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Arizona Corporation Commission
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September 9, 2011

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

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RE: September 2011 AMI Plan Biannual Report
Docket No. E-01345A-03-0775 & E-01345A-04-0657
Decision No. 68112

Pursuant to Paragraph 32(e) of Settlement Agreement in Decision No. 68112:

"For the next six years, APS shall provide the Commission with biannual reports related to the status of the remote meter reading pilot and implementation plan. The reports shall provide a description of the meter reading technology being implemented, APS' plan for implementation, the number and type of customers involved in the pilot program, the cost associated with implementation, and the operational efficiencies associated with implementation."

Attached please find the September 2011 AMI Biannual Report. Please note this is the final filing required in Decision No. 68112.

If you have any questions regarding this information, please contact David Rumolo at (602)250-3933.

Sincerely,


Jeffrey W. Johnson

JJ/sl
Attachment

cc: Brian Bozzo
Barbara Keene

**Arizona Public Service
AMI Plan Biannual ACC Report**

September 2011

Introduction

Paragraph 32(e) of the Proposed Settlement Agreement, approved by and attached to Decision No. 68112 (September 9, 2005) requires Arizona Public Service (APS) to provide the Commission with biannual reports related to the status of APS's remote meter reading implementation. This report provides a description of the meter reading technology being installed, APS's implementation plan, information regarding the customers involved in the program, and the costs and operational efficiencies associated with implementation. This is the twelfth and final biannual filing addressing the status of the Advanced Metering Infrastructure (AMI) Plan and details the progress made in implementation since March 2011.

AMI Project Overview

APS began installing smart meters as part of an AMI initiative in 2006 and by the end of 2012 more than 950,000 APS customers in the metro Phoenix area and the more populated areas of the rural service territory will have smart meters. This, together with the meter communication and data infrastructure to drive software applications is enabling APS and its customers to utilize smart meter data in order to reduce costs and maximize energy use.

APS utilizes two different AMI systems provided by Elster Electricity LLC. The AMS 9000® and EnergyAxis® systems. At the end of 2008, APS had installed 156,000 AMS 9000® meters. In May 2008, APS awarded a contract to Elster for an additional 800,000 smart meters for residential, commercial and industrial customers. Both AMI systems provide a platform for APS to improve operations and customer service through two-way communication for both residential and commercial meters. In addition, most EnergyAxis® meters provide remote connect and disconnect capabilities.

The software APS is using to manage the significant increase in meter data driven by AMI is the Aclara Energy Vision® Meter Data Management System (MDMS). The Aclara MDMS stores and provides a common interface to the meter data transmitted to and from the smart meters. The MDMS software provides APS with capabilities, including:

- Management of interval meter data and reads
- Interoperability with multiple meter technologies
- Integration with existing APS applications such as the Customer Information System (CIS) and aps.com
- A common interface to APS applications, enabling APS to rapidly process service orders (connects, disconnects, on-request reads and interval usage and rate changes)

The MDMS is the database of record for all interval electricity usage data.

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In May 2009, APS installed the Aclara Bill Prism®, a web portal that integrates smart meter data with CIS and the aps.com website, allowing APS residential customers with AMI smart meters to view their detailed electricity consumption graphically on-line and provides information to assist customers manage their energy usage. Bill Prism® provides an in-depth bill analysis function using smart meter data, as well as a carbon calculator that assists customers in quantifying and reducing their personal carbon footprint.

Project Status

Meter Deployment:

Through August 2011, approximately 672,000 smart meters have been installed throughout the APS service territory. This includes approximately 36,000 meters within the City of Flagstaff. These meters are a critical element of the Community Power Project Flagstaff Pilot. It also includes approximately 74,000 meters installed in the Prescott area, and 67,700 meters installed in the Yuma area. The Yuma installation supports the APS Peak Solutions demand response project which is expected to yield 100MW of demand side management capacity in Phoenix and Yuma by 2012.

Since the March 2011 biannual report, APS has deployed approximately 119,000 AMI smart meters and expects to install another 89,000 smart meters by year end. Over the rest of the year APS will continue installing smart meters in Scottsdale and the downtown and southern areas of Phoenix.

