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March 4, 2011

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

RE: March 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, dated September 9, 2005:

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 March 2011 AMI Biannual Report.

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

Sincerely,

Susan Casady

Susan Casady

SC/kc
Attachment

cc: Brian Bozzo
Barbara Keene

Arizona Public Service
AMI Plan Biannual ACC Report

March 2011

Introduction

Paragraph 32(e) of the Proposed Settlement Agreement, approved by and attached to Decision No. 68112 (September 9, 2009) 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 eleventh biannual filing addressing the status of the Advanced Metering Infrastructure (AMI) Plan and details the progress made in implementation since September 2010.

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 customer 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.

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 February 2011, approximately 570,000 smart meters have been installed throughout the APS service territory. This total includes approximately 36,000 meters within the City of Flagstaff. These meters are a critical element of the Community Power Project Flagstaff Pilot. This total also includes approximately 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 capacity in Phoenix and Yuma by 2012.

Since the September 2010 biannual report, APS has deployed approximately 100,000 AMI smart meters and expects to install another 200,000 smart meters by year end. Over the next year, APS will continue installing smart meters in Paradise Valley, Scottsdale, Chandler/Gilbert, Prescott, and Prescott Valley.

Systems Integration:

Since the September 2010 filing, the following milestones have been achieved:

- Integrated, tested and implemented AMI interval data into a "rate comparison" tool. This tool models all APS service plans utilizing interval data for customers with smart meters. This allows APS customers and Customer Service Associates the capability of analyzing and comparing the different rate options that may work best using the customer's most current energy usage history.
- Leveraged AMI data to perform analysis on customer, meter and account data to identify potential theft
- Increased data storage capacity to accommodate growing database
- Developed a prototype to analyze the current AMI data load shape and the impact of adding electric vehicles (EV) to the distribution system. This data will help determine whether equipment, such as transformers, 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.
- Initiated work to implement a validation, editing and estimation (VEE) system and process for interval data
- Reviewed and tested the capabilities of the AMI system for use with smart grid technologies
- Integrated and began deployment of enhanced gatekeeper communication technology. This technology allows for faster and improved cellular communication abilities.

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 $160.00. This includes single phase, three phase and collector meters.

Monthly Cellular Communications:
APS has contracted with KORE Wireless to provide cellular service for meter communications. Through January 2011, the average monthly per meter communication cost was approximately $0.11.

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 $1.3million 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 & Verify	Connects	Disconnects	Total
Sept 2010	11,287	2,747	3,611	2,894	20,539
Oct 2010	11,151	2,274	6,121	3,775	23,321
Nov 2010	10,918	1,899	5,446	3,618	21,881
Dec 2010	11,342	2,067	4,398	3,532	21,339
Jan 2011	11,578	2,010	4,301	3,665	21,554
Feb 2011	10,319	2,007	3,953	3,744	20,023
Total	66,595	13,004	27,830	21,228	128,657

APS has avoided approximately 586,000 field trips as a result of smart meter installation. 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.

Summary

Since the September 2010 report, APS has:

- Installed approximately 100,000 smart meters
- Implemented AMI interval data into a "rate comparison" tool
- Leveraged AMI data to perform analysis to identify potential theft
- Increased data storage capacity
- Developed a prototype to analyze the current impact of adding electric vehicles (EV) to the distribution system
- Initiated work to implement VEE for interval data
- Reviewed and tested the capabilities of the AMI system for use with smart grid technologies
- Integration of enhanced communication technology

Within the next six months, APS plans to:

- Continue deployment of smart meters
- Continue to develop VEE processes specific to AMI metering
- Commence the development and design of the Home Energy Information (HEI) Pilot Program
- Begin the development and design of a pre-paid energy "pay as you go" option, which will utilize AMI data
- Explore additional applications that leverage smart meter data such as
    - Voltage monitoring and threshold data analysis
    - Identification of additional potential energy theft analytics

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

The next biannual report will be submitted by APS to the Commission in September 2011.