

NEW APPLICATION



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ORIGINAL

BEFORE THE ARIZONA CORPORATION COMMISSION

Arizona Corporation Commission

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17 IN THE MATTER OF THE APPLICATION
18 OF ARIZONA PUBLIC SERVICE
19 COMPANY FOR A RULING RELATING
20 TO ITS 2016 DEMAND SIDE
21 MANAGEMENT IMPLEMENTATION
22 PLAN.

DOCKET NO. E-01345A-15-0182
APPLICATION

23 Arizona Public Service Company (APS or Company) files its Demand Side
24 Management Plan (Plan) for 2016 in accordance with A.A.C. R14-2-2405. The Plan
25 outlines how APS will continue to work toward compliance with the Energy Efficiency
26 Standard (EES) of 22% by 2020 as set forth in A.A.C. R14-2-2404. APS intends to
27 continue its existing portfolio of cost effective programs, including those set forth in its
28 2015 Application (2015 Plan) filed March 20, 2015 in Docket No. E-01345A-15-0095.
In this Plan, APS makes several minor enhancements to its portfolio of energy efficiency
programs and measures to improve program effectiveness, capture increased savings and

1 offer customers additional choices. The proposed Plan will enable APS to keep a flat
2 budget of \$68.9 million for 2016 and reduce the Demand Side Management Adjustor
3 Charge (DSMAC) by applying collected, but unallocated, funds from the DSMAC
4 balancing account. Highlights of the Plan are briefly discussed below. The complete
5 Plan is attached as Exhibit A.

6 **I. DEFINING A PATH TOWARD COMPLIANCE WITH THE EES BY 2020**

7 The Plan is designed to obtain first year energy savings in 2016 of 565,000 MWh.
8 These anticipated savings, combined with the on-going savings to date from measures
9 installed in 2011 through 2015, comprise 11.62% of APS's forecasted 2015 retail sales,
10 just under the interim benchmark of 12% contained in the Energy Efficiency Rules (EE
11 Rules). APS is on track and making good progress toward compliance with the overall
12 EES of 22% by 2020.

13 The EE Rules contemplate that between 2016 and 2020 a utility will obtain
14 incremental energy savings of 2.5% per year, which for APS is predicted to be a total of
15 3,918,000 MWh over the five year period. Starting in 2016, utilities may begin counting
16 toward compliance a percentage of their pre-EE Rule energy savings. The amount of
17 the credit varies by year—starting at 7.5% of pre-rule savings in 2016 and escalating to
18 32.5% in 2020. Because the amount of the pre-rules credit varies substantially over the
19 five year period, the amount of additional MWh needed each year to meet the
20 incremental benchmarks from 2016 to 2020 also varies substantially. This variance
21 affects the amount of new energy savings that a utility must obtain on an annual basis
22 and causes it to be substantially higher in 2016 than in 2020.

23 APS proposes to smooth out the path to compliance by splitting the projected
24 energy savings needed by 2020 into five equal installments. See Exhibit A at Table 2 on
25 p. 3 for an illustration. Thus, for years 2016 through 2020, APS would plan to obtain
26 565,000 MWh of new energy savings annually to stay on track for compliance. This
27 approach allows APS to avoid large year-to-year budget variations in attaining the
28

1 overall savings goal, which benefits all customers, as well as participating consumers
2 and the marketplace with more consistency of message and program offerings.

3 **A. APS Requests a Budget of \$68.9 Million and to Lower the DSMAC**

4 APS requests a budget of \$68.9 million to support its 2016 energy efficiency
5 programs. APS has kept its DSM budget at this level since 2013 by focusing on adding
6 and expanding programs that obtain high savings at little or no cost to customers, such
7 as the Systems Savings Initiative, Prepaid Energy Conservation Program, codes and
8 standards, behavioral programs, and demand response.

9 As indicated in its 2015 Plan, as of March of 2015, APS had approximately \$37.3
10 million in collected, but unallocated funds. APS proposed applying \$5.1 million of
11 these funds to its 2015 budget to reduce the amount to be collected through the DSMAC.
12 There are two options to use these unallocated funds in 2016.

13 One option is to apply the current DSMAC account balance over the next five
14 years to fund DSM programs while also reducing DSMAC funding requirements and
15 lowering the DSMAC rate. In 2016, APS estimates that \$68.9 million in total funding
16 will be needed to meet the goal of 565,000 MWh. Under this option the \$68.9 million
17 would be comprised of \$45.1 million in DSMAC collections, \$10 million from base
18 rates and \$13.8 million would be drawn from the DSMAC balancing account. Table 1
19 illustrates option one.

20 Table 1: Revenue Sources for Proposed 2016 DSM Budget

21

Revenue Source	Budget Contribution (rounded)
Base Rates	\$10,000,000
DSMAC	\$45,100,000
Unallocated Funds	\$13,800,000
	\$68,900,000

22
23
24

25 Applying \$13.8 million of the unallocated fund balance to the 2016 budget
26 reduces DSMAC collections for 2016 by approximately \$8.7 million from anticipated
27 2015 levels. This will result in a reduction of approximately 12% in the DSMAC rate
28

1 for 2016 as compared to current 2015 rate. As shown in Table 4 on page 6 of the Plan,
2 APS projects that this level of ongoing DSMAC funding, plus the use of the remaining
3 collected, but unallocated funds in the balancing account are anticipated to provide
4 sufficient funding to meet the EES in 2020 without a further DSMAC rate increase.
5 Under this option, the DSMAC rates for 2016 would be \$0.001624 per kWh for
6 residential customers and non-demand billed general service customers and \$0.613 per
7 kW for general service demand billed customers.

8 Another option is to use the entire amount of the collected, but unallocated, funds
9 in 2016 to substantially lower the DSMAC. Under this option APS would collect \$26.7
10 million from the DSMAC in 2016. The remainder of the \$68.9 million budget for 2016
11 would come from \$10 million in base rates and \$32.2 million in unallocated funds
12 (\$37.3M less \$5.1M applied to reduce DSMAC in 2015). This alternative approach
13 would provide substantial and immediate customer savings. If this option is selected,
14 APS would work diligently to find ways to achieve compliance in future years without
15 substantial increases to the DSMAC. However, it is possible that substantial increases
16 in the DSMAC would be needed in 2017 and beyond in order to meet the EES by 2020.

17 **II. PROGRAM HIGHLIGHTS FOR 2016**

18 **A. APS Systems Saving Initiatives**

19 APS will be continuing various systems savings initiatives in 2016. APS intends
20 to continue its Conservation Voltage Reduction Project (CVR) by installing CVR
21 systems on about 47 additional APS distribution feeders. As discussed in its 2015 Plan,
22 CVR systems achieve customer energy savings through load reductions by reducing
23 voltage to households and businesses located on targeted feeder lines.

24 As another system savings initiative, APS proposes to add new energy efficient
25 Light Emitting Diode (LED) street lighting technologies as an option for both APS
26 owned and customer owned street lights. In recent years, the electric utility industry has
27 seen significant improvements in street lighting technology, specifically the new LED
28

1 technologies, which use less energy and require less maintenance and therefore are less
2 costly. Because this new technology saves substantial energy, APS proposes the energy
3 saved be counted towards the APS System Savings Initiative for streetlights owned by
4 APS. In addition, new technologies also offer numerous customization options, which
5 APS's customers are eager to utilize. In order to keep up with the changing technologies
6 and customer demand, APS is adding additional technology to its existing LED and
7 induction lighting options through the methodology approved by the ACC in Decision
8 No. 72433 (June 27, 2011). APS also proposes to freeze its existing older street light
9 technologies to help further its commitment to energy efficiency and to more closely
10 align with customer demand.

11 APS anticipates that its Systems Saving Initiatives will generate first year energy
12 savings in 2016 of 39,200 MWh.

13 **B. Residential Energy Efficiency Programs**

14 With the exception of the Shade Tree Program that was suspended at the end of
15 2014 and remains suspended, APS will continue its existing portfolio of residential
16 energy efficiency programs with only minor modifications for 2016. These programs
17 have high customer involvement and satisfaction and are anticipated to provide
18 approximately 217,000 MWh of annual energy savings in 2016. The proposed changes
19 to these programs are summarized below:

- 20 • Up to 10,000 giveaway LED light bulbs will be distributed through the
21 Solutions for Business program at energy efficiency events;
- 22 • The incentive for variable speed pool pumps will be decreased from \$220
23 to \$170 per pump due to continued market penetration and lower
24 incremental costs;¹
- 25 • An incentive of up to 75% of the installed cost, up to a maximum of \$100
26 for installation of smart thermostats will be deployed;

27 _____
28 ¹ Consistent with Decision No. 74406 (March 19, 2014), APS will decrease the pool pump incentive effective January 1, 2016.

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- Water heater wraps will be added as a measure to the Residential Home Performance with ENERGY STAR[®] and Residential Multi-Family Energy Efficiency Programs;
- An incentive of up to 75% of the installed cost (anticipated to be an average of \$70) per unit for installation of Western Cooling Controls on existing and new air conditioning units will be added;
- Increase the SEER ratings for eligible air conditioners and heat pumps that may receive rebates to comport with upcoming Department of Energy minimum efficiency standards;
- Minor enhancements to the Conservation Behavior Program, including event based messages designed to get participating customers to reduce usage during times of high demand;
- The smart strip measure in the Residential Home Performance with ENERGY STAR program will be suspended; and
- Update the eligibility criteria for the Limited Income Weatherization Program and Crisis Bill Assistance Programs to comport with current Arizona Department of Economic Security guidelines.

As discussed in the Plan, these enhancements are necessary to adapt to current market conditions and ensure that the programs remain cost-effective. Details regarding these enhancements can be found in the Plan, which is attached as Exhibit A.

APS evaluated solar water heating systems for potential inclusion in its energy efficiency portfolio, but given the high costs and limited savings, this program does not currently pass the societal cost test and APS has not proposed adding it to its portfolio.²

C. Non-Residential Energy Efficiency Programs

² Decision No. 74949 (February 9, 2015), in the Company's 2015 Renewable Energy Standard Implementation Plan proceeding, required APS to consider proposing solar water heating as an energy efficiency measure rather than a renewable energy program after the renewable incentives expire at the end of 2015.

1 APS has five non-residential energy efficiency programs that are marketed under
2 the trade name APS Solutions for Business. The Solutions for Business program
3 comprises over 400 individual measures and is projected to generate first year energy
4 savings in 2016 of 217,400 depending upon customer participation.

5 For 2016, APS proposes seven new measures and suspends nine current
6 measures. Similar to the residential program, APS will add smart thermostats and
7 Western Cooling Controls to its complement of non-residential measures. In addition,
8 APS is adding Electronically Commutated (EC) motors for HVAC systems, three types
9 of new LED lighting, including LED Linear, outdoor LEDs and LED streetlights, and
10 Behavioral Conservation.

11 APS is suspending the following measures from its non-residential program
12 prescriptive incentive list, as these measures are currently not cost-effective in all
13 situations: single phase air conditioning and heat pump units, outside air economizers,
14 night covers for refrigerated chest coolers, high efficiency ice makers, evaporator fan
15 motor controls, electronically commutated motors and controls, smart strips, LED
16 channel lights, and LED pedestrian signs. APS non-residential customers may still
17 apply for custom incentives for these measures which will be evaluated for cost
18 effectiveness in each application.

19 **D. Demand Response Programs**

20 APS continues its existing demand response programs in 2016 without any
21 changes. APS projects energy savings from its demand response program of 797 GWh
22 of which 56.5 GWh will be counted toward the EES. The EE Rules limit the total
23 amount of demand response savings that can be counted to a maximum of 10% of a
24 utility's annual benchmark and 2% of the 22% EES needed in 2020. APS's current
25 programs provide energy savings in excess of 10% per year cap that APS is allowed to
26 count toward the EES.

1 **III. CONCLUSION**

2 APS respectfully requests that the Commission expeditiously approve this
3 Application and APS's Plan in its entirety, specifically including the following:

4 1. Approve the addition of LED street lights as part of the Company's
5 Systems Savings Initiative;

6 2. Approve a budget of \$68.9 million for 2016 and the Company's request to
7 apply approximately \$13.8 million of collected, but unallocated, funds to reduce
8 DSMAC collections; and

9 3. Approve resetting the DSMAC adjuster to collect approximately \$45.1
10 million on the first billing cycle after March 1, 2016 or the first billing cycle after
11 approval of this plan.

12 RESPECTFULLY SUBMITTED this 1st day of June 2015.

13
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16 Thomas L. Mumaw

17 Attorneys for Arizona Public Service Company

18 ORIGINAL and thirteen (13) copies
19 of the foregoing filed this 1st day of
20 June 2015, with:

21 Docket Control
22 ARIZONA CORPORATION COMMISSION
23 1200 West Washington Street
24 Phoenix, Arizona 85007

25 AT&R
26



**Arizona Public Service
Company**

**Demand Side Management
Implementation Plan for
2016**

June 1, 2015

TABLE OF CONTENTS

I. Introduction----- 1

II. Energy efficiency portfolio----- 5

 a. Residential programs ----- 7

 1. Consumer products program ----- 7

 2. Existing homes program – heating ventilating air conditioning (“HVAC”) ----- 9

 3. Home performance with energy star® program:----- 10

 4. Residential new construction program ----- 11

 5. Appliance recycling program ----- 12

 6. Limited income weatherization program----- 12

 7. Conservation behavior program ----- 13

 8. Multifamily energy efficiency program ----- 14

 9. Shade tree program----- 15

 10. Prepaid energy conservation program----- 15

 11. Solar water heating----- 16

 b. Non-residential programs----- 17

 1. Current program descriptions ----- 17

 a. Large existing facilities program ----- 17

 b. New construction program ----- 17

 c. Small business program----- 17

 d. Schools program ----- 18

 e. Energy information services program----- 18

 2. New measures----- 18

 a. Hvac measures ----- 18

 b. Lighting----- 19

 c. Conservation behavior measure:----- 20

 d. Other EE initiatives ----- 21

 1. APS resource savings initiative----- 21

 2. Building codes and appliance standards----- 22

III. Demand response and load management programs----- 23

 a. APS Peak Solutions® program ----- 23

 b. Super peak rate ----- 23

 c. Time of use rates ----- 23

 d. Peak event pricing ----- 24

 e. Peak time rebate program----- 24

IV. Budget----- 24

 a. Energy efficiency budget ----- 24

APS 2016 Demand Side Management Implementation Plan

b. Demand response budget -----	26
c. Demand side management adjustment charge -----	26
V. Performance incentive -----	28
VI. DSM energy savings and benefits -----	29
a. Energy efficiency programs -----	29
b. Demand response programs -----	31
VII. Environmental benefits -----	32
VIII. Measurement, evaluation, and research -----	34

I. Introduction

By Arizona Corporation Commission (“Commission” or “ACC”) rule,¹ Arizona Public Service Company (“APS” or “Company”) is expected to achieve cumulative energy savings of 22% of its retail sales with Energy Efficiency (“EE”) and Demand Response (“DR”) programs by 2020. APS’s Demand Side Management Implementation Plan (“Plan”) outlines how APS intends to continue its compliance with the EE Rules and Commission Orders regarding EE and DR programs, consistent with A.A.C. R14-2-2405. The APS EE program portfolio includes a balanced mix of programs targeted to address APS’s diverse customer segments and market opportunities to both Residential and Non-Residential customers. These programs are expected to produce cost effective energy consumption and demand savings in 2016 and in the long term. For 2016, APS intends to continue all previously approved and cost-effective programs, subject to certain minor enhancements discussed below.

Highlights of the Plan

- Continues existing EE and DR programs with some modifications.
- Provides a 5 year estimate of compliance with the EE Rules from 2016 through 2020 and proposes a 5-year plan with equal annual goals of 565,000 Megawatt Hours per year (“MWhs/year”) to even out the path to compliance. Also describes options for applying the current DSMAC account balance over the next five years.
- Proposes three new residential EE measures including smart thermostats, water heater wrap, Western Cooling Control Device, and seven new prescriptive measures to be added to the Non-Residential programs.
- Suspends the following current measures due to a projected lack of cost effectiveness at this time:
 - Residential
 - Home Performance Program - Smart Strips
 - Non-Residential (these measures are being removed from the prescriptive measure list, but they could still qualify for custom incentives depending on specific customer usage characteristics).
 - Single Phase Air Conditioners & Heat Pump Units
 - Outside Air Economizer
 - Night Covers for Refrigerated Chest Coolers
 - High Efficiency Ice Makers
 - Evaporator Fan Motor Controls
 - EC Motors + Control
 - Smart Strips
 - LED Channel Lights
 - LED Pedestrian Signs
 - Recommends that the Shade Tree program continue to be suspended. Despite APS efforts to redesign the program, it was not possible to return the program to cost effectiveness at this time. APS intends to look at opportunities for incorporating shade trees in the 2017 plan.
- Reviews cost effectiveness of solar water heating as an EE measure but does not recommend it at this time due to a current benefit/cost ratio below 1.0.

¹ A.A.C. R-14-2-2404.

- Proposes to introduce new energy efficient LED street lighting technologies to include in the APS System Savings Projects.

The proposed program modifications are summarized on Table 1.

**Table 1
2016 Proposed EE/DR Program Changes**

Residential Consumer Products	Adds new measure – Smart Thermostats
Residential Existing Homes HVAC	Adds new measure – Western Cooling Control Device
Residential Home Performance with ENERGY STAR®	Adds new measure – direct install water heater wrap Suspends the Smart Strip measure.
Residential Low Income Weatherization Program	Updates the Crisis Bill customer definitions and clarifies the income eligibility.
Residential Multi-Family Energy Efficiency Program	Adds direct install water heater wrap.
Non-Residential Solutions for Business	Adds seven new measures. Suspends nine current measures.

APS found all of the current programs, proposed new measures, and modified measures to be cost effective (as measured by the Societal Cost Test using ACC methodology) using updated utility avoided costs.

2016-2020 Estimated Savings Goals to Meet Compliance

Table 2 below provides a 5-year look at the estimated energy savings that will be needed to meet compliance with the Energy Efficiency Standard (“EES”) in 2020. Based on current forecasts of retail sales, it will take approximately 3,918,000 MWhs of incremental energy efficiency savings from 2016-2020 to meet EES compliance based on a goal of achieving 22% of 2019 retail energy sales by the end of 2020.

Row six in Table 2 below shows the annual savings from 2016-2020 that would result from using the annual percentage savings targets (shown on row two) in the EE Rules. Note that the path to compliance using this approach is very uneven, with APS required to ramp up savings significantly in 2016 only to then ramp programs back down to meet lower goals from 2017-2020. This is due to both the increase in annual incremental savings from 2.25% in 2015 to 2.50% in 2016, as well as the provision in the Rules which gives credit for energy savings achieved from 2005-2010 prior to the adoption of the EES. APS is able to claim these pre-Standard savings towards compliance starting in 2016 with a phased-in approach that applies increasing credit each year through 2020. This results in a one year jump of over 100,000 MWhs in the annual savings targets (539,000 MWhs in 2015 compared to 669,000 MWhs in 2016 and then back down to 557,000 MWhs in 2017). APS is concerned that this uneven approach to meet compliance from year to year will be difficult to implement and confusing to the marketplace, with a rapid ramp up and down within the space of a year.

