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AZ CORP COMM
Docket CONTROL

April 7, 2008

APR 07 2008

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

AZ CORP COMM
Director Utilities

RE: Arizona Public Service Application on Resource Planning
Docket No. E-01345A-08-0010

On January 7, 2008, Arizona Public Service Company (APS) filed a Resource Alternatives Application, which indicated that APS is initiating a series of stakeholder meetings regarding resource planning. The second meeting was held on March 7, 2008. Attached please find the meeting report, attendance list, and copies of presentations made at that meeting.

Meeting notices, agendas, presentations, reports, and other related information regarding APS' Resource Alternative Stakeholder meetings can be found at www.aps.com/resources. If you have any questions regarding this process or would like to be added to the service list, please send an email to ResourceAlternatives@aps.com.

Sincerely,

Barbara Klemstine

Attachment

CC: Ernest Johnson
Teri Ford
Barbara Keene
Interested Parties

**ARIZONA PUBLIC SERVICE COMPANY
RESOURCE ALTERNATIVE PLANNING
STAKEHOLDER MEETING REPORT
Docket No. E-01345A-08-0010**

DATE: March 7, 2008
TIME: 8:30 a.m.
PLACE: Arizona Public Service Corporate Headquarters
Room 2 South
400 North 5th Street, Phoenix, Arizona 85004

ATTENDANCE: See attached attendance list

TOPICS: -- Commodity Hedging
-- Recent Developments: Solana Generating Station
-- Regional Capacity and New Projects
-- Drivers and Key Assumptions

Referenced presentations are available on the website
(www.aps.com/resources).

DISCUSSION:

- **Brad Albert**, APS Director of Resource Planning, provided an introduction in which he referenced the website (www.aps.com/resources) and an email address for any questions related to the workshop (ResourceAlternatives@aps.com). Mr. Albert also reiterated the purpose of the workshops – to receive input from stakeholders on energy resource planning issues and to increase understanding of APS’s resource planning challenges – and briefly discussed the lead times required for implementing various resource alternatives.
- **Tom Carlson**, APS Director of Fuels, presented “Commodity Hedging Workshop.”

In this presentation, Mr. Carlson highlighted the need for hedging natural gas and electricity due to uncertainty in the marketplace. Hedging involves transactions that reduce exposure to normal commodity price volatility. Mr. Carlson then provided three specific reasons for hedging:

- reduce customer exposure to market price volatility;
- limit exposure to significant pricing events; and
- establish a “predictable” range of fuels costs.

APS hedges all of its fuels to some extent; Mr. Carlson’s presentation focused on natural gas and electricity. Natural gas is one of the most volatile commodities in the marketplace today. APS has engaged in hedging natural gas since 1998. Liberty

Group, which conducted an audit of APS's hedging program in 2006, acknowledged that APS has a sound hedging program that is as strong as any that it has examined.

APS's current hedging program is based on a systematic approach looking three years forward on a rolling basis and using financial model simulations containing built in assumptions, such as load growth and outages at power plants. Eighty-five percent of the anticipated volumes are hedged for year one, with the remaining 15% during year one generally purchased on a day-to-day basis. 50-60% is hedged for year two, and 30-40% is hedged for year three. Additionally, APS's hedging program includes required compliance dates. APS does not engage in market speculation; the purpose of its program is to manage price volatility. It does so by purchasing a certain amount of gas and power under the hedging program. APS hedges with both financial contracts and physical contracts, but it generally prefers financial contracts over physical contracts because of their greater liquidity.

Mr. Carlson then summarized why APS needs a five-year hedge plan:

- gas fuel needs continue to grow (by 2020 it is projected that natural gas could comprise 50% of APS's portfolio);
- increased exposure to natural gas pricing; and
- increasing global demand for natural gas and uncertainty regarding the supply of natural gas.

The proposal for the APS five-year hedge plan would be based on a rolling basis, looking ahead five years. As with the current three-year plan, 85% of the anticipated volumes would be hedged for year one, 50-60% would be hedged for year two, 30-40% would be hedged for year three, 15-25% would be hedged for year four, and 5-15% would be hedged for year five. Mr. Carlson acknowledged that the market is sufficient, and APS has adequate credit to expand to a five-year hedge plan. Nonetheless, there are certain risks inherent with hedging. These risks involve the uncertainty of the customer load the farther ahead one looks, as well as the credit and collateral issues.

Presentation Discussion:

Certain workshop participants stated that Tucson Electric Power Company ("TEP") and Salt River Project ("SRP") face similar issues and that they generally use similar hedging techniques. However, they also mentioned that TEP does not hedge at 85%, and SRP's hedging horizon is already in the five to six year range.

