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January 2, 2006

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

RE: IN THE MATTER OF ARIZONA PUBLIC SERVICE COMPANY
DOCKET NO. E-01345A-06-0009

Dear Sir or Madame:

Enclosed is Arizona Public Service Company's ("APS") Natural Gas Storage Report pursuant to Docket No. E-01345A-06-0009. As requested by Commissioner Mayes during the rate case hearing in Docket Nos. E-01345A-0816, E-01345A-05-0826, and E-01345A-05-0827 on December 11, 2006 (Volume No. XXVI Transcript page 4645) this report is being filed in each of these Dockets.

This report was originally submitted on December 29, 2006, but at the request of the Arizona Corporation Commission's ("ACC") Docket Control, APS is re-filing it under separate cover letters. If you have any questions, please contact me.

Sincerely,

Barbara Klemstine
Director
Regulation & Pricing

BK/rdp

Attachments

CC: Brian Bozzo
Parties of Record

Arizona Corporation Commission
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Report on Natural Gas Storage in Arizona

Arizona Public Service Company

Docket No.

E-01345A-06-0009

&

Docket Nos.

E-01345A-05-0816, E-01345A-05-0826 & E-01345A-05-0827

December 29, 2006

Report on Natural Gas Storage in Arizona

Arizona Public Service Company

Docket No. E-01345A-06-0009
&
Docket Nos. E-01345A-05-0816, E-01345A-05-0826 & E-01345A-05-0827

BACKGROUND

The potential reliability value of commercially-viable natural gas storage in Arizona has increased in the past decade as reliance on natural gas for both power generation and direct residential and commercial use has grown with the state's ongoing population boom and corresponding need for additional energy. APS recognized this importance and entered into natural gas storage arrangements in the late 1990's by contracting for physical storage in West Texas. At the time, the uncertainty of gas capacity on the El Paso pipeline system necessitated these contracts in order to ensure reliable supply of commodity during the peak (summer) gas usage season.

With the modification of El Paso's system capacity allocations in the early 2000's, APS was provided additional capacity rights in the Permian and Waha locations in West Texas. This additional capacity near or in the well fields diminished the immediate need for physical gas storage upstream on the El Paso system. Indeed, these additional allocations provided far greater certainty of gas supply and substantially reduced reliability risk. As a result, given that issues related to reliability were mitigated, APS has not contracted for physical gas storage for reliability reasons since that time period as the costs associated with gas storage have far outweighed any financial benefit.

In this latter regard, it is important to understand what benefits can reasonably be expected from the use of physical gas storage and those that cannot or, to put the issue more precisely, those that can be obtained more economically through other means. Among the former are system reliability, especially during periods of peak usage, and greater control over system imbalance. However, as a hedge against price volatility, physical storage (even if large enough to allow for significant advance purchases of gas at a given set of prices) is far less efficient than financial hedges. The latter provide the same price protection (and risk, should prices fall in the future) but do not require the payment of storage fees. Such fees, especially in the case of storage sites permitted by the Federal Energy Regulatory Commission ("FERC") to charge market-based rates, are designed to extract virtually all the economic value of storage to the user for the benefit of the storage-site owner.

Current Natural Gas Storage Requirements

While pipeline reliability remains adequate for the present on the El Paso system, modifications to the pricing structure of pipeline capacity that are likely to be effective in early 2007 may necessitate a change in how APS manages its gas supply. The inclusion of substantial financial penalties associated with hourly or daily imbalances that cannot be mitigated with pipeline scheduling opportunities means that APS must seek 3rd party gas storage solutions to help mitigate that financial risk. Since physical gas storage contracts are not presently available in Arizona, APS is exploring alternative means to minimize this risk until such time gas storage located closer to our retail load is developed.

Gas Storage Projects in Arizona

Increased demand for reliable natural gas supplies in the late 1990's and early 2000's prompted gas storage developers and utilities to investigate the feasibility of natural gas storage projects in Arizona. Initially, two sites emerged as the more viable locations for natural gas storage due mostly to the geological makeup (significant salt deposits to assure the secure storage of the gas) and their proximity to major interstate gas pipeline systems.