As an alternative and a smoother path to meet compliance, APS proposes the annual savings targets set forth in row seven of the table below. This approach evens the path to compliance by dividing the total savings needed to meet EES compliance in 2020 by the five year remaining timeframe, to arrive at an annual savings goal of 565,000 MWhs each year from 2016-2020. This approach helps provide a more consistent signal to the market, is more feasible and cost effective to implement, and it avoids the need for large annual changes in funding requirements over the next five years to meet compliance. For these reasons, APS proposes that the annual savings targets for the 2016 implementation plan should be 565,000.

Table 2
Meeting Energy Efficiency Standard (EES) Compliance Goals 2016-2020

	Program Year	2015	2016	2017	2018	2019	2020
1	Projected Retail Sales (MWh)*	27,661,698	27,904,566	28,357,791	28,907,142	29,467,496	29,947,215
2	Cumulative Annual EES Savings Targets (%)	9.50%	12.00%	14.50%	17.00%	19.50%	22.00%
3	Cumulative EES Savings (MWh)	2,565,243	3,319,470	4,046,471	4,821,376	5,637,281	6,483,186
4	Annual EES Savings Targets	539,000	754,227	727,001	774,905	815,905	845,905
5	Less Credit for Pre-EES Savings	-	84,993	169,986	226,648	283,310	328,955
6	Annual EES Savings Goals (MWhs)	539,000	669,234	557,015	548,257	532,595	516,950
7	APS Proposed Annual Savings Goals (MWhs)	539,000	564,810	564,810	564,810	564,810	564,810
8	Total Cumulative Savings - APS Proposed	2,565,243	3,215,046	3,949,842	4,741,301	5,589,421	6,483,186
9	Cumulative EES Savings (%)	9.50%	11.62%	14.15%	16.72%	19.34%	22.00%

*Excludes lines losses and sales to Freeport McMoran facilities that are exempted from the EES.

The APS 2016 DSM Implementation Plan is targeted to save an estimated first year 565,000 MWh of energy (rounded to the nearest 1,000 MWh), which is equivalent to almost 12% of retail sales forecasted for 2015, when added to 2011 through 2014 actual EE savings and 2015 estimated EE savings. APS expects to achieve savings of 434,000 MWh from EE programs, 56,500 MWh from DR programs, 35,000 MWh from Codes and Standards, and 39,000 MWh from APS System Savings. Note that the actual goal to be achieved in 2016 will be different than the estimated goal calculated above because it will be based on the actual measurement of retail sales in 2015, which can only be determined once the year is over.

The EE Rules require that the Company's Plan include a description of APS's compliance with the requirements of the EE Rules for the previous calendar year.² APS's EE program results for 2014 are fully described and documented in the Company's Demand Side Management Annual Progress Report, which APS filed with the Commission on February 27, 2015.³

The Plan was developed with input from the DSM Collaborative group whose members include EE experts and stakeholder representatives. Members of the DSM Collaborative include Commission Staff, the Residential Utility Consumer Office ("RUCO"), Southwest Energy Efficiency Project ("SWEEP"), Western Resource Advocates ("WRA"), the Department of Commerce Energy Office, Arizonans for Electric Choice and Competition ("AECC"), Arizona Community Action Association ("ACAA"), Efficiency First Arizona ("EFAZ") and others. APS discussed the Plan with the DSM Collaborative group prior to this filing.

² A.A.C. R14-2-2405(B).

³ See Docket No. E-00000U-15-0553

II. Energy Efficiency Portfolio

The current APS portfolio of EE programs is expected to produce cost effective energy and demand savings. APS proposes to continue implementation of these EE programs in 2016 subject to the changes and enhancements discussed within this plan. For programs implemented in 2016, the program cost is estimated to be 1.2 cents per lifetime kWh saved (total estimated program budget divided by the total estimated kWh saved over the expected lifetime of all measures installed in 2016).

APS estimates its DSM Portfolio, which includes EE and DR programs, will produce first year savings of 565,000 MWhs of energy from measures installed in 2016. These savings, together with the savings estimated to be achieved from measures installed in 2011 through 2015, are equal to almost 12.0% of APS's 2015 forecasted retail sales.

The savings in 2016 alone include 508,500 MWh from EE programs (including System Savings and Codes & Standards initiatives) and 56,500 MWh from DR programs. Table 3 below summarizes the estimated savings and total program net benefits resulting from proposed EE program activities in 2016. The net benefits in Table 3 are in addition to the benefits achieved from APS's earlier DSM activities that were placed into service from 2005 through 2015. These savings from earlier DSM activities, although quite real, are not included in the estimated impacts in Table 3. For more detail on the savings achieved prior to 2016, please see the Company's DSM Annual Progress Report filings.

Table 3
Estimated 2016 EE Impacts

\$68.9 Million	565,000	5,014,351	107.4	\$41.7 Million

¹Savings are estimated over the expected lifetime of all program measures installed in 2016.

²The Total Net Benefits estimate incorporates savings over the expected lifetime of all program measures installed in 2016 and program costs including the cost of Measurement, Evaluation & Research and the Performance Incentive. Total Net Benefits are the difference between the present value of the societal benefits and the present value of the societal costs.

Due to a number of factors, APS has been able to achieve the annual energy efficiency savings targets set forth in the EE Rules for a lower cost than anticipated, which has resulted in an estimated balance of \$37 million of collected, but unallocated, funds in the Demand Side Management Adjustor Charge ("DSMAC") balancing account as of March 2015.

There are two options to use these funds in 2016. One option is to use the current DSMAC account balance over the next five years in order to fund DSM programs to meet compliance while also reducing DSMAC funding requirements and lowering the DSMAC rate. For 2016, APS estimates that \$68.9 million in total funding will be required to meet the compliance goal of 565,000 MWhs. Under this option the DSMAC rate would be set to collect approximately \$45.1 million plus \$10 million collected in base rates, with the remaining \$13.8 million in estimated

funding to be drawn from the DSMAC balancing account. This will result in a reduction of approximately 12% in the DSMAC rate for 2016 as compared to current 2015 rate. As shown in Table 4 below, APS believes that this level of ongoing DSMAC funding, plus the use of the remaining collected but unallocated funds in the balancing account is anticipated to provide sufficient funding to meet EES compliance through 2020 without a further DSMAC rate increase.

Another option would be to use the entire amount of the collected but unallocated funds in 2016 and lower the DSMAC to collect \$26.7 million. Combined with the \$10 million in base rates and the \$32.2 million in unallocated funds (net the requested \$5.1 million in the 2015 plan), the total necessary 2016 budget of \$68.9 million would still be funded. This alternative approach would provide more significant immediate customer savings. If this option is selected, APS would work diligently to find ways to achieve compliance in future years without substantial increases. However, it is possible that substantial increases to the DSMAC charge in 2017 and beyond would be required to meet the goals out to 2020.

For the remainder of this plan, APS has presented the rate and schedule for the first option; if the Commission requests to see the DSMAC rate and schedules for the second option, APS can provide it.

Table 4
Projected 5-Year Compliance Plan and DSMAC

	2015	2016	2017	2018	2019	2020
1. Annual Savings Goal (GWh)	539	565	565	565	565	565
2. DSM Budget (Est) in SMM	\$ 68.9	\$ 68.9	\$ 64.1	\$ 59.0	\$ 58.3	\$ 57.7
3. DSM Collections (DSMAC+base) in SMM	\$ 63.8	\$ 55.1	\$ 55.1	\$ 55.1	\$ 55.1	\$ 55.1
4. Budget o/(u) Collections in SMM	\$ (5.1)	\$ (13.8)	\$ (9.0)	\$ (3.9)	\$ (3.2)	\$ (2.6)
5. DSMAC Balance in SMM						
6. Starting	\$ 37.3	\$ 32.2	\$ 18.4	\$ 9.4	\$ 5.5	\$ 2.3
7. Withdrawal/Deposit	\$ (5.1)	\$ (13.8)	\$ (9.0)	\$ (3.9)	\$ (3.2)	\$ (2.6)
8. Ending	\$ 32.2	\$ 18.4	\$ 9.4	\$ 5.5	\$ 2.3	\$ (0.3)

APS's EE program portfolio includes a balanced mix of programs targeted to address APS's diverse customer segments and market opportunities. The programs are designed to influence energy decisions by residential and non-residential customers and other market players through a combination of rebates and incentives for energy efficient products; services and improvements; technical assistance and training; and consumer education.

APS's EE program portfolio includes the following programs:

Residential Programs

- (1) Consumer Products;
- (2) Existing Homes HVAC;
- (3) Home Performance with ENERGY STAR;
- (4) Residential New Construction;
- (5) Appliance Recycling;
- (6) Low Income Weatherization;
- (7) Conservation Behavior;
- (8) Multi-Family Energy Efficiency;
- (9) Shade Trees (suspended); and
- (10) PrePaid Energy Conservation Program (Proposed in 2015).

Non-Residential Programs (Solutions for Business)

- (1) Large Existing Facilities;
- (2) New Construction and Renovation;
- (3) Small Businesses;
- (4) Schools; and
- (5) Energy Information Services.

Energy Savings Initiatives

- (1) Building Codes and Appliance Standards
- (2) APS System Savings Initiative

A. RESIDENTIAL PROGRAMS

APS offers the following EE programs for its residential customers: (1) Consumer Products; (2) Existing Homes HVAC; (3) Home Performance with ENERGY STAR; (4) Residential New Construction; (5) Appliance Recycling; (6) Limited Income Weatherization; (7) Residential Conservation Behavior; (8) Multi-Family Energy Efficiency; (9) Shade Trees (suspended), and (10) Pre-Paid Energy Conservation Program (Proposed in 2015). A summary of each program and any proposed enhancements or revisions is discussed below.

1. Consumer Products Program

a. Program Description - The primary target market for the Consumer Products program is APS residential customers who are contemplating the purchase of energy-using products for their homes. The program provides customers with education and incentives to purchase products, such as light bulbs, pool pumps and other consumer products that use less energy. APS implements the program through participating retailers within the APS service territory.

The lighting element of the Consumer Products program promotes high-efficiency Environmental Protection Agency ("EPA")/Department of Energy ("DOE") ENERGY STAR® approved lighting. APS solicits discount pricing from CFL and LED manufacturers and distributes compact fluorescent lamps ("CFL"), and light emitting diodes ("LED") through local retailers. Customers are referred to participating retailers to purchase qualifying products.

Discount pricing is passed on to consumers through a negotiated agreement with lighting manufacturers and retailers. The program also provides sales training for participating retailers and consumer education, including in-store point-of-sale displays.

The pools element of the Consumer Products program promotes ENERGY STAR qualified energy efficient variable-speed pool pumps to residential pool owners providing customers with significant cost effective savings. The program provides incentives to consumers, retailers, and installers to help overcome the higher initial cost of these pool products and to promote their increased adoption in the market place.

b. Program Modifications – In March 2015, APS proposed up to 50,000 LED bulbs per year as giveaways items at consumer events to educate customers and increase awareness of LED lighting technology. APS has included LED giveaway bulbs in this 2016 plan.

Consistent with Decision No. 74406 and due to continued market penetration and lower incremental costs of variable speed pool pumps, effective January 1, 2016 APS will reduce the incentive for variable speed pool pumps from \$220/pump to \$170/pump.

c. New Measure: Smart Thermostats – APS proposes to include a new measure within the Consumer Products Program to promote Smart Thermostats. These internet enabled ‘learning capable’ smart thermostats are an emerging technology with the potential to fundamentally change how customers interact with their HVAC system, offering convenient features that customers can use to manage their energy use. A recent study of 89 California households with smart thermostats found that homes saved an average of 6% on their overall energy bills during the summer months, with some homes realizing up to 17% energy savings.⁴ These thermostats overcome the challenges of earlier programmable thermostats by using technology to automatically adjust thermostat settings and optimize HVAC operation by learning users’ patterns over time.

APS is proposing to offer incentives to encourage customer adoption of this technology. Incentives will be made available for thermostats purchased through retail channels and/or installed by HVAC or home performance contractors. Each qualifying smart thermostat that is installed and activated at an APS customer’s residence within the APS service territory would be eligible for an incentive of up to 75% of the incremental installed cost (as compared to a standard programmable thermostat) up to a maximum of no more than \$100 per thermostat. Incentives may be paid directly to customers or through participating manufacturers, retailers, or contractors.

This measure is cost effective with a benefit/cost ratio of 1.55.

In addition to their significant energy savings features, smart thermostats also offer capabilities for smart grid enabled automated demand response (ADR) where thermostat settings can be automatically adjusted based on rate signals. Although APS has no plans to utilize these thermostats in a demand response (DR) capacity at this time, they are DR enabled. Encouraging their deployment will allow APS to build a DR ready infrastructure that can be leveraged as

⁴ Ben Ho, (2014). *Understanding Energy Efficiency Benefits from Smart Thermostats in Southern California*.

needed in the future, offering significant additional benefits to smart thermostat deployment that is not being included in the current benefit/cost results.

2. Existing Homes Program – Heating Ventilating Air Conditioning (“HVAC”)

a. Program Description - The Residential Existing Homes Program Heating, Ventilation, and Air Conditioning (“Residential HVAC”) measures use a combination of financial incentives, contractor training and consumer education to promote the proper installation and maintenance of energy efficient HVAC systems. The air conditioner (“AC”) Rebate, Duct Test and Repair, Prescriptive Duct Sealing and HVAC Diagnostics portions of the program include measures supporting energy efficient residential air conditioning and heating systems through the proper installation, maintenance and repair of HVAC systems. This program also provides APS customers with referrals to contractors who meet strict program requirements for professional standards, technician training, and customer satisfaction.

HVAC: The APS air conditioner (“AC”) Rebate measure offers a financial incentive to homeowners for buying EE equipment (≥ 13 SEER/10.8 EER) that is installed in accordance with the program requirements for air flow, refrigerant charge and sizing. APS requires all Residential AC rebates to meet APS’s quality install standards.

Duct Test and Repair: This measure provides financial incentives for customers to have their HVAC system’s duct work tested for leakage, sealed and/or repaired. It is split into two tiers:

Tier 1 Prescriptive Duct Sealing:

- Requirement = Seal and/or repair duct work in prescribed areas. Test in and test out with air leakage measurement equipment is not required.
- Incentive = 75% of job cost up to a \$200 maximum.

Tier 2 Duct Test and Repair:

- Requirements = Same as Prescriptive Duct Sealing with the additional requirement of test in and test out with air leakage measurement equipment.
- Incentive = 75% of job cost up to a \$400 maximum.

HVAC Diagnostics: This measure provides customers a financial incentive to have their existing AC unit or heat pump tuned-up so that it runs more efficiently. The tune-up includes a correction of the refrigerant charge, leak repair if necessary, condenser coil cleaning, and airflow correction. These activities are verified on-site during the tune-up with a diagnostic system that records the equipment status before and after the work is done.

b. Program Modifications

HVAC: As stated above the AC Rebate measure currently offers a financial incentive to homeowners for buying an new air conditioner or heat pump that rated (≥ 13 SEER/10.8 EER) and is installed in accordance with the program requirements for air flow, refrigerant charge and sizing. The Department of Energy (DOE) has introduced new regional minimum efficiency standards on the type of HVAC equipment that can be sold in the Southwest region which includes Arizona. Equipment that does not meet these minimum criteria cannot be sold in Arizona beginning July 1, 2016. The APS AC Rebate program minimum equipment criteria will

be changed on that date to match the new DOE standard. The measure benefit/cost and savings analysis shown in this filing reflects this change. Below is a table of the new DOE regional standards for the Southwest region.

Product Class	Energy Conservation Standard
Split System Air Conditioner	14 SEER & 12.2 EER if < 45,000 BTU
	14 SEER & 11.7 EER if ≥ 45,000 BTU
Package Air Conditioner	14 SEER & 11.0 EER
Split System Heat Pump	14 SEER & 8.2 HSPF
Package Heat Pump	14 SEER & 8.0 HSPF

Duct Test and Repair: No program modifications at this time.

HVAC Diagnostics: No program modifications at this time.

c. New Measure: APS proposes to add the Western Cooling Control Device as a new measure within the residential HVAC program (and also for small business customers within the Solutions for Business program). The Western Cooling Control Device is a simple piece of equipment that can be installed on new or older existing HVAC equipment, which helps to optimize equipment operation for the arid Southwest climate. The device simply sets a delay of up to 5 minutes for the air handler fan to continue operating after the HVAC compressor cycle has shut off. This allows the unit to benefit from ‘free cooling’ by circulating air over the coil while it is still cold. Since this technique is not as appropriate for humid climates, HVAC manufacturers do not set up units coming out of the factory to optimize operation for the Southwest, so the western cooling control adds this feature, saving up to 10% of AC costs, even in brand new units. The Western Cooling Control Device has been part of the NV Energy HVAC program for several years, with many thousands of units successfully installed. APS proposes to work with contractors to encourage installation of the devices, and to offer an incentive of up to 75% of the installed cost, for an average \$70/unit. This is a relatively low cost HVAC measure which can offer cost effective savings for the largest residential energy end use. It currently has a benefit/cost ratio of 1.12.

3. Home Performance with ENERGY STAR® Program:

a. Program Description - The Home Performance with ENERGY STAR (“HPwES”) program promotes a whole house approach to energy efficiency by offering incentives and financing for improvements to the building envelope of existing residential homes within the APS service territory. The current program includes measures to improve the energy efficiency of the home such as air sealing, insulation, duct sealing, and low flow showerheads. The HPwES program provides APS customers with referrals to specially credentialed contractors who meet strict program requirements for professional standards, technician training, and customer satisfaction.

The HPwES program utilizes certified contractors to perform a detailed checkup on a customer’s home to diagnose energy inefficiencies. The HPwES checkup provides the customer with a comprehensive list of potential improvements that would make their home more energy efficient. The customer has the option of selecting any recommended improvements, which the contractor is also qualified to install. The cost of the checkup to the customer is \$99 and includes ten CFLs

and one low flow showerhead, in addition to the evaluation and energy efficiency recommendations for the home. The contractor that completes an HPwES checkup receives a \$200 incentive from APS after they submit the checkup documentation and it is accepted by APS. Contractors normally charge customers about \$400 for similar in-home checkups.

The current HPwES program also provides several incentives that comprise the main components of this program:

1. Duct Test and Repair, 75% of job cost up to a maximum of \$400
2. Insulation, 75% of job cost up to a maximum of \$250
3. Insulation with Air Sealing, 75% of job cost up to a maximum of \$500

Customers participating in HPwES can also participate in APS's Residential Energy Efficiency Financing ("REEF"). The REEF program offers customers financing for energy efficiency improvements at below market rates. This further reduces the upfront cost barrier for whole house energy retrofits.

Customers also have access to other APS Residential incentive measures such as Consumer Products or Appliance Recycling, and these measures are also recommended when appropriate as part of the checkup.

b. Program Modifications – In March 2015, APS proposed to include LED bulbs as a direct install measure in the program. APS has included direct install LEDs in the 2016 plan.

Due to lower avoided costs, APS anticipates that smart strips will not be cost effective in 2016, and APS plans to suspend this measure on January 1, 2016 pending further review.

c. New Measures – APS proposes to include water heater wrap as a new direct install measure in the program. Water heater wrap can be used as an effective low cost retrofit item for older water heater tanks, helping to save energy on the second largest energy user in a typical Arizona home. The wrap saves energy by increasing the water heater tank insulation level which reduces standby energy losses. It would be a direct install measure that would be provided at no additional cost for eligible homes that complete a home performance energy audit. Due to the low cost of the wrap and significant energy savings it produces, it is highly cost effective with a benefit/cost ratio of 2.02. It is also being proposed as a direct install measure in the Multi-Family Energy Efficiency Program.

