



# APS 2016 Rate Review Executive Summary

**BRIDGE TO THE FUTURE**



# Summary of Rate Review Filing

Financial	Rate Design (see appendix)
5.74% average customer bill increase (see below)	3 p.m. – 8 p.m. Monday through Friday on-peak hours, excluding holidays
8.13% weighted average cost of capital (includes a 10.5% return on equity)	Three-part (demand) rates for most residential and small commercial customers
1% return on fair value increment	Grandfather existing solar customers
\$6.8 billion ACC adjusted rate base, including 18 months of post-Test Year plant	Economic development rate
Base fuel rate of 2.9882 ¢/kWh	Extra-high load factor rate

Adjustors	Other
PSA: Include environmental chemical costs, cost of water to supply our generation plants, and contracts with third-party suppliers of electrical storage (batteries)	Ocotillo Modernization Project: Cost deferral from date of commercial operation in 2018 and 2019 to the effective date of rates in next rate case
LFCR: Update to improve the recovery of lost fixed costs associated with energy efficiency and distributed generation	SCR installation at Four Corners: Cost deferral from the time of installation to incorporation of the SCR costs in rates using a step increase requested to be effective by January 1, 2019
EIS: Increase cap to \$10 million year over year	Arizona Property tax deferral for any changes in the Arizona property tax rate until the next rate case
TCA: Add balancing account	AMI opt-out: fee \$70 one-time set-up fee; \$15 per month meter-reading fee

Overview of Rate Increase (\$ in Millions)		
Total stated base rate increase (inclusive of existing adjustor transfers)	\$433.434	15.00%
Less: Transfer to base rates of various adjustors already in effect	\$267.551	9.26%
<b>Net customer bill impact</b>	<b>\$165.883</b>	<b>5.74%</b>

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# Introduction

In 2016, APS celebrated 130 years of providing its customers safe, reliable and low-cost electricity. Our proud commitment to quality and service has helped power Arizona through more than a century of change and we look forward to the opportunities and growth for the state and our customers that lie ahead.

The 2016 rate review is the first rate review in five years. Much has changed in the world and in energy since 2011. From the development of low-cost natural gas through fracking to the explosive growth of rooftop solar, little, in fact, remains unchanged. To adapt to this changing landscape, APS has made and continues to make strategic investments that make our operations more efficient and enable customer choice.

Building on the foundation established in previous rate reviews, the investments and proposals discussed in this rate review provide a clear and compelling vision of the future. In many respects, this case serves as a transition from the challenges of the present to the opportunities of the future—it is a bridge to the future for APS and its customers.

The pace of change is accelerating in many aspects of our lives and the generation and delivery of energy is certainly no exception. Customers are increasingly utilizing new technologies to better control their use of energy. Sending the right price signals will help customers make informed decisions about the types of technology that will lower costs for everyone.

New rate designs are necessary to ensure that the price a customer pays more accurately reflects the way that customer uses the electric grid. A modernized pricing structure will allow APS to continue investing in our communities and updating infrastructure to maintain reliability, support emerging technologies and create a cleaner energy future for our customers and Arizona.

That is why APS's 2016 Rate Case is so important to the company and our customers. Our proposals in this case are based on four core values—the pursuit of clean energy, customer choice, innovation, and sustainability. This includes continuing our transition to clean generation sources, modernizing our energy infrastructure, and utilizing innovative technologies like solar, energy storage, and smart thermostats. Building on these values connects today's accomplishments with tomorrow needs; it builds a bridge to the future.

# Framing the Issue

Rate design modernization and reform, especially for residential customers, is not just important, it is critical. Adding a third billing element, called demand, in addition to making the basic service charge itself more cost-based, will reduce intra-class subsidies, better reflect the cost of service, and provide incentives for the deployment of new customer technologies.

The total cost shift to non-solar customers already totals **\$42.7 million** and is growing rapidly. It is especially notable that this subsidy already exceeds the total annual subsidy currently provided to limited income customers.

Making progress on the rooftop solar cross-subsidization issue is critical in this proceeding. In just the time it takes to process this case, that number will grow approximately \$20.1 million assuming the current pace of installations continues. Although APS has not requested recovery of those incremental costs in this case, we reserve the right to revise our request to include those costs if installations continue at such a rapid pace.

If no progress is made in this case and the issue is deferred until APS's next case (assuming that case is 3 years after this case), the total annual cost shift will have ballooned to **\$102.9 million per year**. The following table summarizes the annual and nominal 20 year cost shift.

Cost Shift Summary	
Cost shift for installations through 12/31/2015	\$42.7 million/yr
Additional cost shift through 7/1/2017	\$20.1 million/yr
Additional cost shift from 7/1/2017 to 7/1/2020	\$40.1 million/yr
Nominal incremental value of 20 year cost shift	\$740,000/day
Nominal total value of 20 year cost shift through 7/1/2017	\$1 billion

All of these cost shift numbers are specifically related to net energy metering and are in addition to the over \$800 million in cash incentive committed or already paid to rooftop solar customers.

## Daniel Froetscher

### APS Senior Vice President, Transmission, Distribution and Customer Service

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

Mr. Froetscher's direct testimony introduces APS, and the role the Company plays in Arizona's communities. He describes the core principles driving APS, and the context behind this rate Application. His testimony concludes with a high-level discussion of what APS seeks with this filing, and how the requested relief will help APS build a bridge to the future of clean, sustainable energy in Arizona.

## Direct Testimony Key Points

- Mr. Froetscher's direct testimony begins by describing the large number of significant changes occurring within the electric industry. Despite pressures imposed by these myriad changes, APS remains optimistic and committed to its core principles of safe, reliable, and affordable electricity for its customers while focusing on a sustainable energy future.
- APS has experienced slow retail sales growth over the past five years since its last rate case. Slow growth coupled with outdated volumetric rate design has complicated the recovery of fixed costs needed to maintain the grid and fulfill APS's responsibilities to its customers. Nevertheless, APS has a sustained responsibility to continue supplying customers with reliable electric service at a reasonable cost. The proposals set forth in this rate Application are designed to ensure that APS can continue fulfilling its core responsibilities even as the industry transformation continues.
- APS has aggressively managed costs since its last rate case through the hard work of its employees and the thoughtful application of a rigorous cost management framework.
- Each component of this rate Application feeds into and is critical to achieving three overarching outcomes:
  - 1 APS needs to be financially healthy and stable to continue supplying reliable power at reasonable prices. This includes the approval of new rates that reflect APS's costs, and to reflect the investments APS has made on behalf of its customers since its last rate case.
  - 2 APS requires a reasonable return on its invested capital to continue investing in the grid that makes clean energy a reality. A reasonable return can send a positive message to investors that Arizona is a good state in which to invest capital.
  - 3 The design of APS's rates must be modernized to achieve a sustainable path forward for all types of clean energy and developing technologies. The current structure of cross subsidies does not promote the cost-effective development of distributed technologies, and raises serious questions about equity among customers.
- APS's vision for the future of energy in Arizona is rooted in four areas: clean energy, sustainability, innovation, and technological options for customers. APS envisions a flexible, dynamic distribution platform—a next-generation grid that enables technological solutions and options



for customers and encourages distributed technologies and effective demand-side management.

- APS is pursuing a long-term business strategy that supports the adoption of cost-effective renewable energy by APS and its customers. Achieving this outcome will require upgrading physical facilities, refining operational practices, and modernizing regulatory policies. Specifically, sustainable clean energy requires:
  - A flexible grid that can react to changing and often unpredictable conditions.
  - An infrastructure that readily integrates the unpredictable deployment and operating characteristics of distributed technologies.
  - A focus on cost-based pricing to encourage, rather than discourage, new technologies.

