision No. 59919 page 1 line 28 thru page 2 line 2.
[2] Tariff EC-1 has been in effect since 1983. Tariff ECT-1R has been in effect since 1989 and was a replacement for tariff ECT-1 which had been in effect since 1981. The language dealing with meter read estimations is identical in tariffs ECT-1R and ECT-1.
[3] Page 24 lines 16 and 17.

A. No. Section B. 3. of the Prayer for Relief of the Read Complaint recommends that "...all funds received by reason of estimated billings sent out without following the procedures for sending such bills..." should be returned to "other members of the class." Regardless of whether APS was estimating bills in accordance with Commission rules or tariffs, customers are not entitled to free electricity. In the Staff Report filed on December 28, 2004 and in the testimony of Staff witness Perry L. Wheaton, Staff recommends that the amount of any over billings resulting from demand estimation be returned to the applicable customers (with interest.) Customers are entitled to an accurate bill and any over billed amounts should be returned. However, APS' actions do not justify allowing customers to pay nothing for electricity they did in fact use.

Q. What specific violations of Commission rules, statutes or tariffs did Staff evaluate when determining whether to recommend a monetary fine in connection with the Read Complaint?

A. Staff considered APS failure to comply with R14-2-210(A)(5)(a), its failure to send bills on a monthly basis, and its failure to comply with its EC-1 and ECT-1R tariffs.

Q. Is Staff recommending a fine regarding rule 210?

A. No. Staff recognizes that there could have been some confusion regarding the applicability of R14-2-210(A)(5)(a) to APS. While the appropriate response to such confusion would have been to request clarification of the rule rather than simply assuming that it was not t applicable, Staff believes there is enough uncertainty regarding the applicability of the rule to dissuade us from recommending a fine. Staff notes that no Arizona electric utility has filed their estimation procedures with the Commission. This indicates that APS was not alone in its interpretation of R14-2-210(A)(5)(a).

Q. Regarding the tariff violations, is Staff recommending a monetary fine?

A. Yes. APS was clearly in violation of its EC-1 and ECT-1R tariffs. APS appears to have intentionally disregarded this tariff language for a period of years. Staff believes that a monetary fine for these violations is appropriate.

Q. Regarding the failure to send bills, is Staff recommending a monetary fine?

A. Yes. APS clearly failed to send bills to Ms. Read for five months. R14-2-210(A)(1) requires utilities to send bills on an (essentially) monthly basis. Staff believes that a monetary fine for these violations is appropriate.

Q. With respect to the tariff violations, are there any mitigating or aggravating circumstances that affect Staff's recommendation concerning a fine?

A. Staff believes there are mitigating circumstances. On pages 22 thru 28 of his testimony, APS witness Rumolo argues that the billing estimation methodology required by APS' EC-1 and ECT-1R tariffs is inferior to the methodology that APS actually used.[4] While Staff does not agree with that conclusion, Staff does acknowledge that the methodology APS actually used is not an unreasonable method for estimating meter reads . Staff has found no evidence that APS' actual methodology resulted in consistent over-billings. In fact, we have found the opposite: APS' method is more likely to result in under-billings than over-billings.[5]

However, regardless of the merits of a particular method, APS has an obligation to comply with its tariffs. If APS discovers that the provisions of a tariff are not optimal, the

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[4] Staff's analysis of these methodologies is discussed in the testimony of Perry L. Wheaton.

[5] See the testimony of Perry L. Wheaton

appropriate course of action is to file revisions of the tariff with the Commission. Simply acting as if the tariffs do not exist is inappropriate.

Q. With respect to APS' failure to send Ms. Read bills, are there any mitigating or aggravating circumstances that affect Staff's recommendation concerning a fine?

A. There are both mitigating and aggravating factors. The mitigating factor is the fact that APS was implementing a new CIS at the time the bills were being sent. Staff understands that the implementation of a new CIS is a difficult undertaking and that it can result in significant billing problems even if managed appropriately. Also, over $4,000 of Ms. Read's February 2000 bill was not associated with the five month period where Ms. Read received no bills. Thus, the burden of the $6,627.04 February bill is not entirely attributable to the five months when no bills were received. However, these mitigating factors are overshadowed by the aggravating factors of the poor customer service Ms. Read received from APS and the length of time over which that the billings problems persisted. As stated in the above introduction, Staff finds the customer service Ms. Read received to be inadequate. Also, as discussed above APS was aware of its billing problems in December of 1998, a full fourteen months prior to Ms. Read's February bill.

Q. Why is Staff recommending a fine?

A. Staff's chief concern in this case is compliance with the Commission's rules and tariffs. Staff cannot ignore non-compliance with Commission tariffs. Staff believes it is reasonable to expect that a utility will follow its own tariffs and file for revisions of those tariffs when necessary.[6]

[6] Staff notes that Utilities routinely file tariff revisions with the Commission, in a typical year the Commission receives upwards of 400 requests for tariff revisions.

Additionally, Staff feels that the failure to send bills is a serious issue and cannot be ignored. APS' failure to send bills to Ms. Read was not an isolated event. It resulted from problems regarding the implementation of a new billing system that lasted for at least fourteen months (December of 1998 thru February of 2000.)

Although Staff has identified certain mitigating factors in the preceding paragraphs, we do not believe that these factors are sufficient to mitigate against the imposition of a fine. However, if the company comes forward with credible evidence which would mitigate against the imposition of a fine, Staff stands ready to reconsider its recommendation.

Staff's recommendations (including those in this testimony and those in the testimony of Perry L. Wheaton and the December 28, 2004 Staff Report) are chiefly concerned with modifications to APS' policies and practices and verification of compliance through audit. In addition to the fine discussed below, Staff recommends that for the next five years a corporate officer of APS be required to submit verification to the Commission that APS is in compliance with its tariffs dealing with billing practices and with Commission rules dealing with billing practices.

Q. What fine is Staff recommending?

A. APS has been out of compliance with the meter estimation portion of its EC-1 and ECT-1R tariffs over twenty years. Thus, even if the minimum per occurrence fine amount of $100 was assessed for each occurrence of non-compliance (i.e., each estimated meter read applicable to those two tariffs over the past twenty-one years), the resulting fine would be unreasonably large. Staff believes a more appropriate method for determining a fine regarding non-compliance with EC-1 and ECT-1R would be to select a recent representative year and assess a per occurrence penalty based on the relevant estimated

meter reads in that year. Staff believes that basing the fine on the instances of non-compliance for the most recent year for which we have complete information is appropriate. 2003 is the most recent year for which we have complete information. In 2003 there were 9,530 meter read estimations for customers on EC-1 and ECT-1R. Given that APS' non-compliance with EC-1 and ECT-1R did not constitute an attempt to consistently over-bill its customers, Staff recommends that the minimum fine amount of $100 per occurrence be assessed for each of these 9,530 occurrences. This results in a fine of $953,000.

With respect to APS' failure to send bills to Ms. Read for five months, Staff believes that a fine of $4,000 per occurrence is appropriate. APS could have attempted to mitigate the impact on Ms. Read by providing clear notice to her explaining the situation or by offering her an extended payment plan. Since this was not done, Staff is recommending a maximum per occurrence fine of $4,000; this is four-fifths of the maximum allowable per-occurrence fine. Since Ms. Read did not receive five bills, this results in a fine of $20,000.