4. Residential New Construction Program

a. Program Description - The Residential New Construction program promotes high efficiency construction practices for new homes. It offers incentives to builders that meet program EE standards in order to increase the penetration of high efficiency homes. The program emphasizes the "whole building" approach to improving EE and includes field testing of homes to ensure compliance with APS performance standards. Participating builders are trained to apply building scientific principles to assure that high-efficiency homes also have superior comfort and performance. The program also provides education for prospective homebuyers about the benefits of choosing an energy efficient new home and the features to consider.

The APS Residential New Construction program is based on the program requirements of the EPA ENERGY STAR® Homes program. In 2012, the EPA released “Version 3” EE requirements for the ENERGY STAR Homes program.⁵

In order to account for higher incremental costs that builders incur, APS offers a second tier incentive to builders who build homes to a Home Energy Rating System (“HERS”) score of 60, which represents up to a 10% additional savings above ENERGY STAR V3 requirements.

APS also offers an incentive to third party home energy raters who conduct field inspections and provide data to verify the energy efficiency levels of participating homes.

b. Program Modifications – No program modifications at this time.

c. New Measures – No new measures are being proposed at this time.

5. Appliance Recycling Program

a. Program Description - The Appliance Recycling Program targets the removal of functional second refrigerators and freezers in residential households, businesses, and multifamily properties. The average household replaces a refrigerator every ten years. However, many of the refrigerators and freezers being replaced are still functioning and often remain in the home as underutilized energy-consuming backup appliances in garages and basements. APS currently offers a \$30 rebate and free pick-up and recycling of operable second refrigerators or freezers to encourage removal of these older, inefficient appliances from the grid.

In addition, APS has a partnership with Sears that makes it easier for APS customers purchasing a new refrigerator or freezer to participate in the program.

APS currently recycles units from small non-residential customers that fulfill program eligibility requirements. All customers are limited to two units, per account, per year.

b. Program Modifications – There are no program modifications at this time.

c. New Measures – No new measures are being proposed at this time.

6. Limited Income Weatherization Program

a. Program Description - APS’s Energy Wise Limited Income Weatherization (“LIW”) Program is designed to improve the energy efficiency, safety, and health attributes of homes occupied by customers whose income falls within 200% of the Federal Poverty Guidelines (“FPG”). The weatherization component of this program serves low income customers with various home improvement measures, including cooling system repair and replacement, insulation, sunscreens, water heaters, window repairs and improvements, as well as other general household repairs. Non-profit agencies and municipal entities owning and operating low income multifamily housing are also able to benefit from funds set-aside to weatherize their complexes.

⁵ The Version 3 EPA ENERGY STAR Homes program requirements can be found at http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v3_guidelines.

In addition, there is a Crisis Bill Assistance component serving customers whose income falls below 150% of the FPG. These programs elements are administered by various community action agencies throughout APS's service territory.

b. Program Modifications – The eligible customer definition for APS Energy Wise Limited Income Weatherization Crisis Bill Assistance will be updated to maintain consistency with the Arizona Department of Economic Security (DES) eligibility definition. The first change is to the eligibility definition used by Agencies administering Crisis Bill Assistance; it will be updated to allow customers that have been disconnected from APS electric service to qualify for crisis bill assistance. Currently, if the customer does not have an active account with APS they do not qualify for Crisis Bill Assistance so this change allows a customer to get help to restart their service. The second change is to include in the program income definition situations where the customer has no income so that they will be eligible for assistance. The current definition does not allow customers that have no income to get assistance. These changes will also apply to the non-DSM Rate Settlement Crisis Bill Assistance program created by Decision No. 71448 which is funded by shareholders and augments the current bill assistance program.

c. New Measures – No new measures are being proposed at this time.

7. Conservation Behavior Program

a. Program Description - The Residential Conservation Behavior program provides participating residential customers with periodic reports containing information designed to motivate them to adopt energy conservation behaviors.

To drive conservation behavior, the program provides direct-mailed reports to participants that show how the energy usage in their home compares with energy efficient homes and other similar homes. In addition to providing these benchmarks, the reports also highlight energy efficiency measures and actions that participants can take to improve the energy efficiency of their homes. These tips serve as an energy conservation idea list and education tool to encourage behavioral changes. Participants are also encouraged to visit a program web portal for additional information.

b. Program Modifications – Starting in 2015, the program was modified to reduce the report frequency from bi-monthly to 4-5 reports per year. Persistence studies completed in other markets indicate that this should increase cost effectiveness by reducing program costs while maintaining similar savings levels. In addition to reducing the paper report frequency, APS added 200,000 new customers into the program in 2015 which brought the current participation level to around 295,000 customers. Layering email reports on top of printed reports for aps.com activated Conservation Behavior program participants and Spanish language reports for those that prefer to communicate in Spanish are also being investigated and considered to further increase the cost effectiveness of the program.

Additionally, APS plans to test event-based messaging to approximately 50,000 report recipients with the specific goal of achieving peak demand reductions and added energy efficiency savings during the highest system peak days of the year. Within 24 hours preceding a day during which system demand is expected to peak, APS will send these customers a communication (*i.e.* e-mail or voice recording or opt-out options based on customer preference) informing them that demand

for energy is likely to spike the following day during specified hours. Customers will be asked to reduce their energy usage during those hours and household-specific tips are provided. Within a few days after the peak event, customers will receive feedback informing them how much they reduced their usage during the event compared to their neighbors in similar dwellings. By drawing on the same behavioral principles that have proven successful at driving energy efficiency savings, APS plans to test whether such tactics can be targeted during specific times of peak demand in order to achieve increased energy savings and maximize the impact on peak capacity needs.

c. New Measures – No new measures are being proposed at this time.

8. Multifamily Energy Efficiency Program

a. Program Description - The Multifamily Energy Efficiency Program (“MEEP”) aims to improve the efficiency of multifamily properties and dormitories by using a comprehensive approach designed to target existing and new construction multifamily buildings.

The MEEP takes a two-track approach to address the challenges of reaching the multifamily market. The first track targets existing multifamily properties by providing retrofit items that include energy efficient CFL light bulbs, showerheads, and faucet aerators to retrofit each dwelling in a community. These measures are provided at no cost to the multifamily community, but must be installed by the facility personnel. In addition, this track works through the Non-Residential APS Solutions for Business programs to provide energy assessments to assist communities in identifying additional energy saving opportunities and available APS rebates within the multifamily complex but outside of the individual dwelling units (e.g. common area buildings, swimming pools, outdoor lighting, and laundries).

The second track is a new construction/major renovation program that offers a per dwelling incentive from \$200 to \$400 for projects that build or renovate to a higher level of energy efficiency. Incentives increase as a higher level of energy efficiency is achieved. Efficiency requirements are modeled after the ENERGY STAR[®] Qualified Homes National Attached Homes Builder Option Package and designed to deliver building comfort and energy savings. Builders may choose from one of three Builder Option Packages (“BOP”) and achieve compliance through a prescriptive or performance path. Both paths are designed to give builders the flexibility to meet specific project challenges while encouraging participation from a wide variety of projects.

The prescriptive path helps builders achieve BOP compliance by offering a list of prescriptive measures that are designed to deliver the program’s required energy savings. Measures are divided into mandatory and optional categories and mandatory measures may be matched with the optional measures of the builder’s choice. Each BOP requires a different number of optional measures to reach compliance.

The performance path allows builders to achieve BOP compliance using any chosen building designs as long as the building’s performance when tested is verified to deliver the energy savings required from the program. These projects must be tested by a certified HERS rater and assigned a HERS rating. BOP compliance is reached when the HERS rating meets or exceeds the minimum required HERS ratings established for each BOP.

To further assist builders, the program offers a design incentive for builders that want to use energy modeling to create their project building designs. The incentive offsets the upfront costs of energy modeling by paying 50% of the energy modeling costs up to a maximum of \$5,000.

b. Program Modifications – In March 2015, APS proposed to include LED bulbs as a direct install measure and to adjust the savings level requirements of the Builder Option Packages. These proposed program modifications are included in this 2016 Implementation Plan.

c. New Measures – APS proposes to add water heater insulating wrap as a new direct install measure to be introduced in the Multifamily Energy Efficiency Program. After HVAC usage, water heating is generally the second largest user of energy in a typical multifamily residential unit. When a water heater is wrapped in an insulating blanket, it improves the water heater's efficiency and saves energy by decreasing the stand by heat loss from the water heater tank. As a direct install measure, APS would provide water heater blankets free of charge for multifamily communities that participate in the MEEP program. Community facility staff would be required to provide the installation of these wraps at the same time they are installing the other direct install items. Due to the low cost of this measure and the significant energy savings, this measure is highly cost effective with a benefit/cost ratio of 1.93.

9. Shade Tree Program

APS suspended the Shade Tree program in 2015 due to lack of cost effectiveness. For the 2016 Implementation Plan, APS attempted to re-design the program to improve cost effectiveness; however, with lower avoided costs in 2016 it is not possible to make the program cost effective at this time. APS recommends that the program continue to be suspended in 2016, and it will be reconsidered in the 2017 plan.

10. Prepaid Energy Conservation Program

a. Program Description - The Residential Prepaid Energy Conservation Program ("Prepay Program") is a 'pay as you go' billing program that provides participants with energy efficiency and conservation information to help them better understand and manage their electric utility budget. Customers periodically prepay for electric service in lieu of paying a monthly bill. APS provides participating customers with frequent feedback on the balance in their prepaid energy account via text, email and/or phone call alerts to assist them in managing their energy consumption. This combination of energy information/education and direct feedback on energy spend is a powerful tool that helps participating customers save energy and reduce energy costs.

On February 13th 2015, APS requested the program move from a pilot to be fully implemented as a standard DSM program. The 2016 Implementation Plan includes Prepay as a DSM program in 2016.

b. Program Modifications – No program modification at this time.

c. New Measures – No new measures are being proposed at this time.

11. Solar Water Heating

ACC Decision No. 74949 (February 9, 2015) ordered that APS review the cost effectiveness of solar water heating as a potential measure to be considered as part of the energy efficiency program portfolio. In preparation of the 2016 DSM Implementation Plan, APS conducted a cost effectiveness screening of solar water heating as an energy efficiency measure, using the same parameters that have been applied to all other EE measures. The analysis concluded that residential solar water heating currently has a benefit/cost ratio of 0.24 on the societal cost test using ACC approved methodology. This is currently well below the ratio of 1.0, which is considered the minimum threshold for cost effectiveness - indicating that this is not a cost effective measure at this time. This is largely due to the incremental costs associated with solar hot water heating and the long payback period for the initial investment. Because of this, APS does not recommend including this as a measure in the DSM program portfolio at this time. APS intends to convene a meeting of solar water heating stakeholders to discuss the inputs to the cost effectiveness test and ensure that the benefits and costs of the solar water heating measure are being accurately analyzed, with the potential for a supplement to the 2016 plan to further address solar water heating if needed.

The impact of each of the proposed new residential measures is summarized below:

	<u>Western Cooling Control</u>	<u>Water Heater Wrap</u>	<u>Smart Thermostats</u>
Avg Annual Savings/Unit	593 kWh	248 kWh	548 kWh/Unit
Customer Incentive	Avg \$70	Direct install	Avg. \$75
Customer Payback	2 years	1.7 years	2.3 years
Societal Benefit to Cost	1.12	2.02	1.55

B. NON-RESIDENTIAL PROGRAMS

APS's five current Non-Residential EE programs are marketed under the trade name "APS Solutions for Business." A description of each of the Non-Residential programs follows.

1. Current Program Descriptions

a. Large Existing Facilities Program

The primary targets for the Non-Residential Existing Facilities program are customers who have an aggregated monthly peak demand greater than 100 kW. This program provides prescriptive incentives to owners and operators of large Non-Residential facilities for EE improvements in lighting, HVAC, motors, building envelope, and refrigeration measures. Custom incentives are also provided for EE measures not covered by the prescriptive incentives. Incentives are also provided to customers who conduct qualifying energy studies. The largest customers (electric usage \geq 40,000 MWh per year) may qualify to self-direct the amount they pay toward DSM funds for their own EE projects. All customers may qualify to receive program arranged financing for their EE projects. Customers may participate in the Direct Install (Direct Install can pay up to 90% of project cost) family of measures in the areas of lighting and refrigeration for any facilities with a peak monthly demand of 400 ("kilowatt") kW and less. APS proposes to continue its Large Existing Facilities Program as previously approved with minor modifications as discussed later.

b. New Construction Program

The Non-Residential New Construction program includes three components: 1) design assistance; 2) prescriptive measures; and 3) custom efficiency measures. Design assistance involves efforts to integrate energy-efficiency into a customer's design process to influence equipment/systems selection and specification as early in the design process as possible. Prescriptive incentives are available for EE improvements in measures such as lighting, HVAC, motors, building envelope, and refrigeration applications. Whole Building Design is a component within the New Construction custom efficiency measures that influences customers, developers, and design professionals to design, build and invest in higher performing buildings through a stepped performance incentive structure with the financial incentives becoming larger as the building performance improves. The APS Whole Building Design incentives are designed to complement the Leadership in Energy and Environmental Design ("LEED") green building certification system which was developed by the United States Green Building Council.

c. Small Business Program

The primary targets for the Small Business Program are customers that have a maximum peak aggregated demand of 100 kW or less. This program provides prescriptive incentives to small business owners for EE improvements in lighting, HVAC, motors, building envelope, and refrigeration applications through a simple and straightforward mechanism. In addition, a customer in the Small Business Program may participate in the Direct Install (Direct Install can pay up to 90% of project cost) family of measures in the areas of lighting and refrigeration and may also qualify to receive APS arranged program financing for their EE projects. Small Business customers are also eligible to receive incentives for energy studies and custom efficiency measures. APS proposes to continue its Small Business Program as previously approved, with minor modifications as discussed later.

d. Schools Program

This program is designed to set aside funding for K-12 school buildings, including public schools, private schools, and charter schools. If schools fully subscribe this program budget or if they reach their incentive cap of \$100,000 per year under this program, they can participate in other Non-Residential programs. EE incentives are the same as the Large Existing Facilities (for existing school facilities) and New Construction (for new school construction and major renovations). In addition, any size school may participate in the Direct Install measure incentives and may also qualify to receive APS arranged program financing for their EE projects. APS proposes to continue its Schools Program as previously approved, with minor modifications as discussed later.

e. Energy Information Services Program

The Energy Information Services (“EIS”) program provides 15-minute interval electric usage data to large Non-residential customers through a web-based energy information tool. This tool provides users with information that can be used to improve or monitor energy usage patterns, reduce energy use, reduce demands during on-peak periods, and to better manage their overall energy operations. APS proposes to continue its EIS Program as previously approved, with no proposed changes for 2016.

2. New Measures

To help achieve the energy savings for 2016, APS proposes to add new prescriptive measures to the Non-Residential Solutions for Business program.

a. HVAC Measures

The following three new HVAC technologies are proposed to be added to the Solutions for Business classic program.

HVAC EC Motors: Traditional fans move air across the evaporator and condenser coils using shaded pole (“SP”) or permanent split capacitor (“PSC”) motors, which tend to be extremely inefficient. An energy efficient alternative is to employ an Electronically Commutated (EC) motor. EC motors can reduce energy usage by 65% or more. The APS Solutions for Business program currently includes an EC motor incentive for refrigeration systems but not HVAC systems. This measure will expand the EC motor incentive to include HVAC systems. The HVAC EC motor application will yield energy savings and is cost effective.

Smart Thermostats: APS proposes to include a new measure within Solutions for Business to promote Smart Thermostats. These internet enabled ‘learning capable’ thermostats are an emerging technology with the potential to fundamentally change how customers interact with their HVAC system, offering convenient features that customers can use to manage their energy use. By learning and adapting to usage patterns over time, these thermostats optimize HVAC operation and offer very cost effective energy savings. Similar to the residential smart thermostat measure, these thermostats also offer potential future demand response opportunities that may provide additional benefits.

Western Cooling Control: APS proposes to add the Western Cooling Control Device as a new measure within the Solutions for Business program. The Western Cooling Control Device is a

simple piece of equipment that can be installed on new or older existing HVAC equipment, which helps to optimize equipment operation for the arid Southwest climate. The device simply sets a delay of up to 5 minutes for the air handler fan to continue operating after the HVAC compressor cycle has shut off. This allows the unit to benefit from 'free cooling' by circulating air over the coil while it is still cold. Since this technique is not as appropriate for humid climates, HVAC manufacturers do not set up units coming out of the factory to optimize operation for the Southwest, so the western cooling control adds this feature, saving up to 10% of AC costs, even in brand new units. The Western Cooling Control Device has been part of the NV Energy HVAC program for several years, with many thousands of units successfully installed. APS proposes to work with contractors to encourage installation of the devices, and to offer an incentive of up to 75% of the installed cost, for an average \$70/unit. This is a relatively low cost HVAC measure which can offer cost effective savings for non-residential packaged HVAC units

The impacts of each of the new HVAC measures for the classic Solutions for Business program are summarized below:

	<u>HVAC EC Motors</u>	<u>Smart Thermostats</u>	<u>Western Cooling Controls</u>
Savings versus Standard	11%	10%	11%
Customer Incentive	\$300/Motor	\$60/T Stat	\$70/Unit
Customer Payback	4.2 years	2.6 years	2.1 years
Societal Benefit to Cost	1.3 – 1.6	1.3 – 1.6	1.3 – 1.5

b. Lighting

LED Linear Lighting: Many APS customers have recently been changing out their linear fluorescent lamps to high efficient LED linear lamps. The Solutions for Business program has evaluated these projects under the custom measure and have paid rebates for these measures. APS recommends adding the LED linear lamp as a prescriptive measure. This measure will yield energy savings and is cost effective.

Giveaway LED Bulbs: APS requested giveaway LED bulbs as a program modification in 2015 and they are included in the 2016 plan.

Outdoor Lighting: The LED lighting technology not only saves energy inside buildings, but also saves energy on outdoor lighting systems. APS customers have recently been investigating and adding high efficiency outdoor lighting to the exterior of their buildings and parking lots. The Solutions for Business program currently has evaluated and paid custom incentives for these high efficiency lighting applications. APS proposes to add a prescriptive incentive that will be 75% of incremental cost up to \$150 per lamp. The outdoor LED lighting measure yields energy savings and is cost effective.

Street Lighting: Similar to the LED outdoor lighting measure, LED street lighting also saves significant energy. APS is proposing to include 3rd party owned (such as municipalities) LED street lighting in the Business Solutions program as a prescriptive measure. APS believes LED street lighting is cost effective and yields energy savings and has evaluated and paid custom incentives for these high efficiency street light applications.