- Approval of APS's rate Application is critical for the Company to accomplish its pursuit of clean energy, customer choice, innovation, and sustainability—all of which are essential to building a bridge to the future for Arizona.

With this Application, APS is asking the Commission to support its vision of a sustainable environment for clean energy, new technologies, and customer options. This support entails approval of new rates that permit healthy and stable financial strength, a reasonable return on investments made for the benefit of APS customers, and modernized regulatory policies and rate structures that incentivize all forms of technology and produce equitable results for APS's entire customer base.

## Barbara D. Lockwood APS Vice President of Regulation

Direct Testimony Submitted June 1, 2016  
Docket No. E-01345A-16-0036

### Direct Testimony Overview

In her direct testimony Ms. Lockwood discusses the challenges and opportunities that APS experienced in the five years since its last general rate case, as well as the environment APS and the Commission will face in the next five years and beyond.

She also provides an overview of the Company's rate request, including the initial steps of rate modernization, and shows how this is essential for APS to meet its long-term goal of providing a sustainable energy future for its customers and the state as a whole.

### Direct Testimony Key Points

- APS is requesting a net increase of \$165.9 million in base rates, or 5.74% on average. Ms. Lockwood terms the request a "net increase" because APS is seeking to "zero out" or significantly reduce several current rate adjuster mechanisms and surcharges by folding these costs, already born by APS customers, into base rates. The average annual bill impact for a typical APS residential customer would be \$11.09 per month, or 7.96%. General Service customers will see lower percentage increases in their bills. It is also important to note that APS is seeking a second or "step" increase in rates for 2019 to reflect the completion and integration into rates of the Company's investment in selective catalytic reduction (SCR) equipment for Four Corners.
- Residential rates are proposed to increase more than the overall average increase due in large part to absorbing "grandfathered" Net Energy

Metering (NEM) customers and the resultant \$27.3 million in cost shift to other residential customers since the Company's last rate case.

- APS is also requesting a 10.5% return on equity as supported by witness Dr. Bente Villadsen, resulting in an 8.13% weighted average cost of capital when combined with APS's embedded cost of debt of 5.13% at the end of the test year. APS's proposed 5.84% return on fair value rate base includes a 1% return on the Fair Value Increment of such rate base.
- The first SCR at Four Corners will be placed in service in late 2017 and the second in early 2018. APS's share of this investment is approximately \$400 million of direct construction costs. APS is requesting a cost deferral order from the time of installation to incorporation of the SCR costs in rates and a step increase in rates. APS estimates this will require an additional approximately 2% across-the-board increase in rates beginning in 2019, or approximately \$3.00 per month for a typical APS residential customer.
- APS does not seek rate recovery of the Ocotillo Modernization Project (OMP) in this proceeding. Rather, the Company asks for an accounting order running from the date of commercial operation of the OMP in 2018 and 2019 to the effective date of rates in APS's next rate case.
- Although APS continues to believe that full per-customer revenue decoupling is a superior and more comprehensive answer to fluctuations in sales and thus cost recovery, APS will instead propose changes to the LFCR to make it more



effective in recovering unrecovered fixed costs attributable to rooftop solar and energy efficiency. These include:

- Inclusion of fixed costs attributable to generation not otherwise recovered through production-related demand charges;
  - Inclusion of regulatory asset costs (the ultimate example of a fixed cost); and,
  - Elimination of transmission costs now included in base rates if the Commission accepts the Company's proposal to add a balancing account feature to the TCA.
- APS is also requesting a modest expansion of the environmental improvement surcharge (EIS) from the current effective cap of \$5 million to an annual year-over-year cap of \$10 million. Improvements to the power supply adjustor (PSA) and the transmission cost adjustor (TCA) are likewise requested in this Application as is the continued deferral of increases in Arizona property taxes beyond the levels allowed in rates by the Commission in this proceeding.
  - A critical part of the Company's rate proposal is a gradual modernization of its residential and extra small commercial rate plans. These new rate proposals will make substantial progress on the recovery of fixed costs and meeting system demand, as well as address the specific subsidization of rooftop solar customers who, based on the cost of service study sponsored by witness Leland Snook, are currently only paying approximately 38% of the cost to provide them service.

- APS will expand its limited income support from \$35.6 million during the Test Year to approximately \$48 million and provide an alternative metering program for residential customers opposed to AMI meters.
- APS proposes to eliminate the alternative generation, or AG-1, option for large commercial and industrial customers. At the same time, APS wants to offer new rate options for these types of customers, including a high load factor rate, an aggregation rate and an economic development Rate Rider. Other general service rates will have very few changes because the Company believes they are already properly structured and reflect the cost of service.

For APS, this case represents a critical milestone in our effort to shape the next-generation power grid for our customers. The Company takes pride in its leadership in solar energy, rate reform and energy efficiency, all having delivered significant benefits to our customers. We seek to continue innovating, to continue taking the industry forward, and to continue making our state a great place to live. To do all of that, we're proposing changes that benefit APS customers and the Company, and, if approved, they will serve as a bridge to the future for Arizona, its residents and the entire region.

## John R. Lucas

### APS General Manager of Generation Engineering and Projects

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

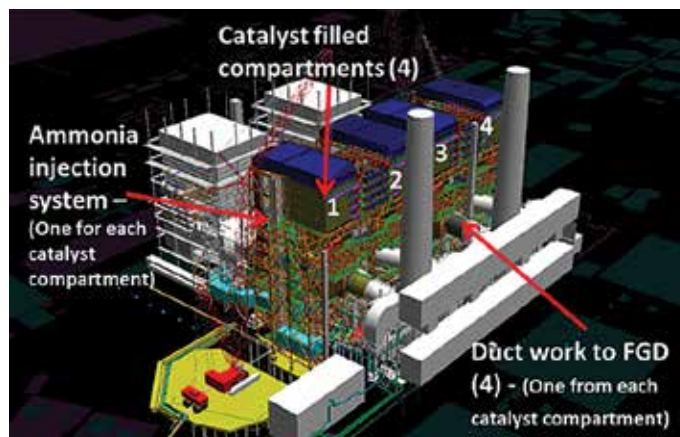
## Direct Testimony Overview

Mr. Lucas' direct testimony provides a general overview of APS's Fossil Generation business unit, and provides a high-level picture of what is required to safely and reliably generate electricity at the Company's fossil-fueled power plants. Specifically, he discusses:

- The Selective Catalytic Reduction (SCR) project at Four Corners;
- Projects completed in the 2015 Test Year and planned through June 30, 2017; and,
- Fossil Generation's contribution to the Company's post-Test Year Plant Adjustment, which adds \$160.6 million to gross utility plant in service.

## Direct Testimony Key Points

- APS has been focused on actions needed to comply with the standards for the Clean Air Act:
    - Mercury and Air Toxics Standards for Utilities
    - Regional Haze Regulations
    - Reasonably Available Control Technology
    - New Source Performance Standards and New Source Review
  - In alignment with the EPA's Federal Implementation Plan and the Consent Decree issued June 24, 2015 for Four Corners Power Plant Units 4 and 5, APS must install SCR technology to reduce the NOx emissions and replace sections of the Flue Gas Desulfurization (FGD) systems to meet SO2 emissions removal standards.
- APS began the SCR project in early 2014. Its share of the SCR project is estimated at \$400 million, and an estimated \$35 million is to upgrade the condition of the FGD. The SCR must be operational at Four Corners for one of the units by March 31, 2018 and for the remaining unit by July 31, 2018.
  - Project expenditures in 2015 that ensure compliance with environmental regulations totaled \$41 million.
  - Two of the main environmental projects being completed in the post-Test Year Plant period include:
    - Overhaul of Four Corners Units 4 and 5 absorber modules to meet 95% SO2 removal and reduce moisture carry-over to the steam stack. The scope of these projects is estimated to cost more than \$20 million.
    - Installation of an activated carbon injection system to reduce mercury emissions on Cholla Units 1 and 3. The scope of these projects is estimated to cost \$6.7 million.