The two fine amounts listed above total $973,000. However, Staff recognizes that there are costs associated with complying with the recommendations in the testimony of Perry L. Wheaton and the Staff Report filed on December 28, 2004. In recognition of those costs Staff has adjusted its recommended fine amount down by $400,000. The total monetary fine that Staff recommends be assessed on APS is $573,000.

Q. Is the monetary fine discussed in the previous question the only action that Staff is recommending?

A. No. The monetary fine is in addition to the recommendations discussed in the testimony of Perry L. Wheaton and the Staff Report filed on December 28, 2004. Staff also recommends that APS provide subsequent verification of the costs associated with complying with the recommendations discussed in the testimony of Perry L. Wheaton and the Staff Report filed on December 28, 2004. Additionally, Staff recommends that for the next five years a corporate officer of APS be required to submit verification to the Commission that APS is in compliance with its tariffs dealing with billing practices and with Commission rules dealing with billing practices.

Q. Should Staff's recommended monetary fines or the costs of complying with Staff's other recommendations be considered for recovery in any subsequent rate case?

A. No.

Q. Does this conclude your testimony?

A. Yes.

APPENDIX: APS' REQUEST FOR CLARIFICATION ON TEN "SITUATIONS"

Q. What are the 10 situations raised in both the declaratory order and Mr. Rumolo's testimony that deal with circumstances that may or may not constitute bill estimation?

A. Mr. Rumolo describes the ten situations as follows:

Situation 1 – Characterization of the first bill after a billing period for which consumption was estimated.

Situation 2 – Characterization of a bill if rates change in the middle of a billing cycle.

Situation 3 – Characterization of a bill issued prior to obtaining a valid meter reading, which bill is later adjusted after a valid read is obtained.

Situation 4 – Total meter failure or malfunction resulting in no available reliable information.

Situation 5 – Meter failure or malfunction but some data is available.

Situation 6 – Meter reading is not available using electronic meter reading information but data is obtained from visual meter reading.

Situation 7 – Meter reading information is not available because the service is provided on an un-metered basis such as street lighting service.

Situation 8 – Unbundled service for direct access customers is provided on the basis of load profiles rather than using interval data metering.

Situation 9 – Meter tampering results in lack of metered consumption information.

Situation 10 – An electronic meter reading is obtained but the data cannot be transferred to a billing computer.

Q. What is the significance of these ten situations?

A. APS has asked for a determination as to whether each of these ten situations constitutes an estimated bill. APS has asked for this determination in both its request for a declaratory order and in Mr. Rumolo's testimony. Mr. Rumolo claims at Page 8 lines 5 thru 8 of his testimony that Situation One has some special relevance to the Read Complaint. Staff does not agree that APS' characterization of Situation One is especially relevant to the Read Complaint. Whether the bill described in Situation One is considered to be estimated or not would have had little bearing on Ms. Read's situation.

Q. What are the implications of determining whether a bill is estimated or not?

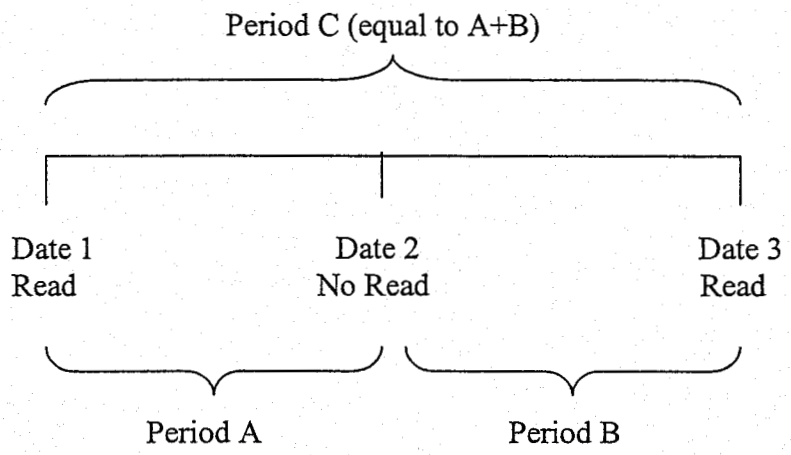
A. A.A.C. R14-2-210 (Rule 210) describes specific provisions related to estimated bills. Should a bill be determined to be estimated, issuance of the bill would be subject to specific provisions of Rule 210.

Q. Does the Arizona Administrative Code include a definition of an estimated bill?

A. No.

Q. Please describe the 10 situations identified by APS and discuss Staff's evaluation of these situations?

A. *Situation 1 – Characterization of the first bill after a billing period for which consumption was estimated.*



Referring to the graphic above, if a read is obtained at Date 1 and a read is not obtained at Date 2, an estimated bill will be issued for Period A. Later when a Read is obtained at Date 3, total kWh used between Dates 1 and 3 will be known. This total known usage between Dates 1 and 3 is represented by Period C above the timeline. At the time of Date 3, it will be necessary to issue a bill for Period B. As the total usage in Period C will be known at that time and an estimated bill will have been issued for Period A at that time, it will be appropriate to issue a bill for the mathematical difference between Period C and Period A. In fact, it will be necessary to calculate the bill for Period B as the difference between Period C and A because the meter reading at the beginning of Period B was unknown and consequently usage in the month in which Period B falls is unknown.

The question posed in Situation 1 is whether a bill issued based on the Date 3 read should be considered an estimated bill or not. APS suggests that such a bill is not an estimated bill. Staff agrees with this conclusion. Bills based on the Date 3 read reflect actual usage. They include actual usage from Period B and a 'true up' of estimated to actual for Period A. However, the number of billing days that the charge on the bill represents is unknown because an estimated bill was issued for Period A. Bills issued based on the Date 3 read

represent known usage over an unknown period of billing days. Because the usage contained in Date 3 bills is not estimated, Staff concludes that the bills are not estimations.

It remains, however, that there is some uncertainty associated with these bills related to the time period for which they apply. A.A.C. R14-2-210(B)(2) requires that each residential bill contain among other things: the beginning and ending meter readings of the billing period, the dates thereof, and the number of days in the billing period. These requirements create an obligation for APS to inform customers of the nature of these bills. Staff recommends that when issuing bills described in Situation 1, APS include notice on the bills that explains that they are true up bills that reconcile previously estimated bills with subsequent bills and may not reflect the usage for the month for which they are issued. Staff recommends that APS be ordered to work with Staff to develop appropriate language for such an explanation.

Situation 2 – Characterization of a bill if rates change in the middle of a billing cycle. In this situation the portions of the total billing period's usage that are assigned to either the previous rate or the new rate are determined by assuming equal consumption in each of the billing days and assigning consumption to the old and new rates proportionally to the number of days in the billing cycle that fell before or after implementation of the new rate.

APS suggests that should this methodology be used when rate changes occur, the bill should not be considered an estimated bill. Staff agrees that bills issued using such a methodology should not be considered estimations for purposes of Rule 210. These bills are based on actual meter reads. Also, R14-2-210(A)(1) requires that meter readings shall be scheduled for periods of not less than 25 days or more than 35 days without customer authorization. Should APS endeavor to read each meter within a billing cycle in which a

rate change occurs in order to establish the proportion of monthly usage that occurs before and after the rate change, it would be incumbent on APS to first secure customer authorization for such interim reads. An additional barrier would be the need to read every customer's meter on the day of the implementation of the rate change. As a process involving additional interim reads is operationally infeasible, and the Commission has never instructed a utility to do so to the best of Staff's knowledge, Staff suggests that bills issued as described in Situation 2 not be considered estimations for purposes of Rule 210.