The impacts of each of the new measures for the Solutions for Business program are summarized below:

	<u>Linear LED</u>	<u>Outdoor Lighting</u>	<u>Street Lighting</u>
Savings versus Standard	45%	68%	46%
Customer Incentive	\$15/Lamp	\$150/Lamp	\$150/Lamp
Customer Payback	5.5 years	5.0 years	5.2 years
Societal Benefit to Cost	1.1	1.1	1.03

c. Conservation Behavior Measure:

The Non-Residential Conservation Behavior measure will provide owners, employees, and other participating individuals (*i.e.* students and teachers at schools) of facilities with periodic reports containing information designed to help motivate them to adopt energy conservation behaviors.

There will be a number of ways to encourage conservation behavior. One approach, similar to the Residential Conservation Behavior program, will provide direct-mailed reports to small business participants that show how the energy usage in their facilities compares with similar businesses. In addition to providing these benchmarks, the reports will also highlight energy efficiency measures and actions that participants can take to improve the energy efficiency at their business. These tips serve as an energy conservation idea list and education tool to encourage behavioral changes.

Another approach to drive conservation behavior in non-residential facilities is to conduct a contest between similar facilities. For instance, the K-12 schools within a school district could enlist students, teachers, administration, and facility employees to improve energy efficiency within their specific school. The results of these conservation measures could be compared to other participating schools. The schools with the most improvement would be recognized by the Solutions for Business program. APS would facilitate the contest by providing progress reports and scoreboards to each participating school to show how much energy was saved at their facility as compared to other participating schools.

The impact of the Conservation Behavior measure is summarized below:

Savings versus Standard	12%
Customer Incentive	None
Customer Payback	0.2 years
Societal Benefit to Cost	8.6

D. OTHER EE INITIATIVES

1. APS Resource Savings Initiative

a. Program Description - APS System Savings projects include many of the same types of energy savings measures as those that are being installed at customer sited facilities – but implemented at APS facilities. System Savings projects include but are not limited to the following elements:

- 1) **APS Facility Energy Efficiency Projects** – This initiative includes energy efficiency improvements to APS buildings and facilities such as APS offices, customer service centers, and other company facilities including APS owned community streetlights. Energy efficiency measures at APS buildings and facilities are similar to those found in commercial buildings throughout Arizona, so this initiative will include currently approved measures in the APS Large Existing Facilities and New Construction energy efficiency programs for non-residential customers, which have already been screened by ACC Staff for cost effectiveness. Potential prescriptive and/or custom measures will be considered and evaluated for savings and cost effectiveness in the same way that customer-sited measures are considered in the APS Non-Residential programs.

- 2) **APS Owned Street Lighting Program** - In recent years, the electric utility industry has seen significant improvements in Street Lighting technology, specifically the new LED technologies, which use less energy and require less maintenance. This reduces energy consumption, and thus costs, for APS’s Street Lighting customers, including cities, towns, and private entities. Because this new technology saves significant energy, APS proposes the energy saved be counted towards the APS Resource Savings Initiative. In addition, new technologies also offer numerous customization options, which APS’s customers are eager to utilize. In order to keep up with the changing technologies and customer demand, APS is adding additional technology to its existing LED and induction lighting options through the methodology approved by the ACC in Decision No. 72433 (June 27, 2011). APS also proposes to freeze its existing older street light technologies to help further its commitment to energy efficiency and to more closely align with customer demand.⁶ While APS will continue to serve existing customers with these technologies, new customers will choose from more energy efficient options, including LED technology.

- 3) **APS Conservation Voltage Reduction (“CVR”) Projects** – Conservation voltage reduction systems include a collection of sensors, voltage measuring and regulating control devices, analytical software, and communications products, that work together to allow a utility to continuously analyze and control distribution power factor and system voltages. The system provides enhanced voltage control and allows for average voltage reduction of approximately 1.5% on participating distribution feeders. This project will result in direct customer energy efficiency and bill savings, with savings of up to 1.5% of total energy use on feeders where the CVR system is deployed. Savings will be

⁶ Please see Attachment 2 for proposed modifications to Rate Schedules E-47 and E-58

independently evaluated and verified based on a pre and post savings analysis on each affected feeder.

- 4) **APS Generation Facility Energy Efficiency Projects** – This initiative includes measures that improve the energy efficiency of APS generation facilities and reduce the ancillary energy requirements of the facility. These measures are similar to those found at large commercial/industrial processing facilities within the APS territory. Within the APS Large Existing Facilities program, these are typically handled as custom efficiency projects, since they fall outside of the typical prescriptive list of measures; so APS proposes that generation facility energy efficiency projects will be handled and evaluated for savings in the same way as a custom project within the Large Existing Facilities non-residential customer energy efficiency program.

b. Planned 2016 System Savings Projects - In 2016, planned System Savings projects for which APS plans to claim energy savings include upgrades to selected community streetlights throughout the APS service territory and the installation of Conservation Voltage Reduction systems on 47 APS feeders in 2016.

2. Building Codes and Appliance Standards

a. Program Description - The Energy Codes and Appliance Standards (“C&S”) Initiative encourages energy savings by supporting better compliance with energy codes and appliance standards in jurisdictions throughout the APS service area by working with code officials, building professionals and other market actors to develop strategies for achieving better code compliance more cost effectively. In 2016, APS intends to begin tracking energy savings associated with the new 14 SEER HVAC southwest regional appliance standard. APS has been working with HVAC contractors, homebuilders and other trade allies to educate them on the upcoming standard which is set to take effect July 1, 2016.

III. Demand Response and Load Management Programs

APS proposes to continue current demand response and load management programs including the APS Peak Solutions[®] program, and marketing/measurement of DR rates. APS plans to meet 10% of the overall 2016 DSM energy savings goal from DR programs and rates. These programs and rates include the following.

A. APS PEAK SOLUTIONS[®] PROGRAM

APS Peak Solutions is a Commercial and Industrial DR Program for APS's Yuma and Phoenix metropolitan customers utilizing direct load control and manual load reduction.

The program began on June 1, 2010. It is available for the summer months (June through September) between 12:00 noon and 7:00 p.m. (Sunday – Saturday) daily. Customers will be notified approximately two hours prior to the start of the Peak Solutions event. The customer is limited to being controlled for up to 80 event-hours during the season with four hours of testing per event. The program anticipates a 2016 weekday load reduction of approximately 25 MW, at the meter. APS proposes to continue its Peak Solutions Program as previously approved.

B. SUPER PEAK RATE

The residential Super-Peak Pricing ("SPP") rate went into effect on January 1, 2010.⁷ The SPP periods are pre-determined and set forth in the rate schedule rather than communicated to the customer on a day-ahead basis, as with Peak Event Pricing. Participating customers will pay higher charges during the "Super-Peak" periods, but will pay lower charges during off-peak periods. The "Super-Peak" period is 3:00 p.m. to 6:00 p.m., Monday thru Friday during June, July, and August (excluding holidays). APS proposes to continue its Super Peak Rate in 2016, as previously approved.

C. TIME OF USE RATES

Time of Use ("TOU") rates are designed (1) to reflect the time variation in the cost of producing electricity to more accurately match those costs with the service being provided to the customer, thereby encouraging efficient use of energy and (2) to encourage customers to reduce consumption during peak hours or to shift energy usage to off-peak periods.

APS currently offers five residential TOU rates in addition to the Super Peak rate discussed above. The "Series 1" rates, which have on-peak hours from 9 a.m. to 9 p.m., have been offered since 1982. In July 2006, APS introduced the "Series 2" TOU rates with a shorter on-peak period (12 noon to 7 p.m.) which offers 5 additional off-peak hours. The Company's objective is to emphasize the Series 2 rates because they offer customers a better opportunity and incentive to reduce usage during peak hours. Towards that end, the Series 1 rates were frozen to new customers on January 1, 2010. In addition, in 2011 APS began offering a new TOU rate for customers with an electric vehicle, which has a super off peak period from 11 p.m. to 5 a.m. on weekdays to incent participants to charge their electric vehicle during these hours.

Furthermore, APS has 9 business TOU rates: (a) E-32 extra small, small, medium and large usage rates; (b) two school medium and large usage rates; (c) E-35 extra-large usage rate; (d) E-20 for

⁷ Approved by the Commission in Decision No. 71448 (December 30, 2009).

houses of worship; and (e) E-221-8T rate for water pumping customers. Each of these rates provides peak and off-peak charges for both energy and demand.

APS proposes to continue its Time of Use Rates in 2016 as previously approved.

D. PEAK EVENT PRICING

The Peak Event Pricing (“PEP”)⁸ program for APS general service and residential customers went into effect on January 1, 2010. In addition to the benefits described in the TOU rates, the PEP rate can be utilized by calling 6 to 18 events between June and September with Peak Event hours from 2 p.m. – 7 p.m., on Monday through Friday excluding holidays. APS’s objective is to call events during times when electrical demand is highest. APS proposes to continue its PEP Rate in 2016 as previously approved.

E. PEAK TIME REBATE PROGRAM

With Commission Decision No. 73183 the residential Peak Time Rebate went into effect on May 24, 2012. The residential peak time rebate program provides a bill credit to the customer for the kWh they reduce below their baseline during the called critical hours. The program targets the same critical hours and utilizes the same call of events as the Peak Event Pricing Program. APS proposes to continue its Peak Time Rebate Rate in 2016 as previously approved.

IV. Budget

APS anticipates that it will be able to meet its 2016 savings goal (an anticipated 565,000 MWh) and reduce the DSMAC which is presently set at \$0.001845 per kWh and \$0.696 per kW. With Commission approval, the reduced 2016 DSMAC will be effective with the first billing cycle in March 2016.

A. ENERGY EFFICIENCY BUDGET

Table 5 shows the anticipated 2016 EE spending by program. The budget in this Plan represents the estimated spending required to meet the 2016 EE savings goal of 565,000 MWh. These projections are based on APS’s best estimates of market penetration for each program measure. Table 5 includes the budget, spending by program, and the estimated program performance incentive for 2016.

Approximately 60% of the projected program costs will benefit customers directly in the form of incentives, training, technical assistance, or education. The other 40% of program costs are needed for program implementation, marketing, and administration expenses and are necessary to deliver the EE programs to customers.

⁸ Approved by the Commission in Decision No. 71448 (December 30, 2009).

Table 5
APS Energy Efficiency Programs
2016 Estimated Budget

Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implement	Program Marketing	Planning & Administration	Financing	Program Total Cost
Residential								
Consumer Products	\$5,289,000	\$32,000	\$77,000	\$2,260,000	\$650,000	\$550,000	\$0	\$8,858,000
Residential HVAC	\$4,097,000	\$150,000	\$100,000	\$1,533,000	\$210,000	\$366,000	\$0	\$6,456,000
Home Performance	\$2,892,000	\$15,000	\$0	\$905,000	\$200,000	\$100,000	\$0	\$4,112,000
New Construction	\$4,545,000	\$100,000	\$15,000	\$325,000	\$225,000	\$470,000	\$0	\$5,680,000
Appliance Recycling	\$240,000	\$0	\$29,000	\$765,000	\$319,000	\$173,000	\$0	\$1,526,000
Limited Inc. Weatherize	\$2,291,000	\$10,000	\$20,000	\$50,000	\$30,000	\$75,000	\$0	\$2,476,000
Conservation Behavior	\$0	\$0	\$0	\$1,577,000	\$0	\$90,000	\$0	\$1,667,000
Multi-Family	\$1,123,000	\$0	\$10,000	\$700,000	\$10,000	\$166,000	\$0	\$2,009,000
PrePaid Conservation	\$0	\$3000	\$0	\$7000	\$1000	\$62,000	\$0	\$73,000
Totals for Residential	\$20,254,000	\$310,000	\$251,000	\$8,122,000	\$1,646,000	\$2,052,000	\$0	\$32,856,000
Non-Residential								
Large Existing	\$14,388,000	\$566,000	\$53,000	\$4,565,000	\$996,000	\$632,000	\$20,000	\$21,221,000
New Construction	\$2,067,000	\$71,000	\$18,000	\$408,000	\$98,000	\$115,000	\$0	\$2,776,000
Small Business	\$945,000	\$95,000	\$13,000	\$630,000	\$75,000	\$95,000	\$5000	\$1,858,000
Schools	\$1,212,000	\$23,000	\$14,000	\$640,000	\$75,000	\$55,000	\$0	\$2,019,000
Energy Info. Services	\$55,000	\$10,000	\$2000	\$24,000	\$5000	\$3,000	\$0	\$99,000
Totals for Non-Residential	\$18,633,000	\$765,000	\$100,000	\$6,267,000	\$1,249,000	\$900,000	\$25,000	\$27,972,000
Segment Totals	\$38,887,000	\$1,075,000	\$351,000	\$14,389,000	\$2,895,000	\$2,952,000	\$25,000	\$60,828,000
% of Cost By Category	56%	2%	1%	21%	4%	4%	0%	

Program Costs	\$60,828,000
Codes and Standards	\$150,000
Measurement, Evaluation & Research	\$2,100,000
Performance Incentive	\$2,919,000
TOTAL	\$65,997,000

B. DEMAND RESPONSE BUDGET

The budget projections are based on an aggregation of individual estimates for the various DR programs. Table 6 below shows a summary of the anticipated 2016 DR spending by program or initiative.

The initiatives in Table 6 include the 2016 Peak Solutions Program, and the Marketing and Measurement, Evaluation, and Research (“MER”) of Rate Options. The 2016 APS Peak Solutions costs include program administration, DR contract capacity and energy payments, and customer metering.

DR Marketing and MER of rate options include Time of Use rates (ET-2, ECT-2, GS-Schools and Super Peak) and may include Peak Event Pricing and interruptible rates.

**Table 6
2016 Estimated Budget for
APS Demand Response Programs/Initiatives**

APS Peak Solutions	\$2,451,000
Demand Response Marketing and MER of Rate Options	\$200,000
Home Energy Information Pilot (carrying costs)	\$251,000
Total	\$2,902,000

C. DEMAND SIDE MANAGEMENT ADJUSTMENT CHARGE

The DSMAC mechanism structure agreed to by the parties in the 2009 Settlement Agreement allows for near concurrent recovery of DSM program costs and incentives. The DSMAC charge for March 2016 through February 2017 is estimated to recover the projected DSM program costs for calendar year 2016 (less \$10 million recovered in base rates and less the credit for certain gains for the sale of APS property, and less the funds being withdrawn from the DSMAC balancing account).

Attachment 1 contains the schedules supporting APS’s proposed DSMAC rates and the corresponding customer charges necessary to recover the projected EE and DR costs.

The combined estimated 2016 DSMAC charges of \$0.001624 per kWh and \$0.613 per kW are lower than the combined present charges of \$0.001845 per kWh and \$0.696 per kW. The bill impact is anticipated to be a reduction for both the Residential customer class and the Non-Residential customer class.

Table 7 is a summary of the DSM program costs used to calculate APS's proposed 2016 DSMAC. With Commission approval, the 2016 DSMAC will be effective with the first billing cycle in March 2016.

Table 7
Estimated DSM Program Costs for 2016 DSMAC Charge

2016 DSM Budget	
Energy Efficiency Program Costs	\$60,829,000
Codes & Standards	\$150,000
Measurement Evaluation and Research	<u>\$2,100,000</u>
Total Energy Efficiency (before incentive)	\$63,078,000
Performance Incentive	<u>\$2,919,000</u>
Total Energy Efficiency (with incentive)	\$65,997,000
Demand Response	<u>\$2,902,000</u>
Total 2016 DSM Budget	\$68,900,000

2016 Revenue Requirements for DSMAC	
Total 2016 DSM Budget	\$68,900,000
Amount Recovered in Base Rates	<u>(\$10,000,000)</u>
Subtotal	\$58,900,000
Less Credit from True-up Balance	(\$0)
Less Collected But Unallocated DSMAC Funds	(\$13,800,000)
Less Gain on Sale of Assets Balance	<u>(\$63,000)</u>
Total Revenue Requirement for 2016 DSMAC	\$45,037,000

V. Performance Incentive

The Performance Incentive is an important tool that provides an incentive to encourage and reward exemplary performance of the DSM portfolio. The current Performance Incentive structure was approved in Decision No. 74406. The Performance Incentive is earned based on the amount of energy saved and the amount of customer net benefits (total program benefits minus total program costs) generated by the portfolio, as shown in Table 8. The Performance Incentive calculation does not include any net benefits generated by the Codes and Standards or the APS System Savings initiatives.

Table 8
2016 Estimated Performance Incentive¹

Achievement Relative to DSM Goal	Performance Incentive (% of Net Benefits)	Performance Incentive Cap (\$0.0125 per kWh saved)
96% to 105%	7%	565,000,000,720 kWh x \$0.0125
Net Benefits (Prior to PI, Codes & Standards, System Savings)	\$41,701,858	
Performance Incentive	\$2,919,130	\$7,062,500

¹The Performance Incentive methodology/calculation was approved in Decision No. 69663 and was modified in Decision No. 71448 and Decision No. 74406.

VI. DSM Energy Savings and Benefits

A. ENERGY EFFICIENCY PROGRAMS

Table 9 provides details of the expected annual and lifetime energy savings and peak demand savings from each EE program and a summary of the net benefits generated for 2016. These are in addition to energy savings, costs and net benefits associated with APS DSM activities undertaken during the 2005 through 2015 timeframe, which are reported each year in APS's Semi-Annual DSM Report filings. The lifetime energy savings are the estimated savings that will result over the expected lifetime of all program measures installed in 2016. It is anticipated that, over the expected lifetime of all 2016 measures, the portfolio will produce net benefits of \$41.7 million, with a total societal benefit/cost ratio of 1.39 (societal benefits of \$149.2 million divided by societal costs of \$107.5 million.)

Table 9
Energy Efficiency
Electric Savings Benefits¹
2016 Programs

	Capacity Savings MW	Annual MWh Savings	Lifetime ² MWh Savings	Societal Benefits	Societal Costs ⁴	Net Benefits
Residential						
Consumer Products	13.5	100,100	899,700	\$34,880,000	\$18,803,000	\$16,077,000
Residential HVAC	10.2	14,200	173,400	\$9,086,000	\$7,990,000	\$1,096,000
Home Performance	5.1	7700	124,000	\$7,079,000	\$6,795,000	\$284,000
New Construction	5.5	10,500	211,000	\$9,302,000	\$8,254,000	\$1,048,000
Appliance Recycling	1.4	9700	58,200	\$1,533,000	\$1,233,000	\$299,000
Limited Income Weatherization ³	0.2	1,400	25,900	\$595,000	\$595,000	\$ 0
Conservation Behavior	6.5	61,400	61,400	\$1,603,000	\$1,560,000	\$43,000
Multi-Family	1.4	9400	131,200	\$5,649,000	\$2,692,000	\$2,956,000
PrePaid Energy Conservation	0.5	2600	2600	\$69,000	\$68,000	\$1000
Totals for Residential	44.3	217,000	1,687,400	\$69,796,000	\$47,992,000	\$21,804,000
Non-Residential						
Large Existing Facilities	26.7	167,000	2,357,600	\$59,887,000	\$44,118,000	\$15,769,000
New Construction	5.6	23,800	327,700	\$9,348,000	\$6,485,000	\$2,864,000
Small Business	2.4	12,400	157,900	\$4,416,000	\$3,612,000	\$804,000
Schools	2.7	14,100	195,000	\$5,273,000	\$5,087,000	\$186,000
Energy Information System	5.8	100	400	\$477,000	\$202,000	\$275,000
Totals for Non-Residential	43.2	217,400	3,038,600	\$79,402,000	\$59,504,000	\$19,898,000
Subtotal	87.5	434,400	4,726,000	\$149,198,000	\$107,496,000	\$41,702,000
System Savings	12.9	39,200	39,200	N/A	N/A	N/A
Codes and Standards	7.0	34,900	249,100	N/A	N/A	N/A
Total	107.4	508,500	5,014,300	\$149,198,000	\$107,496,000	\$41,702,000

1. All savings values are net of free riders and include system line losses and reflect ACC staff cost/benefit methodology (Decision No. 73089).
2. Refers to savings over the expected lifetime of all program measures.
3. Program costs include weatherization and bill assistance. Societal Costs do not include Bill Assistance because it does not contribute to electric savings. Consistent with Commission Staff's analysis in Decision No. 68647, the societal benefits of the Low Income program are equal to the societal costs.
4. MER and Performance Incentive is accounted for within the Societal Cost for each program and each measure.