**John J. Cadogan, Jr.**  
**APS Vice President of Nuclear Engineering**

Direct Testimony Submitted June 1, 2016  
Docket No. E-01345A-16-0036

## **Direct Testimony Overview**

Mr. Cadogan's direct testimony begins with a description of Palo Verde Nuclear Generating Station, including a discussion of some of the unique aspects of nuclear power and, in particular, Palo Verde's Water Reclamation Facility that supplies cooling tower makeup water to the station. Next he describes Palo Verde's budgeting and cost management practices for both capital and Operations and Management (O&M), followed by a general summary of those capital projects will be placed in service during the post-Test Year period January 1, 2016, through June 30, 2017. Finally, he briefly summarizes the impact that rigorous cost oversight and management have had on Palo Verde non-fuel O&M costs.

## **Direct Testimony Key Points**

- APS is seeking \$278.6 million in rate base additions for Palo Verde through the end of the 2015 Test Year. Each of these additions will enhance the reliability, safety or efficiency of Palo Verde's operations.
- Palo Verde expects to add approximately \$124 million of plant by June 30, 2017. These additions contribute to the Company's overall proposed post-Test Year Plant adjustment.

As with the \$278.6 million referenced above, the following five projects, which total \$50 million, will enhance the reliability, safety or efficiency of Palo Verde's operations:

- 1** Improving administrative procedures governing Palo Verde.
  - 2** Adding a seventh clarifier train to the Water Reclamation Facility to allow for extended outages to repair and refurbish the six original clarifier trains.
  - 3** Repairing concrete in the Unit 1 ultimate heat sink or spray pond.
  - 4** Replacing the originally installed Unit 3 main generator excitation system.
  - 5** Refurbishing Water Reclamation Facility clarifiers.
- The amount of non-fuel, unadjusted total O&M for the Test Year was \$635.7 million. The APS share of this was approximately 29.1%.
  - O&M costs during the Test Year compare favorably to the five-year average from 2010 to 2014. Rigorous cost controls and management oversight have kept the increase over the five-year average to below 2%.

## Jacob Tetlow

### APS General Manager, Transmission and Distribution Operations and Maintenance

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

Mr. Tetlow's direct testimony describes the Company's ongoing commitment to operate and maintain the Transmission and Distribution (T&D) system in a cost-effective and sustainable manner. He further explains that the infrastructure replacement and upgrade projects that incorporate the latest available technologies will strengthen APS's ability to reliably serve its customers. Lastly, he outlines the Company's planned capital expenditures within the T&D organization that are included in the 18-month post-Test Year plant pro forma.

## Direct Testimony Key Points

- Project Illuminate is a major initiative that will enhance system reliability by allowing distribution system operators to remotely monitor and control the system and its associated devices, and will provide greater situational awareness of the system in real time. The cornerstone of the project is the Advanced Distribution Management System (ADMS) that will allow for automation of distribution field devices and significantly enhanced visibility into APS's system.
- APS is proposing that approximately \$470 million in Total Company capital expenditures be included in the Company's post-Test Year plant pro forma adjustment for distribution, information technology, and facilities projects.
- Of the \$470 million in capital expenditures, \$46.5 million is directly related to installation of ADMS system components. During the post-Test Year period, APS will install supervisory control and data acquisition (SCADA) devices, communications facilities, and Distribution Management System and Outage Management System software applications associated with ADMS.
- The majority of the distribution system capital expenditures, some \$164.7 million, will be necessary to meet expected growth in the Company's service territory. New customers require new distribution feeders, substations, capacitors, regulators, meters, and other equipment necessary to ensure the Company fulfills its obligation to serve and supports the energy needs of these customers.
- The proposed information technology and facilities capital expenditures for projects that will be in service through June 30, 2017, total \$200 million.
- Beyond ADMS system components, the largest expenditure in this category during the post-Test Year period will be approximately \$25.7 million related to the implementation of Energy Imbalance Market (EIM) protocols and software. The EIM is a sub-hourly real-time energy market that will expand the Company's ability to efficiently dispatch its generating resources, and will provide additional tools to manage the impact of rooftop solar intermittency on the APS system.

## Stacy L. Derstine

### APS Vice President of Customer Service and Chief Customer Officer

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

Ms. Derstine's direct testimony discusses the key Customer Service initiatives during the Test Year and post-Test Year period through June 30, 2017, including the Company's deployment of the new customer information and billing system (New CIS), technology upgrades and enhancements that make it more convenient and efficient for customers to do business with APS, and changes to the limited income program. Also, she will discuss the Company's current and future plans to inform and educate customers about three-part rates and its plan regarding the transition of customers to three-part rates.

## Direct Testimony Key Points

- APS has upgraded the notification features of [aps.com](http://aps.com). Customers can now log on to [aps.com](http://aps.com) and elect to receive notifications regarding outages, kW and kWh usage amounts and bill amounts and via text, phone or email. The notifications are customizable and customers can elect what alerts they want to receive, as well as how and when they want to receive them.
- APS is working on the deployment of short, customized videos that can be sent to customers via email periodically or after a triggering event. The videos could also be used to explain bill and payment options and educate customers regarding energy efficiency, renewable energy and three-part rates.

**3 ways to save during on-peak hours** Weekdays, 3-8 pm

The infographic consists of three overlapping circles. The left circle is orange and features an alarm clock icon. The middle circle is blue and features icons of a stove, a washing machine, a water heater, and a coffee maker. The right circle is green and features a light bulb icon.

**shift**  
from on-peak to off-peak

For example, set your dishwasher to run on a delay cycle, run your pool pump at night or do your laundry on the weekend

**stagger**

Avoid running large appliances at the same time during on-peak hours. For example, instead of using the oven and doing laundry at the same time, stagger use of one after the other to save.

**save**  
with tips and tools

Remember to turn off appliances and lights when not in use. Replace lights with energy-saving LEDs. For more tips, visit [aps.com](http://aps.com)

**Off-peak hours** Weekdays, 8 pm - 3 pm and weekends, 24/7 No On-Peak, No Peak Usage

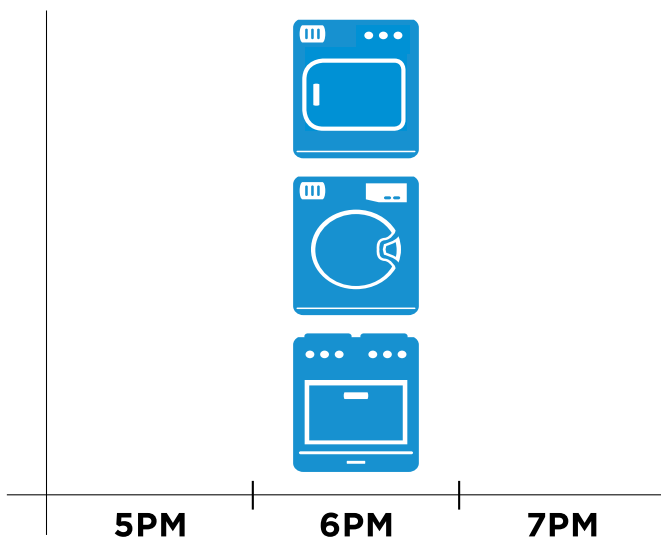


- Most customers are not interested in knowing the technical definition of a kilowatt or kilowatt hour. They simply want APS to help them understand what they need to know to manage their energy, which helps them manage their energy costs. To help customers save money on a demand rate APS's message is simple: "Shift, Stagger and Save." (see sample message on previous page)
- Most customers already understand that it often makes sense to "shift" to off-peak times when they do their laundry, run their dishwasher or run their pool pump. What's new for customers with a demand rate is learning to "stagger" those high-energy use activities that a customer cannot shift to off-peak times or chooses to not shift to off-peak times. For example, a customer could stagger using the oven to make dinner with running the dishwasher or doing laundry. (see sample scenarios below)
- APS is using multiple channels to get information to customers about demand rates. The "Saving Money is Easy" brochure and other printed materials about demand and demand rates are available on [aps.com](http://aps.com) and the [azenergyfuture.com](http://azenergyfuture.com) websites. Printed materials are also available in

