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State Regulation

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Arizona Corporation Commission
DOCKETED

AUG 1 2011

DOCKETED BY

August 1, 2011

Docket Control
Arizona Corporation Commission
1200 W. Washington
Phoenix, AZ 85007

RE: Arizona Public Service Company Service Schedule 8 Bill Estimation
Docket No. E-01345A-10-0377

Pursuant to Decision No. 72490, dated July 25, 2011, Arizona Public Service Company ("APS") was ordered as follows:

" Arizona Public Service Company shall file, as a compliance item with Docket Control, a revised Service Schedule 8 Bill Estimation consistent with the Decision in this matter within 15 days from the effective date of the Decision."

Enclosed please find the APS revised Service Schedule 8 Bill Estimation.

If you have any questions regarding this information, please contact Chuck Miessner at (602)250-3081.

Sincerely,

Susan Casady

Susan Casady

SC/cs
Attachment

cc: Steve Olea
Barbara Keene
Brian Bozzo

Redline

SERVICE SCHEDULE 8
BILL ESTIMATION

Arizona Public Service Company (APS or Company) regularly encounters situations in which APS cannot obtain a complete and valid meter read. Situations that result in an estimated meter read include inclement weather, lack of access to a customer's meter, energy diversion, labor unavailability and equipment malfunction. Without a valid meter read, the customer's energy usage and/or demand must be estimated in order to render a bill for the missing read period. A bill based on estimated usage is often referred to as an "estimated bill."

APS uses situation specific methods to estimate electrical usage to ensure that the most accurate usage estimate is obtained. This Schedule describes the estimation methods and procedures used when an actual meter read cannot be obtained or when energy diversion and/or meter tampering has occurred. The estimating process is applicable to customers receiving Standard Offer service and to direct access customers receiving unbundled delivery service from the Company.

1. GENERAL

1.1 Estimating a read for energy (kWh) and/or demand (kW) is performed in accordance with the provisions of this Schedule or such supplemental or amendatory guidelines or regulations as may hereafter be established and as provided by law.

1.2 This Schedule shall be considered a part of all rate schedules.

1.3 Upon discovery of the need to estimate kWh or kW, Company will make reasonable attempt (s) to secure an accurate meter reading and to resolve no-access issues.

1.4 Company is not obligated to obtain, or attempt to obtain, a customer supplied meter read prior to sending an estimated bill. In circumstances where APS has agreed in writing to permit customer supplied meter reads in accordance with Arizona Corporation Commission (ACC or Commission) regulations and that customer fails to provide Company with the meter read, estimation is also allowed.

1.5 Estimates due to equipment malfunctions may exceed one month if the malfunction of Company owned or maintained equipment could not be reasonably discovered and/or corrected before the need for additional estimates, or if the equipment malfunction is with regard to customer-owned or maintained equipment.

1.6 This schedule is not intended to supersede the Commission's rules and regulations in effect at the time the Commission approved this Schedule 8 without a specific decision of the Commission.

2. BILL ESTIMATION

2.1 The causes that result in an estimated bill include but are not limited to:

2.1.1 Inclement weather where conditions prevent meter access or compromise APS employee safety as determined by Company.

2.1.2 Lack of access to the meter either due to conditions on the customer's premise or to road closures that prevent access to the customer's premise.

2.1.3 Equipment or meter failure or malfunction with no reliable information retained by the meter, or inability to obtain billing information from an AMI meter due to equipment failure in the AMI system.

2.1.4 Labor unavailability due to circumstances such as unforeseen illness, natural disasters, or other extreme events.

2.1.5 Meter tampering or energy diversion resulting in a lack of accurate metered consumption information.

2.1.6 An electronic meter reading is obtained, but the data cannot be transferred to a billing computer.

2.1.7 Only a partial read for a meter (for example, the total kWh read is obtained from a time-of-use meter, but on-peak kWh and/or kW reads are unavailable). Company will use the read available, and estimate the missing read(s).

2.2 The following defines certain conditions under which a bill is not considered estimated:

2.2.1 A bill based on an actual kWh read, following an estimated bill. This is considered a "true-up" bill and has an explanation of "true-up" on the bill.

2.2.2 Rate changes in the middle of the billing cycle.

2.2.3 A meter failure or malfunction which does not prevent the meter from accurately recording customer usage or from being read.

2.2.4 The meter read is not available using electronic meter reading devices, but data is obtained from a visual meter reading.

2.2.5 Meter reading information is not available because the service is provided on an un-metered basis.

2.2.6 Unbundled service for direct access customers is provided on the basis of load profiles in accordance with ACC regulations rather than using interval data metering.

2.2.7 When Company determines a meter is misread, but the actual read on the meter at the time it was read can be determined, Company makes a manual correction to the incorrect read. This includes, but is not limited to, the following examples:

2.2.7.1 A shut-off read is obtained, and on the same day the monthly meter read is taken and is higher by 1 kWh. The monthly meter read is changed to the same read as the shut off read.

2.2.7.2 The serviceman enters a shut-off or turn-on read and then calls into the office to say he entered the read for the wrong address. The correct reads are entered for the appropriate addresses.

2.2.7.3 Accurate consumption information can be obtained from load research meters.

2.2.8 A bill is estimated, and then rebilled when an actual read is obtained for the same billing period. The first bill is considered an estimated bill and is coded as such. The subsequent bill is considered a corrected bill and is not coded as an estimate, but does contain "corrected bill" language.

3. BILL ESTIMATION METHODS

The following section describes the estimation methods used to estimate energy consumption and demand for most instances. Estimation techniques required where special circumstances exist, such as initial bills, are also described. In general, the estimation methodologies utilize historical data.