B. DEMAND RESPONSE PROGRAMS

Pursuant to the EE Rules,⁹ DR programs may comprise up to 2% of the 22% EE Standard by 2020. Furthermore, the DR peak demand reduction contribution shall not exceed 10% of the cumulative EE Electric Standard for any year. APS’s 2016 DR programs and rates that apply toward the EE Electric Standard are shown in Table 5.

The DR energy savings formula in the EE Rules is:

DR Energy Savings (MWh) = 2016 DR MW load reduction x 8760 annual hours x 50% load factor

**Table 10
2016 DR MW Load Reduction**

DR Programs and Rates	Load Reduction (MW) at Customer’s Meter
APS Peak Solutions	25
Time of Use Rates (including Super Peak)	155
PEP /PTR	<u>2</u>
Total	182

Substituting the 182 MW DR load reduction in Table 10 into the DR energy savings formula yields 797 GWh of potential energy savings from DR programs and rates. Since the EE Rules cap the DR contribution at 10% of the energy savings goal, 56.5 GWh will be counted from all DR programs toward the 2016 DSM energy savings goal of 565 GWh, in lieu of the higher calculated value of 797 GWh.

⁹ A.A.C. R14-2-2404(C).

VII. Environmental Benefits

Consistent with A.A.C. R14-2-1704, APS has made a “good faith effort” to quantify the physical units of air emissions and water savings that may occur as a result of its EE programs.

In calculating the energy efficiency environmental benefits, APS believes that the most appropriate values to associate with EE measures are those from the newest combined cycle plants. These values are meant to reasonably approximate newer combined cycle plants and the air emissions and water consumption savings that may be avoided through EE measures. These natural gas fired plants represent APS’s last significant dispatch group and a large portion of the market for power purchased by APS.

The values APS used to calculate the EE environmental benefits are also included.

SOx	0.00445 lbs/MWh
NOx	0.08455 lbs/MWh
CO ₂	899 lbs/MWh
PM10	0.0247 lbs/MWh
Water	317 gallons/MWh (utility water savings only)

Table 11 estimates savings in water consumption and air emissions that could result from energy saved over the lifetime of the measures installed in 2016.

**Table 11
Energy Efficiency Environmental Benefits
2016 Programs**

	Water Mil Gal	SOx Lbs	NOx Lbs	CO2 Mil Lbs	PM10 Lbs
Residential					
Consumer Products	285	4004	76,067	809	22,222
Residential HVAC	55	772	14,660	156	4,283
Home Performance with Energy Star	39	552	10,486	111	3063
New Construction	67	939	17,838	190	5211
Appliance Recycling	18	259	4922	52	1438
Low Income Weatherization	8	115	2192	23	640
Conservation Behavioral	19	273	5190	55	1516
Multi-Family	42	584	11,091	118	3240
Pre-Pay	1	12	223	2	65
Total for Residential	535	7509	142,679	1517	41,679
Non-Residential					
Large Existing Facilities	747	10,491	199,337	2,120	58,233
New Construction	104	1458	27,709	295	8095
Small Business	50	703	13,349	142	3900
Schools	62	868	16,485	175	4816
Energy Information System	0	2	36	0	10
Totals for Non-Residential	963	13,522	256,915	2732	75,054
Total	1,498	21,031	399,594	4249	116,733

The environmental benefits listed above occur over the expected lifetime of EE measures installed in 2016.

VIII. Measurement, Evaluation, and Research

The MER process verifies the impact and cost effectiveness of the EE programs. Navigant Consulting, a nationally renowned, independent third-party, energy consulting company, currently provides the EE program measurement and evaluation services. These measurement and evaluation activities include, but are not limited to:

- Performing process evaluation to indicate how well programs are working to achieve objectives; and
- Performing impact evaluation to verify that EE measures are installed as expected; which includes measurement of savings on installed projects to monitor the actual program savings that are achieved; and research activities to refine savings and cost benefit models and identify additional opportunities for energy efficiency.

The approach for measurement and evaluation of the EE programs is to integrate data collection and tracking activities directly into the program implementation process. In fact, Commission Decision No. 69663 (June 28, 2007) requires APS to

Use measured savings obtained from APS customers by the [MER] contractor beginning no later than July 1, 2007; and that the averages of actual measured usage, for both standard and upgraded equipment, should be recalculated by the [MER] from usage samples for each prescriptive measure based on new measurements from the field no less frequently than every two years.

APS integrates the most recent annual MER adjustments and process and impact findings in its annual Implementation Plan.

Per Decision No. 73183, “APS shall compile and make available to all parties of the docket a technical reference manual documenting program and measure saving assumptions and incremental costs no later than December 31, 2013. This manual would be updated on an annual basis as part of the DSM Implementation plan process and would serve as a reference tool for the LFCR analysis.”

In compliance with this Order, APS filed a technical reference manual (TRM) on December 23, 2013 and a subsequent update on December 30, 2014. APS will also file an updated TRM within 60 days of the Commission’s approval of this Implementation Plan. This will allow APS to include all new measures approved as a result of this proceeding.

APS proposes to maintain a MER budget similar to the most recent program years to cover ongoing MER activities associated with the EE programs. For the DR programs, APS will perform measurement and verification of the peak load reduction with detailed modeling and statistical techniques. Costs for this activity will be built into the DR program budget.

ATTACHMENTS

DSMAC Schedules and Adjustor Rate

Attachment 1

Rate Schedules E-47 and E-58

Attachment 2

Attachment 1
DSMAC Schedules and Adjustor Rate



**ADJUSTMENT SCHEDULE DSMAC-1
DEMAND SIDE MANAGEMENT
ADJUSTMENT CHARGE**

APPLICATION

The Demand Side Management Adjustment Charge ("DSMAC") shall be applied monthly to every metered and/or non-metered retail Standard Offer or Direct Access service. All provisions of the customer's currently applicable rate schedule will apply in addition to this adjustment charge. The DSMAC is applied to Standard Offer or Direct Access customer's bills as monthly charge to recover the cost of Commission approved demand side management programs above those costs included in base rates. The DSMAC will be changed in billing cycle 1 of the March revenue month and will not be prorated. The DSMAC and the RES adjustors may be combined on the customer's bill and appear on the "Environmental Benefits Surcharge" line. Details of how the DSMAC is derived and administered can be found in the Demand Side Management Adjustment Charge Plan for Administration.

RATE

The charge shall be calculated at the following rate:

For all residential customers and general service customers whose billing does not include demand charges:

All kWh \$0.001624 per kWh

For general service customers whose billing includes demand charges:

All billed kW \$0.613 per kW

SELF DIRECTION

Self direction of DSM charges collected through base rates and Adjustment Schedule DSMAC-1 shall be available for customers who use more than 40 million kWh per year, based on an aggregation of the usage for all the customer's accounts for the January through December billing months in the year the request for self direction is made.

Qualifying customers who elect to self direct their DSM charges must notify APS on or before December 1st in each year that they wish to self direct. Upon such notification, and verification of eligibility by APS, 85% of the customer's DSM charges paid over the January through December billing months in the election year will be reserved for tracking purposes for the customer's eligible energy efficiency project(s) to be completed within two years. The remaining 15% will be retained to cover the self direction program administration, management and verification, measurement and evaluation, and low-income program costs.

Customers who elect to self direct must continue to pay the DSM charges in base rates and Adjustment Schedule DSMAC-1.

Self direction shall be provided in accordance with the Self Direction Provisions approved in Arizona Corporation Commission (Commission) Decision No. 71448, Attachment C to the Settlement Agreement as modified from time to time with Commission approval.

Self direction amounts shall be the DSMAC-1 charges billed over the election year plus the DSM charges recovered in base rates. The latter shall be calculated by multiplying the kWh billed for the System Benefits Charge in the customer's current applicable rate schedule multiplied by \$0.000359 per kWh.



**ADJUSTMENT SCHEDULE DSMAC-1
DEMAND SIDE MANAGEMENT
ADJUSTMENT CHARGE**

REDLINE VERSION

APPLICATION

The Demand Side Management Adjustment Charge ("DSMAC") shall be applied monthly to every metered and/or non-metered retail Standard Offer or Direct Access service. All provisions of the customer's currently applicable rate schedule will apply in addition to this adjustment charge. The DSMAC is applied to Standard Offer or Direct Access customer's bills as monthly charge to recover the cost of Commission approved demand side management programs above those costs included in base rates. The DSMAC will be changed in billing cycle 1 of the March revenue month and will not be prorated. The DSMAC and the RES adjustors may be combined on the customer's bill and appear on the "Environmental Benefits Surcharge" line. Details of how the DSMAC is derived and administered can be found in the Demand Side Management Adjustment Charge Plan for Administration.

RATE

The charge shall be calculated at the following rate:

For all residential customers and general service customers whose billing does not include demand charges:

All kWh	\$0.0018450.001624	per kWh
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For general service customers whose billing includes demand charges:

All billed kW	\$0.6960.613	per kW
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SELF DIRECTION

Self direction of DSM charges collected through base rates and Adjustment Schedule DSMAC-1 shall be available for customers who use more than 40 million kWh per year, based on an aggregation of the usage for all the customer's accounts for the January through December billing months in the year the request for self direction is made.

Qualifying customers who elect to self direct their DSM charges must notify APS on or before December 1st in each year that they wish to self direct. Upon such notification, and verification of eligibility by APS, 85% of the customer's DSM charges paid over the January through December billing months in the election year will be reserved for tracking purposes for the customer's eligible energy efficiency project(s) to be completed within two years. The remaining 15% will be retained to cover the self direction program administration, management and verification, measurement and evaluation, and low-income program costs.

Customers who elect to self direct must continue to pay the DSM charges in base rates and Adjustment Schedule DSMAC-1.

Self direction shall be provided in accordance with the Self Direction Provisions approved in Arizona Corporation Commission (Commission) Decision No. 71448, Attachment C to the Settlement Agreement as modified from time to time with Commission approval.

Self direction amounts shall be the DSMAC-1 charges billed over the election year plus the DSM charges recovered in base rates. The latter shall be calculated by multiplying the kWh billed for the System Benefits Charge in the customer's current applicable rate schedule multiplied by \$0.000359 per kWh.

ARIZONA PUBLIC SERVICE COMPANY
Phoenix, Arizona
Filed by: Charles A. Miessner
Title: Manager, Regulation and Pricing
Original Effective Date: April 1, 2005

A.C.C. No. ~~5864XXXX~~
Canceling A.C.C. No. ~~57995864~~
Adjustment Schedule DSMAC-1
Revision No. 89
Effective: April 1, 2014 ~~XXXXXX~~

Attachment 2
Schedules E-47 & E-58



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

AVAILABILITY

This rate schedule is available in all territory served by the Company at all points where facilities of adequate capacity and the required phase and suitable voltage are adjacent to the sites served.

APPLICATION

This rate schedule is applicable to outdoor lighting which operates only from dusk to dawn and where service can be supplied from the existing secondary facilities of the Company. Dusk is defined as the time between sunset and full night when a photocontrol senses the lack of sufficient sunlight and turns on the lights. Dawn is defined as the time between full night and sunrise when a photocontrol senses sufficient sunlight to turn off lights.

RATES

The customer's bill shall be computed at the following rates for each type of standard facility and/or service utilized to provide outdoor lighting, plus any adjustments incorporated in this schedule:

I. FIXTURES (Includes Mounting Arm, if Applicable)

	Lumen	Watts	kWh	RATES		
				Company Owned	Customer Owned	
A. Acorn	9,500 HPS	100	41	\$27.06	\$9.22	FROZEN
	16,000 HPS	150	69	30.04	11.65	FROZEN
	6,000 IND	85	29	17.87	2.77	
B. Architectural	9,500 HPS	100	41	15.38	7.34	FROZEN
	16,000 HPS	150	69	17.96	9.82	FROZEN
	30,000 HPS	250	99	21.31	12.60	FROZEN
	50,000 HPS	400	153	26.29	18.13	FROZEN
	14,000 MH	175	72	21.51	11.79	FROZEN
	21,000 MH	250	101	24.42	14.54	FROZEN
	36,000 MH	400	159	30.54	20.00	FROZEN
	8,000 LPS	55	30	22.35	9.82	FROZEN
	13,500 LPS	90	50	26.36	11.84	FROZEN
	22,500 LPS	135	72	30.11	14.45	FROZEN
	33,000 LPS	180	90	36.22	17.02	FROZEN
	6,200 IND	85	29	9.40	2.77	
	8,400 IND	100	34	9.93	3.15	
	10,200 IND	120	41	10.91	3.67	
	13,000 IND	150	52	12.05	4.50	
	20,500 IND	200	69	13.72	5.79	
22,500 IND	265	91	16.37	7.44		
5,800 LED	94	32	16.53	3.00		
7,400 LED	127	44	18.96	3.90		
12,300 LED	203	70	23.66	5.86		



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

RATES (cont)

I. FIXTURES (Includes Mounting Arm, if Applicable (cont))

	RATES						
	Lumen	Watts	kWh	Company Owned	Customer Owned		
C. Cobra/Roadway	5,800 HPS	70	29	\$8.73	\$5.16	FROZEN	
	9,500 HPS	100	41	10.28	6.32	FROZEN	
	16,000 HPS	150	69	12.87	8.82	FROZEN	
	30,000 HPS	250	99	15.52	11.46	FROZEN	
	50,000 HPS	400	153	21.06	16.37	FROZEN	
	14,000 MH	175	72	14.97	10.20	FROZEN	
	21,000 MH	250	101	17.49	12.69	FROZEN	
	36,000 MH	400	159	23.03	17.63	FROZEN	
	8,000 FL	100	38	17.20	5.04	FROZEN	
	6,200 IND	75	26	9.78	2.54		
	6,400 IND	85	29	8.33	2.77		
	8,000 IND	88	30	9.72	2.84		
	8,400 IND	100	34	9.01	3.15		
	10,200 IND	120	41	9.69	3.67		
	13,000 IND	150	52	10.67	4.50		
	15,250 IND	200	69	12.87	5.79		
	22,500 IND	250	86	17.22	7.06		
	Gray/Bronze	3,500 IND	55	19	9.75	2.01	
		6,000 LED	95	33	15.83	3.07	
		8,700 LED	142	49	17.80	4.27	
	9,600 LED	157	54	18.94	4.65		
	11,600 B-LED	181	62	17.67	5.25		
Gray/Bronze	3,300 LED	43	15	8.36	1.71		
Gray/Bronze	5,300 LED	67	23	9.70	2.32		
Gray/Bronze	8,300 LED	106	37	12.58	3.37		
Gray/Bronze	10,500 LED	130	45	14.00	3.97		
Gray/Bronze	20,000 LED	258	89	24.33	7.29		
D. Decorative Transit	9,500 HPS	100	41	37.09	11.11	FROZEN	
	16,000 HPS	150	69	36.88	6.31	FROZEN	
	30,000 HPS	250	99	42.46	16.02	FROZEN	
	5,300 LED	75	26	26.40	2.54		
	8,300 LED	100	34	28.27	3.15		
	10,500 LED	150	52	30.35	4.50		
E. Flood	30,000 HPS	250	99	20.61	12.81	FROZEN	
	50,000 HPS	400	153	25.56	17.77	FROZEN	
	21,000 MH	250	101	22.00	13.53	FROZEN	
	36,000 MH	400	159	26.82	18.35	FROZEN	



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

RATES (cont)

I. FIXTURES (Includes Mounting Arm, if Applicable (cont))

					RATES		
		Lumens	Watts	kWh	Company Owned	Customer Owned	
F. Post Top	Colonial Gray	8,000 FL	100	38	\$18.54	\$5.23	FROZEN
		9,500 HPS	100	41	10.60	6.65	FROZEN
	Colonial Black	9,500 HPS	100	41	12.21	6.88	FROZEN
	Decorative Transit	9,500 HPS	100	41	32.47	10.24	FROZEN
	Copper Square	6,000 IND	85	29	17.52	2.77	
	Gray/Black	8,000 IND	88	30	13.80	2.84	
	Gray/Black	4350 LED	86	30	12.52	2.84	
G. FROZEN	4,000 INC	295	103	\$9.78	\$5.47		
	7,000 MV	175	73	12.67	7.27		
	20,000 MV	400	150	24.92	14.12		
	Brackets over 8 ft. and up to 16 ft. in length				1.72	--	

- NOTES:
1. Company Owned fixtures are those fixtures that the Company installs, owns, operates, and maintains.
 2. Customer Owned fixtures are those fixtures where the customer installs and maintains the lighting fixtures, and the Company approves the installation, operates the fixtures, and replaces Company standard lamps only.
 3. Listed kWhs reflect the assigned monthly energy usage for each type of fixture and are used to determine any applicable transmission, system benefit, distribution, energy, and adjustment charges.
 4. HPS = High Pressure Sodium (Frozen Technology)
 5. MH = Metal Halide (Frozen Technology)
 6. LPS = Low Pressure Sodium (Frozen Technology)
 7. FL = Fluorescent (Frozen Technology)
 8. INC = Incandescent. Incandescent lighting charges are applicable and available only to those customers being served and those installations in service on April 21, 1983.
 9. MV = Mercury Vapor. Mercury Vapor lighting charges are applicable and available only to those customers being served and those installation in service on June 1, 1987 in accordance with A.R.S. §49-1104(A). (Frozen Technology)
 10. LED = Light Emitting Diode
 11. IND = Induction
 12. HPS, MH, LPS, FL, INC, and MV lamps are marked a FROZEN per ACC decision No. XXXXX



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

RATES (cont)

II. POLES

			RATES		
			Height	Company Owned	
A. Anchor Base Mounted (Flush)	Round Steel	1 Simplex Adapter	12 ft.	\$12.17	
			22 ft.	13.70	
			25 ft.	14.82	
			30 ft.	17.03	
			32 ft.	17.89	
	Round Steel	2 Simplex Adapters	12 ft.	12.98	
			22 ft.	14.91	
			25 ft.	15.55	
			30 ft.	18.07	
			32 ft.	19.28	
	Square Steel	5"	13 ft.	13.95	
			15 ft.	12.47	
			23 ft.	14.79	
			25 ft.	16.26	
			28 ft.	18.05	
			32 ft.	17.95	
		Concrete		12 ft.	41.58
		Fiberglass		12 ft.	35.21
		Decorative Transit	4"	16 ft.	34.33
	Decorative Transit	6"	30 ft.	66.28	
Hinged	Square		15 ft.	13.20	
	Round		19 ft.	11.93	
B. Anchor Base Mounted (Pedestal)	Round Steel	1 Simplex Adapter	12 ft.	11.71	
			22 ft.	13.24	
			25 ft.	14.35	
			30 ft.	16.58	
			32 ft.	17.41	
	Round Steel	2 Simplex Adapters	12 ft.	12.51	
			22 ft.	13.97	
			25 ft.	15.08	
			30 ft.	17.61	
			32 ft.	18.81	
			3 Bolt Arm	32 ft.	21.62
	Square Steel	5"	13 ft.	13.50	
			15 ft.	13.80	
			23 ft.	14.32	
			25 ft.	15.80	
			28 ft.	17.56	
				32 ft.	18.23



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

RATES (cont)

II. POLES (cont)

		Height	RATES Company Owned	
C. Direct Bury	Round Steel	19 ft.	\$18.42	
		30 ft.	14.38	
		38 ft.	17.55	
		Self Support	40 ft.	21.62
		Stepped	25 ft.	49.72
			32 ft.	52.36
	Square Steel	4"	34 ft.	15.87
			20 ft.	15.07
		5"	30 ft.	15.71
			38 ft.	17.05
		8"	28 ft.	28.45
			32 ft.	29.74
		Decorative Transit	41 ft. 6 in.	20.47
	Decorative Transit	47 ft.	25.50	
	Steel Distribution Pole (for lighting only)	35 ft.	23.54	
D. Post Top	Decorative Transit Anchor Base	16 ft.	35.07	
	Gray Steel/Fiberglass	23 ft.	12.16	
	Black Steel	23 ft.	13.41	
E. FROZEN	Wood Poles	30 ft.	\$8.95	
		35 ft.	8.95	
		40 ft.	12.73	

- NOTES:
1. All distribution lines required to serve dusk to dawn facilities are owned by the Company.
 2. Monthly rates for all new Company owned poles include up to 100 feet of overhead secondary wire, or up to 100 feet of underground secondary line if customer provides earthwork and conduit (excluding the overhead to underground transition). Any additional wire required (over and above the first 100 feet provided) to install fixtures is subject to the additional monthly wire charges specified in Section IV.1 below.
 3. When adding lighting fixtures to an existing Company owned pole, any and all additional distribution wire required is subject to the additional monthly wire charges specified in Section IV.1 below.
 4. Any and all distribution wire required to serve lighting facilities placed on a customer owned pole, whether new or existing, is subject to the additional monthly wire charges specified in Section IV.1 below.



