

GATHERING, TRANSPORTATION AND STORAGE

Gathering and Processing Issues

Gathering is required as part of the process of delivering cost-of-service production from the wellhead to the customers of Questar Gas. In some natural gas fields, the gathering function is provided by the unit under the prevailing operating agreement. In other fields, this function must be arranged for separately. For supplies from many producing areas, processing is also required to ensure conformity with the gas quality specifications of downstream pipelines. Questar Gas is party to a number of natural gas gathering and processing agreements with mid-stream companies which provide these services.

Much of the natural gas production that Questar Gas is entitled to under the Wexpro Agreement is dedicated to the System-Wide Gathering Agreement between Questar Gas and Questar Gas Management Company (Gas Management). The System-Wide Gathering Agreement utilizes a cost-of-service methodology to determine the demand and commodity charges for this service. This rate determination occurs on an annual basis for service provided each year from September 1 through August 31. Sixty percent of the annual cost of service is allocated to a reservation charge and the remaining forty percent is allocated to a commodity charge. The billing determinant for the commodity rate is based on the previous calendar-year gathering-system throughput. The overall rate increased approximately 34% from last year. Higher natural gas prices have stimulated drilling programs across the country and particularly in the Rocky Mountains. Consequently, the need for more gathering connections has arisen. The costs for constructing gathering connections have increased dramatically. Much of the increase in the system-wide gathering rate can be attributed to drilling programs in Pinedale and the Vermillion Basin and the need to hook up more new wells. The remote location of Pinedale relative to interstate transmission systems has also contributed to cost increases. By way of adding perspective to the rate increase this year, the current effective one-part rate is still significantly lower than it was for the first four years of the Agreement.

Each year, gathering and processing cost data are updated and included in the SENDOUT modeling process. The SENDOUT model utilizes a logical gas supply network to define the relationships between modeling variables.

Transportation Issues

On May 18, 2007, Questar Pipeline filed revised transportation tariff sheets with the FERC¹ proposing to modify its gas quality provisions establishing cricondentherm-hydrocarbon-dew-point (CHDP) zones with CHDP limits for each zone. These zones and their limits are shown in Exhibit 7.1. Motions to intervene in Questar Pipeline's CHDP proceedings were filed with the FERC by eight shippers, producers and/or marketers including Questar Gas. None of these interventions articulated any protests or adverse comments. On August 6, 2007, the FERC issued an order finding the proposed

¹ Questar Pipeline Company, Docket No. RP07-457-000, FERC Gas Tariff Filing, May 18, 2007.

tariff sheets to be just and reasonable, and the FERC accepted them effective January 1, 2008.² Any changes to the current order or the CHDP limits will require Questar Pipeline to file with the FERC. As it is difficult to predict the interchangeability of future gas streams received by Questar Gas, the Company may need to arrange for additional processing or blending in the event it is required to insure that the gas received for the transmission systems of either Questar Pipeline or Kern River are compatible with the needs of Questar Gas' customers.

For a number of years, Questar Gas has received processing services from QTS, a subsidiary of Questar Pipeline at its Castle Valley Processing Plant near Price, Utah. This plant removed carbon dioxide from coal-bed methane produced in the vicinity. Effective January 31, 2008, Questar Gas no longer receives these processing services and the network segment including these costs in the SENDOUT model has been removed.

No-Notice Transportation

On April 8, 1992, the FERC issued Order 636 which required interstate pipeline companies to unbundle their sales and transportation services ensuring that all natural gas suppliers could receive the same quality of transportation services. Among those services which the FERC required interstate pipeline companies to provide on an unbundled basis, was "no-notice transportation service." The requirement to provide this service was explained in Order 636 as follows:

As discussed above, the Commission is adding Section 284.8 (a)(4) to its regulations to require pipelines to provide a "no-notice" firm transportation service if they are providing a "no-notice" bundled, city-gate, firm sales service on the effective date of this rule. The Commission expects the pipelines and all interested participants to craft in the restructuring proceedings the operating conditions needed to ensure that the pipelines can provide a "no-notice" transportation service pursuant to which firm shippers can receive delivery of gas on demand up to their firm entitlements on a daily basis without incurring daily balancing and scheduling penalties. This "no-notice" service will enable pipeline customers to continue to receive unnominated volumes to meet unexpected requirements caused, for example, by unexpected changes in temperature. Thus, pipeline customers will be able to receive varying volumes of gas to meet their fluctuating needs during a twenty-four hour period. So, for example, constant rate of flow requirements would not apply to prohibit delivery on demand throughout the day up to a customer's daily firm entitlement under this service.³

² Federal Energy Regulatory Commission, Questar Pipeline Company, Docket No. RP07-457-000, "Order Accepting Tariff Sheets," Issued August 6, 2007.