3.1 ENERGY ESTIMATION (kWh)

For energy estimation, the following hierarchy is used: 1) The estimate will be based on the customer-specific prior month's energy consumption unless that month was an initial bill. 2) If the prior month's customer-specific energy consumption is not available or was an initial bill, the estimate will be based on the customer-specific energy consumption for the same month in the prior year. 3) If the customer-specific prior month or same month last year energy consumption is unavailable but adequate seasonal customer history exists, energy consumption will be estimated based on daily usage during six months of the same season. 4) If customer-specific energy consumption is not available, the estimate will be based on the prior month's energy consumption at that premise unless that month was an initial bill. 5) If prior month's premise energy consumption is not available or was an initial bill, the premise energy consumption for the same month in the prior year will be used to estimate consumption. 6) If premise-specific prior month or same month last year is unavailable but adequate seasonal premise history exists, energy consumption will be estimated based on daily usage during six months of the same season. 7) When adequate customer or premise history is not available, the estimate is based on the customer class average usage found in Section 3.3.1.

For customers served under time-of-use schedules, the hierarchy listed above will be utilized to develop the estimated on-peak and off-peak energy consumption.

For customers served under rate schedules SC-S, EPR-2, EPR-5, and EPR-6 the hierarchy listed above will be used to estimate the energy consumed by the Customer. Section 3.1.3 below shall be used to estimate any excess energy purchased by the Utility. For customers served under rate schedules E-56, CPP-RES and CPP-GS, the energy estimation will be addressed on a case-by-case basis.

SERVICE SCHEDULE 8
BILL ESTIMATION

For bill estimation purposes, the Summer Season is defined as May through October and the Winter Season is defined as November through April.

The energy estimation methods are described in detail below.

Previous Month Method

Estimated energy usage is calculated as follows:

1. Determine the number of days for the previous month's billing period.

2. Determine the kWh for the previous month's billing period.
3. Divide the previous month kWh by the previous month number of days to determine previous month per day usage.

4. Multiply the previous month per day usage by the number of days in the missing read billing period to yield the kWh for the missing read billing period.

Same Month Prior Year Method

Estimated energy is calculated as follows:

1. Determine the number of days for the same month of the previous year's billing period.

2. Determine the kWh for the same month of the previous year's billing period.

3. Divide the same month prior year's kWh by the same month prior year's number of days to get same month prior year per day usage.

4. Multiply the same month prior year per day usage by the number of days in the missing read billing period to yield the kWh for the missing read billing period.

Seasonal Average Method

Estimated energy is calculated as follows:

Where there is sufficient seasonal history (the number of days billed in the season is between 165 and 195 days), energy is estimated by calculating the average use per day for the same season as the billing period with the missing read. The resulting per day usage is multiplied by the number of days in the missing-read billing period to yield the usage estimate for the billing period. Seasonal average is calculated as follows:

1. Determine the total number of days from each of the previous six same-season months to yield seasonal total days.

2. Add the kWh from each of the previous six same-season months to yield 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.

Class Average Method

Estimated energy usage is calculated as follows:

Where neither customer nor premise history is available, energy is estimated by calculating the average use per day for customer served under the same rate schedule. The resulting per day usage is multiplied by the number of days in the missing-read billing period to yield the usage estimate for the billing period.

3.1.1 TIME-OF-USE AND SEASONAL ESTIMATION (kWh):

If the rate for the estimated billing period is a time-of-use rate and sufficient time-of-use history does not exist for a customer or premise, on-peak energy usage is allocated as follows:

	Super Summer (Jun, Jul, Aug) ET-SP Only	Summer (May through October)	Winter (November through April)
Residential			
ET-1	-	40%	30%
ET-2	-	25%	16%
ET-SP			
Super Peak	12%	-	-
On-Peak (12-3, 6-7)	13%	-	-
On-Peak (12-7)	-	25%	19%
ECT-1R	-	40%	30%
ECT-2	-	23%	16%
Non-Residential			
All	-	32%	31%

NOTE: The percentages specified above will also apply for seasonal estimation of Customer-owned on-site distributed generators to include both the energy consumed by the Customer and any excess energy purchased by the utility.

Seasonal on-peak energy percentages listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater thaen 5%.

3.1.2 ENERGY ESTIMATION FOR CUSTOMER-OWNED ON-SITE DISTRIBUTED GENERATORS

For energy estimation for Customer-owned on-site distributed generators, the following hierarchy is used: 1) The estimate will be based on each generators previous month's energy output unless that month was an initial bill. 2) If the prior month's generator-specific energy output is not available or was an initial bill, the estimate will be based on the generator-specific energy output for the same month in the prior year. 3) If the generator-specific prior month or same month last year energy output is unavailable but adequate seasonal history exists for a similar type of generator, energy output will be estimated based on the similar generator's output during six months of the same season 4) If similar generator output is not available, the estimate will be based on the prior month's generation output at that premise unless that month was an initial bill. 5) If prior month's premise generator output is not available or was an initial bill, the premise generator output for the same month in the prior year will be used to estimate generator output. 6) If premise-specific prior month or same month last year generator output is unavailable but adequate seasonal premise generation output history exists, energy output will be estimated based on daily generation output during six months of the same season. 7) When adequate Customer or similar generator output history is not available, the generator estimate is based on a 50% availability factor for the month (20% for PV systems).

For customers served under time-of-use schedules, the hierarchy listed above will be utilized to develop the estimated on-peak and off-peak energy consumption.

3.1.3 EXCESS POWER (ENERGY) ESTIMATION FOR CUSTOMERS WITH CUSTOMER-OWNED ON-SITE DISTRIBUTED GENERATORS

This section estimates the amount of Customer-owned on-site distributed generation energy provided to the APS distribution system ("Excess Power"). For Excess Power estimation for Customer-owned on-site distributed generators, the following hierarchy is used: 1) The estimate will be based on the previous month's Excess Power kWh level unless that month was an initial bill. 2) If the prior month's Excess Power kWh level is not available or was an initial bill, the estimate will be based on the Excess Power kWh level for the same month in the prior year. 3) If the Excess Power kWh level for the prior month or same month last year is unavailable but adequate seasonal Excess Power history exists, the Excess Power kWh level will be estimated based on the daily Excess Power kWh level during six months of the same season. 4) If the seasonal daily Excess Power kWh level is not available, the Customer's estimate will be based on the prior month's Excess Power kWh level at that premise unless that month was an initial bill. 5) If prior month's premise Excess Power kWh level is not available or was an initial bill, the premise Excess Power kWh level for the same month in the prior year will be used to estimate the Excess Power kWh level. 6) If premise-specific prior month or same month last year Excess Power kWh level data is unavailable but adequate seasonal premise Excess Power kWh level

history exists, the Excess Power kWh level will be estimated based on the daily Excess Power kWh level during six months of the same season. . 7) When adequate Customer or similar Excess Power kWh level history is not available, the Excess Power kWh level estimate is based on the following formula:

a. Residential PV Systems: (1,630.8 x the nameplate continuous output power rating of the generating facility)/12 x .10
b. All other generating systems will be addressed on a case-by-case basis

For customers served under time-of-use schedules, the hierarchy listed above will be utilized to develop the estimated on-peak and off-peak Excess Power kWh levels.