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

III. ANCHOR BASE

		RATES	
		Height	Company Owned
A. Flush		4 ft.	\$9.91
		6 ft.	11.82
B. Pedestal		8 ft.	13.54
	For 32' Round Steel Pole only	4 ft. 6"	9.39

IV. RATES FOR OPTIONAL OR ADDITIONAL EQUIPMENT

		RATES
		Company Owned
1.	Each 100 feet of overhead secondary wire, or each 100 feet of underground secondary wire if customer provides earthwork and conduit.	\$3.50
2.	Additional maintenance charge for HPS lamp and luminaire that is not accessible by bucket truck.	2.80
3.	Additional maintenance charge for MH lamp and luminaire that is not accessible by bucket truck.	6.04

V. DETERMINATION OF RATES FOR NEW EQUIPMENT

Monthly rates for new lighting fixtures, poles and other equipment not included in Sections I, II, or III above shall be determined by the Company using the following method:

Step 1 Determination of monthly charges for each charge type						Monthly Fixed Charge Rate	
Charge Type	Monthly Charge	=	Cost Inputs	x	PV Factor	x	
1	Carrying cost (fixtures)	=	Equipment cost (installed)	x	NA	x	1.533%
2	Lighting O&M	=	O&M cost (lifecycle)	x	0.381	x	1.533%
3	Carrying cost (poles)	=	Equipment cost (installed)	x	NA	x	1.449%
Charge Type	Monthly Charge	=	kWh Input	x	\$/kWh		
4	Generation	=	kWh per month	x	0.04023		
5	T&D, RCS, system benefits	=	kWh per month	x	0.03516		

Step 2 Determination of Total Monthly Charge	
The total monthly charge shall be the summation of the charges for each applicable charge type.	
Equipment Type	Charge Type
Fixtures - company owned	1,2,4,5
Fixtures - customer owned	2,4,5
Poles - company owned	3



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

TRIP CHARGE

When Company is not the responsible party contracted for the regular maintenance of a dusk to dawn lighting system owned by a city, town or other governmental entity, a \$100.00 trip charge per light will be charged when customer requests a disconnect and/or reconnect of service in order to accommodate the maintenance activities of the customer or its designee(s) on their dusk to dawn equipment. The trip charge will also apply when customer request disconnect or reconnect for non-maintenance purposes.

ADJUSTMENTS

1. The bill is subject to the Renewable Energy Standard as set forth in the Company's Adjustment Schedule REAC-1 pursuant to Arizona Corporation Commission Decision No. 70313.
2. The bill is subject to the Power Supply Adjustment factor as set forth in the Company's Adjustment Schedule PSA-1 pursuant to Arizona Corporation Commission Decision No. 67744, Arizona Corporation Commission Decision No. 69663, and Arizona Corporation Commission No. 71448, and 73183.
3. The bill is subject to the Transmission Cost Adjustment factor as set forth in the Company's Adjustment Schedule TCA-1 pursuant to Arizona Corporation Commission Decision No. 67744.
4. The bill is subject to the Environmental Improvement Surcharge as set forth in the Company's Adjustment Schedule EIS pursuant to Arizona Corporation Commission Decision No. 69663, and Arizona Corporation Commission Decision No. 73183.
5. Direct Access customers returning to Standard Offer service may be subject to a Returning Customer Direct Access Charge as set forth in the Company's Adjustment Schedule RCDAC-1 pursuant to Arizona Corporation Commission Decision No. 67744.
6. The bill is subject to the Demand Side Management Adjustment Charge as set forth in the Company's Adjustment Schedule DSMAC-1 pursuant to Arizona Corporation Commission Decision No. 71448.
7. The bill is subject to the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of APS and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

SPECIAL PROVISIONS

1. The 4,000 and 7,000 lumen lamps use an open glass diffuser. All units are controlled by a photoelectric switch.
2. The customer is not authorized to make connections to the lighting circuits or to make attachments.
3. Should a customer request relocation of a dusk-to-dawn lighting installation, the costs of such relocation shall be paid by the customer.
4. The Company cannot guarantee that all dusk to dawn facilities will always operate as intended. Therefore, the customer will be responsible for notifying the Company when the dusk to dawn facilities are not operating as intended. The Company will use reasonable efforts to complete normal maintenance (replacement of lamps, photocontrols or fixtures) within ten (10) working days from notification by customer; however, if the

SPECIAL PROVISIONS (cont')

ARIZONA PUBLIC SERVICE COMPANY
Phoenix, Arizona
Filed by: Charles Miessner
Title: Pricing Manager
Original Effective Date: November 5, 1962

A.C.C. No. XXXX
Canceling A.C.C. No. 5826
Rate Schedule E-47
Revision No. 55
Effective: XXXX



**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

~~maintenance requires cable replacement or repairs, the Company shall use reasonable efforts to complete said repairs within twenty (20) working days.~~

5. The customer's bill will not be reduced due to lamp, photocontrol or cable repair or replacement outages.
6. The customer may cancel a lighting service agreement by payment of the bill including the applicable tax adjustment, multiplied by the number of remaining months of the initial agreement, or the calculated installation and removal costs for the extension, whichever is lower.
7. Lighting equipment which is not specified in this rate schedule will be billed at the rates corresponding to the most similar equipment, as determined by the Company.
8. Lighting Equipment and services with an initial Company cost exceeding \$25,000 shall require a financial liability agreement between the Company and the customer.

NON-STANDARD FACILITIES – CUSTOMER OWNED

When the customer requests any non-standard dusk-to-dawn lighting facilities (non-standard being defined as any equipment not listed in the Company's Transmission and Distribution Construction Standards book), the customer will own, operate and maintain all components to the system excluding the distribution facilities installed by the Company to serve the lighting system. Monthly bills rendered for non-standard facilities will be computed at the following rates, plus any adjustments incorporated in this schedule. KWh will be determined by the Company, based on the rated wattage of the lighting equipment and an estimated average hourly usage per month.

A.	Service Charge	\$3.35	per installed lamp per month
B.	Energy Charge	\$0.06345	per kWh per month

If, at the Company's discretion, the customer chooses to have the Company maintain the entire non-standard facility, the Company may require the customer to enter into a separate maintenance agreement which may be subject to additional charges mutually agreed upon by the Company and the customer.

CONTRACT PERIOD

All Dusk-to-Dawn lighting installations will require a written agreement for service for a minimum of three (3) years, or longer at Company's option.

TERMS AND CONDITIONS

Service under this rate schedule is subject to the Company's Schedule 1, Terms and Conditions for Standard Offer and Direct Access Services and the Company's Schedule 10, Terms and Conditions for Direct Access. These schedules have provisions that may affect the customer's bill. In addition, service may be subject to special terms and conditions as provided for in a customer contract or service agreement.



REDLINE VERSION

**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

AVAILABILITY

This rate schedule is available in all territory served by the Company at all points where facilities of adequate capacity and the required phase and suitable voltage are adjacent to the sites served.

APPLICATION

This rate schedule is applicable to outdoor lighting which operates only from dusk to dawn and where service can be supplied from the existing secondary facilities of the Company. Dusk is defined as the time between sunset and full night when a photocontrol senses the lack of sufficient sunlight and turns on the lights. Dawn is defined as the time between full night and sunrise when a photocontrol senses sufficient sunlight to turn off lights.

RATES

The customer's bill shall be computed at the following rates for each type of standard facility and/or service utilized to provide outdoor lighting, plus any adjustments incorporated in this schedule:

I. FIXTURES (Includes Mounting Arm, if Applicable)

	Lumen	Watts	kWh	RATES		
				Company Owned	Customer Owned	
A. Acorn	9,500 HPS	100	41	\$27.06	\$9.22	FROZEN
	16,000 HPS	150	69	30.04	11.65	FROZEN
	6,000 IND	85	29	17.87	2.77	
B. Architectural	9,500 HPS	100	41	15.38	7.34	FROZEN
	16,000 HPS	150	69	17.96	9.82	FROZEN
	30,000 HPS	250	99	21.31	12.60	FROZEN
	50,000 HPS	400	153	26.29	18.13	FROZEN
	14,000 MH	175	72	21.51	11.79	FROZEN
	21,000 MH	250	101	24.42	14.54	FROZEN
	36,000 MH	400	159	30.54	20.00	FROZEN
	8,000 LPS	55	30	22.35	9.82	FROZEN
	13,500 LPS	90	50	26.36	11.84	FROZEN
	22,500 LPS	135	72	30.11	14.45	FROZEN
	33,000 LPS	180	90	36.22	17.02	FROZEN
	6,200 IND	85	29	9.40	2.77	
	8,400 IND	100	34	9.93	3.15	
	10,200 IND	120	41	10.91	3.67	
	13,000 IND	150	52	12.05	4.50	
	20,500 IND	200	69	13.72	5.79	
22,500 IND	265	91	16.37	7.44		
5,800 LED	94	32	16.53	3.00		
7,400 LED	127	44	18.96	3.90		
12,300 LED	203	70	23.66	5.86		



REDLINE VERSION

**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

RATES (cont)

I. FIXTURES (Includes Mounting Arm, if Applicable (cont))

				RATES					
				Lumen	Watts	kWh	Company Owned	Custome r Owned	
C. Cobra/Roadway				5,800 HPS	70	29	\$8.73	\$5.16	FROZEN
				9,500 HPS	100	41	10.28	6.32	FROZEN
				16,000 HPS	150	69	12.87	8.82	FROZEN
				30,000 HPS	250	99	15.52	11.46	FROZEN
				50,000 HPS	400	153	21.06	16.37	FROZEN
				14,000 MH	175	72	14.97	10.20	FROZEN
				21,000 MH	250	101	17.49	12.69	FROZEN
				36,000 MH	400	159	23.03	17.63	FROZEN
				8,000 FL	100	38	17.20	5.04	FROZEN
				6,200 IND	75	26	9.78	2.54	
				6,400 IND	85	29	8.33	2.77	
				8,000 IND	88	30	9.72	2.84	
				8,400 IND	100	34	9.01	3.15	
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				15,250 IND	200	69	12.87	5.79	
				22,500 IND	250	86	17.22	7.06	
		Gray/Bronze		3,500 IND	55	19	9.75	2.01	
			6,000 LED	95	33	15.83	3.07		
			8,700 LED	142	49	17.80	4.27		
			9,600 LED	157	54	18.94	4.65		
			11,600 B-LED	181	62	17.67	5.25		
	Gray/Bronze		3,300 LED	43	15	8.36	1.71		
	Gray/Bronze		5,300 LED	67	23	9.70	2.32		
	Gray/Bronze		8,300 LED	106	37	12.58	3.37		
	Gray/Bronze		10,500 LED	130	45	14.00	3.97		
	Gray/Bronze		20,000 LED	258	89	24.33	7.29		
D. Decorative Transit				9,500 HPS	100	41	37.09	11.11	FROZEN
				16,000 HPS	150	69	36.88	6.31	FROZEN
				30,000 HPS	250	99	42.46	16.02	FROZEN
				5,300 LED	75	26	26.40	2.54	
				8,300 LED	100	34	28.27	3.15	
				10,500 LED	150	52	30.35	4.50	
E. Flood				30,000 HPS	250	99	20.61	12.81	FROZEN
				50,000 HPS	400	153	25.56	17.77	FROZEN
				21,000 MH	250	101	22.00	13.53	FROZEN
				36,000 MH	400	159	26.82	18.35	FROZEN



REDLINE VERSION

**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

RATES (cont)

I. FIXTURES (Includes Mounting Arm, if Applicable (cont))

					RATES		
		Lumens	Watts	kWh	Company Owned	Customer Owned	
F. Post Top	Colonial Gray	8,000 FL	100	38	\$18.54	\$5.23	FROZEN
		9,500 HPS	100	41	10.60	6.65	FROZEN
	Colonial Black	9,500 HPS	100	41	12.21	6.88	FROZEN
	Decorative Transit	9,500 HPS	100	41	32.47	10.24	FROZEN
	Copper Square	6,000 IND	85	29	17.52	2.77	
	Gray/Black	8,000 IND	88	30	13.80	2.84	
	Gray/Black	4350 LED	86	30	12.52	2.84	
G. FROZEN	4,000 INC	295	103	\$9.78	\$5.47		
	7,000 MV	175	173	12.67	7.27		
	20,000 MV	400	150	24.92	14.12		
	Brackets over 8 ft. and up to 16 ft. in length						1.72

- NOTES:
1. Company Owned fixtures are those fixtures that the Company installs, owns, operates, and maintains.
 2. Customer Owned fixtures are those fixtures where the customer installs and maintains the lighting fixtures, and the Company approves the installation, operates the fixtures, and replaces Company standard lamps only.
 3. Listed kWhs reflect the assigned monthly energy usage for each type of fixture and are used to determine any applicable transmission, system benefit, distribution, energy, and adjustment charges.
 4. HPS = High Pressure Sodium (Frozen Technology)
 5. MH = Metal Halide (Frozen Technology)
 6. LPS = Low Pressure Sodium (Frozen Technology)
 7. FL = Fluorescent (Frozen Technology)
 8. INC = Incandescent. Incandescent lighting charges are applicable and available only to those customers being served and those installations in service on April 21, 1983.
 9. MV = Mercury Vapor. Mercury Vapor lighting charges are applicable and available only to those customers being served and those installation in service on June 1, 1987 in accordance with A.R.S. §49-1104(A). (Frozen Technology)
 10. LED = Light Emitting Diode
 11. IND = Induction
 12. HPS, MH, LPS, FL, INC, and MV lamps are marked a FROZEN per ACC decision No. XXXXX



RATES (cont)

II. POLES

			RATES		
			Height	Company Owned	
A. Anchor Base Mounted (Flush)	Round Steel	1 Simplex Adapter	12 ft.	\$12.17	
			22 ft.	13.70	
			25 ft.	14.82	
			30 ft.	17.03	
			32 ft.	17.89	
	Round Steel	2 Simplex Adapters	12 ft.	12.98	
			22 ft.	14.91	
			25 ft.	15.55	
			30 ft.	18.07	
			32 ft.	19.28	
	Square Steel	5"	13 ft.	13.95	
			15 ft.	12.47	
			23 ft.	14.79	
			25 ft.	16.26	
			28 ft.	18.05	
			32 ft.	17.95	
		Concrete		12 ft.	41.58
	Fiberglass		12 ft.	35.21	
	Decorative Transit	4"	16 ft.	34.33	
	Decorative Transit	6"	30 ft.	66.28	
Hinged	Square	15 ft.	13.20		
		Round	19 ft.	11.93	
B. Anchor Base Mounted (Pedestal)	Round Steel	1 Simplex Adapter	12 ft.	11.71	
			22 ft.	13.24	
			25 ft.	14.35	
			30 ft.	16.58	
			32 ft.	17.41	
	Round Steel	2 Simplex Adapters	12 ft.	12.51	
			22 ft.	13.97	
			25 ft.	15.08	
			30 ft.	17.61	
			32 ft.	18.81	
			3 Bolt Arm	32 ft.	21.62
	Square Steel	5"	13 ft.	13.50	
			15 ft.	13.80	
			23 ft.	14.32	
			25 ft.	15.80	
			28 ft.	17.56	
				32 ft.	18.23



RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE

REDLINE VERSION

RATES (cont)

II. POLES (cont)

		Height	RATES	
			Company Owned	
C. Direct Bury	Round Steel	19 ft.	\$18.42	
		30 ft.	14.38	
		38 ft.	17.55	
		Self Support	40 ft.	21.62
		Stepped	25 ft.	49.72
			32 ft.	52.36
	Square Steel	4"	49 ft.	64.99
			34 ft.	15.87
		5"	20 ft.	15.07
			30 ft.	15.71
		8"	38 ft.	17.05
			28 ft.	28.45
			32 ft.	29.74
	Decorative Transit	41 ft. 6 in.	20.47	
	Decorative Transit	47 ft.	25.50	
	Steel Distribution Pole (for lighting only)	35 ft.	23.54	
D. Post Top	Decorative Transit Anchor Base	16 ft.	35.07	
	Gray Steel/Fiberglass	23 ft.	12.16	
	Black Steel	23 ft.	13.41	
E. FROZEN	Wood Poles	30 ft.	\$8.95	
	FROZEN	35 ft.	8.95	
		40 ft.	12.73	

- NOTES:
1. All distribution lines required to serve dusk to dawn facilities are owned by the Company.
 2. Monthly rates for all new Company owned poles include up to 100 feet of overhead secondary wire, or up to 100 feet of underground secondary line if customer provides earthwork and conduit (excluding the overhead to underground transition). Any additional wire required (over and above the first 100 feet provided) to install fixtures is subject to the additional monthly wire charges specified in Section IV.1 below.
 3. When adding lighting fixtures to an existing Company owned pole, any and all additional distribution wire required is subject to the additional monthly wire charges specified in Section IV.1 below.
 4. Any and all distribution wire required to serve lighting facilities placed on a customer owned pole, whether new or existing, is subject to the additional monthly wire charges specified in Section IV.1 below.



