COST-OF-SERVICE GAS

Cost-of-Service (COS) Modeling Factors

For over three decades, the customers of Questar Gas have benefitted from natural gas produced pursuant to the Wexpro Agreement.[39] The Wexpro Agreement, signed in 1981, defines the relationship between Wexpro and Questar Gas. Under this relationship, Wexpro manages and develops natural gas reserves within a limited and previously established group of properties. Production from these reserves is delivered to Questar Gas at cost-of-service, which historically, on average, has been lower-priced than market-based sources.

In recent years, natural gas supplies provided pursuant to the Wexpro Agreement have exceeded one half of the total annual supplies required to meet the needs of Questar Gas customers. During calendar year 2012, Wexpro produced a record 57.5 Bcf of cost-of-service supplies.[40] As development drilling continues to occur, Wexpro anticipates that there will be many more years of production from these sources, due in part to technological improvements in drilling and production methods. By year-end 2012, reserve additions for the year replaced 156 percent of the production for the year.[41]

From calendar year 2011 to 2012, the total costs, net of credits and overriding royalties, for cost-of-service production increased by approximately 5.0 percent. This increase in cost was accompanied by an approximately 13.2 percent increase in production for Questar Gas. Cost-of-service production is also an effective long-term hedge against price volatility. A continuous drilling program allows for the retention of valuable personnel. More information on Wexpro's planned development-drilling programs is contained in the Future Resources part of the "Cost of Service" section of this report.

A determination of the appropriate production profiles for the cost-of-service gas is among the most important results of the SENDOUT modeling process. This year, Questar Gas modeled 94 categories of cost-of-service production. Last year, it modeled 46 categories. Questar Gas substantially increased the number of modeled categories in order to provide for greater economic and operating precision in prioritizing supplies. Also, this year, Questar Gas extended the time horizon modeled by SENDOUT from 21 years to 31 years. A longer time horizon better reflects the fact that cost-of-service gas is a long term resource. More powerful computing capability has made both of these refinements possible.

Questar Gas created these 94 categories of cost-of-service gas to naturally group wells which have common attributes including factors such as geography, economics and operational constraints. A large amount of data must be compiled to provide the inputs to the SENDOUT modeling process. Questar Gas has relied on the expertise of Wexpro personnel in assembling the data elements needed to model each category. Some of those data

[39] "The Wexpro Stipulation and Agreement," Executed October 14, 1981, Approved October 28, 1981, by Public Service Commission of Wyoming and December 31, 1981, by Public Service Commission of Utah.
[40] Questar 2012 Annual Report, Page 3. (On a net revenue interest basis).
[41] Ibid.

elements are: reserve estimates, production decline parameters, depreciation and amortization rates, carrying costs, general and administrative costs, operating and maintenance costs, production taxes, royalties, income taxes, and oil revenue credits. The "Final Modeling Results" section of this IRP contains the probability curves and median levels of production for cost-of-service gas resulting from the SENDOUT modeling process this year.

Since the late 1990s Questar Gas has submitted quarterly variance reports to Utah regulatory agencies, as required under the Utah Commission's IRP standards and guidelines. These reports detail the material deviations between planned performance and actual performance of cost-of-service natural gas supplies. Under the 2009 IRP Standards, that process will continue into the future.

There are many reasons the Quarterly Variance Reports often show variance between anticipated volumes and actual production. As part of the IRP modeling process, Wexpro and Questar Gas are required to anticipate the production capability of more than 1,300 wells. Some of these wells have not been drilled yet, but are included in the planning process. It is important to note that forecasting production from existing wells is not a precise science, and forecasting for wells not yet drilled involves even more uncertainty. New wells can be, and occasionally are, dry holes. Production from new wells can vary from non-commercial quantities to levels several times that anticipated during the planning process. Fortunately, non-commercial wells occur very rarely.

Unanticipated delays during the partner approval process can also postpone planned production. Delays during permitting, drilling and completion can also affect the timing of production volumes. An unexpected archeological find on a drill site can cause extensive delays for all the wells planned for the site, or can cause the wells not to be drilled at all. Even small delays can cause schedules to conflict with environmental windows for the migration, mating and/or nesting of local species, resulting in greater delays. Pad drilling, with all its inherent cost efficiencies can also create delays. Since all the wells on a pad are typically hooked up to a single gathering system, any delay in one well affects the production timing of all the pad wells.

For existing wells, a multiplicity of geotechnical factors can affect production levels. Although reservoir engineers are skilled in the utilization of sophisticated techniques to forecast future production decline rates, precisely predicting the performance of reservoirs many thousands of feet deep is complex and uncertain. The fact that the pressures of the connected gathering lines are constantly changing due to fluctuating supplies into, and demands from, the local gathering system further complicates the production process (a phenomenon often totally out of the control of the producers). New wells drilled by any party typically come in at very high pressures and, in the short term, can "pressure-off" old wells temporarily affecting existing production levels from a field. While compression can remedy such problems, those costs must be factored into the overall economics of the production stream. Also, the design and construction of compression facilities takes additional time to complete. There are many reasons for variances between planned and actual cost-of-service gas volumes.