3.1.4 ENERGY ESTIMATION FOR MISSING INTERVAL DATA

For rate schedules where kWh billing determinants are derived from interval data, such as 15 minute or hourly intervals, and which are not specifically addressed elsewhere herein, the billing determinants shall be estimated through the standard validating, editing and estimating (VEE) process described below.

3.1.4.1 If any of the relevant interval billing data is missing in a billing period, the kWh billing determinants will be estimated as stated below, with the exception of section 3.1.4.1.1.

- Determine the kWh to be estimated: Compute the total kWh for the relevant time period by subtracting the start read from the stop read for that period, using the most recent reads. Sum the interval data for the same period to determine the kWh for the intervals having valid data. Compute the kWh for the interval data needing estimation (X): where (X) equals the total kWh for the period minus the kWh for the intervals with valid data.

- Determine the reference day(s): Select a reference day (or days) to provide an estimate of the load shape for the missing interval data. The reference day shall have a load shape that resembles the time period needing estimation. Weekday load shapes will be estimated with weekday reference days, weekends with weekend reference days. Holidays will be estimated with a weekend reference day.

- Replace the missing interval data with the reference day interval data for the same hour or sub-hour intervals of the day.

- Scale the reference day interval data: Sum the kWh for the reference day interval data that replaced the missing interval data (Y). Create a scale factor by dividing the kWh for the section needing estimation (X) by (Y). Multiply each estimated interval data point in the period by the (X/Y) scale factor.

3.1.4.1.1 For rate schedules GS-Schools M and GS-Schools L, the on-peak and shoulder-peak monthly billing kWh are derived from hourly interval data, while the off-peak monthly kWh is derived as the residual of the total kWh register read less the on-peak and shoulder-peak kWh. If 3% or less of the relevant combined on-peak and shoulder-peak interval data is missing in a billing period, the missing kWh will be included in the residual off-peak billing kWh. Otherwise the missing interval data will be estimated according to 3.1.4.1.

3.2 DEMAND ESTIMATION

For those accounts where the missing read period is billed on a demand rate and the missing read billing period is not for an initial bill, demand is estimated using the following hierarchy:

3.2.1 If it is the same customer, use the prior month's demand unless that demand was estimated or is for an initial bill.

3.2.2 If it is the same customer, but the prior month's customer-specific demand is not available or was estimated or was an initial bill, use the customer-specific demand read from the same billing month a year ago, unless that demand was estimated or is for an initial bill.

3.2.3 If the bill for the same month of the prior year was not for the same customer, or was estimated or for an initial bill, use the premise demand read for the prior month, unless that demand was estimated or is for an initial bill.

3.2.4 If the prior month's premise demand was estimated or was an initial bill, use the premise demand read from the same billing month of the prior year, unless that demand was estimated or was for an initial bill.

3.2.5 For purposes of this Section 3.2., a demand read is considered "estimated" if the demand was not reset the prior month (or any time thereafter) and the demand read is not greater than the prior month's demand read which was not reset.

3.2.6 If none of the above is applicable, apply the rate schedule load factor percentage to the appropriate kWh. The rate schedule load factor percentages are:

Residential:	Load Factor %
-	-
ET-SP Super-Peak	43%
ET-SP On-Peak	38%
ECT-1R	42%
ECT-2	39%
Non-residential:	
All	50%

Load factors listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater than 5%.

3.2.7 From time to time, meter reader may be unable to reset demand readings. When this occurs the readings are noted as "Demand Not Reset."

3.2.7.1 In the month when the "Demand Not Reset" is noted, the kWh and kW are not estimates and are used for billing purposes.

3.2.7.2 In the following month, if the meter reader is able to reset the demand, the "Demand Not Reset" notation is removed.

1) If the kW reading is less than the reading for the previous month, the demand is used for billing purposes and is not an estimated demand.

2) If the demand reading is greater than the previous month when the "Demand Not Reset" was noted, the read demand is used.

3) If the demand reading is equal to the demand reading when the "Demand Not Reset" was noted, demand will be estimated using the procedures described in previous sections of this schedule.

3.2.8 DEMAND ESTIMATION FOR CUSTOMER-OWNED DISTRIBUTED GENERATORS

For those accounts where the missing read period is billed on a demand rate and the missing read billing period is not for an initial bill, demand is estimated using the following hierarchy:

3.2.8.1 If it is the same customer, use the prior month's demand from the Customer-owned generator unless that demand was estimated or is for an initial bill.

3.2.8.2 If it is the same customer, but the prior month's customer-specific demand from the generator is not available or was estimated or was an initial bill, use the customer-specific demand on the generator from the same billing month a year ago, unless that demand was estimated or is for an initial bill.

3.2.8.3 If the demand on the generator for the same month of the prior year was not for the same customer, or was estimated or for an initial bill, use the premise generator demand read for the prior month, unless that demand was estimated or is for an initial bill.

3.2.8.4 If the prior month's premise demand from the generator was estimated or was an initial bill, use the premise demand from the generator from the same billing month of the prior year.

3.2.8.5 For purposes of this Section 3.2., a demand read on the generator is considered "estimated" if the demand was not reset the prior month (or any time thereafter) and the demand read on the generator is not greater than the prior month's demand read which was not reset.