REDLINE VERSION

**RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE**

III. ANCHOR BASE

		RATES	
		Height	Company Owned
A. Flush		4 ft.	\$9.91
		6 ft.	11.82
B. Pedestal		8 ft.	13.54
	For 32' Round Steel Pole only	4 ft. 6"	9.39

IV. RATES FOR OPTIONAL OR ADDITIONAL EQUIPMENT

		RATES
		Company Owned
1.	Each 100 feet of overhead secondary wire, or each 100 feet of underground secondary wire if customer provides earthwork and conduit.	\$3.50
2.	Additional maintenance charge for HPS lamp and luminaire that is not accessible by bucket truck.	2.80
3.	Additional maintenance charge for MH lamp and luminaire that is not accessible by bucket truck.	6.04

V. DETERMINATION OF RATES FOR NEW EQUIPMENT

Monthly rates for new lighting fixtures, poles and other equipment not included in Sections I, II, or III above shall be determined by the Company using the following method:

Step 1		Determination of monthly charges for each charge type				Monthly Fixed Charge Rate
Charge Type	Monthly Charge	=	Cost Inputs	PV Factor	x	
1	Carrying cost (fixtures)	=	Equipment cost (installed)	NA	x	1.533%
2	Lighting O&M	=	O&M cost (lifecycle)	0.381	x	1.533%
3	Carrying cost (poles)	=	Equipment cost (installed)	NA	x	1.449%
Charge Type	Monthly Charge	=	kWh Input	\$/kWh	x	
4	Generation	=	kWh per month	0.04023	x	
5	T&D, RCS, system benefits	=	kWh per month	0.03516	x	

Step 2		Determination of Total Monthly Charge	
The total monthly charge shall be the summation of the charges for each applicable charge type.			
Equipment	Charge Type		
Fixtures - company owned	1,2,4,5		
Fixtures - customer owned	2,4,5		
Poles - company owned	3		



RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE

REDLINE VERSION

TRIP CHARGE

When Company is not the responsible party contracted for the regular maintenance of a dusk to dawn lighting system owned by a city, town or other governmental entity, a \$100.00 trip charge per light will be charged when customer requests a disconnect and/or reconnect of service in order to accommodate the maintenance activities of the customer or its designee(s) on their dusk to dawn equipment. The trip charge will also apply when customer request disconnect or reconnect for non-maintenance purposes.

ADJUSTMENTS

1. The bill is subject to the Renewable Energy Standard as set forth in the Company's Adjustment Schedule REAC-1 pursuant to Arizona Corporation Commission Decision No. 70313.
2. The bill is subject to the Power Supply Adjustment factor as set forth in the Company's Adjustment Schedule PSA-1 pursuant to Arizona Corporation Commission Decision No. 67744, Arizona Corporation Commission Decision No. 69663, and Arizona Corporation Commission No. 71448, and 73183.
3. The bill is subject to the Transmission Cost Adjustment factor as set forth in the Company's Adjustment Schedule TCA-1 pursuant to Arizona Corporation Commission Decision No. 67744.
4. The bill is subject to the Environmental Improvement Surcharge as set forth in the Company's Adjustment Schedule EIS pursuant to Arizona Corporation Commission Decision No. 69663, and Arizona Corporation Commission Decision No. 73183.
5. Direct Access customers returning to Standard Offer service may be subject to a Returning Customer Direct Access Charge as set forth in the Company's Adjustment Schedule RCDAC-1 pursuant to Arizona Corporation Commission Decision No. 67744.
6. The bill is subject to the Demand Side Management Adjustment Charge as set forth in the Company's Adjustment Schedule DSMAC-1 pursuant to Arizona Corporation Commission Decision No. 71448.
7. The bill is subject to the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of APS and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

SPECIAL PROVISIONS

1. The 4,000 and 7,000 lumen lamps use an open glass diffuser. All units are controlled by a photoelectric switch.
2. The customer is not authorized to make connections to the lighting circuits or to make attachments.
3. Should a customer request relocation of a dusk-to-dawn lighting installation, the costs of such relocation shall be paid by the customer.
4. The Company cannot guarantee that all dusk to dawn facilities will always operate as intended. Therefore, the customer will be responsible for notifying the Company when the dusk to dawn facilities are not operating as intended. The Company will use reasonable efforts to complete normal maintenance (replacement of lamps, photocontrols or fixtures) within ten (10) working days from notification by customer; however, if the

SPECIAL PROVISIONS (cont')

ARIZONA PUBLIC SERVICE COMPANY
Phoenix, Arizona
Filed by: Charles Miessner
Title: Pricing Manager
Original Effective Date: November 5, 1962

A.C.C. No. XXXX
Canceling A.C.C. No. 5853
Rate Schedule E-47
Revision No. 55
Effective: XXXX



RATE SCHEDULE E-47
CLASSIFIED SERVICE
DUSK TO DAWN LIGHTING SERVICE

REDLINE VERSION

~~maintenance requires cable replacement or repairs, the Company shall use reasonable efforts to complete said repairs within twenty (20) working days.~~

5. The customer's bill will not be reduced due to lamp, photocontrol or cable repair or replacement outages.
6. The customer may cancel a lighting service agreement by payment of the bill including the applicable tax adjustment, multiplied by the number of remaining months of the initial agreement, or the calculated installation and removal costs for the extension, whichever is lower.
7. Lighting equipment which is not specified in this rate schedule will be billed at the rates corresponding to the most similar equipment, as determined by the Company.
8. Lighting Equipment and services with an initial Company cost exceeding \$25,000 shall require a financial liability agreement between the Company and the customer.

NON-STANDARD FACILITIES – CUSTOMER OWNED

When the customer requests any non-standard dusk-to-dawn lighting facilities (non-standard being defined as any equipment not listed in the Company's Transmission and Distribution Construction Standards book), the customer will own, operate and maintain all components to the system excluding the distribution facilities installed by the Company to serve the lighting system. Monthly bills rendered for non-standard facilities will be computed at the following rates, plus any adjustments incorporated in this schedule. KWh will be determined by the Company, based on the rated wattage of the lighting equipment and an estimated average hourly usage per month.

A.	Service Charge	\$3.35	per installed lamp per month
B.	Energy Charge	\$0.06345	per kWh per month

If, at the Company's discretion, the customer chooses to have the Company maintain the entire non-standard facility, the Company may require the customer to enter into a separate maintenance agreement which may be subject to additional charges mutually agreed upon by the Company and the customer.

CONTRACT PERIOD

All Dusk-to-Dawn lighting installations will require a written agreement for service for a minimum of three (3) years, or longer at Company's option.

TERMS AND CONDITIONS

Service under this rate schedule is subject to the Company's Schedule 1, Terms and Conditions for Standard Offer and Direct Access Services and the Company's Schedule 10, Terms and Conditions for Direct Access. These schedules have provisions that may affect the customer's bill. In addition, service may be subject to special terms and conditions as provided for in a customer contract or service agreement.



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

AVAILABILITY

This rate schedule is available in those portions of cities, towns and unincorporated communities in which Company does a general retail electric business and where Company has installed a multiple or series street lighting system of adequate capacity for the service to be rendered.

APPLICATION

This rate schedule is applicable to service for lighting public streets, alleys, thoroughfares, public parks and playgrounds from dusk to dawn by use of Company's facilities where such service for the entire area is contracted for from the Company by the city, town, other governmental agencies, or a responsible individual for unincorporated communities. Dusk is defined as the time between sunset and full night when a photocontrol senses the lack of sufficient sunlight and turns on the lights. Dawn is defined as the time between full night and sunrise when a photocontrol senses sufficient sunlight to turn off lights.

RATES

The bill shall be computed at the following rates for each type of standard facility and/or service utilized to provide street lighting, plus any adjustments incorporated in this schedule:

I. FIXTURES (Includes Mounting Arm, if Applicable)

	Lumen	Watts	kWh	RATES		
				Investment by Company	Investment by Others	
A. Acorn	9,500 HPS	100	41	\$ 27.06	\$9.22	FROZEN
	16,000 HPS	150	69	30.04	11.65	FROZEN
	6000 IND	85	29	17.87	4.77	
B. Architectural	9,500 HPS	100	41	15.38	7.34	FROZEN
	16,000 HPS	150	69	17.96	9.82	FROZEN
	30,000 HPS	250	99	21.31	12.60	FROZEN
	50,000 HPS	400	153	26.29	18.13	FROZEN
	14,000 MH	175	72	21.51	11.79	FROZEN
	21,000 MH	250	101	24.42	14.54	FROZEN
	36,000 MH	400	159	30.54	20.00	FROZEN
	8,000 LPS	55	30	22.35	9.82	FROZEN
	13,500 LPS	90	50	26.36	11.84	FROZEN
	22,500 LPS	135	72	30.11	14.45	FROZEN
	33,000 LPS	180	90	36.22	17.02	
	6,200 IND	85	29	9.40	3.65	
	8,400 IND	100	34	9.93	4.05	
	10,200 IND	120	41	10.91	4.63	
	13,000 IND	150	52	12.05	5.50	
	20,500 IND	200	69	13.72	6.84	
	22,500 IND	265	91	16.37	8.62	
	5,800 LED	94	32	16.53	4.79	
	7,400 LED	127	44	18.96	5.89	
	12,300 LED	203	70	23.66	8.22	



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

I. FIXTURES (Includes Mounting Arm, if Applicable) (cont):

	Lumen	Watts	kWh	RATES			
				Investment by Company	Investment by Others		
B.	9,200 LED	139	48	\$23.77	\$6.78		
	13,620 LED	202	70	26.45	8.58		
	6,400 LED	89	31	16.61	4.73		
C.	5,800 HPS	70	29	8.73	5.16	FROZEN	
	9,500 HPS	100	41	10.28	6.32	FROZEN	
	16,000 HPS	150	69	12.87	8.82	FROZEN	
	30,000 HPS	250	99	15.52	11.46	FROZEN	
	50,000 HPS	400	153	21.06	16.37	FROZEN	
	14,000 MH	175	72	14.97	10.20	FROZEN	
	21,000 MH	250	101	17.49	12.69	FROZEN	
	36,000 MH	400	159	23.03	17.63	FROZEN	
	8,000 FL	100	38	17.20	5.04	FROZEN	
	6,200 IND	75	26	9.78	3.50		
	6,400 IND	85	29	8.33	3.51		
	8,000 IND	88	30	9.72	3.75		
	8,400 IND	100	34	9.01	3.93		
	10,200 IND	120	41	9.69	4.47		
	13,000 IND	150	52	10.67	5.32		
	15,250 IND	200	69	12.87	6.73		
	22,500 IND	250	86	17.22	8.41		
	Gray/Bronze	3,500 IND	55	19	9.75	3.03	
		6,000 LED	95	33	15.83	4.76	
		8,700 LED	142	49	17.80	6.06	
		9,600 LED	157	54	18.94	6.54	
	11,600 B-	181	62	17.67	6.90		
Gray/Bronze	3,300 LED	43	15	8.36	2.59		
Gray/Bronze	5,300 LED	67	23	9.70	3.29		
Gray/Bronze	8,300 LED	106	37	12.58	4.59		
Gray/Bronze	10,500 LED	130	45	14.00	5.29		
Gray/Bronze	20,000 LED	258	89	24.33	9.54		
D. Decorative Transit	9,500 HPS	100	41	37.09	11.11	FROZEN	
	16,000 HPS	150	69	36.88	12.41	FROZEN	
	30,000 HPS	250	99	42.46	16.02	FROZEN	
	5,300 LED	75	26	26.40	5.69		
	8,300 LED	100	34	28.27	6.47		
	10,500 LED	150	52	30.35	7.91		
E. Flood	30,000 HPS	250	99	20.61	12.81	FROZEN	
	50,000 HPS	400	153	25.56	17.77	FROZEN	
	21,000 MH	250	101	22.00	13.53	FROZEN	
	36,000 MH	400	159	26.82	18.35	FROZEN	



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

I. FIXTURES (Includes Mounting Arm, if Applicable) (cont):

					Rates		
					Investment By Company	Investment By Others	
		Lumens	Watts	kWh			
F. Post Top	Colonial Gray	8,000 FL	100	38	\$18.54	\$5.23	FROZEN
		9,500 HPS	100	41	10.60	6.65	FROZEN
	Colonial Black	9,500 HPS	100	41	12.21	6.88	FROZEN
	Decorative Transit	9,500 HPS	100	41	32.47	10.24	FROZEN
	Copper Square	6,000 IND	85	29	17.52	4.72	
	Gray/Black	8,000 IND	88	30	13.80	4.29	
	Gray/Black	4,350 LED	86	30	12.52	4.12	
G. FROZEN							
		4,000 INC	295	103	\$9.78	\$5.47	
		7,000 MV	175	73	12.67	7.27	
		11,000 MV	250	96	15.87	9.68	
		20,000 MV	400	150	24.92	14.12	

NOTES:

- Investment by Company. These rates are applicable where the Company provides the initial investment to purchase and install all facilities necessary for street lighting service. The Company will own, operate, and maintain the street lighting system.
- Investment by Others. These rates are applicable in those instances where the requesting entity or individual purchases and installs the street lighting facilities at their own expense and in accordance with Company specifications. These rates will also apply in the instance where the customer provides a non-refundable advance to the Company to cover the Company's cost of purchasing and installing the street lighting system. The Company retains ownership of the street lighting system and provides operation and maintenance for all facilities.
- Listed kWhs reflect the assigned monthly energy usage for each type of fixture and are used to determine any applicable transmission, system benefit, distribution, energy, and adjustment charges.
- HPS = High Pressure Sodium (Frozen Technology)
- MH = Metal Halide (Frozen Technology)
- LPS = Low Pressure Sodium (Frozen Technology)
- FL = Fluorescent (Frozen Technology)
- INC = Incandescent. Incandescent lighting charges are applicable and available only to those customers being served and those installations in service on November 1, 1986. Frozen
- MV = Mercury Vapor. Mercury Vapor lighting charges are applicable and available only to those customers being served and those installation in service on November 1, 1986 in accordance with A.R.S. §49-1104(A). (Frozen Technology)
- LED = Light Emitting Diode
- IND = Induction
- HPS, MH, LPS, FL, INC, and MV lamps are marked as FROZEN per ACC decision no. XXXXX



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

II. POLES

			RATES			
			Height	Investment by Company	Investment by Others	
A. Anchor Base Mounted (Flush)	Round Steel	1 Simplex Adapter	12 ft.	\$12.17	\$1.68	
			22 ft.	13.70	1.88	
			25 ft.	14.82	2.05	
			30 ft.	17.03	2.34	
			32 ft.	17.89	2.37	
		2 Simplex Adapters	12 ft.	12.98	1.79	
			22 ft.	14.91	2.06	
			25 ft.	15.55	2.14	
			30 ft.	18.07	2.49	
			32 ft.	19.28	2.66	
	Square Steel	5"	13 ft.	13.95	1.92	
			15 ft.	12.47	1.72	
			23 ft.	14.79	2.03	
			25 ft.	16.26	2.23	
			28 ft.	18.05	2.48	
			32 ft.	17.95	2.47	
Concrete			12 ft.	41.58	5.73	
Fiberglass			12 ft.	35.21	4.85	
Decorative Transit Pedestrian		4"	16 ft.	34.33	4.73	
Decorative Transit		6"	30 ft.	66.28	9.13	
Hinged Poles		Square	15 ft.	13.20	1.08	
		Round	19 ft.	11.93	.97	
B. Anchor Base Mounted (Pedestal)	Round Steel	1 Simplex Adapter	12 ft.	11.71	1.61	
			22 ft.	13.24	1.82	
			25 ft.	14.35	1.98	
			30 ft.	16.58	2.29	
			32 ft.	17.41	2.40	
		2 Simplex Adapters	12 ft.	12.51	1.72	
			22 ft.	13.97	1.92	
			25 ft.	15.08	2.07	
			30 ft.	17.61	2.42	
			32 ft.	18.81	2.59	
			3 Bolt Arm	32 ft.	21.62	2.97
	Square Steel	5"	13 ft.	13.50	1.86	
			15 ft.	13.80	1.89	
			23 ft.	14.32	1.98	
			25 ft.	15.80	2.19	
28 ft.			17.56	2.42		
32 ft.			18.23	2.50		



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

II POLES (cont)

			RATES		
			Height	Investment by Company	Investment by Others
C. Direct Bury	Round Steel		19 ft.	\$18.42	\$2.54
			30 ft.	14.38	2.66
			38 ft.	17.55	2.73
		Self Support	40 ft.	21.62	3.42
		Stepped	25 ft.	49.72	4.06
			32 ft.	52.36	4.27
	49 ft.		64.99	8.96	
	Square Steel	4"	34 ft.	15.87	2.75
			20 ft.	15.07	2.49
		5"	30 ft.	15.71	2.59
			38 ft.	17.05	2.96
		8"	28 ft.	28.45	2.32
			32 ft.	29.74	2.43
	Decorative Transit	41 ft 6 in	20.47	3.01	
	Decorative Transit	47 ft.	25.50	3.75	
	Steel Distribution Pole (for lighting only)	35 ft.	23.54	3.10	
D. Post Top	Decorative Transit Anchor Base	16 ft.	35.07	4.82	
	Gray Steel/Fiberglass	23 ft.	12.16	2.00	
	Black Steel	23 ft.	13.41	2.21	
E. Existing distribution pole suitable for streetlight use			1.48	--	
F. FROZEN	Wood Poles	30 ft.	\$8.95	\$1.55	
		35 ft.	\$8.95	1.48	

NOTE: The monthly rate for all new poles includes up to 300 feet of overhead secondary wire, or up to 300 feet of underground secondary wire if the customer provides earthwork and conduit (excluding the underground to overhead transition).

III. ANCHOR BASE

		RATES		
		Height	Investment by Company	Investment by Others
A. Flush		4 ft.	\$9.91	\$1.36
		6 ft.	11.82	2.05
B. Pedestal		8 ft.	13.54	2.36
	For 32' Round Steel Pole only	4 ft. 6"	9.39	1.63



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

IV. CHARGES FOR OPTIONAL OR ADDITIONAL EQUIPMENT

		RATES
		Company Owned
Underground Circuit Charges:		
a.	Per foot of cable, installed under paving	\$0.15716
b.	Per foot of cable, not installed under paving	0.05589

V. DETERMINATION OF RATES FOR NEW EQUIPMENT

Monthly rates for new lighting fixtures, poles and other equipment not included in Sections I, II, or III above shall be determined by the Company using the following method:

Step 1 Determination of Charges for each Charge Type							
Charge Type	Monthly Charge	=	Cost Inputs	x	PV Factor	x	Monthly Fixed Charge Rate
1	Carrying Cost (fixtures)	=	Equipment Cost (installed)	x	NA	x	1.533%
2	Carrying Cost (poles)	=	Equipment Cost (installed)	x	NA	x	1.449%
3	Fixture Replacement Cost	=	Equipment Cost (installed)	x	0.132	x	1.533%
4	Pole, Anchor Replacement Cost	=	Equipment Cost (installed)	x	0.082	x	1.449%
5	Lighting O&M	=	O&M Cost (lifecycle)	x	0.381	x	1.533%
Charge Type	Monthly Charge	=	kWh Input	x	\$/kWh		
6	Generation	=	kWh per month	x	0.04023		
7	T&D, RCS, SB	=	kWh per month	x	0.03516		

Step 2 Determination of Total Monthly Charge	
The total monthly charge shall be the summation of the charges for each applicable charge type	
Equipment	Charge Type
Fixture - IBC	1,5,6,7
Fixture - IBO	3,5,6,7
Pole, Anchor Base - IBC	2
Pole, Anchor Base - IBO	4



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

TRIP CHARGE

When Company is not the responsible party contracted for the regular maintenance of a street lighting system owned by a city, town or other governmental entity, a \$100.00 trip charge per light will be charged when Customer requests a disconnect and/or reconnect of service in order to accommodate the maintenance activities of the Customer or its designee(s) on their street light equipment. The trip charge will also apply when Customer request disconnect or reconnect for non-maintenance purposes.