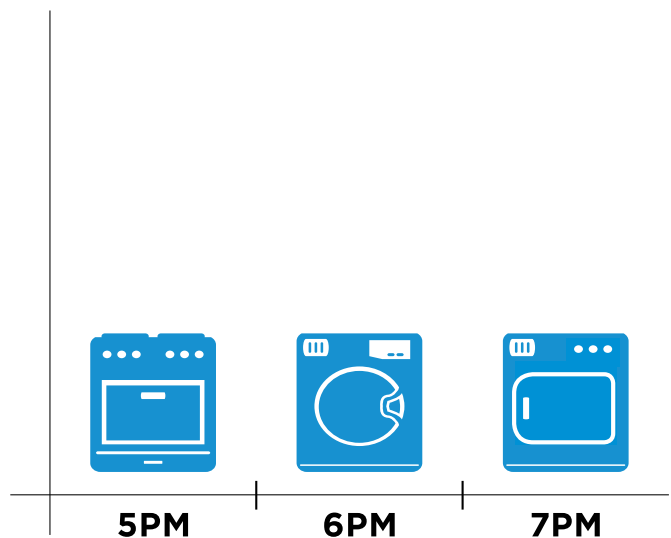
APS offices and field personnel carry copies in their trucks, so they can share this information with customers who happen to ask them.

- APS is also conducting community outreach with stakeholders and community leaders to discuss its rate case as well as the proposed demand rates. In addition, APS has pulled together a Community Outreach team to present at town halls, Rotary clubs, homeowner associations, chambers of commerce and other organizations throughout the community. This outreach began prior to filing this rate case and will continue before any customer transitions to a new rate.
- APS needs a New CIS system that can meet the changing technology needs of its customers and the business.
- The New CIS will also allow for a tailored customer experience. This includes customized communications, customized website visits and overall enablement giving the customer a more relevant and better experience. What's more, the New CIS will improve operational efficiencies and allow APS to implement more advanced billing structures that promote energy technologies customers want.

### STACKED USAGE



### STAGGERED USAGE





- The New CIS system is expected to have a total cost of approximately \$120 million.
- APS will implement an education plan regarding changes to its service plans and will work with customers to refine its messaging. This targeted campaign will include bill inserts, website content, emails and direct mail.
- APS will develop communications that are simple and easy to understand and not only describe the specifics of the new plans, but also allow customers to be aware of behavioral actions they can take and programs they can participate in to help manage their demand and energy usage.
- APS plans to transition its customers to the new proposed rate plans in phases. APS will move customers to the new plans based upon their billing cycle. No residential customers will be migrated during the three peak summer months of June, July and August; months that can be avoided with a mid-2017 rate case decision.
- APS will move all residential customers to the plan that is best for them, provided they are eligible for that plan. Any time after the new rate plans first go into effect, a customer may voluntarily select one of the new plans. They do not need to wait to be migrated.

## James C. Wilde

### APS Director of Resource Planning

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

In his direct testimony, Mr. Wilde discusses the changing nature of customer demand patterns and a general shift from electric resources that provide energy year-round, to resources that are highly dispatchable for meeting customers' peak summer-time demands. He outlines the need for flexible peaking resources in the APS portfolio and the benefits of participating in the Energy Imbalance Market (EIM), as well as a need to re-align APS's demand side management (DSM) programs with an emphasis on shifting energy savings toward meeting demand.

Mr. Wilde also illustrates the need to update customer price signals through demand-based rates and updated time-of-use (TOU) rates. He then discusses APS's Coal Strategy and demonstrates the customer benefits of retiring Cholla Unit 2.

## Direct Testimony Key Points

- The Ocotillo Modernization Project (OMP) and customer-sited microgrid resources provide the flexible dispatch characteristics APS's system needs today and will increasingly need in the future.
- APS expects to need more than 3,500 MW of new resources by 2022.
- APS is re-evaluating its portfolio of DSM programs to make them more focused on reducing peak demand, rather than simply reducing energy across all hours of the year. Such refocused programs will not only align better with actual resource needs, but will also provide additional

education and resource options to customers if they choose to manage their demand in response to APS's proposed three-part rates.

- Because APS must build or procure sufficient resources to meet summer-time peak demand, a rate structure that coincides with high use periods would be appropriate. By aligning customer price signals with high use periods, APS could defer building or procuring resources in the future since customers would be incentivized to reduce peak demand.
- By participating in the EIM, APS will have more opportunities to take advantage of beneficial pricing opportunities on behalf of customers. The EIM enables APS to transact power in five-minute increments, which provides utilities not only opportunities to purchase power at low prices, but also opportunities to sell power at higher prices. The anticipated annual benefit to APS customers is expected to be in the range of \$7 million to \$18.1 million per year.
- The closure of Cholla Unit 2 delivered important economic and environmental benefits for APS customers. Cholla Unit 2 required significant and expensive upgrades to comply with the federal Mercury and Air Toxics Standards and the Regional Haze Rule. Unlike the Four Corners generating plant, Cholla has much smaller units and as a result it was not cost effective to implement the environmental upgrades.

## Scott Bordenkircher

### APS Director of Transmission and Distribution Technology Innovation and Integration

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

Mr. Bordenkircher's direct testimony describes key technology investments APS has made and is making in the electric grid to enhance reliability and performance, increase efficiency, enable alternative energy and distributed energy resources, and empower customer choice.

His testimony discusses the Transmission and Distribution Operations Vision Plan and the benefits of the included advanced grid technologies. He further describes key customer programs including the Solar Partner Program and the Solar Innovation Study, Red Rock Solar, and the newly launched microgrid program. Lastly, Mr. Bordenkircher identifies projects planned through June 30, 2017, and discusses Technology Innovation and Integration's contribution to the company's post-Test Year plant adjustment.