Situation 3 – Characterization of a bill issued prior to obtaining a valid meter reading, which bill is later adjusted after a valid read is obtained. Bills may be issued in order to meet requirements that bills be issued within a 25 to 35 day billing window as described previously. These bills are issued when no read is available due to various conditions and a bill must be sent to satisfy the prescribed billing window. APS suggests that such bills are estimations and that a subsequent bill based on a known read is considered a corrected bill rather than an estimated bill.

Staff agrees that the first bill described is an estimated bill, as it is not based on known consumption. Staff agrees that the subsequent bill is a corrected bill or "true up" bill rather than an estimated bill provided that it is based on actual consumption.

Situation 4 – Total meter failure or malfunction resulting in no available reliable information. Situation 4 describes bills issued when a meter fails. APS suggests that when meters fail it is necessary to issue an estimated bill. Staff agrees with APS that such a situation requires estimation, as a true read cannot be taken.

Situation 5 – Meter failure or malfunction but some data is available. Situation 5 describes a meter malfunction in which the extent of meter reading error that results from the malfunction can be known precisely. For example, if one leg of a three-phase meter fails, one knows that usage is under-recorded by exactly one third. APS suggests that such a bill is not an estimated bill. Staff agrees that such bills are not estimated, as APS can be certain of the usage in these situations. Staff recommends that bills issued as described in Situation 5 are not estimated bills.

Situation 6 – Meter reading is not available using electronic meter reading information but data is obtained from visual meter reading. Situation 6 describes a bill issued based on a visual read of a meter when an electronic probe of such a meter has failed. APS suggests that such a bill is not estimated. Staff agrees that such a bill is not an estimate as the read is determined visually.

Situation 7 – Meter reading information is not available because the service is provided on an un-metered basis such as street lighting service. Situation 7 describes bills that are issued based on tariffs that call for unmetered usage. Bills for private lighting or street lighting, for instance, are set tariff rates that prescribe set monthly billing amounts that do not depend on metered usage. APS suggests that such bills are not estimated bills. Staff agrees that such bills are not estimated bills. Staff finds that bills issued under such an arrangement are bills based on a tariffed monthly fee rather than estimated bills. While the tariffs themselves are based on an estimation, or anticipation, of a given appliance's future usage, the bills issued by APS in situation 7 reflect APS' implementation of a tariff that prescribes a set charge. When these bills are issued, APS does not estimate the appliance's consumption.

Situation 8 – Unbundled service for direct access customers is provided on the basis of load profiles rather than using interval data metering. Situation 8 describes bills that might be sent by APS to Electric Service Providers for billing of transmission and settlement of generation costs associated with provision of electricity to direct access customers. In this situation class load profiles have been used to allocate generation and transmission costs to specific days as direct access customers under 20 kW are not required to have interval meters capable of providing load profile information. APS concludes that as the transaction between APS and the ESP is FERC regulated, bills issued as described in Situation 8 are not estimated bills. Since such transactions are wholesale transactions between utilities, Staff concludes that bills issued by APS to ESPs are not estimations for purposes of Rule 210.

Situation 9 – Meter tampering results in lack of metered consumption information. Situation 9 describes issuance of a bill when a meter has been tampered with. APS suggests that a bill issued under such circumstances is an estimated bill. Staff agrees that such a bill is estimated as the usage during the billing period is not known and estimation of usage is required.

Situation 10 – An electronic meter reading is obtained but the data cannot be transferred to a billing computer. Situation 10 describes an event where the APS billing computer cannot properly download billing data in spite of an accurate electronic read having been taken by a meter reader with a hand held computer. APS suggests that such a situation requires issuance of an estimated bill. Staff agrees that should the APS billing computer not be able to access usage data, it would be necessary to issue an estimated bill.

Q. Please provide a brief summary of Staff's recommendations regarding these 10 situations.

1. Staff recommends that when issuing bills described in Situation 1, APS identify the bills as true up bills and provide an explanation on such bills that indicates the nature of the bills. Staff recommends that APS be ordered to work with Staff to develop such an explanation. Bills issued as described in Situation 1 are true up bills rather than estimated bills.

2. Bills issued as described in Situation 2 should not be considered estimations for purposes of Rule 210.

3. Bills issued as described in Situation 3 are in the first instance an estimated bill and in the second instance a corrected bill rather than an estimated bill.

4. Bills issued as described in Situation 4 are estimated bills.

5. Bills issued as described in Situation 5 are not estimated bills.

6. Bills issued as described in Situation 6 are not estimated bills.

7. Bills issued as described in Situation 7 are not estimated bills.

8. Bills issued as described in Situation 8 are not estimated bills for purposes of Rule 210.

9. Bills issued as described in Situation 9 are estimated bills.

10. Bills issued as described in Situation 10 are estimated bills.

Q. Does this conclude the Appendix to your testimony?

A. Yes.

ATTACHMENT 1

APS
A subsidiary of Pinnacle West Capital Corporation

Name Jana Van Ness
Title Manager, Regulatory Compliance
Department Regulatory Compliance

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Mail Station 9905
PO Box 53933
Phoenix, Arizona 85072-3933

October 15th, 2002

Mr. Ernest Johnson
Director, Utilities Division
Arizona Corporation Commission
1200 West Washington
Phoenix, Arizona 85007

RE: Semi-annual Compliance Filing Pursuant to Decision No. 64180
Docket No. E-00000A-00-0403

Dear Mr. Johnson:

Pursuant to the above referenced decision, attached is Arizona Public Service Company's semi-annual filing regarding estimated initial and final bills.

In preparing this report, APS determined many of the initial and final bills estimated by the company for the period January 1, 2002 – June 30, 2002 were caused by the very reasons Staff mentions in section 7, lines 21 – 24. Additionally, APS experiences estimated initial and final reads caused by the timing of new meters sets as well as servicemen read errors. These are identified on the attached report. As a result of analysis performed for the preparation of this report, APS has implemented some process changes. As you'll see, these changes have resulted in lowering our number of estimated reads. These reductions are reflected in the later months covered by this filing.

Also pursuant to Decision 64180, section 13, line 26-27, APS is including the methodology used to estimate meter reads. Unless this methodology is changed in the future, subsequent filings will only include the report indicating the numbers of customers receiving estimated initial or final bills and the reason why the read was estimated.

If you or your staff have any questions, please feel free to call me.

Sincerely,

Jana Van Ness/vld

Jana Van Ness
Manager
Regulatory Compliance

Attachments

JVN/vld

Cc: Patrick Williams
Manager, Compliance and Enforcement

ARIZONA CORPORATION COMMISSION
RECEIVED
OCT 15 2002
Director of Utilities

ARIZONA PUBLIC SERVICE COMPANY
Semi-annual Compliance Filing Pursuant to Decision No. 64180
Docket No. E-00000A-00-0403
Estimated Initial and Final Reads for the Period
January 1, 2002 – June 30, 2002

Definition of Categories

Meter Issues – Meters where, at the time APS went to connect or disconnect the service, the serviceman was unable to obtain a read because of a condition on the meter. This includes, a blank display, or the meter already being removed, or a damaged meter.

Access – Meters which were inaccesible to APS personnel at the time of the disconnect or at the time of the first read following the connection of service to the customer.

New Install – New meter sets which were not in the APS meter reading system at the time the route was read.

