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Arizona Corporation Commission
DOCKETED

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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

MARC SPITZER, Chairman
WILLIAM A. MUNDELL
JEFF HATCH-MILLER
MIKE GLEASON
KRISTIN K. MAYES

IN THE MATTER OF:)
AVIS READ; individually, on behalf of all)
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

**ARIZONA PUBLIC SERVICE'S
NOTICE OF ERRATA**

Arizona Public Service Company ("APS") files this Notice of Errata with respect to the Testimony of Tammy McLeod. On November 23, 2004, APS filed in

1 this docket the Testimony of Tammy McLeod. On page 25 of the previously filed
2 Testimony, the answer to the question that begins on line 10 was inadvertently
3 included as part of the answer to the question that now begins at line 14. APS has
4 simply corrected that error and the correct questions and answers now appear on page
5 25, lines 10-22. A redlined version of these changes is attached as Ex. A. A
6 corrected copy of Ms. McLeod's testimony is attached as Ex. B. APS requests that
7 the corrected version of Ms. McLeod's testimony be substituted for that filed on
8 November 23, 2004.

9 DATED this 7th day of January, 2005.

10 William J. Maledon
11 Debbie A. Hill
12 Ronda R. Woinowsky
13 OSBORN MALEDON, P.A.

14 -And-

15 Thomas L. Mumaw
16 Attorneys for Respondent Arizona Public
17 Service Company

18 By Debbie Hill
19 Debra A. Hill

20
21
22 Copies of the foregoing was hand-delivered*/
23 mailed this 7 day of January, 2005,
24 to:

25 Lyn Farmer*
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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

1 Estimated June read: $19886 + 1773 = 21659$

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

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

10
11 **Q. PLEASE DESCRIBE APS' PROCEDURES FOR ENSURING THAT EVERY BILL RESULTING FROM AN ESTIMATED METER READ IS APPROPRIATELY DESIGNATED AS SUCH.**

12
13 **A.** Yes. Every such bill by the CIS Billing System or the APS billing
14 representatives is appropriately designated as such on the printed statement.

15
16 **Q. HAS APS INDICATED THE REASON FOR THE ESTIMATION ON EVERY APS BILL BASED ON AN ESTIMATED READ?**

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

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

Formatted: Answer

Deleted: YES. EVERY SUCH BILL BY THE CIS BILLING SYSTEM OR THE APS BILLING REPRESENTATIVES IS APPROPRIATELY DESIGNATED AS SUCH ON THE PRINTED STATEMENT. ¶

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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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ILLUSTRATIVE BILL WITH ESIMATED DEMAND SCHEDULE TM-10

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

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

17 **III. APS METER READING PROGRAM**

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

19 **A.** APS' goal is to read every meter every month. It is always in APS' interest to get
20 actual accurate meter reads because when a meter is not read, additional work and
21 costs are created for APS. These include the efforts of billing representatives, the
22 need for meter verifications by field personnel, phone calls and mailings to our
23 customers, and the receipt of additional customer calls to our Call Center.
24
25

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

2 A. As of October 18, 2004, APS had over 1 million meters installed in the field. Only
3 175,000 or so of these meters are on accounts where customers are being billed on
4 a demand rate (roughly 155,000 for EC-1, ECT-1R and E-32). The number of
5 customer meters broken down by class is outlined in the document attached as
6 **Schedule TM-1.**

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

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

11
12 **Q. HAS THE NUMBER OF APS METERS INCREASED OVER THE YEARS?**

13 A. Yes. APS has employed the following number of meter readers on an annual basis
14 since 1995.
15
16
17
18
19
20
21
22
23
24
25

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.

¹ APS would also note that in addition to APS "meter readers," APS "Servicemen" and "Troublemens" (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.

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

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

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

7
8 A. No. It would not even reduce the number of such estimates by an appreciable
9 amount, if at all. For example, more meter readers would do nothing to resolve
10 access issues, or to change the weather in the northern part of our service area, or
11 to prevent meters or meter reading equipment from malfunctioning, or to prevent
12 meter tampering.