3.2.8.6 If none of the above is applicable, apply the rate schedule load factor percentage to the appropriate kWh. The rate schedule load factor percentages are:

Residential:	Load Factor %
ET-SP Super Peak	43%
ET-SP On-Peak	38%
ECT-1R	42%
ECT-2	39%
Non-residential:	
All	50%

Load factors listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater than 5%.

3.2.8.7 From time to time, meter reader may be unable to reset demand readings. When this occurs the readings are noted as "Demand Not Reset."

3.2.8.7.1 In the month when the "Demand Not Reset" is noted, the kWh and kW are not estimates and are used for billing purposes.

3.2.8.7.2 In the following month, if the meter reader is able to reset the demand on the generator, the "Demand Not Reset" notation is removed.

1) If the kW reading is less than the reading for the previous month, the demand on the generator is used for billing purposes and is not an estimated demand.

2) If the demand reading on the generator is greater than the previous month when the "Demand Not Reset" was noted, the read demand is used.

3) If the demand reading is equal to the demand reading when the "Demand Not Reset" was noted, demand will be estimated using the procedures described in previous

sections of this schedule.

3.3 INITIAL BILL

An initial bill is the first bill a customer receives for a premise. Examples of an initial bill include a new meter set where no service has previously been provided, or a previously occupied premise that is now in the new connecting customer's name.

If the billing period for an initial bill is fewer than 11 days and no read was obtained, the customer is billed only a daily basic service charge, and any energy used during this period is included in the following month's billing period usage. If the billing period is 11 or more days, the bill is estimated as follows:

3.3.1 ENERGY USAGE (kWh):

If there is no usage history for the premise, a "minimum usage" estimate is multiplied by the number of days in the missing read billing period. The difference in energy used during this period and the "minimum usage" estimate is included in the following month's billing period usage. The "minimum usage" estimates for total kWh are:

Residential:	
E-12	25 kWh per day
ET-1 and ET-2	47 kWh per day
ET-SP	47 kWh per day
ECT-1R and ECT-2	75 kWh per day
Non-residential:	
Under 20 kW	45 kWh per day
Over 20 kW	1,156 kWh per day

NOTE: The minimum usage estimates specified above also apply to energy consumed by the Customer under rate schedules EPR-2 and EPR-5. Excess energy purchased by the utility will be estimated at zero for the initial bill.

Initial bill minimum energy usage estimates for total kWh listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater thaen 5%.

If there is usage history for the premise, energy will be estimated using the applicable method in Section 3.1. If there is no on-peak usage history for the premise, the allocations found in Section 3.1.1 will be utilized.

3.3.2 DEMAND (kW):
For those accounts where the missing read period is billed on a demand rate, demand is estimated as follows:

For initial bills fewer than 11 days, no demand charge is billed.

For initial bills 11 or more days, the kW is estimated using the same hierarchy as indicated in Section 3.2.

3.4 ADVANCED METER INFRASTRUCTURE (AMI) METERS

When a missing read occurs on an account with an AMI meter, an initial attempt to estimate will be performed using partial month data as available. AMI meter data is normally collected on a daily basis, and therefore would be used to compute an estimate for the billing month, even if some of these daily reads are missing.

3.4.1 For initial and normal bills:

If the latest AMI meter data is available with a meter reading of 11 or more days since the last read date for the previous billing month:

1) Review the daily AMI incremental reads to determine the total energy consumption, on-peak percentage and demand for the billing month. Use reads from the latest AMI data to determine a per-day usage value and multiply by the number of days in the current billing period to yield the estimates for total and on-peak usage.

2) If the AMI meter data is unavailable use the estimation methods for non-AMI meters.

3.4.2 For initial and normal bills of 10 or less days, use the estimation methods described in Section 3.3.

3.5 DEAD OR FAILING METER

For accounts where it is determined the meter is dead or failing, no adjustment to the bill will be made until the new meter is in place at least 11 days. Then the usage for the previous month(s) is to be determined by taking the lower of the per day usage calculated from the new meter, less 3% (plus 3% for estimating customer-owned on-site generation bought by Utility), or the Same Month Prior Year Method described in Section 3.1. Charges for underbillings of dead or failing meters will be limited to three months for residential accounts and six months for non-residential accounts, in accordance with Schedule 1 Section 4.3. In instances where Company believes the customer's usage patterns were different during the dead or failing meter period than those being used to estimate, Company may adjust its estimate downward from either method.

3.6 ENERGY DIVERSION OR METER TAMPERING

In instances where energy diversion or meter tampering has occurred, meter reads from the meter will not accurately reflect all of the energy usage. Energy consumption for the period during which the diversion or meter tampering occurred shall be estimated by calculating a per day usage based on the best available information. This may include 1) metered data obtained from an auxiliary meter installed during the diversion investigation; 2) meter information obtained from the customer's meter after the diversion or meter tampering was discovered by Company and stopped; and 3) consumption history for the customer or site prior to when the diversion or meter tampering began.

In some instances, the estimated consumption based on per day usage may be less than what the meter actually registered during the time period. In those cases, the actual usage will be used in the calculation of the total energy diversion or meter tampering back bill.

3.7 NON-CUSTOMER INFORMATION SYSTEM ESTIMATES

In some instances, an account is coded to not be automatically estimated by Company's Customer Information System (CIS). This occurs when, due to special circumstances of the account (such as: served at substation voltage, receives a power allowance from a federal agency, partial requirements/self-generation, etc.), manual intervention in the billing process is required. For those accounts which are coded to not be automatically estimated by the CIS, additional attempts may be made to obtain meter readings which will be used for billing. If reads are not obtained, then energy and demand will be estimated, using the applicable methods described in this Schedule.

3.8 REBILLS OF PREVIOUS ESTIMATES

In instances where the reads from the previous month are estimated and a subsequent actual read is obtained, the following "true-up" is performed.