Read Error – Meter reads obtained by the serviceman at the time of the connect or disconnect which are out of line with previous reads.

ARIZONA PUBLIC SERVICE COMPANY
Semi-annual Compliance Filing Pursuant to Decision No. 64180
Docket No. E-00000A-00-0403
Estimated Initial and Final Reads for the Period
January 1, 2002 – June 30, 2002

JANUARY 2002	Initial Bills	Final Bills
Meter Issues	68	80
Access	142	5
New Install	401	5
Read Error	207	393
JANUARY TOTALS	818	483
FEBRUARY 2002		
Meter Issues	53	95
Access	110	5
New Install	327	1
Read Error	151	443
FEBRUARY TOTALS	641	544
MARCH 2002		
Meter Issues	46	104
Access	248	2
New Install	353	0
Read Error	154	475
MARCH TOTALS	801	581
APRIL 2002		
Meter Issues	55	120
Access	189	1
New Install	274	5
Read Error	140	733
APRIL TOTALS	658	859
MAY 2002		
Meter Issues	62	127
Access	166	6
New Install	244	0
Read Error	122	542
MAY TOTALS	594	675
JUNE 2002		
Meter Issues	14	143
Access	145	4
New Install	122	1
Read Error	146	259
JUNE TOTALS	427	407
PERIOD TOTALS	3939	3549

ARIZONA PUBLIC SERVICE COMPANY
Semi-annual Compliance Filing Pursuant to Decision No. 64180
Docket No. E-00000A-00-0403
Estimating Methodology

APS uses various methods for estimating a read for an initial or final bill. The circumstances that created the need for APS to estimate dictate which of the methods we may use.

Initial Bill Estimate – New Meter Set

These are created when a new meter is set and by the time the meter is assigned to a route, the route is already out in the field to be read for the current month. When this occurs, APS' billing system flags these as an exception and the account is routed to a Billing Associate. If the number of days between the meter set and read date is less than 10 days, the Billing Associate estimates the read at zero. The customer's first bill would only be a prorated basic service charge. If the number of days is more than 10 days, the Billing Associate will estimate a read using 20 kWh per day times the number of days.

Initial Bill Estimate – Existing Meter

The majority of these are created by access problems. Since there is history available for the site, the Billing Associate will consider the previous month and the same month a year ago. From this they will calculate a per day usage. They will multiply the per day usage by the number of days for the new customer's bill to arrive at an estimated read. If the account is time-of-use, the Billing Associate uses a split of 40% on-peak and 60% off-peak.

Final Bill Estimate

Depending on the circumstances creating the need to estimate, Billing Associates could use any of the methods below to estimate a final bill read.

1. Consider the previous month and the same month a year ago. From this they will calculate a per day usage. They will multiply the per day usage by the number of days for the new customer's bill to arrive at an estimated read. If the account is time-of-use, the Billing Associate uses a split of 40% on-peak and 60% off-peak .

2. Utilize a system estimating program that calculates estimated usage using either of the two methods below:
   The Base load methodology estimates kWh as follows:
   1. If a winter month is billing add the kWh for most recent 6 winter months; if summer add the most recent 6 summer months to come up with Total kWh.
   2. Add the number of days in the same six-month period being used for your base load to come up with Total Days.
   3. Multiply the Total kWh for the summer or winter period by 30.
   4. Divide previous calculation by Total Days for summer or winter period.
   5. Multiply the previous calculation by the number of days in the current month billing period
   6. Divide the previous calculation by 30.

   For example, if the billing month is May it is a summer month. Add the kWh for the 6 summer months of the previous year since these are the most recent. Assume they are:

   May (This period) number of days = 32 days

   May (previous year) 995 – 30 days
   June 1532 - 29 days
   July 1796 - 31 days

August 2098 - 29 days
September 1919 – 31 days
October 1629 – 28 days

Total kWh = 9969
Total days = 178
9969 * 30 = 299070
299070 / 178 = 1680
1680 * 32 = 53760
53760 / 30 = 1792

Estimated consumption for May would be 1792 kWh.

If baseload information is not available, the system could then use the Previous Month's Usage Methodology that calculates estimated usage using the kWh from the previous month. Previous month's usage is calculated as follows:

1. Multiply the usage from the previous month times 30
2. Divide the calculation above by the actual number of days in the previous month
3. Multiply the previous calculation by the number of days in the current month billing period
4. Divide the previous calculation by 30.

For example, if the billing month is January, you are in a winter month.

December usage = 2369
December number of days = 27
January number of days = 32

2369 * 30 = 71070
71070 / 27 = 2632
2632 * 32 = 84224
84224 / 30 = 2807

January estimate usage would be 2807 kWh.

3. Obtain a read after the final bill read date. Determine the difference between the last read prior to the estimated final read and the new read and calculate per day usage. Multiply this per day usage by the number of days for the final bill.

ATTACHMENT 2

Jana Van Ness
Manager
Regulatory Compliance

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October 10, 2003

Mr. Ernest Johnson
Director, Utilities Division
Arizona Corporation Commission
1200 West Washington
Phoenix, Arizona 85007

OCT 10 2003

RE: Semi-Annual Compliance Filing Pursuant to Decision No. 64180
Waiver of PSWG First and Final Bill Estimates
Docket No. E-00000A-00-0403

Dear Mr. Johnson:

Pursuant to the above referenced decision, Arizona Public Service Company ("APS" or "Company") made Semi-Annual filings regarding estimated initial and final bills on October 15, 2002 and April 15, 2003. As part of the Company's ongoing efforts to monitor compliance with Arizona Corporation Commission ("Commission") orders and regulations, we have determined that the October and April filings omitted a description of APS' procedures for estimating customer demand (kW) for those APS customers having demand metering. We have also clarified and expanded upon our description of the Company's kWh estimation process. Attached please find a complete description of the Company's estimation procedures.

Please note that although Decision No. 64180 required APS to submit its estimation procedures for "first and final" billing estimates, these are, in fact, the estimation procedures generally used by the Company since 1998 in all instances in which bill estimation is required or authorized. It is also consistent with the estimation methodology approved by the Utilities Director on July 3, 2001 for interval (direct access) metering pursuant to A.A.C. R14-2-1613 1612(L) (14) and A.A.C. R14-2-210 (A) (5).

If you or your staff have any questions or concerns concerning the Company's prior or current use of these estimation procedures, please feel free to call me.

Sincerely,

Jana Van Ness
Manager
Regulatory Compliance

Attachment

JVN/srm

Cc: Manager, Compliance and Enforcement
Docket Control (Original, plus 13 copies)

ARIZONA PUBLIC SERVICE COMPANY
Semi-annual Compliance Filing Pursuant to Decision No. 64180
Docket No. E-00000A-00-0403
Estimating Methodology

APS uses the below-described methods for estimating a read for an initial, final or any other active monthly bill where APS is not able to obtain a complete and/or valid meter read. In such instances, the Company's Billing Associates use the methods below to estimate a billing read. They can either manually calculate the estimate or utilize a computerized system estimating program, both of which are based on similar sets of assumptions.

ESTIMATING kWh:

Initial and/or Active Monthly Bill Estimate – New Meter Set, No History

These are created when a new meter is set but when the meter is assigned to a route, the route has already gone to the field to be read for the current month. When this occurs, APS' billing system flags these as exceptions and the accounts are routed to a Billing Associate. If the number of days between the meter set and read date is less than 10, the Billing Associate estimates the read at zero. The customer's first bill is only a prorated basic service charge. If the number of days is greater than 10, the Billing Associate will estimate a read using 20 kWh per day times the number of days.