13 **Q. HOW DOES APS ESTABLISH ITS METER READING ROUTES?**

14
15 A. APS builds its routes on actual average read time for each meter in the route. A
16 meter reader's standard workday is 8 hours. A daily route assignment is targeted at
17 6 to 6.5 hours read time, allowing for travel time to and from the route, lunches,
18 and breaks, in addition to the meter reading. Routes with added travel to and from
19 headquarters will have a read time of less than 6.5 hours.

20 In high growth areas, new routes are split off of established routes as more meters
21 are added into that area. Optimally, each APS meter reading shop operates with a
22 ratio of 18 to 19 routes per meter reader during the 21 cycle work month (APS has
23 21 billing and meter reading cycles per month). This allows the workforce to have
24 earned paid time off, and to manage the commitments to read all of the routes
25 monthly within the established time windows. In cooperation with the IBEW,

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

3 Because geographical differences and meter placement influence the number of
4 meters that can be read, routes are based on time rather than number of meters.
5 Indeed, each meter route has a different number of meters assigned. Some routes
6 have a smaller number of meters to read, such as 100, other routes could have
7 1,000 meters. However, both routes would be completed within a 6 to 6.5 hours
8 read timeframe under normal conditions.

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

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

18 All routes are constructed to enable one day completion by the meter reader. Some
19 routes are also created with growth in mind (such as a new subdivision) and will
20 not be a full day's assignment. Other routes have grown beyond a full day's
21 reading and have to be adjusted. Both of these situations are called "pieces."
22 Pieces will be combined and assigned to a meter reader to become a full day's
23 route assignment until growth or additions to already pieced-out routes become a
24 full route assignment. In high density areas, a meter reader can easily read from
25 400 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.

1 **Q. COULD YOU BRIEFLY EXPLAIN THE METER READING PROCESS?**

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

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

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

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

9 **Q. WHAT ARE THE NEXT STEPS?**

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

- 12 • Day 1--Issue supplies, including scopes, shirts, keys, hats, dog stick,
13 and seal bag; introduction to crew and facilities; shadow a veteran
14 meter reader.
- 15 • Day 2--Discuss meter reader manual; practice reading pictures of
16 real meters (PowerPoint presentation, or slides); and master level
17 one of the Meter-pro ® meter reading software program.
- 18 • Day 3--Master level two and three of the Meter-pro ®; practice
19 reading pictures of real meters; hand-held computer (Itron) training
20 on the training route.
- 21 • Day 4--Half-day in field with trainer with a partial route, including
22 scoping practice; additional level two and three Meter Pro ® and
23 scope practice at the APS yard.
24
25

- 1 • Day 5--Work in field with veteran meter reader shadowing trainee;
2 final meter reading test and check list completion.
- 3 • Second week--Split routes and solo with spot checks from trainer;
4 work up to full route with additional help (as needed per individual).

5
6 **Q. ONCE AN APS METER READER IS HIRED, HOW DOES APS
7 EVALUATE THAT METER READER'S PERFORMANCE?**

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

14 In addition, APS has now developed a "Training Card," which will be utilized to
15 get training feedback on the last two classes of trainees. The purpose of the Meter
16 Reading Training Grade Card is to benchmark the trainees once they leave the
17 training shop. This allows a veteran meter reader to evaluate a newly-hired from a
18 new perspective. The Grade Card, with the evaluator input, will show areas in
19 which the trainee needs further training, or confirm that the trainee has a firm
20 grasp of the concepts that have been taught. Each trainee is different with regards
21 to the rate at which he or she grasps and masters the concepts of meter reading.
22 Once the training shop is confident that the trainee is ready to be released to his or
23 her new home shop, the Grade Card will come into play, with the aid of the new
24 home shop evaluator. It is anticipated that all trainees will be evaluated near the
25 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