Systems Integration:

Since the March 2011 filing, the following items have been accomplished:

- Completed work on an interface which allows the use of AMI data to analyze the impact of adding electric vehicles (EV) to the distribution system. This data assists in determining whether equipment, such as a transformer, is properly sized to handle the additional load of EVs, as well as allow for analysis of load profiles. The data can also be used for general analysis of distribution system equipment.
- Completed deployment of enhanced gatekeeper communication technology, which allows for faster and improved cellular communication abilities
- Leveraged AMI data to pilot analysis of line loss at the distribution level
- Identified additional potential energy theft analytics
- Continued work to implement a validation, editing and estimation (VEE) system and process for interval data
- Commenced the development of the Home Energy Information (HEI) pilot program

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Costs:

This project has three main cost components: meters and meter installation, monthly cellular communications, and interface development.

Meters and Installation:

The average installed cost of an Elster meter for this reporting period was approximately \$151.00, as compared to \$160.00 in the previous reporting period. This includes single phase, three phase and gatekeeper (collector) meters.

Monthly Cellular Communications:

APS has contracted with KORE Wireless to provide cellular service for meter communications. Through July 2011, the average monthly per meter communication cost was approximately \$0.08, as compared to \$0.11 in the previous reporting period.

APS continually strives to manage costs and as a standard practice, APS renegotiated the KORE contract for more favorable terms which resulted in a decreased communications cost per meter. In addition as new cellular options become available, and meter technology advances to allow greater economies of scale, the cost of communication is expected to decrease on a per meter basis.

Interface Development:

APS has spent approximately \$75,000 on information technology (IT) integration during this reporting period. This cost includes hardware and the development of interfaces to APS systems.

Operational Efficiencies

The ability to read and program meters remotely provides immediate operational efficiencies as well as the potential to significantly reduce the cost of implementing new rate designs.

The table below illustrates the number of field visits eliminated during the last six months for customers with AMI meters.

Month	Change Names	Rate Change & Read Verify	Connects	Disconnects	Total
March 2011	13,697	2,651	4,925	5,953	27,226
April 2011	13,647	2,537	4,700	8,315	29,199
May 2011	15,507	2,637	4,779	5,978	28,901
June 2011	16,927	5,170	6,003	6,065	34,165
July 2011	15,929	4,051	6,397	6,396	32,773
August 2011	19,664	5,210	6,925	6,766	38,565
Total	95,371	22,256	33,729	39,473	190,829

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APS has avoided approximately 782,000 field trips as a result of smart meter installations since the initiation of the AMI program. The reduction of field trips has resulted in lower fuel consumption and reduced emissions which support APS's effort to reduce its carbon footprint. Reducing field trips also supports the APS corporate value of safety by reducing the potential for vehicular accidents and other safety-related events. The meter reading department which has traditionally faced field risks such as dog bites has experienced a significant reduction in recordable safety incidents.

Summary

Since the March 2011 report, APS has:

- Installed approximately 119,000 smart meters
- Completed work on an interface which allows the use of AMI data to analyze the impact of adding electric vehicles to the distribution system
- Completed deployment of enhanced gatekeeper communication technology
- Leveraged AMI data to pilot analysis of line loss at the distribution level
- Identified additional potential energy theft analytics
- Commenced the development and design of the Home Energy Information (HEI) pilot program
- Began the development and design of a pre-paid energy "pay as you go" option

Within the next six months, APS plans to:

- Continue deployment of smart meters
- Continue to develop VEE processes specific to AMI metering
- Continue the development and design of the Home Energy Information (HEI) pilot program
- Utilize voltage data to establish a baseline measurement for the Pioneer Substation Integrated Volt/Var Control Smart Grid Project
- Explore additional applications that leverage smart meter data

In conclusion, over the past six months APS has made continued progress in establishing the foundation to leverage the investment in smart meters. Through these efforts, APS is creating an advanced technology platform to meet growing customer expectations for better management of electricity consumption and costs.