Initial, Final and/or Active Monthly Bill Estimate – Existing Meter, History

The majority of these are created by access problems. Since there may be history available for the site, the Billing Associate will estimate the read by considering and using the following methodologies for estimating base load (if sufficient history exists). The Billing Associate will also review actual data from the customer's previous billing month, and also the same month a year ago if either insufficient history exists to determine base usage or the estimation of base usage appears unusually high compared to either the last month or same month, last year consumption.

A. Base Load Methodology:

1. If a winter month is being estimated, add the kWh for most recent 6 winter months; if summer, add the most recent 6 summer months to come up with Total kWh.

Months:	Residential	Commercial
Winter	November-April	November-May
Summer	May-October	June-October

2. Add the number of days in the same six-month period being used for your base load to come up with Total Days.
3. Multiply the Total kWh for the summer or winter period by 30.
4. Divide previous calculation by Total Days for summer or winter period.
5. Multiply the previous calculation by the number of days in the current month billing period
6. Divide the previous calculation by 30.

For example, if the billing month is May, it is a summer month. Add the kWh for the 6 summer months of the previous year since these are the most recent. Assume they are:

May (This period) number of days = 32 days

May (previous year) 995 – 30 days

June 1532 -	29 days
July 1796 -	31 days
August 2098 -	29 days
September 1919 –	31 days
October 1629 –	28 days

Total kWh = 9969
Total days = 178
9969 * 30 = 299070
299070 / 178 = 1680
1680 * 32 = 53760
53760 / 30 = 1792

Estimated consumption for May would be 1792 kWh.

B. Previous Month's Usage Methodology:

Calculates estimated per day usage using the kWh from the previous month.

1. Multiply the usage from the previous month times 30.
2. Divide the calculation above by the actual number of days in the previous month
3. Multiply the previous calculation by the number of days in the current month billing period
4. Divide the previous calculation by 30

For example, January is a winter month and would be estimated as follows:

December usage = 2369
December number of days = 27
January number of days = 32

2369 * 30 = 71070
71070 / 27 = 2632
2632 * 32 = 84224
84224 / 30 = 2807

January estimate usage would be 2807 kWh.

C. Same Month a Year Ago Methodology:

This is calculated similar to the Previous Month's Usage Methodology, however, usage from the Same Month a Year Ago is used. If the account was not on a Time-Of-Use service plan a year ago, but is currently, the Billing Associate uses a split of 40% on-peak and 60% off-peak in the summer and 30% on-peak and 70% off-peak during the winter months.

D. Estimating Based on Actual Reads

The Associates are also able to estimate a read for Final and Active Monthly Bills by using actual reads and determining the difference. The difference between the last actual read, prior to the estimated read, and the new actual read are used to calculate the per day usage. Multiply the per day usage by the number of days for the bill.

For example:

May 15 is actual read of 19886
June 16 is an estimated read for 32 days (May 15 to June 16)
July 14 is an actual read of 23201 for 28 days (June 16 to July 14)

Total number of days: 28 + 32 = 60
Total Usage: 23201 – 19886 = 3315
Per day usage: 3315 ÷ 60 = 55.25
Prorated June usage: 32 x 55.25 = 1768
Prorated June read: 19886 + 1768 = 21654

ESTIMATING kW:

Initial, Final and/or Active Monthly Bill - Estimating Demand (kW):
The APS Billing System will estimate demand reads. The calculation for estimating the demand is as follows:

A. Residential Time-Of-Use Demand Service Plan with a Time-Of-Use Meter:

1. Calculate the estimated on-peak kWh using the appropriate kWh estimating methodology
2. Multiply 13 by the number of days in the billing period (13 represents the on-peak hours)
3. Divide the estimated on-peak kWh by the previous calculation
4. Divide the previous calculation by 35%[1] (this represents the average residential load factor)
5. Add 0.05 to the previous calculation (this is for rounding purposes)

[1] This was changed from 50% for residential time-of-use and from 45% for residential non-time-of-use on August 24, 2002.

Assuming on-peak estimated kWh of 842, if the system were estimating a demand kW read for this service the calculation would be:

1. 13 * 32 = 416
2. 842 / 416 = 2.02
3. 2.02 / 35% = 5.77
4. 5.77 + .05 = 5.82

The estimated demand for the service would be 5.82.

B. Residential Non-Time-Of-Use Service Plan:

1. Calculate the estimated kWh using the appropriate kWh estimating methodology
2. Multiply 24 hours by the number of days in the billing period
3. Divide the estimated kWh by the previous calculation
4. Divide the previous calculation by 35%[1] (this represents the average residential load factor)
5. Add 0.05 to the previous calculation (this is for rounding purposes)

[1]This was changed from 50% for residential time-of-use and from 45% for residential non-time-of-use on August 24, 2002.

C. Non-Residential:

All non-residential services that can be estimated are calculated the same as above, except the load factor percentage is 50%[2].

[2] This was changed from 60% on August 24, 2002

Correcting an Estimated Demand (kW):

The APS Billing Program will produce an exception bill when, after having an estimated demand read, we obtain an actual demand read which is lower than the estimated demand read.

For example:

May is actual read and reset of demand - actual demand is 6.4
June is estimated - estimated demand is 7.3
July is actual read and reset of demand - actual demand is 6.9

The July bill will produce a billing exception because the actual demand is less then the estimated demand. The Billing Associate will work the exception, and using their billing expertise, lower the June demand to something equal to, or less than 6.9.

EXHIBIT
S-9
Admitted

BEFORE THE ARIZONA CORPORATION COMMISSION

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AZ CORP COMMISSION
DOCUMENT CONTROL

JEFF HATCH-MILLER
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Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

AVIS READ, individually, and behalf of all others similarly situated, Complainant, v. ARIZONA PUBLIC SERVICE COMPANY, Respondent.	DOCKET NO. E-01345A-04-0657
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A DECLARATORY ORDER REGARDING BILL ESTIMATION PROCEDURES.	DOCKET NO. E-01345A-03-0775 NOTICE OF FILING PROPOSED SETTLEMENT

Commission Staff hereby gives notice of filing a proposed settlement of all parties to Docket Nos. E-01345A-04-0657 and E-01345A-03-0775.

RESPECTFULLY SUBMITTED this 25th day of February 2005.

Janet F. Wagner
Jason D. Gellman
Diane Targovnik
Attorneys, Legal Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007
(602) 542-3402

The original and fifteen (15) copies of the foregoing were filed this 25th day of February 2005 with:

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Copies of the foregoing were mailed/hand-delivered this 25th day of February 2005 to:

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Viola R. Kizis

Viola R. Kizis, secretary to
Janet Wagner

PROPOSED SETTLEMENT AGREEMENT

Arizona Public Service Company ("APS" or "the Company"), the Estate of the late Mrs. Avis Read ("Read"), and the Arizona Corporation Commission Staff ("Staff") (collectively, "the Parties") hereby propose settlement of the following matters currently pending before the Arizona Corporation Commission ("Commission"): APS' Application for a Declaratory Order, Docket No. E-01345A-03-0775; Read's Formal Complaint, Docket No. E-01345A-04-0657 (including any matters raised in the related Superior Court case previously brought by Mrs. Read); and Staff's Inquiry into APS' Usage Estimation, Meter Reading, and Billing Practices. These matters shall be collectively referred to as the "Bill Estimation Matter." The following numbered paragraphs are intended to resolve all issues associated with the Bill Estimation Matter.