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

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

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

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

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

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

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

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

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

20 A. Every meter read is time stamped by the Itron. Thus, APS knows precisely how
21 long a meter reader takes between reads and precisely how long it takes to
22 complete the entire route. We also know whether the read was typed in or was
23 down-loaded through the meter probe. This assures us that the meter reader is
24 actually reading the meters as scheduled.
25

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

2 A. APS estimates usage or consumption (kWh) and/or demand (kW) when APS is
3 unable to obtain a meter read for any one of a number of reasons. For instance,
4 APS may be unable to obtain a meter read because APS is unable to obtain access
5 to the customer's premises to read the meter (e.g., road closures due to weather or
6 other factors) or the customer has made it impossible to gain safe access to the
7 meter (e.g., locked gates, blocked meters, or dangerous animals). This also
8 includes extremely rare instances when the meter reader is prevented from getting
9 to a meter due to unsafe conditions not caused by the customer, such as bees,
10 rattlesnakes, etc. In addition, there are instances when meter malfunctions or other
11 meter issues prevent APS from obtaining a read (i.e., display is blank, dead meter).
12 Occasional personnel issues may cause a meter to go unread on its designated
13 cycle. For example, per APS' agreement with the Commission, APS rotates its
14 routes among meter readers every quarter. Also, new and previously non-existent
15 meters may be added to the routes due to customer growth. Either of these may
16 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.

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

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

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

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

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

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

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

23
24 ³ Any accounts that are not read require the meter reader to prepare and leave a door
25 hanger. Meter readers that are not indicating that they are leaving door hangers will be
identified on this "lock out" report, referenced above.

1 **Q. WHAT STEPS DOES APS TAKE TO MINIMIZE AND RESOLVE, WITH**
2 **THE HELP OF ITS CUSTOMERS, “NO ACCESS” PROBLEMS?**

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

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

23 In June 2003, APS updated its no access policy to add further steps for each
24 estimated read. Under the current no-access policy, each month that a meter reader
25 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

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

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

10 In addition, (within metro Phoenix for residential customers since early 2001, and
11 later modified to include the rest of APS’ customers), in the third consecutive
12 month of no access, the customer’s account has been downloaded into an
13 automated dialer, which leaves an automated voice message at the customer’s
14 phone number of record that informs the customer of the “no access” problem.
15 The recorded message is as follows: “This is an important message from APS
16 regarding your electric bill. We have been unable to read your electric meter for at
17 least three consecutive months; therefore, your billings have been estimated.
18 Please call us at [relevant number] to resolve this issue and insure that your future
19 bills are accurate. The number again is [relevant number]. We thank you in
20 advance for your cooperation on this matter.” Second, the third consecutive “no
21 read” creates a billing exception, which I will describe in more detail later in my
22 testimony, that may prompt an APS billing representative to send a so called “blue
23 card” to the customer asking the customer to contact APS about any access
24 problem. Also, the meter reader would have left yet another “no-access” door
25 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

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

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

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

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

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

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

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

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

11 Within the Billing & Payment component of the customer research, the attribute
12 that best reflects a customer’s perception of meter reading/billing is “Accuracy of
13 the bill.” On one national survey, APS has a mean score of 8.30 on a scale of 1 to
14 10 where 1 is Unacceptable, 10 is Outstanding and 5 is Average. This reflects a
15 very substantial improvement since the billing problems that accompanied the
16 conversion to the new CIS in 1998-1999, when APS scored 7.43. It is also proof
17 that our heightened emphasis on customer service is paying off where it counts –
18 with our customers.

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

1 the figures that correspond with the 95 and 20 informal complaints referenced
2 above for 1999 were 164 and 31, while the figures for 1999 corresponding to the
3 24 and 5 informal complaints would be 144 and 26.