³ FERC Order No.636, Final Rule, Docket Nos. RM91-11-000 and RM87-34-065, pages 88-89.

In FERC Order No. 636-A, issued August 3, 1992, the FERC shed additional light on its previous order by providing:

The Commission clarifies that former bundled sales customers are entitled to receive the same quality and quantity of transportation service they were previously receiving as part of their sales service before unbundling.⁴

Questar Gas, as a transportation customer of Questar Pipeline, was entitled to the provision of no-notice transportation (NNT) service since it had been receiving “no-notice’ bundled, city-gate, firm sales service” from Questar Pipeline previous to Order 636. In its Order 636 restructuring application, Questar Pipeline filed a NNT service rate schedule. In order to receive the same “quality and quantity of transportation service” needed previously, Questar Gas subscribed to this NNT service offered by Questar Pipeline. And, it was primarily the rationale given by the FERC which necessitated the receipt of this service by Questar Gas . . . “unexpected changes in temperature.”

Temperatures in the service area of Questar Gas can be among the coldest in the nation. Temperature swings along the Wasatch Front can be large, sudden and difficult to predict. As a cold front moves south from Canada towards the Rocky Mountain region, it is difficult to forecast whether it will move into the Great Basin or slide down along the front range into Colorado. Weather forecasts are typically modeled on a daily basis. The transient flows resulting from unexpected hourly changes in temperature can be substantial. Nominations are made using those forecasts for a gas day that won’t begin to flow for almost 24 hours in the future. This lag makes it difficult to manage daily swings and nearly impossible to manage hourly swings. Exhibit 7.2 is a graph of the total system load for Questar Gas that shows the variability in daily load from March 2007 through February 2008. Even more telling is the graph in Exhibit 7.3 showing the dramatic variability in hourly flows for a recent winter time-frame extending from January 6-12, 2008. It was precisely for this purpose that the FERC required that NNT be offered to achieve comparability of service. NNT provides Questar Gas flexibility far beyond what is available under the FERC approved nomination process on Questar Pipeline. Questar Gas uses this NNT flexibility to facilitate withdrawals and injections of gas throughout the day utilizing Clay Basin and the aquifers in order to meet Questar Gas customers changing loads. *See subsequent Storage Issues Section.*

Questar Gas’ gas supply “schedulers” rely on multiple weather forecasts in developing their daily gas supply plans. Even if these forecasts of the daily mean temperature were all perfectly correct every day, it would not totally solve the problem of meeting “unexpected requirements” as addressed by Order 636. Exhibit 7.4 is a scatter graph of firm sales for Questar Gas versus the daily mean temperature for the calendar-year 2007. At any given mean temperature, there was a wide historical band of actual daily sales volumes during 2007.

⁴ FERC Order No. 636-A, Order Denying Rehearing in Part, Granting Rehearing in Part, and Clarifying Order No. 636, Docket Nos. RM91-11-002 and RM87-34-068, page 141.

Questar Gas holds transportation capacity on Kern River. This capacity was contracted for during Kern River's 2003 expansion. It consists of 53,000 Dth/d for the winter heating season months of November through March and 3,000 Dth/d for the months of April through October. Because Questar Gas' acquisition of this capacity was after the FERC 636 series of orders, Kern River was not obligated to offer NNT to Questar Gas (Questar Gas had not previously been receiving no-notice bundled, city-gate firm sales service on Kern River). Questar Gas utilizes, as needed, and to the extent possible, its NNT service from Questar Pipeline to balance hourly demand fluctuations on its entire system. Exceptions to this would be the small Utah west-desert towns that are served exclusively by Kern River (Delta, Scipio, Holden, Fillmore, Beaver, and Newcastle). These loads are small and hourly demand fluctuations are inconsequential. The total hourly demand fluctuations for Questar Gas's firm residential customers in these west-desert towns is smaller than the threshold for incurring imbalance penalties as stated in Kern River's tariff.⁵

The FERC required interstate pipeline companies to offer unbundled NNT service to those shippers previously receiving no-notice-bundled-city-gate-firm-sales service, because in most situations shippers such as Questar Gas would not have comparable alternatives on their distribution systems. Alternatives to NNT such as installing multiple propane air or liquefied natural gas vaporization facilities at strategic locations throughout the service territory of Questar Gas to provide additional supplies when demands are increasing would be prohibitively expensive. Facilities of this type would not solve the problem of storing excess supplies when hourly demands are declining.⁶ The only resource that could accommodate hourly transient flows by providing either a source or use of natural gas would be multiple small storage facilities spread through Questar Gas' service territory. A resource of this type is not available on Questar Gas' system. And, if such a resource were available, it could not compete with the cost-economies-of-scale associated with Questar Pipeline's Clay Basin storage facility. Questar Gas's capacity at Clay Basin is the primary resource utilized by Questar Pipeline in the provision of NNT service.