RECITALS

1. The purpose of this Agreement is to settle all issues presented by the Bill Estimation Matter in a manner that will promote the public interest. The Parties agree that the terms of this Agreement will serve the public interest by providing a just and reasonable resolution of the issues presented by the Bill Estimation Matter.

2. The Parties agree that the negotiation process undertaken in this matter was open to all Parties and provided all Parties with an equal opportunity to participate. All Parties were notified of the settlement process and encouraged to participate.

3. APS acknowledges the concerns raised by Staff regarding APS' failure to implement the demand estimation procedures set forth in Rate Schedules EC-1 and ECT-1R, notwithstanding APS' contention that these tariffs were implemented up until the time that APS implemented its 1998 customer information system. APS expresses its regret over its failure to properly implement these tariffs and states its intention to fully implement all Commission-approved tariffs in the future.

4. APS acknowledges the concerns raised by Staff regarding APS' failure to send Mrs. Read a monthly bill from September 1999 to January 2000 with respect to Mrs. Read's non-demand account, notwithstanding APS' contention that its failure to bill Mrs. Read was the result of complications associated with the implementation of its customer information system. APS expresses its regret over its failure to send Mrs. Read timely bills during those months and states its intention to use all reasonable efforts to provide monthly bills to all customers in the future.

5. APS acknowledges that there were instances when it did not obtain access to Mrs. Read's meter and that Staff has concerns about whether APS made all reasonable efforts to resolve those access issues, notwithstanding APS' contention that it could not obtain access to the meter. APS acknowledges that it could have done more to obtain

access to Mrs. Read's meter and states its intention to work to decrease the number of "no access" meters in the future.

I. ESTIMATION ISSUES

6. The Parties agree that APS did not implement the demand estimation methodology contained in Rate Schedules EC-1 and ECT-1R when it designed its bill estimation procedures for its customer information system. The demand estimation methodology set forth in those schedules provides for the use of customer specific kW from the last actual read in order to estimate a customer's demand.

7. From April 1999 to the present, APS has used class average load factors to estimate demand in most instances. The Parties agree that this estimation method tends to result in a net underestimation of kW. The Parties also agree that the use of this estimation method resulted in a greater overall net underbilling for customers subscribing to Rate Schedules EC-1 and ECT-1R than would have resulted had APS implemented the estimation methodology set forth in those schedules. The Parties agree that APS' class average load factor method is less accurate than the tariffed method. Specifically, for the statistical samples of customers with known kW considered in this proceeding, the use of the tariffed method to estimate kW resulted in a greater central tendency toward the known kW of the sample groups than the use of APS' class average load factor method.

8. APS' use of class average load factors to estimate demand is consistent with the requirements of A.A.C. R14-2-210 but inconsistent with the provisions of Rate Schedules EC-1 and ECT-1R.

9. APS' methods for estimating Mrs. Read's kW and kWh resulted in underestimation, which in turn resulted in underbills.

10. APS acknowledges that it has an independent obligation to implement its Commission-approved tariffs.

11. The Parties agree that the use of customer specific kW from the prior month is the most accurate method for estimating demand of those methods analyzed in this proceeding, by which the Parties mean that, for the statistical samples of customers with known kW considered in this proceeding, the use of customer specific kW from the prior month to estimate kW resulted in a greater central tendency toward the known kW of the sample groups than the use of any of the other estimation methods considered in this proceeding, including APS' class average load factor method.

12. When the appropriate data is available, APS shall use customer specific kW from the prior month to estimate demand for all of its demand tariffs.

13. Customer-specific kW from the prior month will not be available if the prior month's bill was an initial bill or an estimated bill.

14. For initial bills covering a period of fewer than eleven days, APS will not bill demand. The customer's bill will consist of a prorated basic service charge, and kWh will be trued up in the subsequent bill. For initial bills covering a period of eleven or more days, demand will be estimated using actual premises history from the prior month. If no demand exists for the prior month or if the prior month's demand was estimated, APS will estimate demand using the actual kW reading from the same month of the prior year at the same premises. If it is determined that the general characteristics of the previous customer vary significantly from those of the current customer or if there is no kW history for the premises, APS will estimate kW by first estimating kWh and then applying a class average load factor to estimate kW. Any initial bills issued in any of the circumstances described in this paragraph shall contain a clear description of the charges depicted in the bill. APS shall collaborate with Staff to develop appropriate language for each of these circumstances.

15. If the prior month's customer-specific kW is not available, APS will use the customer's kW from the same month of the prior year as the basis for the estimated demand reading. If this customer-specific historical information is not available, APS will estimate kW based upon premises-specific history, using the actual kW reading from the last month at the same premises. If this information is not available, APS shall use the actual kW reading from the same month of the prior year at the same premises. If none of the above customer-specific or premises-specific information is available, APS will estimate kW by first estimating kWh and then applying a class average load factor to estimate kW.

16. APS shall implement the demand estimation methodology set forth in Paragraphs 12-15 of this Agreement within seven months of the Commission's final approval of APS' bill estimation tariff. APS may use its existing bill estimation procedures until APS has completed the implementation required by Paragraphs 12-15, and bills issued before such implementation will not be invalidated for being based upon APS' bill estimation procedures as they exist as of the date of this Agreement, except as set forth in Paragraphs 19 through 21. Nothing in this Agreement shall be construed as eliminating APS' duty to properly, accurately, and consistently apply any specific bill estimation procedure.

17. APS shall conduct a study to determine the impact of reclassifying May as a non-summer month for purposes of kWh estimation. By December 30, 2005, APS shall file a report with the Commission that describes the results of this study and that discusses whether revisions to APS' bill estimation procedures are desirable.

18. APS shall not be required to recalculate demand estimations that are based upon class average load factors and that occurred between April 1999 and the effective date of the new kW demand estimation procedures specified in Paragraphs 12-15. Demands estimated pursuant to APS' existing or prior class average load factor estimation methodology shall not be subject to subsequent adjustment for being based upon this methodology, except as specified in Paragraphs 19 through 21. Nothing in this

Agreement shall be construed as eliminating APS' duty to properly, accurately, and consistently apply any specific bill estimation procedure.

19. APS acknowledges that, due to implementation problems associated with its customer information system, some of its demand estimates were higher than the subsequent reads. APS shall credit all customers who, between September 1, 1998 and October 1, 2003, had an actual demand reading that was lower than the immediately preceding estimate. An estimate of these credits is set forth in Exhibit A. Credits shall include interest at the established one year Treasury Constant Maturities rate, effective on the first business day of each year, as published on the Federal Reserve Website. Credits for general service customers shall be adjusted to prevent double credits for the same adjustment and to reflect ratchet demands and contract demands. APS' calculations of these credits shall be reviewed in the audit required by Paragraph 39 and, if the Commission determines that the audit referred to in Paragraph 41 is necessary, in the audit contemplated by that paragraph. Within thirty days after the conclusion of APS' implementation of Paragraphs 19 through 21, APS shall file a report with the Commission that accounts for the credits issued pursuant to this Agreement.