Producer Imbalances

In most of the cost-of-service wells, there are multiple working interest partners. Each of these partners generally has the right to nominate its legal entitlements from a well subject to restrictions as defined in the operating agreement and/or gas balancing agreement governing that well. As the individual owners in a well each nominate supplies to meet their various marketing commitments, imbalances between the various owners are created. Imbalances are a natural occurrence in wells with multiple working interest owners. There are no fields or wells with multiple owners having individual marketing arrangements where an imbalance doesn't exist. No individual working interest owner can control, in the short term, the level of producer imbalances associated with a well because they do not have control over the volumes that their partners are nominating. Anytime allocated wellhead volumes differ from legal entitlements for any one party an imbalance is created for all the parties in the well. The fact that it is not uncommon for the market of a working interest owner to be lost unexpectedly, either in part or in full, for a variety of reasons, further complicates matters. This can happen without the knowledge of the other parties for a significant period of time, and will contribute to an imbalance.

For some wells with multiple working interest partners, contract-based producer-balancing provisions exist. These provisions generally allow for parties that are under-produced to nominate recoupment volumes from parties that are over-produced. Given the time lag in the accounting flow of imbalance information, delays of several months can occur. Complicating the process is the fact that advance notice of several weeks is typically required before imbalance recoupment can begin to be nominated.

Over the past year, producer-imbalance recoupment has taken place in the Ace/Jacks Draw area. Table 6.1 shows the monthly volumes nominated in these areas for recoupment during calendar year 2012 and for the first two months of 2013.

Separate but similar balancing agreements exist for Ace wells and Jacks Draw wells which are in close geographic proximity. The balancing agreements in these areas allow for an under-produced party to nominate 25 percent of the entitlements of the over-produced parties. Once recoupment starts, an under-produced party must continue taking its share of make-up gas for at least a year. In the Jacks Draw field, Questar Gas has been recouping against a partner. In the Ace field, it is a partner of Questar Gas that has been nominating recoupment.

Also over the past year, other parties have been recouping from Questar Gas in the Mesa/Pinedale area and the Moxa Arch area as can be seen in Table 6.1. In the Moxa Arch area, a working interest partner of Questar Gas has been recouping in a number of Church Buttes Buffer wells. The largest recoupment volumes over the past year have been in the Mesa/Pinedale area where Questar Gas has been overproduced for a number of years.

As of December 31, 2012, Questar Gas had a total net producer imbalance level for all of the fields from which it receives cost-of-service production of approximately 2.1 Bcf.[42]

[42] A positive imbalance means volumes are owed to other parties.

By way of comparison, the total net producer imbalance level for December 31, 2011 was approximately 3.0 Bcf. The Hydrocarbon Monitor reviews producer imbalances as part of its responsibilities. In a recent audit report, the Hydrocarbon Monitor concluded that total producer imbalance levels had been reasonable.[43]

Future Resources

The current market price of natural gas coupled with future price expectations directly drives the level of drilling in the U.S. But, other factors play into the drilling decision. Knowledgeable personnel such as reservoir engineers or geotechnical experts are among the most valued assets in any energy production company. Increasing or decreasing staff with swings in market prices generally results in the loss of valuable employees with specific knowledge. It can also make sense to drill when prices are down because drilling costs are generally lower then. By the time a well is drilled and turned to production, prices may have rebounded.

In many situations, drilling permits dictate that leases must be developed within a specified period of time (such as two years) or the leases will be lost. These provisions generally prevent exploration and production companies from holding leases indefinitely without creating value for royalty owners. In the current price environment, a substantial portion of drilling in shale gas plays is being done on a non-voluntary basis to hold leases.

There can be other factors affecting the rate of leasehold development. For example, Questar Gas' customers benefit from the receipt of significant quantities of cost-of-service production from wells in the Pinedale Anticline Project Area (PAPA) in Sublette County, Wyoming. Development in the PAPA is governed by a Record of Decision (ROD), issued by the U.S. Department of Interior, Bureau of Land Management during September of 2008. The ROD was issued in response to certain environmental mitigation measures and operational safeguards proposed by the partners in PAPA.[44]

As a means of minimizing environmental impacts, the Pinedale ROD, in an orderly and systematic way, allows for concentrated development by limiting the number of well pads and requiring the maximum use of existing well pads before constructing new well pads. Operators are required to "stay on a well pad until the well pad is completely drilled out".[45] Drilling is fundamentally sequential with time limitations for development in certain areas.

Wexpro's focus is to maintain its long-term drilling plans, thereby continuing to benefit Questar Gas' customers. For calendar year 2013, Wexpro plans on drilling approximately 40 net wells with a capital budget for those wells of approximately $140

[43] Wexpro Hydrocarbon Auditor Review, Evans Consulting Company, April, 2013.
[44] Record of Decision for the Supplemental Environmental Impact Statement, Pinedale Anticline Oil and Gas Exploration and Development Project, U.S. Department of the Interior, Bureau of Land Management, Cheyenne Wyoming, September 12, 2008.
[45] Ibid., Summary, Page 20.

million.[46] For the years 2014 through 2017, the planned net wells are approximately 16, 15, 21 and 29 respectively, with annual investments in the range of $60 to $100 million. Given the uncertainties in the financial and natural gas markets, these longer term estimates could vary. Drilling activity through the remainder of 2013 is expected to focus primarily in the Pinedale field with much smaller drilling programs in Canyon Creek and Trail areas.

Plans, forecasts and budgets for drilling development wells under the Wexpro Agreement are always subject to change. Many factors including economic conditions, ongoing success rates, partner approval, availability of resources (rigs, crews and services), access issues associated with environmentally sensitive areas, re-completion requirements, drainage issues and demand letters all have an impact on drilling and capital budget projections.

[46] "Net wells" are the summation of working interests (total and partial ownership).