There was discussion regarding the appropriate term of the hedging program and the need to balance the credit and collateral issues, and the uncertainty of future resource requirements with the increasing exposure to gas and power price volatility that will be borne by customers. There was some interest expressed in having a longer term hedging program. Because APS is considering resource choices that reduce dependence on natural gas, such resource choices will ultimately influence the APS

hedging program. In almost any event, APS will be consuming significant amounts of natural gas for the next twenty years.

- **Barbara Lockwood**, APS Manager of Resource Acquisition and Renewables, presented an overview of the new proposed Concentrating Solar Power (“CSP”) plant, “Solana Generating Station.”

Ms. Lockwood described the power purchase agreement (“PPA”) where APS will purchase 100% of the power generated by the Solana Generating Station over the PPA’s 30-year term. The PPA resulted from a 2007 renewable request for proposal. Abengoa Solar will own and operate the 280 MW CSP plant, which will be located near Gila Bend, Arizona. The Solana project will use a CSP proven technology successfully implemented in California. CSP uses parabolic trough systems to concentrate the sun’s energy through long curved U-shaped mirrors which heat a fluid that boils water in a conventional steam generator. Heat from the sun is also stored in tanks filled with molten salt which provide up to six hours of thermal energy storage that will enable the plant to operate through evening peak usage during summer months and on cloudy days. The Solana Generating Station will have no CO₂ emissions and is scheduled to begin operations in 2011. This date is contingent upon approval by the Arizona Corporation Commission (“Commission”) and the extension of the 30% investment tax credit.

Procurement of power under the PPA is estimated to be 120% of the conventional resource cost for APS (this estimate is based on what APS’s costs are under the PPA relative to a projection of the cost of procuring power from conventional resources in the future). Additionally, by procuring power from the Solana Generating Station, APS will increase its resource diversification and will offset natural gas consumption by about \$50 million per year.

Presentation Discussion:

There was some discussion about the status of the investment tax credit and why APS opted to use a PPA as opposed to building the plant itself. If APS built the plant itself, it would not qualify for the investment tax credit under current law. There was also discussion regarding whether APS is currently considering other options similar to the Solana Generating Station. Finally, there was a discussion of the risks involved with the PPA. Such risks include the following:

- the PPA is a fixed price project;
 - the PPA will involve the world’s largest solar plant; and
 - if the PPA is not implemented, then APS will have to allocate other resources to meet power demand.
- **Paul Smith**, APS Manager of Generation Market Analysis and Planning, presented “Regional Capacity and New Projects.”

Mr. Smith provided an overview of the Western Electricity Coordinating Council (“WECC”) and its assessment of power in the western United States. (Mr. Smith also mentioned that APS is involved in several WECC subcommittees, including the Load and Resource Subcommittee.) The presentation focused in particular on the Desert Southwest Region (“DSW”), which includes Arizona, New Mexico, and southern Nevada. The power supply assessment conducted by WECC is based on data submitted by WECC member utilities. The purpose of the assessment is to identify sub-regions in WECC that have the potential for electricity supply shortages and to estimate future resource needs.

According to the assessment, in 2006, the WECC had a peak load of 161,000 MW, and DSW had peak load of 30,011 MW. DSW’s load is projected to grow about 2.8% per year or 900 MW per year. Given the current active projects in southern California and in the DSW, supply margins are roughly adequate through 2011. However, DSW needs 8,000 MW of new generation capacity by 2016 (but the current economic downturn may push back this supply margin shortfall by a year or two). Currently, over 50% of DSW electric capacity is in gas/oil resources. Also, DSW has limited transmission transfer capabilities from other regions. DSW has resource additions with a total expected output of 1095 MW that were reported to be under active construction as of December 2006 and projected to be in service before January 2011. These resource additions were included in the assessment. None of these resource additions are renewables projects.

Mr. Smith also mentioned that the uncertainty surrounding CO₂ regulations is influencing WECC resource additions, even some permitted plants. Finally, Mr. Smith concluded by stating that while wind resources are limited in Arizona, there is the possibility of accessing such power generated in New Mexico and Wyoming.

Presentation Discussion:

Mr. Smith responded to questions regarding WECC and the role the Western Area Power Administration plays in the transmission of power throughout the WECC. There was also mention that it is difficult to tell by WECC assessments how much of the WECC resource need is actually met by energy efficiency programs.

- **Brad Albert**, APS Director of Resource Planning, presented “Drivers and Key Assumptions.”

In this presentation, Mr. Albert set forth several factors that influence the resource planning decision (Mr. Albert did not discuss climate change as it will be discussed in a subsequent meeting). These factors include:

- **Cost Escalation.** For example, in recent years the increase in power plant construction costs has more than doubled the rate of inflation, and the continuing escalation of such costs is driven by an increase in the price of

commodities and skilled labor. It is uncertain whether this current rate of increase will continue.