20. APS shall make reasonable efforts to locate all customers who have left its system and who are entitled to credits greater than or equal to $5.00 pursuant to Paragraph 19. APS shall confer with Staff in order to determine the specific efforts that APS will undertake to locate these customers. In order to be eligible for a credit, a customer who has left APS' system must contact APS within 180 days after the conclusion of APS' location efforts undertaken pursuant to this paragraph. If a customer who is entitled to a credit greater than or equal to $5.00 cannot be located, APS shall add the amount of the credit to the expenditures required by Paragraphs 22 through 24.

21. APS shall not be required to locate customers who have left its system and who are entitled, pursuant to Paragraph 19, to credits under $5.00. Such credits shall be added to the amount of expenditures required by Paragraphs 22 through 24.

22. APS shall design a cost effective Access Improvement Program to achieve a reduction in the number of instances of kW and kWh estimation due to "no access" issues. Unless otherwise ordered by the Commission, the Program shall apply solely to specific remedies, such as moving meters or installing appropriate meter-reading technologies, for customer premises where access to the meter is a recurring problem. Meter reading technologies applied in these circumstances shall include, but shall not be limited to, remote ports or similar devices, advanced metering systems, and enhanced radio technology. Expenditures made pursuant to this Program shall have a direct, measurable effect upon APS' ability to obtain access to premises where access is a recurring problem.

23. APS shall expend $600,000 on the program described in Paragraph 22, and these expenditures must be separate from any ongoing or anticipated expenditures. The $600,000 may be increased pursuant to Paragraphs 20 and 21. Expenditures

associated with this Program shall be limited to implementing the measures set forth in Paragraph 22.

24. APS shall submit the details of its proposed Access Improvement Program to the Commission for approval within sixty days of the Commission's decision in this case. After Commission review and approval, APS shall implement the Program over the next six months. No later than fifteen months after the conclusion of the Program's implementation, APS shall file a report with the Commission that addresses the impact of the Program and that details and verifies the Program's expenditures. APS' report shall contain, among other things, a comparison of the number of estimated bills per thousand bills issued during the twelve months following the Program's implementation to the number of estimated bills per thousand bills issued during 2004. Expenditures associated with this Program shall be examined in the audits set forth in Paragraphs 39 and 41.

25. The following items shall not be recoverable:

a. Any amounts expended pursuant to Paragraphs 19 through 24.

b. Any training costs specifically attributable to implementing Paragraphs 12 through 15. This provision is not intended to preclude APS from seeking cost recovery of any reasonable and prudent training costs that are not specifically associated with implementing Paragraphs 12 through 15.

c. Any costs of the audits, reviews, or reports required by Paragraphs 39 through 41.

d. Any amounts expended in order to comply with Paragraphs 12-15 to implement CIS changes that are related in any way to estimating demand for residential customers. This provision is not intended to preclude APS from seeking cost recovery of any reasonable and prudent costs of implementing CIS changes that are solely applicable to general service customers.

e. Any one-time costs of implementing Paragraphs 32(b), 32(d), 32(k), and 33(b), and all other costs associated with implementing Paragraphs 32 and 33 incurred within 36 months after the Commission's decision in this matter.

26. APS shall amend all applicable rate schedules to remove language related to estimation procedures. APS' estimation procedures for all rates shall be governed by a bill estimation tariff that shall be consistent with the Commission's decision in this matter. APS shall file its bill estimation tariff for Commission review within thirty days after Commission approval of this Agreement.

27. For the purposes of APS' bill estimation procedures, the ten circumstances set forth in Exhibit A to the January 24, 2005 testimony of Staff Witness Matthew Rowell

shall be considered to be part of APS' bill estimation procedures, and APS shall adopt all Staff recommendations contained in that Exhibit A.

28. If APS wishes to amend any of its bill estimation procedures in the future, it must file them as a tariff filing with the Commission.

II. METER READING ISSUES

29. The Parties acknowledge that customers have an obligation to provide safe and unrestricted access to the customer's electric meter in accordance with A.A.C. R14-2-209(D), and APS acknowledges that it has an obligation to undertake reasonable efforts to accomplish timely reads of its customers' meters.

30. APS estimated Mrs. Read's demand meter for the months of January, March, April, and May of 1999.

31. APS acknowledges that accuracy in meter reading and in estimation of kW and kWh is an important public and regulatory policy. APS also acknowledges that an effective way to improve the accuracy of billing is to reduce the number of times that APS estimates kW or kWh.

32. APS will implement the following provisions in order to decrease the incidence of "no access" to customer meters:

a. APS shall provide evidence to the Commission that new procedures have been put in place to ensure that staffing resources are sufficient to address emergency short-term needs for meter reading shops that are either smaller or remote. A report that describes the new procedures and explains how they reduce the potential for "skipped" meter readings due to staffing resource issues will be provided to the Commission within six months of a decision in this matter.

b. APS shall revise the "No Access Meters" report, KM06R20, to provide the following additional features:

--Report the present number of consecutive months that the meter reading department could not access the meter so that the Administrative Coordinator can track the steps required for each month of access problems and prioritize the APS response.

--Report the other instances that the meter reading department was unable to read the meter during the previous twenty-four months to simplify identification of recurring "no access" problems at the same premises.

--Prioritize accounts to focus first on demand-billed customers when working the "no access" report. APS should compile and maintain these reports for purposes of the audits required by Paragraphs 39 and 41.

c. APS shall develop and install a performance measure to monitor the extent to which APS is complying with the Commission requirement to read meters each month (no less than twenty-five days after the last meter read and no more than thirty-five days after the last meter reading). APS shall provide to the Commission a description of its performance measure and the results of its analysis within six months of a decision in this matter.

d. APS shall change the options settings in the Itron software in all locations so that the Itron HHC used by meter readers in each of the APS meter read shops no longer includes the last month's usage and the last month's meter reading. This feature shall be disabled throughout APS' service territory within thirty days of a decision in this matter.

e. For the next six years, APS shall provide the Commission with biannual reports related to the status of the remote meter reading pilot and implementation plans. The reports shall provide a description of the meter reading technology being implemented, APS' plan for implementation, the number and type of customers involved in the pilot program, the costs associated with implementation, and the operational efficiencies associated with implementation.

f. APS will implement a pilot program to evaluate whether using an auto-dialer to communicate with customers who have experienced two consecutive months of "no access" will facilitate resolution of additional "no access" accounts. Such calls will be made within ninety-six hours before the scheduled read date, will indicate the time frame in which the next read is scheduled to occur, and will indicate that the schedule may be subject to change. APS' failure to call a customer in the circumstances described in this paragraph shall not relieve the customer of the obligation to provide APS with unrestricted access to the meter. APS shall maintain records on the number of instances that the auto-dialer is used to call customers in these circumstances so that one may determine whether use of the auto-dialer improves APS' access to "no access" meters. For the twelve months following Commission approval of this Agreement, the results of this practice shall be reported to the Commission in quarterly reports, beginning with the quarter ending September 30, 2005.

g. APS shall be required to implement a policy to ensure that meter reading supervisors or their designees periodically inspect meter locations reported as "no access" to verify that appropriate corrective measures are taken.. APS shall file a copy of this policy within ninety days of a decision in this matter.

h. APS shall continue to participate in benchmarking studies that compare its practices to other utilities in the industry. APS shall provide such

benchmarking analysis to the Commission and Staff on a confidential basis within ninety days of the completion of such studies.

i APS shall develop and install performance measures to document the efforts that it has taken to secure an accurate reading of the meter after the second consecutive month of estimating the customer's bill for other than weather.

j. APS shall specifically include the use of EZ-Read as one of the steps taken to resolve a "no access" situation.

k. APS shall utilize available DB Microware reports to review lock-outs by route to monitor trends in lock-outs and reduce the number of "no access" meters.

l. APS shall establish an internal process whereby, after three consecutive estimates, continued instances of consecutive estimates due to "no access" situations are reported and made visible to increasingly higher levels of APS management.