3.8.1 ENERGY USAGE

If the actual read following an estimated read is either lower than the estimated read, or, in Company's opinion, considerably higher than the previously estimated read(s), then per day usage is calculated using the difference in kWh between the last actual read and the current month actual read. The per day usage is multiplied by the number of days in each estimated month and each affected month is rebilled using the new per day usage kWh.

3.8.2 DEMAND

If the actual demand read obtained after an estimate is lower than the estimated demand read, the previous month(s) estimated demand read(s) are lowered to the subsequent actual demand read.

The estimates used in this Section 3.8 take precedence over the estimating methods described elsewhere in this Service Schedule.

Non-Redline

SERVICE SCHEDULE 8
BILL ESTIMATION

Arizona Public Service Company (APS or Company) regularly encounters situations in which APS cannot obtain a complete and valid meter read. Situations that result in an estimated meter read include inclement weather, lack of access to a customer's meter, energy diversion, labor unavailability and equipment malfunction. Without a valid meter read, the customer's energy usage and/or demand must be estimated in order to render a bill for the missing read period. A bill based on estimated usage is often referred to as an "estimated bill."

APS uses situation specific methods to estimate electrical usage to ensure that the most accurate usage estimate is obtained. This Schedule describes the estimation methods and procedures used when an actual meter read cannot be obtained or when energy diversion and/or meter tampering has occurred. The estimating process is applicable to customers receiving Standard Offer service and to direct access customers receiving unbundled delivery service from the Company.

1. GENERAL

1.1 Estimating a read for energy (kWh) and/or demand (kW) is performed in accordance with the provisions of this Schedule or such supplemental or amendatory guidelines or regulations as may hereafter be established and as provided by law.

1.2 This Schedule shall be considered a part of all rate schedules.

1.3 Upon discovery of the need to estimate kWh or kW, Company will make reasonable attempt (s) to secure an accurate meter reading and to resolve no-access issues.

1.4 Company is not obligated to obtain, or attempt to obtain, a customer supplied meter read prior to sending an estimated bill. In circumstances where APS has agreed in writing to permit customer supplied meter reads in accordance with Arizona Corporation Commission (ACC or Commission) regulations and that customer fails to provide Company with the meter read, estimation is also allowed.

1.5 Estimates due to equipment malfunctions may exceed one month if the malfunction of Company owned or maintained equipment could not be reasonably discovered and/or corrected before the need for additional estimates, or if the equipment malfunction is with regard to customer-owned or maintained equipment.

1.6 This schedule is not intended to supersede the Commission's rules and regulations in effect at the time the Commission approved this Schedule 8 without a specific decision of the Commission.

2. BILL ESTIMATION

2.1 The causes that result in an estimated bill include but are not limited to:

2.1.1 Inclement weather where conditions prevent meter access or compromise APS employee safety as determined by Company.

2.1.2 Lack of access to the meter either due to conditions on the customer's premise or to road closures that prevent access to the customer's premise.

2.1.3 Equipment or meter failure or malfunction with no reliable information retained by the meter, or inability to obtain billing information from an AMI meter due to equipment failure in the AMI system.

2.1.4 Labor unavailability due to circumstances such as unforeseen illness, natural disasters, or other extreme events.

2.1.5 Meter tampering or energy diversion resulting in a lack of accurate metered consumption information.

2.1.6 An electronic meter reading is obtained, but the data cannot be transferred to a billing computer.

2.1.7 Only a partial read for a meter (for example, the total kWh read is obtained from a time-of-use meter, but on-peak kWh and/or kW reads are unavailable). Company will use the read available, and estimate the missing read(s).

2.2 The following defines certain conditions under which a bill is not considered estimated:

2.2.1 A bill based on an actual kWh read, following an estimated bill. This is considered a "true-up" bill and has an explanation of "true-up" on the bill.

2.2.2 Rate changes in the middle of the billing cycle.

2.2.3 A meter failure or malfunction which does not prevent the meter from accurately recording customer usage or from being read.

2.2.4 The meter read is not available using electronic meter reading devices, but data is obtained from a visual meter reading.

2.2.5 Meter reading information is not available because the service is provided on an un-metered basis.

2.2.6 Unbundled service for direct access customers is provided on the basis of load profiles in accordance with ACC regulations rather than using interval data metering.

2.2.7 When Company determines a meter is misread, but the actual read on the meter at the time it was read can be determined, Company makes a manual correction to the incorrect read. This includes, but is not limited to, the following examples:

2.2.7.1 A shut-off read is obtained, and on the same day the monthly meter read is taken and is higher by 1 kWh. The monthly meter read is changed to the same read as the shut off read.

2.2.7.2 The serviceman enters a shut-off or turn-on read and then calls into the office to say he entered the read for the wrong address. The correct reads are entered for the appropriate addresses.

2.2.7.3 Accurate consumption information can be obtained from load research meters.

2.2.8 A bill is estimated, and then rebilled when an actual read is obtained for the same billing period. The first bill is considered an estimated bill and is coded as such. The subsequent bill is considered a corrected bill and is not coded as an estimate, but does contain "corrected bill" language.

3. BILL ESTIMATION METHODS

The following section describes the estimation methods used to estimate energy consumption and demand for most instances. Estimation techniques required where special circumstances exist, such as initial bills, are also described. In general, the estimation methodologies utilize historical data.

3.1 ENERGY ESTIMATION (kWh)

For energy estimation, the following hierarchy is used: 1) The estimate will be based on the customer-specific prior month's energy consumption unless that month was an initial bill. 2) If the prior month's customer-specific energy consumption is not available or was an initial bill, the estimate will be based on the customer-specific energy consumption for the same month in the prior year. 3) If the customer-specific prior month or same month last year energy consumption is unavailable but adequate seasonal customer history exists, energy consumption will be estimated based on daily usage during six months of the same season. 4) If customer-specific energy consumption is not available, the estimate will be based on the prior month's energy consumption at that premise unless that month was an initial bill. 5) If prior month's premise energy consumption is not available or was an initial bill, the premise energy consumption for the same month in the prior year will be used to estimate consumption. 6) If premise-specific prior month or same month last year is unavailable but adequate seasonal premise history exists, energy consumption will be estimated based on daily usage during six months of the same season. 7) When adequate customer or premise history is not available, the estimate is based on the customer class average usage found in Section 3.3.1.