## Direct Testimony Key Points

- APS developed a Transmission and Distribution Operations Vision Plan (Ops Vision Plan) in 2013 to address APS's advanced grid technology needs on a five-year rolling basis. These technologies permit APS to receive near real-time operational data and more accurate information about its facilities, infrastructure and customer power quality. APS's advanced-grid technologies include:
  - **Fire mitigation technologies.** These include Downed Conductor Detectors (DCD), a combination of sensors and automation technology that provides real-time alerts to distribution operators when a power line has fallen to the ground.
  - **Supervisory capacitor bank controls.** Capacitor banks improve the overall efficiency of the utility system and ensure power quality for customer end-use equipment.
  - **Integrated Volt-VAR Control.** IVVC is an automated system of capacitors and voltage regulators that can autonomously control voltage levels along a distribution feeder.
  - **Distribution substation health monitoring.** Adding real-time monitoring and analysis devices to APS's substations allows APS to better predict equipment failures and make necessary adjustments, prolonging the life of the equipment.
  - **Network backbone.** Launched in 2013, this program implements long-distance, high-bandwidth, secure data communications between APS's operations centers and field installations. The use of APS's private network backbone better ensures cybersecurity and provides additional reliability and bandwidth necessary to carry the company's critical data.
- APS has implemented Advanced Data Analytics programs to more accurately predict rooftop solar production, monitor and trend power quality, provide outage intelligence, and perform predictive and preventative asset health analysis.
- The Solar Partner Program enables APS to gain a greater understanding of how increased penetration of various customer-

sited technologies affects the grid. Consistent with Decision No. 74878, APS has installed approximately 10 MW of rooftop solar on approximately 1,600 homes at targeted locations. SPP is exploring how to optimize the grid and increase reliability for the long-term benefit of all customers.

- APS's Solar Innovation Study is a 75-customer home energy management and rate research and development field program designed to examine the integration of customer-sided advanced technologies—including rooftop solar, advanced inverters, home energy management systems—with demand-based rates.
- Advanced Metering Infrastructure (AMI) has resulted in a significant increase in efficiencies, reductions in O&M costs and vehicle emissions, as well as an increased opportunity for customers to gain more knowledge of their energy use. AMI meters also provide power quality data which is used to ensure that electricity is delivered to customers at the correct voltage. This grants APS operators a greater level of system visibility and situational awareness, and makes AMI a foundational platform for many future advanced grid programs.
- Microgrids increase the reliability of the distribution grid; especially in the local area. APS will have two microgrids in service by the third quarter of 2016, a 25 MW partnership with Marine Corps Air Station Yuma and a 62.5 MW partnership with Aligned Data Center in Phoenix.
- Red Rock Solar is a 40-megawatt single-axis tracking, grid-scale solar facility. APS will own, operate, and maintain the plant, and over the 20 year term of the agreement, ASU and PayPal will purchase the Renewable Energy Credits and equivalent energy to what Red Rock Solar is producing.
- APS is proposing that approximately \$239 million in Total Company capital expenditures be included in the Company's post-Test Year plant pro forma adjustment for renewables, microgrid and technology projects. These projects contribute \$101 million to the Company's proposed Total Company rate base.

## Peter M. Ewen

### APS Director of Financial Planning and Forecasts

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

Mr. Ewen's direct testimony covers three main areas: APS's financial projections, the system average cost of fuel for generation and purchased power, and modifications to the Power Supply Adjuster (PSA). Specifically, he discusses the benefits resulting from the regulatory framework established for APS by the 2012 Settlement Agreement and explains why, because of the Settlement's financial design, APS is seeking a rate increase now.

Additionally, he sponsors the Company's Base Fuel and Purchased Power pro forma, which sets forth the base rate level of fuel and purchased power expenses. This requested base fuel rate reflects conditions expected to exist at the time the requested rates are likely to be in effect, which, in this proceeding, represents a decrease from the current authorized rate. The testimony explains the reasons for this decrease.

Mr. Ewen also discusses a few modifications to the PSA Plan of Administration (POA). Specifically, he explains why the inclusion of environmental chemical costs and generation-related water costs in the PSA are appropriate, and also explains how the POA should be adjusted to enable the Company to potentially take advantage of energy storage opportunities, if cost effective and necessary for reliability purposes.

## Direct Testimony Key Points

- The 2012 Settlement Agreement led directly to a perceived improvement in APS's financial condition and, indeed, APS's actual financial performance improved as well. For the last four years, the Company has been able to earn close to its authorized return on equity (ROE) for the first time in more than 15 years. Notably, during this period the Company has not earned more than its authorized ROE.
- As a consequence, APS's bond ratings have improved substantially, with material benefits in lowering the Company's borrowing costs. Those cost savings are being passed back to customers in the current rate request. With the improved financial performance, APS was able to extend the rate case moratorium period by an additional year.
- The Settlement Agreement was not expected to extend financial support forever, and APS's financial metrics are now reflecting the limits of the mechanisms created to facilitate the desired rate gradualism.
- In the absence of base rate relief and/or other regulatory support, APS again faces Total Company ROE projections of 9.0% in 2017, 8.4% in 2018, and 7.7% in 2019. Returns like these are far below not only the 10.5% authorized ROE APS is requesting in this case, but also the 10.46% average ROE actually earned in 2015 by other investor-owned utilities throughout the country.

- Without new rate relief that sustains APS's actual earned ROE at a reasonable level, APS will face challenges in raising the capital needed to invest in its system so it can provide safe and reliable electric service to APS customers and fulfill Arizona's efficiency, renewable energy, and other policy objectives.
- APS's current base fuel recovery amount of 3.21¢ per kilowatt-hour (kWh), established in Decision No. 73183 (May 24, 2012), was premised on expected 2012 cost levels at the time of the settlement in that case.
- Given the modest decrease in fuel costs that has occurred since fuel rates were last set, the Company proposes that the base fuel recovery rate be set at 2.99¢/kWh, which reflects normalized levels of plant performance, expected 2017 fuel and purchased power prices, and a credit for anticipated off-system sales margins.
- APS is proposing to include in the PSA environmental chemical costs that directly correlate to the use of fuel. Chemicals, such as lime, ammonia, and sulfur are used to scrub the emissions from a coal plant and are dependent upon the amount of fuel burned. As production from the power plants varies, so too does the amount of chemicals used. The Company therefore proposes that annual changes in the chemical cost expense associated with power plant emission controls be recovered through the PSA.
- APS uses water to produce steam power at several of its generating plants, and this water consumption and the chemicals and chemical processes used to treat the water vary directly with the amount of electricity being produced at the plants on an annual basis. As production from these power plants varies, so too does the amount of water and water-related chemicals used. The Company therefore proposes that annual changes in the water-related purchase expense associated with power plant production be recovered through the PSA.
- The Company may have cost-effective opportunities between rate cases to procure energy storage products from third-party providers. These storage products would likely substitute for capacity purchases from other resources, thereby displacing costs which would be recovered through the PSA. Including storage costs in the PSA will put these costs on the same footing as more conventional capacity purchase costs. The Company proposes that the PSA POA be modified to allow such costs, if incurred, to be recovered in the PSA.



**Dr. Bente Villadsen**  
**Principal, The Brattle Group**

Direct Testimony Submitted June 1, 2016  
Docket No. E-01345A-16-0036

**Direct Testimony Overview**

Dr. Villadsen determined and presents the Company’s cost of equity and recommends the specific return on equity that should be included in its rates. Her testimony also offers an opinion on the fair value of APS’s rate base and an appropriate fair value rate of return.