- ***Copper Eagle Gas Storage***: located in Glendale, Arizona, near Luke Air Force Base. Geologically, the salt cavern structure at this location is ideally suited for the high cyclic gas storage projects needed by Arizona utilities, especially those in Metro-Phoenix, with significant energy load swings. Its physical location within the Phoenix load center and its relative proximity to the El Paso Maricopa lateral enhanced its accessibility. Currently, this site is still owned by El Paso Natural Gas and development of this site has been restricted by the Arizona State Legislature.

- ***Red Lake Gas Storage***: located in Mohave County near Kingman, Arizona. This site was originally owned by Southwest Gas Corporation and then later sold to Aquila Energy in the early 2000's for natural gas storage development. Geologically, it possesses the same high concentrated salt deposits as the Copper Eagle site and, although not near the state's major load centers, the site's general proximity (within 30 miles) to major gas pipeline systems would have allowed acceptable deliveries of the stored gas to major energy markets. Unfortunately, Aquila Energy has disposed of this property, and it is now owned by a residential real estate developer. Given the market value of such property for development, APS believes it unlikely that this storage project will move forward in the foreseeable future.

- ***Picacho/Eloy Gas Storage***: APS is working with EL Paso Natural Gas on the development of the Picacho Gas Storage site near Eloy, Arizona. Given the uncertainty surrounding the Copper Eagle Gas Storage site in Glendale, the Picacho site represents the next most viable storage site than may have the

necessary geology to effectuate the kind of gas storage needed for power generation in Arizona. Specifically, APS would prefer physical gas storage that is highly cyclic (users can freely move gas in/out of storage as needed) and has a high level of what is termed "no notice deliverability" (gas can be made available instantly) in order to meet potential system load energy demands on our power generators, especially during the peak usage months.

El Paso and APS met periodically in 2006 to discuss the progress of the Picacho gas storage site. APS has expressed an interest in securing firm long term gas storage contracts as an anchor tenant as long as the geologic viability of the storage site lends the appropriate gas storage service. This viability is presently being determined through a core sampling process. As is the case with all salt dome storage, brine removal is also an issue. The Company anticipates further discussions in early 2007 with El Paso once the results of core testing are made available and outstanding issues related to brine disposal are resolved. Assuming the Picacho site does indeed have the geological features necessary to provide the appropriate gas storage service to APS and other end users in Arizona; El Paso projects the current in service date as third quarter of 2010.

The development of any physical gas storage project requires the storage operator and interested parties to overcome several important hurdles before gas storage can be operational. This is true as it relates to the Picacho Project. In discussions with El Paso, the following key hurdles need resolution before El Paso can develop and operate a storage site, and before APS will become a potential user:

- **Financial Viability**. The storage site needs to provide El Paso Natural Gas a reasonable rate of return on their investment and add operational flexibility to their interstate pipeline system. In order to attain financial viability it's possible that El Paso will:

    - Seek approval from FERC to charge customers market based rates rather than standard cost of service rates.

    - Contract to a diverse group of shippers in order to maximize storage usage. In Arizona, a diverse group of shippers might include peak summer users like APS, and peak winter season users such as Southwest Gas and/or Unisource.

    - Charge customers market based rates not only on storage services, but reflective of market arbitrage opportunities. This was alluded to in the introductory portion of this report. For example, if the forward spread between summer and winter natural gas prices is $1.00/mmbtu (i.e. the value of natural gas during the summer is $1.00/mmbtu less than the value of natural gas that next winter), El Paso can potentially increase revenues by charging customers $0.95 or more for that specific product and capture the lion's share of that market arbitrage. These are typically referred to as

"one turn transactions." Storage arbitrage products of this nature are very common within the industry.

- Recruit equity partners in the project to offset the financial risks associated with storage development. Under the right circumstances, APS might have interest in participating as an equity partner if its investment and a return thereon were recoverable through rates.

- Seek long term contracts with appropriate credit terms that can be utilized by El Paso to secure needed capital.

