

## PURCHASED GAS

### Local Market Environment

Monthly index prices for natural gas delivered into Questar Pipeline’s system during the 2013 calendar year averaged \$3.47 per Dth. This was higher than the 2012 average price of \$2.57 per Dth, an increase of \$0.90 per Dth or 35%. Prices continued to increase through the first quarter of 2014. The 2012 and 2013 monthly index prices are provided in Table 5.1 below.

<b>Table 5.1</b>			
<b>Questar Pipeline First-of-Month (FOM) Index Price per Dth</b>			
<b>Month</b>	<b>2012</b>	<b>2013 *</b>	<b>Difference</b>
Jan	\$3.09	\$3.27	\$0.18
Feb	\$2.60	\$3.25	\$0.65
Mar	\$2.30	\$3.30	\$1.00
Apr	\$1.85	\$3.77	\$1.92
May	\$1.75	\$3.78	\$2.03
Jun	\$2.21	\$3.95	\$1.74
Jul	\$2.47	\$3.30	\$0.83
Aug	\$2.68	\$3.37	\$0.69
Sep	\$2.40	\$3.24	\$0.84
Oct	\$2.69	\$3.27	\$0.58
Nov	\$3.28	\$3.51	\$0.23
Dec	\$3.50	\$3.60	\$0.10
<b>Average</b>	<b>\$2.57</b>	<b>\$3.47</b>	<b>\$0.90</b>

\* No published Questar Pipeline index for June, August and October. Estimated index based on Northwest Pipeline, Opal.

The price for natural gas on Questar Pipeline during the 2012-2013 heating season (November-March) averaged \$3.32 per Dth compared to an average price of \$4.31 per Dth during the 2013/2014 heating season, an increase of \$0.99 or 30%. The monthly index prices for the two heating seasons are provided in Table 5.2 below.

<b>Table 5.2</b>			
<b>Questar Pipeline FOM Index Price per Dth – Heating Season</b>			
<b>Month</b>	<b>2012-2013</b>	<b>2013-2014 *</b>	<b>Difference</b>
Nov	\$3.28	\$3.51	\$0.23
Dec	\$3.50	\$3.60	\$0.10
Jan	\$3.27	\$4.33	\$1.06
Feb	\$3.25	\$4.78	\$1.53
Mar	\$3.30	\$5.31	\$2.01
<b>Average</b>	<b>\$3.32</b>	<b>\$4.31</b>	<b>\$0.99</b>

\* No published Questar Pipeline index for March. Estimated index based on Northwest Pipeline, Opal.

## **SENDOUT Modeling Issues**

One of the most fundamental results of the IRP modeling is the selection of the portfolio of natural gas purchase contracts for the coming year. The Company expects that a significant portion (approximately 65%) of the annual gas supply needs of Questar Gas' sales customers will be met with cost-of-service supplies provided under the Wexpro I and II Agreements (see "Cost-of-Service Gas" section of this report). Supply needs not met by cost-of-service gas must be purchased from natural gas providers. Accordingly, the Company issues a request for proposals (RFP) to potential suppliers on upstream interconnecting interstate pipelines each year.

Over the years, Questar Gas has determined that the most favorable time to issue its annual RFP (soliciting proposals for natural gas supplies) is in the late-winter/early-spring time frame. During this time period, sufficient supplies for the upcoming winter heating season are likely to be available and uncommitted. This also gives potential respondents sufficient time to develop and submit proposals. The Company also needs time to extract all the data, model all the gas supply packages proposed, and complete the contracting process. In the event final agreements do not materialize for packages selected, ample time remains before the winter heating season begins to remedy any shortfalls.

On March 3, 2014, Questar Gas sent out its RFP to approximately 50 prospective suppliers. The RFP sought proposals for both base load and peaking supplies on the two major interstate pipeline systems interconnected with Questar Gas; Questar Pipeline and Kern River. The RFP required that base load supplies on Questar Pipeline have availabilities of 365, 180, 150, 120, 90, and/or 60 days. Due to the fact that 50,000 Dth/Day of the 53,000 Dth/Day of capacity obtained by the Company from Kern River's 2003 Expansion Project are only available during the five winter months of November through March, the RFP required base load supplies on Kern River to have availabilities of 150, 120, 90, and/or 60 days. The Company sought multi-year winter-heating season proposals on both pipelines with terms ranging from two to five years. The Company sought proposals for peaking supplies on both pipeline systems having availabilities of two to four months to meet customer demands during the coldest winter heating season months.

Reliability of supplies is a critical issue for Questar Gas. The RFP required that all purchased gas proposals accepted by Questar Gas have, in the underlying confirmation letters, language specifying liquidated damages of \$15.00 per Dth for failure to perform. All proposals were also required to have language ensuring creditworthiness and language specifying the minimum advance notice required before nomination deadlines for gas flow.

On March 14, 2014, responses to the purchased-gas RFP were due. The Company received proposals for 145 gas supply packages from 15 potential suppliers. As part of the RFP requirements, submissions are required to specify if the same gas supply is offered under multiple proposals. This year, supplies offered under base load proposals totaled 368,000 Dth/day, down from the 458,000 Dth/day offered last year. Peaking supplies offered on Questar Pipeline's system totaled 65,000 Dth/day, down from the 380,000 Dth/day offered last year. Peaking supplies offered on Kern River totaled 453,000 Dth/day, down from last year's level of 725,000 Dth/day.