**Direct Testimony Key Points**

- The standard for establishing a fair rate of return on equity requires that a regulated utility be allowed to earn a return equivalent to what an investor could expect to earn on an alternative investment of equivalent risk. Therefore, Dr. Villadsen’s approach to estimating the cost of equity for APS focuses on measuring the expected returns required by investors to invest in companies that face business and financial risks comparable to those faced by APS.
- To determine APS’s cost of equity Dr. Villadsen selects a relevant sample of integrated electric utilities that are subject to regulation as well as a utility sample whose assets are similar to those of APS. She calculates the cost of equity for the sample using standard Capital Asset Pricing Models (CAPM), Discounted Cash Flow (DCF) models and a risk premium model. Having estimated the cost of equity for the sample, she then considers specific risks of APS to derive a range of cost of equity estimates for the Company. Dr. Villadsen concludes that a range of reasonable return on equity (ROE) estimates are as indicated as follows:

	Reasonable Range for Proxy Group
<b>CAPM-based Methods</b>	10.0% - 10.5%
<b>DCF-based Methods</b>	9.9% - 10.8%
<b>Risk Premium Method</b>	10.3%

- Dr. Villadsen concludes that APS should be in the upper half of the range because of, among other factors, the Company’s significant portfolio of nuclear generation. She notes that APS has been unable to achieve its allowed ROE since 2002 and currently faces substantial business uncertainty in connection with unresolved economic and regulatory issues surrounding distributed generation. Therefore, she recommend that an ROE of 10.5% is appropriate for setting rates in this case.
- Dr. Villadsen finds that the ACC jurisdiction fair value rate base for APS is \$9.976 billion using the Commission’s traditional weighting of original cost and reconstruction cost new. She then checks the reasonableness of that figure using the market value of comparable benchmark transactions. These transactions indicate that the APS figure was reasonable, although toward the bottom of the range.
- Dr. Villadsen proposes a rate of return on the fair value rate base of 8.13%. She also concludes that a standalone return on the Fair Value Increment of 6.04% is appropriate, which would produce a Fair Value Rate of Return of 7.46%. APS’s proposal of 5.84% is far below this appropriate level, and thus conservative.

## Leland R. Snook

### APS Director of Rates and Rate Strategy

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

## Direct Testimony Overview

Mr. Snook's direct testimony supports the Company's request in this rate case for a net increase in base rate revenue. His testimony also describes why the Commission should approve APS's request for Accounting Deferral Orders regarding the Ocotillo Modernization Project (OMP) and the installation of Selective Catalytic Reduction (SCR) emissions control technology at the Four Corners Power Plant.

Mr. Snook outlines the Company's Cost of Service Study (COSS) that is used to support rate designs in the Company's Application, as well as the jurisdictional allocation of costs. Additionally, he discusses APS's proposed modifications to its existing Lost Fixed Cost Recovery (LFCR), Environmental Improvement Surcharge (EIS) and Transmission Cost Adjustor (TCA) mechanisms.

He also reviews the Company's fair value increment and a new Extra-High Load Factor (XHLF) rate for extra-large customers. His testimony concludes with APS's economic development service schedule and a determination that the AG-1 buy-through rate program should not be renewed.

## Direct Testimony Key Points

- APS is requesting a net increase in base rate revenue requirements of \$433,434,000. This amount includes transferring \$267,551,000 of revenue currently collected in various adjustors to base rates. These adjustor transfers are revenue neutral and do not change the amount collected.

- If proposed rates are effective on July 1, 2017, this requested revenue will allow APS to earn a rate of return of 5.84% on a fair-value rate base of \$9,976,023,000. The additional revenue, excluding the "fair value increment," results in an 8.13% rate of return on an adjusted Original Cost Rate Base of \$6,771,151,000.
- The components of the base rate increase inclusive of adjustor transfers are as follows:

Overview of Rate Increase (\$ in thousands)		
Total base rate increase (inclusive of adjustor transfers)	\$433,434	15.00%
Less: Transfer to base rates of various adjustors	\$267,551	9.26%
<b>Net customer bill impact</b>	<b>\$165,883</b>	<b>5.74%</b>

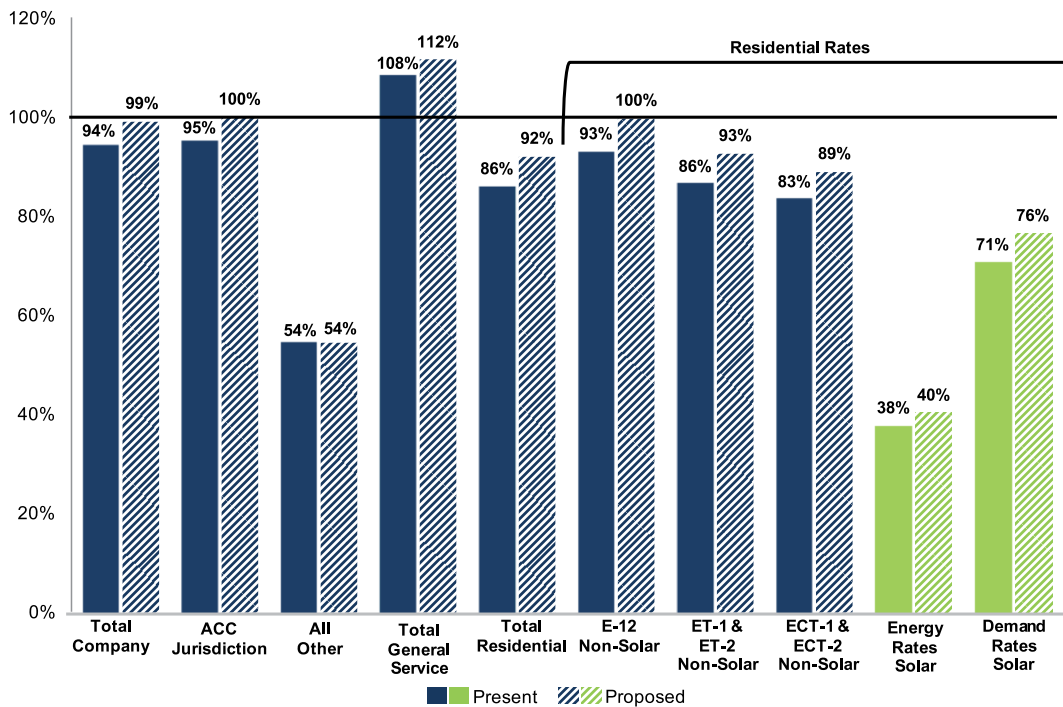
- APS requests an Accounting Deferral Order from the Commission to defer for possible subsequent recovery the costs associated with constructing the OMP. APS also requests a deferral and step rate increase for its SCR project.
- Mr. Snook describes the COSS that is used to support APS's rate designs as well as the jurisdictional allocation of costs. The COSS shows:
  - Why it is appropriate to place residential customers taking service under APS's Net Metering Rate Rider into a separate sub-class of customers;
  - That under current rates, the revenue from the residential class covers approximately 86%

of the cost to serve while the general service class covers 108% of the cost to serve; and

- After accounting for APS’s proposed rebalancing of the residential cost of service up to historical levels of 92%, 57% of the increase in residential rates is directly related to the cost shift resulting from residential rooftop solar that has occurred since APS’s last rate case. (see chart below)
- APS proposes modifications to three of its existing adjustor mechanisms:
  - **LFCR** - Improve the LFCR’s ability to collect lost fixed costs, and adjust the LFCR compliance filing process.
  - **EIS** - Provide flexibility to recover environmental costs by creating a \$10 million year-over-year cap to account for increasing costs.
  - **TCA** - Add a balancing account for the amounts collected through the adjustor to be consistent with all of APS’s other adjustor mechanisms.

- APS’s proposed XHLF general service rate to customers with at least 5 MW of load and a monthly average load factor of 92% or more. Transmission service options would be available to customers with a minimum size of 15,000 kW.
- After a near-five year pilot, APS analyzed the cost implications of the AG-1 rate experiment to other customers and can only conclude that it should not be renewed. APS has had unmitigated lost margins from the program every year it has been in place. This revenue shortfall annually has ranged in magnitude from \$4.5 million to \$11.7 million per year.
- To support commercial and industrial economic development in the APS service territory, the Company proposes to provide a bill discount over a period up to six years for new customers with at least 2 MW or increasing loads of at least 1 MW and a load factor of 55% or more. The program will be capped at 100 MW or 50 new customers, whichever is less (on a MW basis).