33. APS shall implement the following provisions in order to improve its communications with its customers:

a. APS shall train its Billing Service Representatives and others involved in kW and kWh estimation, meter reading, and billing processes to understand that customers value an accurate bill. APS shall also train them to recognize that the underestimation of kW and kWh may result in problems for their customers. Finally, APS shall develop training procedures to familiarize these personnel with applicable Commission rules and APS tariffs. These procedures shall stress the importance of APS' adherence to Commission rules and tariffs. APS shall provide Staff with a description of its training process within six months of a Commission decision in this matter.

b. APS shall provide a clearer notice on a re-billed amount. Such notice shall clearly state that the new bill replaces the previously issued bill and that the customer should only pay the reissued bill amount. APS shall make the appropriate modifications to its billing system to implement this change no later than sixty days after a final Commission decision in APS' pending rate case, Docket No. E-01345A-03-0437.

34. This Settlement takes no position on the validity or the applicability of the amendments to A.A.C. R14-2-210. For purposes of this Settlement, the Parties agree that APS should not be assessed a penalty for any alleged violations of A.A.C. R14-2-210(A)(5)(a) or 210(A)(6)(b) and that any such alleged violations do not affect the validity of any estimated bills issued before the effective date of the Commission's approval of APS' bill estimation tariff.

35. If the Commission approves this Settlement, the Read Complaint shall be dismissed with prejudice, provided that such dismissal shall not be deemed to preclude Mrs. Read's attorneys from seeking any attorneys' fees to which they might be entitled

under applicable law. This paragraph shall not be construed as an admission by any party that attorneys' fees are appropriate in any forum.

III. BILLING ISSUES

36. APS did not send Mrs. Read any bills for five months from September 1999 to January 2000 due to implementation problems associated with its CIS, which became operational in September, 1998.

37. APS acknowledges that it has an obligation to bill each of its customers in accordance with A.A.C. R14-2-210(A).

38. This Agreement is not intended to diminish or to establish any rights in any other customers who were not issued bills by APS as a result of APS' CIS implementation problems, nor is this Agreement intended to eliminate APS' duty to properly, accurately, and consistently apply any specific bill estimation procedure.

IV. COMPLIANCE

39. APS' Regulatory Compliance Department shall conduct an audit of APS' kW and kWh estimation, meter reading, and billing practices after the Commission issues a final order in this matter and at least once every three years thereafter. These audits shall also address APS' compliance with the provisions set forth in this Agreement, any Commission order resulting therefrom, and Commission tariffs, rules, and regulations regarding estimation, meter reading, and billing. The results of the audit shall be certified by APS' Director of Regulatory Compliance. The results of the audit along with any management response shall be provided on a confidential basis to the Commission and Staff. APS shall either implement the audit's recommendations or provide the Commission with a written explanation as to why any recommendations were not implemented. APS shall complete the initial audit required by this paragraph and file a copy of the audit report, along with any management response, with the Commission no later than nine months after Commission approval of this Agreement. Subsequent audit reports conducted pursuant to this paragraph shall be filed within thirty days of the completion of the audit.

40. APS shall conduct an internal review of its compliance program relating to all Commission-approved tariffs and shall submit a report on a confidential basis to the Commission and its Staff within twelve months of the Commission's approval of this Agreement. Such report shall include a description of all programs, processes, and organizations utilized by APS to educate employees about tariff provisions and to ensure compliance. The report will address APS' ongoing plans to ensure compliance with Commission tariffs, any specific changes or additions to current practices that may be necessary to ensure compliance, and the implementation plan for any recommended modifications.

41. Within thirty days after the completion of the actions referred to in Paragraphs 39 and 40, APS shall file a report with the Commission that fully describes the results of those actions and the Company's compliance efforts in this matter. If, after consideration of those items, the Commission believes that an additional audit is required, APS shall participate in a third-party audit by an independent auditor selected by Staff and paid for by APS. This audit shall evaluate whether the Company's meter reading, billing practices, estimation methods, and related management processes are adequate and whether APS has appropriately conducted the actions required by Paragraphs 39 and 40. The audit shall also evaluate whether the Company has complied with the Commission's decision in this matter. The Commission will establish the timing and budget for the independent audit at the time that it determines its necessity.

V. MISCELLANEOUS PROVISIONS

42. APS shall withdraw the testimony of APS Witness Alan Kessler. APS may offer the Accion Report through the testimony of another witness who is not affiliated with the Accion Consulting Group. All other filed testimony and exhibits shall be accepted into the Commission's record as evidence.

43. Each provision of this Agreement is in consideration and support of all other provisions, and it is expressly conditioned upon acceptance and approval by the Commission without change. Unless the Parties to this Agreement otherwise agree, if the Commission does not accept and approve this Agreement according to its terms, it shall be deemed withdrawn by the Parties, and the Parties shall be free to pursue their respective positions without prejudice.

44. This Agreement represents the Parties' mutual desire to compromise and settle all disputed claims in a manner consistent with the public interest. This Agreement represents a compromise of the positions of the Parties. Acceptance of this Agreement is without prejudice to any position taken by any party, and none of the provisions may be referred to, cited, or relied upon by any other party as precedent in any proceeding before this Commission, any other regulatory agency, or any court of law for any purpose except in furtherance of the purposes and results of this Agreement.

45. All negotiations relating to or leading to this Agreement are privileged and confidential, and no party is bound by any position asserted in negotiations, except to the extent expressly stated in this Agreement. As such, evidence of conduct or statements made in the course of negotiation of this Agreement are not admissible as evidence in any proceeding before the Commission, any other regulatory agency, or any court.

46. This Agreement represents the complete agreement of the Parties. There are no understandings or commitments other than those specifically set forth herein. The Parties acknowledge that this Agreement resolves all issues that were raised in the Bill Estimation Matter and is a complete and total settlement between the Parties.

47. Each Signatory Party will support and defend this Agreement and any Commission order approving this Agreement before the Commission, before any other regulatory agency, or before any court in which it may be at issue. This Agreement shall not be construed to require the Commission to participate in any proceeding related to the recovery of attorneys' fees in this or any related matter.

Dated this 25th day of February 2005.

Arizona Corporation Commission Staff

By: _____
Ernest Johnson
Utilities Division Director
1200 West Washington Street
Phoenix, Arizona 85007-2927

Arizona Public Service Company

By: _____
Steven Wheeler
Executive Vice President of
Customer Service and Regulation
400 North Fifth Street
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Estate of Avis Read

By: _____
Barry G. Reed
Zimmerman Reed P.L.L.P.
14646 N. Kierland Blvd., Suite 145
Scottsdale, Arizona 85254

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Dated this 25th day of February 2005.

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Exhibit A

Estimate of Potential Settlement Credits

September 1, 1998 through October 1, 2003

General Service[1]	Residential	Total[2]
$2,045,546	$171,686	$2,217,232

Notes:

[1] Does not reflect any potential reductions due to account review. Actual Credits will reflect any reductions due to double credits for same adjustment, ratchets and/or contract demands.

[2] Does not include interest which would be calculated in accordance with Paragraph 19.