For customers served under time-of-use schedules, the hierarchy listed above will be utilized to develop the estimated on-peak and off-peak energy consumption.

For customers served under rate schedules SC-S, EPR-2, EPR-5, and EPR-6 the hierarchy listed above will be used to estimate the energy consumed by the Customer. Section 3.1.3 below shall be used to estimate any excess energy purchased by the Utility. For customers served under rate schedules E-56, CPP-RES and CPP-GS, the energy estimation will be addressed on a case-by-case basis.

For bill estimation purposes, the Summer Season is defined as May through October and the Winter Season is defined as November through April.

The energy estimation methods are described in detail below.

Previous Month Method

Estimated energy usage is calculated as follows:

1. Determine the number of days for the previous month's billing period.

2. Determine the kWh for the previous month's billing period.
3. Divide the previous month kWh by the previous month number of days to determine previous month per day usage.

4. Multiply the previous month per day usage by the number of days in the missing read billing period to yield the kWh for the missing read billing period.

Same Month Prior Year Method

Estimated energy is calculated as follows:

1. Determine the number of days for the same month of the previous year's billing period.

2. Determine the kWh for the same month of the previous year's billing period.

3. Divide the same month prior year's kWh by the same month prior year's number of days to get same month prior year per day usage.

4. Multiply the same month prior year per day usage by the number of days in the missing read billing period to yield the kWh for the missing read billing period.

Seasonal Average Method

Estimated energy is calculated as follows:

Where there is sufficient seasonal history (the number of days billed in the season is between 165 and 195 days), energy is estimated by calculating the average use per day for the same season as the billing period with the missing read. The resulting per day usage is multiplied by the number of days in the missing-read billing period to yield the usage estimate for the billing period. Seasonal average is calculated as follows:

1. Determine the total number of days from each of the previous six same-season months to yield seasonal total days.

2. Add the kWh from each of the previous six same-season months to yield 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.

Class Average Method

Estimated energy usage is calculated as follows:

Where neither customer nor premise history is available, energy is estimated by calculating the average use per day for customer served under the same rate schedule. The resulting per day usage is multiplied by the number of days in the missing-read billing period to yield the usage estimate for the billing period.

3.1.1 TIME-OF-USE AND SEASONAL ESTIMATION (kWh):

If the rate for the estimated billing period is a time-of-use rate and sufficient time-of-use history does not exist for a customer or premise, on-peak energy usage is allocated as follows:

	Super Summer (Jun, Jul, Aug) ET-SP Only	Summer (May through October)	Winter (November through April)
Residential			
ET-1	-	40%	30%
ET-2	-	25%	16%
ET-SP			
Super Peak	12%	-	-
On-Peak (12-3, 6-7)	13%	-	-
On-Peak (12-7)	-	25%	19%
ECT-1R	-	40%	30%
ECT-2	-	23%	16%
Non-Residential			
All	-	32%	31%

NOTE: The percentages specified above will also apply for seasonal estimation of Customer-owned on-site distributed generators to include both the energy consumed by the Customer and any excess energy purchased by the utility.

Seasonal on-peak energy percentages listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater than 5%.

3.1.2 ENERGY ESTIMATION FOR CUSTOMER-OWNED ON-SITE DISTRIBUTED GENERATORS

For energy estimation for Customer-owned on-site distributed generators, the following hierarchy is used: 1) The estimate will be based on each generators previous month's energy output unless that month was an initial bill. 2) If the prior month's generator-specific energy output is not available or was an initial bill, the estimate will be based on the generator-specific energy output for the same month in the prior year. 3) If the generator-specific prior month or same month last year energy output is unavailable but adequate seasonal history exists for a similar type of generator, energy output will be estimated based on the similar generator's output during six months of the same season 4) If similar generator output is not available, the estimate will be based on the prior month's generation output at that premise unless that month was an initial bill. 5) If prior month's premise generator output is not available or was an initial bill, the premise generator output for the same month in the prior year will be used to estimate generator output. 6) If premise-specific prior month or same month last year generator output is unavailable but adequate seasonal premise generation output history exists, energy output will be estimated based on daily generation output during six months of the same season. 7) When adequate Customer or similar generator output history is not available, the generator estimate is based on a 50% availability factor for the month (20% for PV systems).

For customers served under time-of-use schedules, the hierarchy listed above will be utilized to develop the estimated on-peak and off-peak energy consumption.

3.1.3 EXCESS POWER (ENERGY) ESTIMATION FOR CUSTOMERS WITH CUSTOMER-OWNED ON-SITE DISTRIBUTED GENERATORS

This section estimates the amount of Customer-owned on-site distributed generation energy provided to the APS distribution system ("Excess Power"). For Excess Power estimation for Customer-owned on-site distributed generators, the following hierarchy is used: 1) The estimate will be based on the previous month's Excess Power kWh level unless that month was an initial bill. 2) If the prior month's Excess Power kWh level is not available or was an initial bill, the estimate will be based on the Excess Power kWh level for the same month in the prior year. 3) If the Excess Power kWh level for the prior month or same month last year is unavailable but adequate seasonal Excess Power history exists, the Excess Power kWh level will be estimated based on the daily Excess Power kWh level during six months of the same season. 4) If the seasonal daily Excess Power kWh level is not available, the Customer's estimate will be based on the prior month's Excess Power kWh level at that premise unless that month was an initial bill. 5) If prior month's premise Excess Power kWh level is not available or was an initial bill, the premise Excess Power kWh level for the same month in the prior year will be used to estimate the Excess Power kWh level. 6) If premise-specific prior month or same month last year Excess Power kWh level data is unavailable but adequate seasonal premise Excess Power kWh level history exists, the Excess Power kWh level will be estimated based on the daily Excess Power kWh level during six months of the same season. . 7) When adequate Customer or similar Excess Power kWh level history is not available, the Excess Power kWh level estimate is based on the following formula:

a. Residential PV Systems: (1,630.8 x the nameplate continuous output power rating of the generating facility)/12 x .10
b. All other generating systems will be addressed on a case-by-case basis

For customers served under time-of-use schedules, the hierarchy listed above will be utilized to develop the estimated on-peak and off-peak Excess Power kWh levels.