Each spring, following the receipt of all the proposals, Questar Gas reviews all the packages offered and extracts the parameters needed as data inputs to the SENDOUT model.<sup>40</sup> The pricing mechanisms utilized for each package must be identified and linked to the appropriate index price in the model. Also, the availability of receipt and delivery point capacity on the interstate pipeline system utilized must be resolved. To the extent that the same underlying gas supplies have been offered in different price and term packages, they must be identified to prevent the modeling of more gas than is actually available. This year, the SENDOUT model evaluated 145 supply packages.

After these purchased-gas packages are entered into the SENDOUT model, the model is allowed to find an optimal linear programming solution for any one or all of the packages of natural gas. During this optimization process, the SENDOUT model only incurs costs for a package of gas if it elects to include that package. This gives the model freedom to look at all packages and optimize them in a way that utilizes the least-cost combination of resources.

This year 1,217 Monte Carlo draws were evaluated during the modeling process. At the conclusion of the modeling, the draws were analyzed to see which were preferred. Using a statistical analysis package, a procedure was used to group (or cluster) optimized draws in similar ways. “Clustering” is the assignment of a set of observations into subsets so that observations in the same cluster are similar in some sense. For Questar Gas, the clustering is performed for peak day and annual demand.

Next, a follow-up statistical procedure is used to split clusters at cluster designed levels. (See Exhibit 5.1) This year, as in other years, the cluster analysis was broken into 30 groups and plotted as representations of optimized solutions. A point on the graph represents a cluster and a cluster represents like draws. The resulting plot shows demand on the abscissa of the graph, and peak day on the ordinate axis. At a glance this plot shows how the SENDOUT model met high or low demand against peak day events.

Questar Gas then selects the cluster(s) that most closely meet forecasted annual demand for the coming year. If the Company were to choose cluster(s) that also meet design peak day, it would over-purchase. Questar Gas examines the preferred draws that make up the cluster looking at the number of times a given package of gas was chosen and the volume of that package most often used. The more often SENDOUT used a specific package of gas the more favorable that package is in the optimization model.

Questar Gas also reviews the original packages in order to verify that it does not entrust too much of its purchase gas to one vendor, that peaking versus base load contracts seem reasonable, that packages are within the transportation limits of both Kern River and Questar Pipeline, and to verify that a cluster combined with cost-of-service, storage and spot will meet design peak day. Once this screening is completed the most often used packages emerge from the RFP process and are finalized with suppliers.

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<sup>40</sup> The SENDOUT model and the Monte Carlo method are described in more detail in the Final Modeling Results Section of this report.

Questar Gas includes in its modeling process each year the availability of supplies that may be purchased from the Company's interruptible transportation customers in Utah and Wyoming. As a condition to receiving interruptible transportation service, the Company's Utah and Wyoming tariffs allow for the option to purchase these supplies during periods of interruption for the benefit of Questar Gas' firm sales customers. Upon agreement by the Company and the transportation customer, interruptible transportation customers may nominate levels of this resource as specified by the Company. The Company may purchase these supplies at the interconnecting upstream pipeline receipt point and use its own transportation capacity, or the purchase can take place at Questar Gas' city gates. The tariffs specify a predetermined pricing mechanism for payment for these supplies. Questar Gas has planned on the availability of 50,000 Dth/day of this resource for its SENDOUT modeling process this year, for the months of December through February.

The levels of purchased-gas packages selected from the SENDOUT modeling process this year are shown in the "Final Modeling Results" Section of this report. The median purchased-gas volumes from the Monte Carlo simulation for the upcoming gas-supply year are shown by month in Exhibits 9.53 to 9.64 along with each probability distribution. Individual packages of purchased-gas supplies for the normal case are shown for the first two plan years in Exhibits 9.85 and 9.88. Of the 15 companies submitting proposals this year, seven had at least one package selected by the modeling process. Questar Gas made commitments to purchase from the selected suppliers on May 2, 2014.

### **Price Stabilization**

On May 31, 2001, the Utah Commission approved a Stipulation submitted May 1, 2001, in Docket Nos. 00-057-08 and 00-057-10 proposing price stabilization measures be used in conjunction with natural gas purchases during the winter months (October – March). Pursuant to the Stipulation, the Company hedged portions of its base-load winter natural gas portfolio.

In Wyoming Docket No. 30010-GP-01-62, the Company requested to include costs to reduce price volatility such as occurred during the winter of 2000/2001. In its October 30, 2001 Order, the Wyoming Commission approved the Company's request to include stabilization costs in the 191 Account. The Company does not engage in any speculative hedging transactions by limiting these price stabilization efforts to contracts or contract amendments that fix or cap prices for gas supplies that are contractually committed to Questar Gas' system for delivery to end-use retail customers.

For the October 2013/March 2014 time period, the Company did not hedge the price of any of its base load purchased gas supplies. This was a result of the forecasted level of cost-of-service gas in the supply portfolio. Given the current forecast for cost-of-service production, the Company does not plan to enter into any fixed-price agreements during the next IRP year, but it may do so in the future.