Questar Gas is one of two companies who have contracted for NNT with Questar Pipeline. When Questar Pipeline filed its Order 636 restructuring application, the FERC reviewed and approved not only the tariff language for the provision of this service, but also all the costs which are associated with this service. Questar Gas believes that its NNT service from Questar Pipeline is the most reasonable, physically feasible and cost-effective way to receive comparable service.

Storage Issues

Questar Gas contracts with Questar Pipeline for storage services at four underground gas storage fields to respond to seasonal winter and peak demands. The

⁵ "FERC Gas Tariff," Kern River Gas Transmission Company, Second Revised Volume No. 1, Filed With The Federal Energy Regulatory Commission, General Terms and Conditions, Section 10, Operating and Balancing Procedures, Sheets 103 – 105.

⁶ Natural gas liquefaction facilities are impractical on a small scale in a distributed environment.

fields are Leroy, Coalville, Chalk Creek, and Clay Basin. Leroy, Coalville, and Chalk Creek are aquifer-type storage facilities fully subscribed to Questar Gas that are utilized primarily for short term peaking. Clay Basin, utilized by both Questar Gas and other open access storage customers, is a depleted dry gas reservoir used for both seasonal base load and peaking purposes. Questar Gas' key capacity parameters for these facilities are outlined in the following table:

Facility	Maximum Inventory (MDth)	Maximum Injection Rate (MDth/D)	Maximum Withdrawal Rate (MDth/D)	Minimum Withdrawal Rate, MRD (MDth/D)	Sustained 3-Day Peak Withdrawal (MDth/D)
Clay Basin	13,419	75+	203	112	n/a
Leroy	886	7 to 33	84	n/a	79
Coalville	720	7 to 21	63	n/a	53
Chalk Creek	267	6 to 11	37	n/a	26

As was first outlined in the May 1, 2000 IRP, the operation of the Leroy and Coalville storage facilities has been modified from procedures followed historically to provide more flexibility and enhance storage efficiency. Since 2000, following the end of the withdrawal season, the inventories in these facilities have maintained a working gas capacity of approximately 50% of maximum through the summer months. Previous practice was to completely draw down the facilities each year at the end of the withdrawal season. The advantages of this revised mode of operation are as follows:

- Wells are not “watered out” at the end of the withdrawal cycle, improving well efficiency when refill injections are initiated in the fall.
- Injection compression fuel gas requirements are reduced (only 50% of the working capacity needs to be injected in the fall to fill the reservoir).
- A shorter, more predictable, and easily managed withdrawal/depletion schedule results at the end of the heating season.
- A shorter injection season for reservoir refill is required in the fall.
- The flexibility exists to inject significant volumes if required while the reservoirs are at 50% inventory.

Operating experience has indicated that the above operating advantages result without significantly impacting gas losses.

In general, current operating practices at both the Coalville and Leroy facilities are as follows:

- Refill injections into the reservoirs commence in early September from an initial inventory of approximately 50% of maximum working inventory. Injections continue until an inventory of approximately 70% of maximum is reached by early October. Injections follow a specific well

configuration and volume profile to minimize the potential for “fingering” and resulting gas loss.

- In early October, scheduled aquifer injections are halted to allow for the testing program conducted at the Clay Basin storage facility. The testing requires one day of injection at a controlled rate followed by a 7-day no flow period for pressure stabilization. Depending upon system demand and the gas supply situation during the no flow period, the 70% inventory at Leroy and Coalville affords the flexibility to either inject or withdraw to meet system balancing requirements.
- Following the Clay Basin test, controlled refill injections again commence in Coalville and Leroy with maximum inventory being reached by early November.
- Both Coalville and Leroy are utilized to meet peak load requirements through the heating season. During periods of lower winter demand, the reservoirs are refilled to maximum inventory when possible.
- During March, when the need for peaking withdrawals has passed, the reservoirs are partially drawn down (for use) to inventories ranging from 50–70% in preparation for Clay Basin testing conducted during April. The April Clay Basin test consists of a one week withdrawal only period followed by 2 days of controlled withdrawal. Following the withdrawal period, Clay Basin is shut in for 14 days for pressure stabilization. Maintaining Coalville and Leroy at the indicated inventory range during this period provides the flexibility to either inject or withdraw based upon system balancing needs.
- At the end of the Clay Basin test, Leroy and Coalville are then drawn down to inventory levels of approximately 50% and then maintained at that level until refill commences in the fall (unless it is necessary to periodically conduct a complete inventory analysis).