3.1.4 ENERGY ESTIMATION FOR MISSING INTERVAL DATA

For rate schedules where kWh billing determinants are derived from interval data, such as 15 minute or hourly intervals, and which are not specifically addressed elsewhere herein, the billing determinants shall be estimated through the standard validating, editing and estimating (VEE) process described below.

3.1.4.1 If any of the relevant interval billing data is missing in a billing period, the kWh billing determinants will be estimated as stated below, with the exception of section 3.1.4.1.1.

- Determine the kWh to be estimated: Compute the total kWh for the relevant time period by subtracting the start read from the stop read for that period, using the most recent reads. Sum the interval data for the same period to determine the kWh for the intervals having valid data. Compute the kWh for the interval data needing estimation (X): where (X) equals the total kWh for the period minus the kWh for the intervals with valid data.

- Determine the reference day(s): Select a reference day (or days) to provide an estimate of the load shape for the missing interval data. The reference day shall have a load shape that resembles the time period needing estimation. Weekday load shapes will be estimated with weekday reference days, weekends with weekend reference days. Holidays will be estimated with a weekend reference day.

- Replace the missing interval data with the reference day interval data for the same hour or sub-hour intervals of the day.

- Scale the reference day interval data: Sum the kWh for the reference day interval data that replaced the missing interval data (Y). Create a scale factor by dividing the kWh for the section needing estimation (X) by (Y). Multiply each estimated interval data point in the period by the (X/Y) scale factor.

3.1.4.1.1 For rate schedules GS-Schools M and GS-Schools L, the on-peak and shoulder-peak monthly billing kWh are derived from hourly interval data, while the off-peak monthly kWh is derived as the residual of the total kWh register read less the on-peak and shoulder-peak kWh. If 3%

or less of the relevant combined on-peak and shoulder-peak interval data is missing in a billing period, the missing kWh will be included in the residual off-peak billing kWh. Otherwise the missing interval data will be estimated according to 3.1.4.1.

3.2 DEMAND ESTIMATION

For those accounts where the missing read period is billed on a demand rate and the missing read billing period is not for an initial bill, demand is estimated using the following hierarchy:

3.2.1 If it is the same customer, use the prior month's demand unless that demand was estimated or is for an initial bill.

3.2.2 If it is the same customer, but the prior month's customer-specific demand is not available or was estimated or was an initial bill, use the customer-specific demand read from the same billing month a year ago, unless that demand was estimated or is for an initial bill.

3.2.3 If the bill for the same month of the prior year was not for the same customer, or was estimated or for an initial bill, use the premise demand read for the prior month, unless that demand was estimated or is for an initial bill.

3.2.4 If the prior month's premise demand was estimated or was an initial bill, use the premise demand read from the same billing month of the prior year, unless that demand was estimated or was for an initial bill.

3.2.5 For purposes of this Section 3.2., a demand read is considered "estimated" if the demand was not reset the prior month (or any time thereafter) and the demand read is not greater than the prior month's demand read which was not reset.

3.2.6 If none of the above is applicable, apply the rate schedule load factor percentage to the appropriate kWh. The rate schedule load factor percentages are:

Residential:	Load Factor %
-	-
ET-SP Super-Peak	43%
ET-SP On-Peak	38%
ECT-1R	42%
ECT-2	39%
Non-residential:	
All	50%

Load factors listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater than 5%.

3.2.7 From time to time, meter reader may be unable to reset demand readings. When this occurs the readings are noted as "Demand Not Reset."

3.2.7.1 In the month when the "Demand Not Reset" is noted, the kWh and kW are not estimates and are used for billing purposes.

3.2.7.2 In the following month, if the meter reader is able to reset the demand, the "Demand Not Reset" notation is removed.

1) If the kW reading is less than the reading for the previous month, the demand is used for billing purposes and is not an estimated demand.

2) If the demand reading is greater than the previous month when the "Demand Not Reset" was noted, the read demand is used.

3) If the demand reading is equal to the demand reading when the "Demand Not Reset" was noted, demand will be estimated using the procedures described in previous sections of this schedule.

3.2.8 DEMAND ESTIMATION FOR CUSTOMER-OWNED DISTRIBUTED GENERATORS

For those accounts where the missing read period is billed on a demand rate and the missing read billing period is not for an initial bill, demand is estimated using the following hierarchy:

3.2.8.1 If it is the same customer, use the prior month's demand from the Customer-owned generator unless that demand was estimated or is for an initial bill.

3.2.8.2 If it is the same customer, but the prior month's customer-specific demand from the generator is not available or was estimated or was an initial bill, use the customer-specific demand on the generator from the same billing month a year ago, unless that demand was estimated or is for an initial bill.

3.2.8.3 If the demand on the generator for the same month of the prior year was not for the same customer, or was estimated or for an initial bill, use the premise generator demand read for the prior month, unless that demand was estimated or is for an initial bill.

3.2.8.4 If the prior month's premise demand from the generator was estimated or was an initial bill, use the premise demand from the generator from the same billing month of the prior year.

3.2.8.5 For purposes of this Section 3.2., a demand read on the generator is considered "estimated" if the demand was not reset the prior month (or any time thereafter) and the demand read on the generator is not greater than the prior month's demand read which was not reset.

3.2.8.6 If none of the above is applicable, apply the rate schedule load factor percentage to the appropriate kWh. The rate schedule load factor percentages are:

Residential:	Load Factor %
ET-SP Super Peak	43%
ET-SP On-Peak	38%
ECT-1R	42%
ECT-2	39%
Non-residential:	
All	50%

Load factors listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater than 5%.

3.2.8.7 From time to time, meter reader may be unable to reset demand readings. When this occurs the readings are noted as "Demand Not Reset."