- **Transmission Needs.** Transmission projects will significantly expand APS's ability to purchase power from the marketplace. Current transmission can meet the load requirements until 2015. However, by 2020, a significant gap between net resource need and available transmission is projected. Transmission needs are factored into the resource planning process. When factoring in transmission needs, APS makes certain assumptions (*e.g.*, locations of resources). It is estimated that capital costs to meet transmission needs for a 20-year period through 2027 will be in excess of \$1 billion.
- **Water Use.** Water consumption is a significant factor in electricity generation. Wet-cooled generation sources use hundreds of gallons of water/MWH; dry or hybrid cooling technologies can significantly decrease water consumption (dry-cooled gas combined cycle would use 30 gallons/MWH); and several energy source considerations require little or no water. However, there are tradeoffs between water consumption, capital costs, plant efficiency, and CO₂ emissions. Water costs are currently minimal. The issue is water availability and the political willingness to use water for power generation.
- **Natural Gas Prices and Infrastructure.** APS forecasts of natural gas prices begin with the current forward price for the next ten years, observable in the market. The forecast then incorporates an escalation factor. Decisions pertaining to natural gas should not be based on the fact that it will cost the same in 2026 as it does now. Given the limited domestic supply of natural gas, there is movement into international markets to secure natural gas. This leads to increased price volatility.

There is significant expansion of natural gas production and development of pipeline infrastructure in the western United States. For example, the Transwestern Gas Pipeline, scheduled to be completed in July 2008, is estimated to have a total daily capacity of 650,000 million British Thermal Units ("MMbtu"). Of that amount, APS is allocated 150,000 MMBtu.

- **Emission Prices and Environmental Assumptions.** APS includes in the resource planning analysis: currently regulated emissions (*e.g.*, SO₂ and Hg); modeling of fossil plant emission rates; and the uncertainty surrounding the cost of complying with possible CO₂ regulations.

Mr. Albert concluded his presentation by briefly discussing APS's projected implementation of the required Renewable Energy Standard requirements of the Commission's recently enacted rules, by describing the modeling assumptions regarding generating resources (conventional generation resources are modeled as

APS owned and renewables resources are modeled as PPAs), and by providing a list of the key results of the resource planning analysis process.

Presentation Discussion:

After Mr. Albert's presentation, there was discussion regarding the role natural gas will play in the resource planning process and the role the economy plays in influencing the load forecast.

FUTURE MEETINGS AND AGENDAS:

The next stakeholder meeting will be held on the morning of April 11, 2008, at the APS corporate headquarters. At the April meeting, there will be presentations on Climate Change and Resource Technology Comparisons.

A tentative agenda for the future stakeholder meetings was distributed.

APS Resource Alternatives Planning Workshop

Friday, March 07, 2008

Attendance List

<u>Name</u>	<u>Company</u>
Alvin S. Pak	Sempra Global Regulatory Affairs
Amanda Ormond	The Ormond Group LLC
Amy LeGere	Foresight Wind Energy
Barbara Keene	Arizona Corporation Commission
Becky Turner	Entegra/Gila River Power
Bob Baltes	Distributed Energy Association of Arizona
Bud Annan	Annan Group
Carmen Tilghman	Tucson Electric Power
Charlie Gohman	Arizona Department of Commerce
Dan Austin	Comverge
David Berry	Western Resource Advocates
David Hutchens	Tucson Electric Power
Dennis Hoffman	Aizona State University
Dimitrios Laloudakis	City of Phoenix
Eric Bronner	Entegra/Gila River Power
Gary Mirich	Energy Strategies, LLC
Greg Patterson	Arizona Competitive Power Alliance
Jana Brandt	Salt River Project
Jeff Schlegel	Southwest Energy Efficiency Project
Jim Fisher	Energy Transfer
John Coggins	Salt River Project
John Evans	Lewis & Roca
Joe McGuirk	Sun Miner, LLC
Kent Hill	Aizona State University
Lew Dodendorf	Salt River Materials Group
Lee Tanner	Solar Mission Technologies
Mark Marshall	K. R. Saline & Associates, PLC
Mike Sheehan	Tucson Electric Power
Patrick Black	Fennemore Craig, P.C.
Scott Wakefield	Residentia Utility Consumers Office
Stephen Ahern	Residentia Utility Consumers Office
Terri Ford	Arizona Corporation Commission
Toby Voge	Tucson Electric Power
Tom Knudsen	Kinder Morgan
Travis Wright	STMicroelectronics