**APS Customer Classes % of Cost to Serve  
2015 Test Year**



**Dr. Ahmad Faruqui**  
**Principal, The Brattle Group**

Direct Testimony Submitted June 1, 2016  
Docket No. E-01345A-16-0036

**Direct Testimony Overview**

The purpose of Dr. Faruqui’s direct testimony is to comment on the merits of APS’s proposal to make demand charges a universal rate feature of the residential rate.

An overriding principle of electric rate design is that of cost causation: revenue collection should match cost generation.

It is possible that in response to rising energy prices, some customers might reduce the volume of electricity they consume but not reduce the demand they place on the grid, since they never see a price for demand. Consequently, much of the fixed costs required to meet their demand would go unpaid. The net result is that cost-causers would not pay for all of the costs they create. Those unrecovered costs would be shifted to customers who use more volume, creating inequities and cross subsidies between customers.

With a three-part rate design, customers more efficiently use the electric grid in a way that also reduces the cost shift. In addition, demand rates provide a price signal that would incentivize the introduction of technologies that reduce demand. If policy-makers wish to encourage innovative distributed technologies, demand rates offer an efficient and equitable method of doing so.

**Direct Testimony Key Points**

• Each of APS’s proposed three-part rates more closely match demand, fixed, and variable costs with demand, fixed, and variable charges so that all customers will pay their fair share.

- The cost-based price signals in the three-part rates proposed by APS provide customers with the financial incentive to make investments in technologies or otherwise change their behavior in ways that are most beneficial to the system. Technologies and behaviors that reduce a customer’s demand should ultimately lead to a more efficient use of the grid, reduced costs, and lower bills.
- APS has the most highly subscribed residential three-part rate in the U.S., with over 120,000 customers on its Combined Advantage tariff. This represents more than 10% of its residential customer base and more than 20% of its residential energy sales. When new rate designs are introduced on a voluntary basis, they rarely achieve enrollment levels in excess of 10%. Considering that APS has been offering its three-part rate on a voluntary basis among several other rate options, and considering that enrollment in the three-part rate has grown over the past several years, this is a very strong indication that APS’s customers are interested in and prepared for rates with demand charges.
- The introduction of a cost-based demand charge is a significant and necessary improvement over two-part rate offerings. APS has shown that residential customers can respond to demand charges.
- The introduction of a three-part rate will not change APS’s revenues.

## Charles A. Miessner APS Manager of Rates

Direct Testimony Submitted June 1, 2016  
Docket No. E-01345A-16-0036

### Direct Testimony Overview

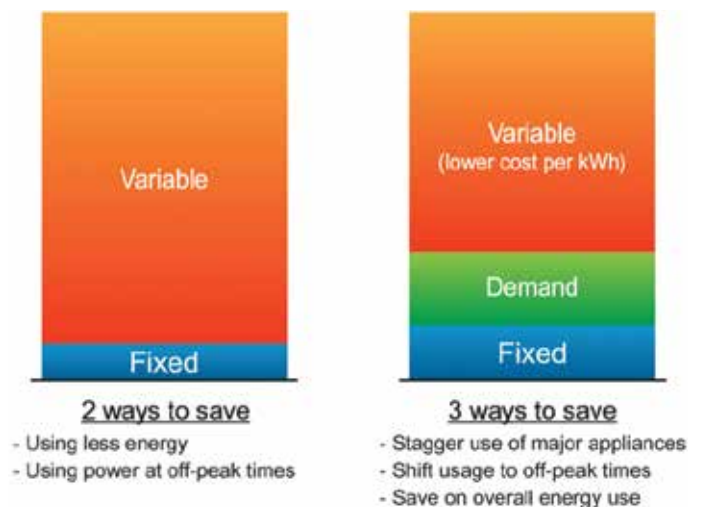
Mr. Miessner's direct testimony explains why there is a compelling need to restructure rates for residential and small-business customers, and he provides the specific proposals for new rates. In addition, Mr. Miessner's testimony describes how the proposed revenue is allocated to individual rate classes.

### Direct Testimony Key Points

- Mr. Miessner explains that the higher requested increase for the residential class is caused in part by the cost shift from the solar net metering program, where subsidized bill savings for solar customers create higher rates for other residential customers. While this was true in the last rate case, the volume of installations since the last case has made this a critical issue.
- The new portfolio of residential rates proposed by APS includes the following:
  - 1 **R-1** — a time of use (TOU) rate with a small demand charge of \$6.60/kW during the on-peak hours and a basic service charge of approximately \$24 per month.
  - 2 **R-2** — a TOU rate with a modest demand charge of \$8.40/kW during on-peak hours and lower basic service charge of approximately \$14.50 per month.
  - 3 **R-3** — a TOU rate with lower kWh charges and seasonally differentiated demand charges of \$16.40/kW in the summer and \$11.50/kW in the winter, and a basic service charge

of approximately \$24 per month. This rate is very similar to APS's current demand rate.

- 4 **Extra Small** — a two-part rate for extra-small customers with no demand charge and an \$18 per month basic service charge.
- The three primary rate options proposed for residential customers will have lower kWh charges, a higher basic service charge, and a demand charge component. The TOU on-peak hours will be revised to 3 p.m. to 8 p.m. weekdays to better reflect the highest system load hours. The demand will be measured on the highest average use over an on-peak hour.



- APS also proposes to modify its present NEM (Net Energy Metering) program for all but “grandfathered” residential rooftop solar customers. Power generated and concurrently consumed on site would still be credited at the fully-bundled retail energy rate. But APS proposes that “exported” generation be (i) measured on an instantaneous basis; and

- (ii) paid through the PSA at an avoided cost rate to ensure that all other customers only pay an amount for exported energy that equals the costs saved due to the exported energy.
- APS proposes to “grandfather” solar systems for which APS has received a complete interconnection application by July 1, 2017 that are installed within 180 days. APS proposes that these grandfathered customers retain their current rate plans and net metering arrangements for 20 years after the system was first interconnected to the APS system.
  - APS proposes to simplify the discount structure for the limited-income bill discount program and provide for increased program participation.
  - Mr. Miessner also describes some of the proposed rate changes for business customers, which include:
    - 1 Improving the time-of-use rate options to work better with the operating schedules of many businesses by updating the time-of-use on-peak hours to 3 p.m. to 8 p.m. weekdays; and
    - 2 Adding a demand charge component for extra-small business customers.
  - The adoption of future technologies depends on effective prices that reflect cost. When rates reflect cost, technologies that reduce utility cost will also provide customers the opportunity to obtain bill savings that don't involve the cost shift occurring under the current rate design.
  - APS has extensive experience with residential three-part demand rates. APS has offered a three-part demand rate to residential customers for decades and is currently serving more than 120,000 customers on the rate. When customers switch to that rate, they typically reduce both their demand and energy consumption.
  - Mr. Miessner concludes that residential rates should be reformed and modernized to better align rates with costs, provide appropriate price signals to customers, and improve the efficient use of, and funding for, the grid.



## **Elizabeth A. Blankenship**

### **APS Director of Accounting Operations**

Direct Testimony Submitted June 1, 2016  
Docket No. E-01345A-16-0036

### **Direct Testimony Overview**

Ms. Blankenship's direct testimony addresses the historical accounting information and pro forma adjustments required by the Standard Filing Requirements (SFR) of the Arizona Corporation Commission in support of the Company's rate case filing. She sponsors historical information for the 12-month period ending December 31, 2015, which was used as the Test Year in this proceeding and any prior years presented on the SFR Schedules.