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

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

16 IV. APS' ESTIMATING METHODS

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

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

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

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

8 A. The billing on non-demand accounts is based on accumulated usage, much like the
9 mileage on a car's odometer. Therefore, when a bill is estimated, the next bill that
10 is based on an actual read (when added to the estimated bills), will be a "true up"
11 and reflect the actual consumption since the last actual meter read. For example, if
12 the estimate of usage in the first month was lower than actual usage, the following
13 "true up" bill for month two will be correspondingly higher than actual usage for
14 month two and the combination of month one and month two bills will be the
15 actual usage for both months. Therefore, the customer has only been billed for
16 actual usage. Although there can be minor bill impacts due to rate blocking, as
17 well as TOU and seasonal rates, the study presented by APS witness Rumolo
18 indicates these impacts are largely off-setting in the aggregate, although still
19 resulting in a net underbilling. In certain situations, the actual read falls outside the
20 computer's (i.e., the "CIS's") high/low criteria because the actual read is either
21 much too low or much too high compared to the previous estimated read. The CIS
22 then generates a billing exception that is routed to a billing representative who
23 prepares a corrected bill which redistributes actual energy across the month, or
24 months, of missing reads in proportion to the number of days in each billing
25 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

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

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

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

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

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

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

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

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

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

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

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

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

19 When the change was made in 2003 to make such crediting a routine practice, it
20 was not without some concerns. Making an adjustment when the estimate is high -
21 but not when it was too low - creates an inherent bias in favor of underestimation.
22 APS believes, and the study presented by Mr. Rumolo confirms, that APS has
23 consistently underestimated customer usage over the years, to the detriment of the
24 Company and its other customers. Adopting the policy we did in 2003 exacerbates
25 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

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

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

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

15 If the CIS Billing system is unable to estimate, based on the coded business rules
16 in the system, a "billing exception" is generated. Resolution of the billing
17 exception will be manually completed by an APS billing representatives and a
18 billing statement will be produced for the customer. The resolution of the billing
19 exception involves estimation of meter reads, if necessary. If the reads are
20 estimated, it will be represented as such on the statement. As is the case with
21 automated bill estimations, customers are given a phone number to call if they
22 have questions about or wish to dispute the estimated usage.
23
24
25

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

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

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

19 Example of Reallocation of Energy Usage Based On Subsequent Actual Read

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

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

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

23 Total number of days: $28 + 32 = 60$

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

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

Estimated June usage: $32 \times 55.4 = 1,773$ kWh

1 Estimated June read: $19886 + 1773 = 21659$

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

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

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

13 **A.** Yes. Every such bill by the CIS Billing System or the APS billing representatives
14 is appropriately designated as such on the printed statement.

15 **Q. HAS APS INDICATED THE REASON FOR THE ESTIMATION ON**
16 **EVERY APS BILL BASED ON AN ESTIMATED READ?**

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

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

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

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

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

14 A customer is charged per unit of demand (kW). In March 1999, for rate EC-1,
15 APS billed \$7.68 for each kW used. Thus, in March 1999, the charge for the
16 account referenced above for the estimated demand was \$38.40. If the demand had
17 been estimated at 8.5, for instance, which is a figure much more in line with this
18 customer's historical demand use, the charge for the demand would have been
19 \$65.28. *Id.*

20 **Schedule TM-10** is the account history for Meter Number C87111. On October
21 25, 2000, the actual demand read was 8. From November 2000 through March
22 2001, APS estimated the demand at numbers that ranged from 1.6 to 3.9.
23 Beginning in April 2001, however, APS was able to obtain actual reads of the
24 meter, and for the next seven months, the actual demand was 5.8; 6.8; 6.3; 6.2;
25 6.3; 6.6; and 5.9 kW.

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

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

12 VI. CONCLUSION

13 **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

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

21 **Q. DOES THIS CONCLUDE YOUR PREFILED TESTIMONY IN THIS**
22 **PROCEEDING?**

23 A. Yes.
24
25