

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.⁴⁷ 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. The Wexpro Agreement contractually defines risk sharing among the parties. Wexpro is allowed to earn a return on its investment in commercial wells, but must bear the cost of dry holes.

The Division is entitled to monitor performance under the Wexpro Agreement. To facilitate that process, Wexpro provides routine reports to the Division. Further facilitating the review of performance, according to the Wexpro Agreement, is the establishment of two monitoring entities: 1) an independent certified public accounting firm (Accounting Monitor), and 2) an independent hydrocarbon industry consulting firm (Hydrocarbon Monitor). The Accounting Monitor and Hydrocarbon Monitor are selected by the Division and the staff of the Wyoming Commission. The fees associated with both monitors are paid by Wexpro.

Since its inception in 1981, natural gas supplies provided pursuant to the Wexpro Agreement have ranged between approximately one third and over half of the total annual supplies required to meet the needs of the customers of Questar Gas. During 2011, Wexpro produced 50.5 Bcf of cost-of-service supplies.⁴⁸ 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 2011, reserve increases for the year more than replaced the production utilized during the year.

From calendar year 2010 to 2011, the total costs remitted by Questar Gas to Wexpro increased by approximately 5.7 percent. This increase in cost was accompanied by a 3.8 percent increase in delivered volumes. The size and success of recent Wexpro drilling programs, coupled with the anticipated future development programs, suggests that increases in the operator service fee will likely continue to occur along with volumetric increases. Wexpro's development drilling programs are designed to deliver new cost-of-service natural gas that is competitive with purchased gas based on the five-year forward curve. Cost-of-

⁴⁷ "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; Parties: Mountain Fuel Supply Company, Wexpro Company, Utah Department of Business Regulations, Division of Public Utilities, Utah Committee of Consumer Services, and Staff of Wyoming Public Service Commission.

⁴⁸ Questar 2011 Annual Report, Page 3. (On a net revenue interest basis).

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 section of this report.

Among the most important results of the SENDOUT modeling process each year is a determination of the appropriate production profiles for cost-of-service gas. This year, Questar Gas modeled 46 categories of cost-of-service production. These categories have been created 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 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 probability curves and median levels of production for cost-of-service gas resulting from the SENDOUT modeling process this year are contained in the Results section of this report.

Questar Gas has submitted periodic variance reports as required under Utah Commission's IRP standards and guidelines since the late 1990s. Under these standards and guidelines, Questar Gas has provided quarterly reports each year to Utah regulatory agencies detailing 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.

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. When variance reports are submitted by Questar Gas, it is important to realize 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 postpone production that was previously planned for. 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. Timetables missed for any reason can be further delayed due to the need to comply with environmental windows for the migration, mating and/or nesting of local species. 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 gathering system at the same time, 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. Further complicating the prediction process is the fact that the pressures of the gathering lines that wells are being produced into are constantly changing due to fluctuating supplies into, and demands from, the local gathering system (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. Plus, the design and construction of compression facilities takes additional time to complete. In a nutshell, there are many reasons for variances between planned and actual cost-of-service gas volumes.

Producer Imbalances

In most of the wells where Questar Gas receives cost-of-service gas, 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. Further complicating matters is 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. 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. Also 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 both the Ace and Jacks Draw areas. Table 6.1 shows the monthly volumes nominated in these areas for recoupment during calendar year 2011 and for the first two months of 2012.

Separate but similar balancing agreements exist for Ace wells and Jacks Draw wells which are in close geographic proximity. The balance*ng 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.

As of December 31, 2011, Questar Gas had a total net producer imbalance level for all of the fields from which it receives cost-of-service production of approximately 2.9 Bcf.⁴⁹ By way of comparison, the total net producer imbalance level for December 31, 2010 was approximately 2.6 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.⁵⁰

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. Among the most valued assets in any energy production company are knowledgeable personnel such as reservoir engineers or geotechnical experts. Increasing or decreasing staff with swings in market prices generally results in the loss of valuable employees with specific knowledge. A case can also be made for drilling when prices are down since 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, the customers of Questar Gas 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.⁵¹

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

⁴⁹ A positive imbalance means volumes are owed to other parties.

⁵⁰ Wexpro Hydrocarbon Auditor Review, Evans Consulting Company, April, 2012.

⁵¹ 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.

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”.⁵² 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 the customers of Questar Gas. For the latter part of 2012 (April through December) Wexpro plans on drilling approximately 45 net wells with a capital budget for those wells of approximately \$121 million.⁵³ For the years 2013 through 2016, the planned net wells increase from 39 to 47 with annual investments in the range of \$120 to \$142 million. Given the uncertainties in the financial and natural gas markets, these longer term estimates could vary. Drilling activity through the remainder of 2012 is expected to focus primarily in the following areas: Canyon Creek, Trail, Pinedale and Powder Wash.

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.

⁵² Ibid., Summary, Page 20.

⁵³ “Net wells” are the summation of working interests (total and partial ownership).