ADJUSTMENTS

1. The bill is subject to the Renewable Energy Standard as set forth in the Company's Adjustment Schedule REAC-1 pursuant to Arizona Corporation Commission Decision No. 70313.
2. The bill is subject to the Power Supply Adjustment factor as set forth in the Company's Adjustment Schedule PSA-1 pursuant to Arizona Corporation Commission Decision No. 67744 Arizona Corporation Commission Decision No. 69663, and Arizona Corporation Commission No. 71448, and 73183.
3. The bill is subject to the Transmission Cost Adjustment factor as set forth in the Company's Adjustment Schedule TCA-1 pursuant to Arizona Corporation Commission Decision No. 67744.
4. The bill is subject to the Environmental Improvement Surcharge as set forth in the Company's Adjustment Schedule EIS pursuant to Arizona Corporation Commission Decision No. 69663 and Arizona Corporation Commission Decision No. 73183.
5. Direct Access customers returning to Standard Offer service may be subject to a Returning Customer Direct Access Charge as set forth in the Company's Adjustment Schedule RCDAC-1 pursuant to Arizona Corporation Commission Decision No. 67744.
6. The bill is subject to the Demand Side Management Adjustment Charge as set forth in the Company's Adjustment Schedule DSMAC-1 pursuant to Arizona Corporation Commission Decision No. 71448.
7. The bill is subject to the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of APS and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

SPECIAL PROVISIONS

1. Street lighting facilities installed under this rate schedule are of the type currently being furnished by Company as standard at the time service is initially requested. Standard facilities are those listed in the Company's Transmission and Distribution Construction Standards book.
2. The Company cannot guarantee that streetlighting facilities will always operate as intended. Therefore, the customer will be responsible for notifying the Company when the streetlighting facilities are not operating as intended. The Company will use reasonable efforts to complete normal maintenance (replacement of lamps, photocontrols or fixtures) within ten (10) working days from notification by customer; however, if the maintenance requires cable replacement or repairs, the Company shall use reasonable efforts to complete said repairs within twenty (20) working days.
3. The customer's bill will not be reduced due to lamp, photocontrol or cable repair or replacement outages.
4. Lighting equipment which is not specified in this rate schedule will be billed at the rates corresponding to the most similar equipment, as determined by the Company.



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

NON-STANDARD FACILITIES

Non-standard facilities (non-standard being defined as any facility not listed in the Company's Transmission and Distribution Construction Standards book) do not qualify for this rate schedule. At the Company's discretion, such facilities may be served under another of the Company's rate schedules.

EXTENSION OF STREET LIGHTING SYSTEM

The Company will extend its standard street lighting system up to a distance of 300 feet for each additional lighting installation without cost at the request of the customer. When the extension is underground the customer will provide earthwork as specified in of the Company's Service Schedule 3, Conditions Governing Extensions of Electric Distribution Lines and Services; or, at the applicant's request, the Company will provide such earthwork and the applicant will be required to pay a non-refundable contribution in aid of construction equal to the cost of such earthwork. Any additional extension required (over and above the first 300 feet) will be provided by Company for a contribution in aid of construction equal to the cost of the additional extension.

Extensions to isolated areas requiring a substantial extension of the electric distribution system, as opposed to an extension of the street lighting system, will require a special study to determine the terms and conditions under which the Company will undertake such an extension.

TERMS AND CONDITIONS

Service under this rate schedule is subject to the Company's Schedule 1, Terms and Conditions for Standard Offer and Direct Access Services and the Company's Schedule 10, Terms and Conditions for Direct Access. These schedules have provisions that may affect the customer's bill. In addition, service may be subject to special terms and conditions as provided for in a customer contract or service agreement.



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

AVAILABILITY

This rate schedule is available in those portions of cities, towns and unincorporated communities in which Company does a general retail electric business and where Company has installed a multiple or series street lighting system of adequate capacity for the service to be rendered.

APPLICATION

This rate schedule is applicable to service for lighting public streets, alleys, thoroughfares, public parks and playgrounds from dusk to dawn by use of Company's facilities where such service for the entire area is contracted for from the Company by the city, town, other governmental agencies, or a responsible individual for unincorporated communities. Dusk is defined as the time between sunset and full night when a photocontrol senses the lack of sufficient sunlight and turns on the lights. Dawn is defined as the time between full night and sunrise when a photocontrol senses sufficient sunlight to turn off lights.

RATES

The bill shall be computed at the following rates for each type of standard facility and/or service utilized to provide street lighting, plus any adjustments incorporated in this schedule:

I. FIXTURES (Includes Mounting Arm, if Applicable)

	Lumen	Watts	kWh	RATES		
				Investment by Company	Investment by Others	
A. Acorn	9,500 HPS	100	41	\$ 27.06	\$9.22	FROZEN
	16,000 HPS	150	69	30.04	11.65	FROZEN
	6000 IND	85	29	17.87	4.77	
B. Architectural	9,500 HPS	100	41	15.38	7.34	FROZEN
	16,000 HPS	150	69	17.96	9.82	FROZEN
	30,000 HPS	250	99	21.31	12.60	FROZEN
	50,000 HPS	400	153	26.29	18.13	FROZEN
	14,000 MH	175	72	21.51	11.79	FROZEN
	21,000 MH	250	101	24.42	14.54	FROZEN
	36,000 MH	400	159	30.54	20.00	FROZEN
	8,000 LPS	55	30	22.35	9.82	FROZEN
	13,500 LPS	90	50	26.36	11.84	FROZEN
	22,500 LPS	135	72	30.11	14.45	FROZEN
	33,000 LPS	180	90	36.22	17.02	
	6,200 IND	85	29	9.40	3.65	
	8,400 IND	100	34	9.93	4.05	
	10,200 IND	120	41	10.91	4.63	
	13,000 IND	150	52	12.05	5.50	
	20,500 IND	200	69	13.72	6.84	
	22,500 IND	265	91	16.37	8.62	
	5,800 LED	94	32	16.53	4.79	
	7,400 LED	127	44	18.96	5.89	
	12,300 LED	203	70	23.66	8.22	

ARIZONA PUBLIC SERVICE COMPANY
Phoenix, Arizona
Filed by: Charles Miessner
Title: Manager, Regulation and Pricing
Original Effective Date: August 1, 1986

A.C.C. No. XXXX
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Rate Schedule E-58
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Effective: XXXXXX



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

I. FIXTURES (Includes Mounting Arm, if Applicable) (cont):

				RATES		
	Lumen	Watts	kWh	Investment by Company	Investment by Others	
B.	9,200 LED	139	48	\$23.77	\$6.78	
	13,620 LED	202	70	26.45	8.58	
	6,400 LED	89	31	16.61	4.73	
C.	5,800 HPS	70	29	8.73	5.16	FROZEN
	9,500 HPS	100	41	10.28	6.32	FROZEN
	16,000 HPS	150	69	12.87	8.82	FROZEN
	30,000 HPS	250	99	15.52	11.46	FROZEN
	50,000 HPS	400	153	21.06	16.37	FROZEN
	14,000 MH	175	72	14.97	10.20	FROZEN
	21,000 MH	250	101	17.49	12.69	FROZEN
	36,000 MH	400	159	23.03	17.63	FROZEN
	8,000 FL	100	38	17.20	5.04	FROZEN
	6,200 IND	75	26	9.78	3.50	
	6,400 IND	85	29	8.33	3.51	
	8,000 IND	88	30	9.72	3.75	
	8,400 IND	100	34	9.01	3.93	
	10,200 IND	120	41	9.69	4.47	
	13,000 IND	150	52	10.67	5.32	
	15,250 IND	200	69	12.87	6.73	
	22,500 IND	250	86	17.22	8.41	
	Gray/Bronze 3,500 IND	55	19	9.75	3.03	
	6,000 LED	95	33	15.83	4.76	
	8,700 LED	142	49	17.80	6.06	
	9,600 LED	157	54	18.94	6.54	
11,600 B-	181	62	17.67	6.90		
Gray/Bronze 3,300 LED	43	15	8.36	2.59		
Gray/Bronze 5,300 LED	67	23	9.70	3.29		
Gray/Bronze 8,300 LED	106	37	12.58	4.59		
Gray/Bronze 10,500 LED	130	45	14.00	5.29		
Gray/Bronze 20,000 LED	258	89	24.33	9.54		
D. Decorative Transit	9,500 HPS	100	41	37.09	11.11	FROZEN
	16,000 HPS	150	69	36.88	12.41	FROZEN
	30,000 HPS	250	99	42.46	16.02	FROZEN
	5,300 LED	75	26	26.40	5.69	
	8,300 LED	100	34	28.27	6.47	
	10,500 LED	150	52	30.35	7.91	
E. Flood	30,000 HPS	250	99	20.61	12.81	FROZEN
	50,000 HPS	400	153	25.56	17.77	FROZEN
	21,000 MH	250	101	22.00	13.53	FROZEN
	36,000 MH	400	159	26.82	18.35	FROZEN



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

I. FIXTURES (Includes Mounting Arm, if Applicable) (cont):

					Rates		
					Investment By Company	Investment By Others	
		Lumens	Watts	kWh			
F. Post Top	Colonial Gray	8,000 FL	100	38	\$18.54	\$5.23	FROZEN
		9,500 HPS	100	41	10.60	6.65	FROZEN
	Colonial Black	9,500 HPS	100	41	12.21	6.88	FROZEN
	Decorative Transit	9,500 HPS	100	41	32.47	10.24	FROZEN
	Copper Square	6,000 IND	85	29	17.52	4.72	
	Gray/Black	8,000 IND	88	30	13.80	4.29	
	Gray/Black	4,350 LED	86	30	12.52	4.12	
G. FROZEN							
		4,000 INC	295	103	\$9.78	\$5.47	
		7,000 MV	175	73	12.67	7.27	
		11,000 MV	250	96	15.87	9.68	
		20,000 MV	400	150	24.92	14.12	

NOTES:

1. Investment by Company. These rates are applicable where the Company provides the initial investment to purchase and install all facilities necessary for street lighting service. The Company will own, operate, and maintain the street lighting system.
2. Investment by Others. These rates are applicable in those instances where the requesting entity or individual purchases and installs the street lighting facilities at their own expense and in accordance with Company specifications. These rates will also apply in the instance where the customer provides a non-refundable advance to the Company to cover the Company's cost of purchasing and installing the street lighting system. The Company retains ownership of the street lighting system and provides operation and maintenance for all facilities.
3. Listed kWhs reflect the assigned monthly energy usage for each type of fixture and are used to determine any applicable transmission, system benefit, distribution, energy, and adjustment charges.
4. HPS = High Pressure Sodium (Frozen Technology)
5. MH = Metal Halide (Frozen Technology)
6. LPS = Low Pressure Sodium (Frozen Technology)
7. FL = Fluorescent (Frozen Technology)
8. INC = Incandescent. Incandescent lighting charges are applicable and available only to those customers being served and those installations in service on November 1, 1986. Frozen
9. MV = Mercury Vapor. Mercury Vapor lighting charges are applicable and available only to those customers being served and those installation in service on November 1, 1986 in accordance with A.R.S. §49-1104(A). (Frozen Technology)
10. LED = Light Emitting Diode
11. IND = Induction
12. HPS, MH, LPS, FL, INC, and MV lamps are marked as FROZEN per ACC decision no. XXXXX



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

II. POLES

			RATES			
			Height	Investment by Company	Investment by Others	
A. Anchor Base Mounted (Flush)	Round Steel	1 Simplex Adapter	12 ft.	\$12.17	\$1.68	
			22 ft.	13.70	1.88	
			25 ft.	14.82	2.05	
			30 ft.	17.03	2.34	
			32 ft.	17.89	2.37	
		2 Simplex Adapters	12 ft.	12.98	1.79	
			22 ft.	14.91	2.06	
			25 ft.	15.55	2.14	
			30 ft.	18.07	2.49	
			32 ft.	19.28	2.66	
	Square Steel	5"	13 ft.	13.95	1.92	
			15 ft.	12.47	1.72	
			23 ft.	14.79	2.03	
			25 ft.	16.26	2.23	
			28 ft.	18.05	2.48	
			32 ft.	17.95	2.47	
	Concrete			12 ft.	41.58	5.73
	Fiberglass			12 ft.	35.21	4.85
Decorative Transit Pedestrian		4"	16 ft.	34.33	4.73	
Decorative Transit		6"	30 ft.	66.28	9.13	
Hinged Poles		Square	15 ft.	13.20	1.08	
		Round	19 ft.	11.93	.97	
B. Anchor Base Mounted (Pedestal)	Round Steel	1 Simplex Adapter	12 ft.	11.71	1.61	
			22 ft.	13.24	1.82	
			25 ft.	14.35	1.98	
			30 ft.	16.58	2.29	
			32 ft.	17.41	2.40	
		2 Simplex Adapters	12 ft.	12.51	1.72	
			22 ft.	13.97	1.92	
			25 ft.	15.08	2.07	
			30 ft.	17.61	2.42	
			32 ft.	18.81	2.59	
			3 Bolt Arm	32 ft.	21.62	2.97
	Square Steel	5"	13 ft.	13.50	1.86	
			15 ft.	13.80	1.89	
			23 ft.	14.32	1.98	
			25 ft.	15.80	2.19	
28 ft.			17.56	2.42		
32 ft.			18.23	2.50		



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

II POLES (cont)

			RATES				
			Height	Investment by Company	Investment by Others		
C. Direct Bury	Round Steel		19 ft.	\$18.42	\$2.54		
			30 ft.	14.38	2.66		
			38 ft.	17.55	2.73		
			Self Support	40 ft.	21.62	3.42	
			Stepped	25 ft.	49.72	4.06	
				32 ft.	52.36	4.27	
				49 ft.	64.99	8.96	
			Square Steel	4"	34 ft.	15.87	2.75
					20 ft.	15.07	2.49
		5"		30 ft.	15.71	2.59	
				38 ft.	17.05	2.96	
				8"	28 ft.	28.45	2.32
			32 ft.	29.74	2.43		
	Decorative Transit	41 ft 6 in	20.47	3.01			
	Decorative Transit	47 ft.	25.50	3.75			
	Steel Distribution Pole (for lighting only)	35 ft.	23.54	3.10			
D. Post Top	Decorative Transit Anchor Base	16 ft.	35.07	4.82			
	Gray Steel/Fiberglass	23 ft.	12.16	2.00			
	Black Steel	23 ft.	13.41	2.21			
E. Existing distribution pole suitable for streetlight use			1.48	--			
F. FROZEN	Wood Poles	30 ft.	\$8.95	\$1.55			
		35 ft.	8.95	1.48			

NOTE: The monthly rate for all new poles includes up to 300 feet of overhead secondary wire, or up to 300 feet of underground secondary wire if the customer provides earthwork and conduit (excluding the underground to overhead transition).

III. ANCHOR BASE

			RATES		
			Height	Investment by Company	Investment by Others
A. Flush			4 ft.	\$9.91	\$1.36
			6 ft.	11.82	2.05
B. Pedestal			8 ft.	13.54	2.36
		For 32' Round Steel Pole only	4 ft. 6"	9.39	1.63



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

IV. CHARGES FOR OPTIONAL OR ADDITIONAL EQUIPMENT

		RATES
		Company Owned
Underground Circuit Charges:		
a.	Per foot of cable, installed under paving	\$0.15716
b.	Per foot of cable, not installed under paving	0.05589

V. DETERMINATION OF RATES FOR NEW EQUIPMENT

Monthly rates for new lighting fixtures, poles and other equipment not included in Sections I, II, or III above shall be determined by the Company using the following method:

Step 1 Determination of Charges for each Charge Type							
Charge Type	Monthly Charge	=	Cost Inputs	x	PV Factor	x	Monthly Fixed Charge Rate
1	Carrying Cost (fixtures)	=	Equipment Cost (installed)	x	NA	x	1.533%
2	Carrying Cost (poles)	=	Equipment Cost (installed)	x	NA	x	1.449%
3	Fixture Replacement Cost	=	Equipment Cost (installed)	x	0.132	x	1.533%
4	Pole, Anchor Replacement Cost	=	Equipment Cost (installed)	x	0.082	x	1.449%
5	Lighting O&M	=	O&M Cost (lifecycle)	x	0.381	x	1.533%
Charge Type	Monthly Charge	=	kWh Input	x	\$/kWh		
6	Generation	=	kWh per month	x	0.04023		
7	T&D, RCS, SB	=	kWh per month	x	0.03516		

Step 2 Determination of Total Monthly Charge	
The total monthly charge shall be the summation of the charges for each applicable charge type	
Equipment	Charge Type
Fixture - IBC	1,5,6,7
Fixture - IBO	3,5,6,7
Pole, Anchor Base - IBC	2
Pole, Anchor Base - IBO	4



**RATE SCHEDULE E-58
CLASSIFIED SERVICE
STREET LIGHTING SERVICE**

REDLINE VERSION

TRIP CHARGE

When Company is not the responsible party contracted for the regular maintenance of a street lighting system owned by a city, town or other governmental entity, a \$100.00 trip charge per light will be charged when Customer requests a disconnect and/or reconnect of service in order to accommodate the maintenance activities of the Customer or its designee(s) on their street light equipment. The trip charge will also apply when Customer request disconnect or reconnect for non-maintenance purposes.

ADJUSTMENTS

1. The bill is subject to the Renewable Energy Standard as set forth in the Company's Adjustment Schedule REAC-1 pursuant to Arizona Corporation Commission Decision No. 70313.
2. The bill is subject to the Power Supply Adjustment factor as set forth in the Company's Adjustment Schedule PSA-1 pursuant to Arizona Corporation Commission Decision No. 67744 Arizona Corporation Commission Decision No. 69663, and Arizona Corporation Commission No. 71448, and 73183.
3. The bill is subject to the Transmission Cost Adjustment factor as set forth in the Company's Adjustment Schedule TCA-1 pursuant to Arizona Corporation Commission Decision No. 67744.
4. The bill is subject to the Environmental Improvement Surcharge as set forth in the Company's Adjustment Schedule EIS pursuant to Arizona Corporation Commission Decision No. 69663 and Arizona Corporation Commission Decision No. 73183.
5. Direct Access customers returning to Standard Offer service may be subject to a Returning Customer Direct Access Charge as set forth in the Company's Adjustment Schedule RCDAC-1 pursuant to Arizona Corporation Commission Decision No. 67744.
6. The bill is subject to the Demand Side Management Adjustment Charge as set forth in the Company's Adjustment Schedule DSMAC-1 pursuant to Arizona Corporation Commission Decision No. 71448.
7. The bill is subject to the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of APS and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

SPECIAL PROVISIONS

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