3.2.8.7.1 In the month when the "Demand Not Reset" is noted, the kWh and kW are not estimates and are used for billing purposes.

3.2.8.7.2 In the following month, if the meter reader is able to reset the demand on the generator, the "Demand Not Reset" notation is removed.

1) If the kW reading is less than the reading for the previous month, the demand on the generator is used for billing purposes and is not an estimated demand.

2) If the demand reading on the generator is greater than the previous month when the "Demand Not Reset" was noted, the read demand is used.

3) If the demand reading is equal to the demand reading when the "Demand Not Reset" was noted, demand will be estimated using the procedures described in previous sections of this schedule.

3.3 INITIAL BILL

An initial bill is the first bill a customer receives for a premise. Examples of an initial bill include a new meter set where no service has previously been provided, or a previously occupied premise that is now in the new connecting customer's name.

If the billing period for an initial bill is fewer than 11 days and no read was obtained, the customer is billed only a daily basic service charge, and any energy used during this

period is included in the following month's billing period usage. If the billing period is 11 or more days, the bill is estimated as follows:

3.3.1 ENERGY USAGE (kWh):

If there is no usage history for the premise, a "minimum usage" estimate is multiplied by the number of days in the missing read billing period. The difference in energy used during this period and the "minimum usage" estimate is included in the following month's billing period usage. The "minimum usage" estimates for total kWh are:

Residential:	
E-12	25 kWh per day
ET-1 and ET-2	47 kWh per day
ET-SP	47 kWh per day
ECT-1R and ECT-2	75 kWh per day
Non-residential:	
Under 20 kW	45 kWh per day
Over 20 kW	1,156 kWh per day

NOTE: The minimum usage estimates specified above also apply to energy consumed by the Customer under rate schedules EPR-2 and EPR-5. Excess energy purchased by the utility will be estimated at zero for the initial bill.

Initial bill minimum energy usage estimates for total kWh listed above will be modified through general rate case or tariff filings or within three months whenever annual Load Research studies indicate that changes in these data are greater than 5%.

If there is usage history for the premise, energy will be estimated using the applicable method in Section 3.1. If there is no on-peak usage history for the premise, the allocations found in Section 3.1.1 will be utilized.

3.3.2 DEMAND (kW):

For those accounts where the missing read period is billed on a demand rate, demand is estimated as follows:

For initial bills fewer than 11 days, no demand charge is billed.

For initial bills 11 or more days, the kW is estimated using the same hierarchy as indicated in Section 3.2.

3.4 ADVANCED METER INFRASTRUCTURE (AMI) METERS

When a missing read occurs on an account with an AMI meter, an initial attempt to estimate will be performed using partial month data as available. AMI meter data is normally collected on a daily basis, and therefore would be used to compute an estimate for the billing month, even if some of these daily reads are missing.

3.4.1 For initial and normal bills:

If the latest AMI meter data is available with a meter reading of 11 or more days since the last read date for the previous billing month:

1) Review the daily AMI incremental reads to determine the total energy consumption, on-peak percentage and demand for the billing month. Use reads from the latest AMI data to determine a per-day usage value and multiply by the number of days in the current billing period to yield the estimates for total and on-peak usage.

2) If the AMI meter data is unavailable use the estimation methods for non-AMI meters.

3.4.2 For initial and normal bills of 10 or less days, use the estimation methods described in Section 3.3.

3.5 DEAD OR FAILING METER

For accounts where it is determined the meter is dead or failing, no adjustment to the bill will be made until the new meter is in place at least 11 days. Then the usage for the previous month(s) is to be determined by taking the lower of the per day usage calculated from the new meter, less 3% (plus 3% for estimating customer-owned on-site generation bought by Utility), or the Same Month Prior Year Method described in Section 3.1. Charges for underbillings of dead or failing meters will be limited to three months for residential accounts and six months for non-residential accounts, in accordance with Schedule 1 Section 4.3. In instances where Company believes the customer's usage patterns were different during the dead or failing meter period than those being used to estimate, Company may adjust its estimate downward from either method.

3.6 ENERGY DIVERSION OR METER TAMPERING

In instances where energy diversion or meter tampering has occurred, meter reads from the meter will not accurately reflect all of the energy usage. Energy consumption for the period during which the diversion or meter tampering occurred shall be estimated by calculating a per day usage based on the best available information. This may include 1) metered data obtained from an auxiliary meter installed during the diversion investigation; 2) meter information obtained from the customer's meter after the diversion or meter tampering was discovered by Company and stopped; and 3) consumption history for the customer or site prior to when the diversion or meter tampering began.

In some instances, the estimated consumption based on per day usage may be less than what the meter actually registered during the time period. In those cases, the actual usage will be used in the calculation of the total energy diversion or meter tampering back bill.

3.7 NON-CUSTOMER INFORMATION SYSTEM ESTIMATES

In some instances, an account is coded to not be automatically estimated by Company's Customer Information System (CIS). This occurs when, due to special circumstances of the account (such as: served at substation voltage, receives a power allowance from a federal agency, partial requirements/self-generation, etc.), manual intervention in the billing process is required. For those accounts which are coded to not be automatically estimated by the CIS, additional attempts may be made to obtain meter readings which will be used for billing. If reads are not obtained, then energy and demand will be estimated, using the applicable methods described in this Schedule.

3.8 REBILLS OF PREVIOUS ESTIMATES

In instances where the reads from the previous month are estimated and a subsequent actual read is obtained, the following "true-up" is performed.

3.8.1 ENERGY USAGE

If the actual read following an estimated read is either lower than the estimated read, or, in Company's opinion, considerably higher than the previously estimated read(s), then per day usage is calculated using the difference in kWh between the last actual read and the current month actual read. The per day usage is multiplied by the number of days in each estimated month and each affected month is rebilled using the new per day usage kWh.

3.8.2 DEMAND

If the actual demand read obtained after an estimate is lower than the estimated demand read, the previous month(s) estimated demand read(s) are lowered to the subsequent actual demand read.

The estimates used in this Section 3.8 take precedence over the estimating methods described elsewhere in this Service Schedule.