She presents testimony concerning the capital structure of the Company and provides APS's actual overall cost of capital. This will include information on the cost of equity and debt capital, as provided by Dr. Bente Villadsen, APS's cost of capital and return on equity (ROE) witness.

### **Direct Testimony Key Points**

- Ms. Blankenship's direct testimony covers historical accounting data, including the actual data for the Test Year. The majority of this information is disclosed directly or indirectly in both the consolidated APS and consolidated Pinnacle West audited financial statements, which are included in filings made with the Securities and Exchange Commission and other government agencies for the relevant years.
- In large part, her direct testimony supports the testimony of other APS witnesses. The direct testimony of APS witness Peter Ewen addresses

financial projections to actual Test Year data. APS witness Leland Snook focuses on the jurisdictional allocation of APS revenues, costs, and Rate Base items for the actual Test Year and all pro forma adjustments. Dr. Villadsen's direct testimony addresses the Company's requested ROE and overall cost of capital.

- Ms. Blankenship sponsors more than 40 rate base and income statement pro forma adjustments. Because the Company has used a historical test year, it is necessary to adjust recorded revenues and expenses for known and measurable changes. Pro forma adjustments include normalizations, annualization and out-of-period adjustments. All of the pro forma adjustments discussed in her testimony reflect Total Company amounts prior to any jurisdictional allocation.
- Ms. Blankenship's direct testimony also discusses APS's request for continuation of the property tax deferral. The 2012 Settlement approved a property tax deferral that helped to alleviate risk of changes to property tax rates within Arizona. APS proposes to defer for future recovery 100% of all changes to Arizona property tax expense above or below the Adjusted Test Year level of \$181 million caused by changes to the applicable Arizona composite property tax rate.

## **Dr. Ronald E. White**

**President, Foster Associates Consultants, LLC**

Direct Testimony Submitted June 1, 2016

Docket No. E-01345A-16-0036

### **Direct Testimony Overview**

The purpose of Dr. White's direct testimony is to sponsor and describe the 2016 depreciation rate study conducted by Foster Associates at the request of APS.

Depreciation rates currently used by APS were approved by the Arizona Corporation Commission pursuant to a Settlement Agreement in Docket No. E-01345A-11-0224. (Decision No. 73183, dated May 24, 2012).

### **Direct Testimony Key Points**

- The goal of depreciation accounting is to charge to operations a reasonable estimate of the cost of the service potential of an asset (or group of assets) consumed during an accounting interval. A number of depreciation systems have been developed to achieve this objective, most of which employ time as the apportionment base.
- The need for periodic depreciation studies is also a derivative of the ratemaking process which establishes prices for utility services based on costs. Absent regulation, deficient or excessive depreciation rates will produce no adverse consequence other than a systematic over or understatement of the accounting measurement of earnings.

- It is the opinion of Foster Associates that a redistribution of recorded reserves is again appropriate for APS. Offsetting reserve imbalances attributable to both the passage of time and parameter adjustments recommended in the current study should be realigned among primary accounts to reduce offsetting imbalances and increase depreciation rate stability.
- Foster Associates is recommending primary account depreciation rates equivalent to a composite rate of 2.99%. Depreciation expense is currently accrued at rates that composite to 2.45%. The recommended change in the composite depreciation rate is, therefore, an increase of 0.54 percentage points.

# Appendix: Rate Design Proposal

## Residential Rate Design

- Change on-peak time-of-use period from noon – 7 p.m. to 3 p.m. – 8 p.m. Monday through Friday, excluding holidays.
- Reduce the difference in the on- and off-peak energy prices and lower all energy charges.
- Offer four rate plan options:

	Basic Service Charge (per month)	Demand Charge (\$/kW)**	Summer Energy Charge (On/Off Peak \$/kWh)	Winter Energy Charge (On/Off Peak \$/kWh)
Extra Small*	\$18	None	\$0.10324	\$0.10324
R-1	\$24	\$6.60/kW	\$0.1516/ \$0.08070	\$0.12730/ \$0.08070
R-2	\$14.50	\$8.40/kW	\$0.1516/ \$0.0808	\$0.12730/ \$0.0808
R-3	\$24	\$16.40/kW summer \$11.50/kW winter	\$0.0909/ \$0.05475	\$0.06670/ \$0.05475

\*Extra Small option is available for customers using less than 600kWh per month on average. Partial requirements customers are not eligible for this rate.

\*\*Demand charge calculated as the average over one hour during the on-peak window only.

- Offer a flat bill option where the customer pays the same amount every month regardless of how much energy they use or when they use it.
- New rooftop solar customers are eligible for the R-3 customer rate only.
- Existing solar customers will be grandfathered on their existing rate plans for 20 years from the date of interconnection.
- Modify net metering with a retail rate credit for solar customers offsetting their own load, and an export rate that credits all energy delivered to the grid.

### Cost Shift Facts

- The total cost shift from solar customers to non-solar customers already totals **\$42.7 million annually**.
- The rooftop solar subsidy continues to grow by **\$740,000 per day**.
- By the time this case is resolved in mid-2017, the 20 year subsidy will total **over \$1 billion**.
- If the cost shift issue is deferred until APS's next case, the total annual cost shift will have ballooned to **\$102.9 million per year**.

## Commercial and Industrial Rate Design

- Change time-of-use period for small, medium and large general service customers to 3 p.m. – 8 p.m. Monday through Friday.
- Allow the current AG-1 program to expire.
- Transition extra small business customers to a three-part rate with a \$35.28 basic service charge, \$6.90/kW demand charge, a summer energy charge of \$0.11129/kWh and a winter energy charge of \$0.07147/kWh for secondary service.
- Offer an aggregation rider that allows large (E-32L) customers with at least 5 MW total load to qualify for a reduced rate.
- Offer an extra-high load factor rate schedule for customers with at least 5 MW of load and monthly average load factor of 92% or more. Transmission service options available for customers with 15 MW or more.
- Offer an economic development rate for new loads of at least 2 MW or increasing loads of at least 1 MW and a load factor of 55% or more. Set a six-year limit with a program cap of 100 MW or 50 new customers, whichever is less (on MW basis).



# Customer Education and Transition Plan

## Customer Education

- Customer education material will describe the new rate plans and provide information to help customers manage their demand. APS will use multiple channels and touch points to communicate with customers, including:
  - Bill inserts
  - Website content
  - Videos
  - Printed material
  - Peak usage brochures
  - Email
  - Direct mail
- The education plan will also include community outreach events, stakeholder briefings and open houses to discuss demand rates and peak usage with community leaders and customers.
- Information related to demand will be available on [aps.com](http://aps.com) and [azenergyfuture.com](http://azenergyfuture.com).
- Printed materials will be available in APS offices, and with APS field personnel.

## Tools and Technology

- APS.com will feature:
  - Customer demand and energy usage information (also available on the APS mobile app)
  - A summary of the new rate plans and a link to the tariffs
  - Hints and tips for managing demand
- APS has requested approval of a new smart thermostat program that will allow customers to receive an incentive for purchasing a qualifying smart thermostat of their choice.

## Transition Plan

- Customers will be transitioned to new rates in phases.
- Once new rate plans are available, customers may choose any plan for which they are eligible.
- If customers do not choose a rate plan, APS will move each customer to the most beneficial rate plan for that customer based on past usage.
- Transition communication to customers will explain:
  - New rates
  - Timing of the change
  - Tips on how to “Shift, Stagger and Save”