This mode of operation has greatly enhanced the value of the peaking storage service to Questar Gas while not significantly impacting gas losses. Through this mode of operation, seasonal withdrawals during a typical yearly operating season in excess of the maximum working volume have been achieved. During the 2006-2007 season, Leroy withdrawals were 1,373,149 MCF (1.65 times the maximum working gas inventory of 830,000 MCF) and Coalville withdrawals were 870,475 MCF (1.26 times the maximum working gas inventory of 690,000 MCF).

Due to the nature of the Chalk Creek storage formation, cycling and partial inventory maintenance during the summer is not practiced at this facility in order to minimize gas losses. Operation at Chalk Creek is as follows:

- Injections from 0 working gas inventory commence in early November following a controlled well and injection profile.
- Maximum inventory is reached by mid-December.
- From December through early March, Chalk Creek is typically held in reserve unless very high demand periods are experienced.

- In early March, the reservoir is blown down in a controlled manner to 0 working gas inventory and is then shut in until refill injections commence in the fall.

Emphasis is placed upon following the above operating procedures to minimize gas losses and ensure efficient storage facility operation.

The costs, contractual terms and operating parameters for each of the four storage facilities subscribed to by Questar Gas are modeled in SENDOUT. A forecast of the Clay Basin storage inventory (available at the beginning of the first gas-supply year) is also included in the SENDOUT modeling process each year. This year, it is expected that the May 1, 2008 inventory will be approximately 1.5 Bcf.

The tariff provisions governing Clay Basin assure that customers will receive a minimum withdrawal amount (Minimum Required Deliverability or MRD). To the extent that shippers have inventory in excess of that necessary for their last day of withdrawals, additional deliverability is available for allocation according to predetermined formulas (see the previous table).

Questar Gas is party to three storage contracts at Clay Basin, each of which expires at a different time. One of these contracts, for 3.5 Bcf of firm working gas capacity, had an expiration date for its primary term of April 30, 2008. This increment of capacity represents approximately 28% of Questar Gas's total annual working gas volume at Clay Basin. During the summer of 2006, Utah regulators requested that SENDOUT modeling analysis be conducted to determine if additional base-load storage was desirable as a natural gas price hedge for winter-heating-season supplies. That study concluded that a significant block of new incremental storage capacity was not cost effective at that time. The SENDOUT model, however, fully utilized the existing capacity available to it. On October 30, 2007, Questar Gas requested that its contract 988 be extended effective December 1, 2007, through April 30, 2017, ensuring that this key resource will continue to be available. This expiration date coincides closely with the expiration date of the primary term of Questar Gas's MT241 transportation agreement with Questar Pipeline. This contract extension for Clay Basin storage was procured under the same rate schedule in Questar Pipeline's gas tariff as invoiced previously.

At the same time Questar Pipeline was settling hydrocarbon dew point issues on its transportation system, it also sought to resolve the same matter as it affected its Clay Basin storage facility. During 2006 and 2007, Questar Pipeline held meetings with its Clay Basin storage customers with the intent of reaching agreement on proposed tariff revisions. On August 23, 2007, Questar Pipeline filed with the FERC, revisions to its tariff and the "Stipulation and Agreement" negotiated by the parties. Also filed was the "Joint Petition of Questar Pipeline Company and Firm Customers for Approval of Stipulation and Agreement and Request for Expedient Action."⁷ The filing proposed that the Kastler Processing Plant be refunctionalized from a transmission asset to a Clay

⁷ Questar Pipeline Company, Docket No. RP07-606-000, FERC Gas Tariff Filing, August 22, 2007; and Questar Pipeline Company, Docket No. RP07-606-001, Amended FERC Gas Tariff Filing, August 30, 2007.

Basin storage asset. The Kastler Plant has a processing capacity of approximately 200,000 Dth/d. Questar Pipeline also proposed to install additional processing facilities to ensure a total delivery capability of 320,000 Dth/d to either Northwest Pipeline or Questar Pipeline. The costs associated with conditioning storage gas, including the installation and operation of these new facilities were proposed to be recovered from the sale of natural gas liquids over a 20-year time period. Revenues in excess of those needed to recover the costs of conditioning were proposed to be reimbursed to Clay Basin customers.

Twelve Clay Basin customers, including Questar Gas, supported the “Stipulation and Agreement.” The record shows that no objections or protests to Questar Pipeline’s proposal were filed with the FERC. On November 7, 2007, the revised tariff sheets were accepted by the FERC effective January 1, 2008. The FERC approved the Stipulation and Petition as fair and reasonable.⁸

⁸ Federal Energy Regulatory Commission, Questar Pipeline Company, Docket Nos. RP07-606-000 and RP07-606-001, Letter Order Accepting Tariff Sheets dated November 7, 2007, “Reference: Stipulation, Petition, and Revised Tariff Sheets.”