- **Storage Services Likely to be Offered by El Paso.** As discussed earlier, it is most probable that APS and other potential customers of the Picacho Peak project will seek storage products that are highly cyclic in nature and serve to provide no notice/on demand supplies of natural gas. This type of storage service is preferred given the volatile nature of load demands and commodity pricing, and the inherent need for utilities to insure reliability. Assuming the geology of the natural gas storage site allows for it, APS will seek products of this nature as long as the cost is reflective of the market and provides APS customers value for the services provided. It remains uncertain at this point to what extent El Paso may offer these types of storage products.

- **Brine Disposal**. A significant hurdle for any physical gas storage project, El Paso must secure a safe means to dispose of excess salt water that is a by-product of creating the gas storage caverns. It's our understanding at this time that El Paso has not fully resolved how to dispose of the excess brine water, and that additional research/planning is likely before the issue is successfully resolved.

- **FERC Approvals**. Natural gas storage facilities that interconnect with interstate natural gas pipeline systems and that seek market based tariff rates for potential customers need the approval of FERC.

- **ADEQ Approvals**. Various environmental issues including the storage sites impact on groundwater will need to be addressed.

- **Local Zoning Approvals.** Included are approvals from City of Eloy and the use of right of ways needed to interconnect to natural gas pipeline systems.

Other Long Term Gas Storage Opportunities

West Texas/New Mexico, and California: APS continues to explore natural gas storage opportunities outside of Arizona in the event in state sites for natural gas storage prove to be either geologically, operationally, and/or financially unviable. In addition to the aforementioned gas storage sites located in West Texas and Eastern New Mexico, APS has discussed storage services with California based gas storage operators that could be

utilized in the event the California Public Utilities Commission lifts its current ban prohibiting out of state end-users to contract for California based storage. APS is not aware of any specific action being taken by the California gas storage operators and/or the CPUC to modify this moratorium, but APS will continue to monitor this issue and make appropriate decisions in the event the ban is lifted.

The ability for APS to contract for highly cyclic/no notice gas storage services with gas storage operators in West Texas/New Mexico and/or California is restricted by current natural gas pipeline operating and scheduling limitations imposed by the EL Paso Natural Gas system. Modifications of those impositions would serve to enhance the value of out of state gas storage in the event the Picacho/Eloy site cannot offer these services due to geological constraints, or if El Paso simply decides not to sell these specific products.

Short Term/Interim Gas Storage Contracts

APS has entered into a short term gas storage related contract with a physical storage operator located on the south mainline of the EL Paso system in Eastern New Mexico. This storage arrangement is currently in the form of a variable park and loan contract whereby APS can either park natural gas in storage or be loaned natural gas from the storage site, as market values allow. APS intends to utilize this park and loan storage contract to offset potential operational imbalance and overrun costs that may be incurred on the El Paso system.

In addition, APS has begun negotiations with this same gas storage operator to secure longer term firm gas storage arrangements that can enhance deliverability and system reliability to APS generators. The terms and conditions of this contract are somewhat contingent upon any operational risks APS may encounter when the current El Paso Natural Gas pipeline rate case is settled early next year. Once the El Paso rate case is settled and the operational risks associated with the settlement are quantified, APS and the storage operator will attempt to craft a firm storage contract that will ensure reliability of gas supply while minimizing the financial impact of operational imbalance and overrun charges.

Both the current park and loan contract, and the potential firm storage contract that is likely to begin in 2007, are intended as interim or alternative gas storage arrangements until such time a physical gas storage site can be developed in Arizona closer to our service territory.

SUMMARY

As demand for energy in Arizona continues to increase, the need for reliable physical gas storage in Arizona in close proximity to power plants and major population centers becomes more evident. APS believes the investment in this infrastructure can provide value to its customers in the form of increased reliability of supply and reduced exposure to pipeline operating charges related to imbalance penalties. APS will continue to work with El Paso on the development of the Eloy gas storage site and support this project as

long as the geology and costs associated with the site provide the needed gas storage services that benefit APS and its customers. In the event the Picacho/Eloy site proves to be unfeasible, APS will seek alternative gas storage arrangements either within the State of Arizona or in neighboring states so long as the products contracted for enhance reliability in a cost effective manner for APS customers.