Customer and Gas Demand Forecast

System Total Temperature-Adjusted Dth Sales and Throughput Comparison – 2012 IRP and Actual Results for 2012

On a weather normalized basis, Questar Gas' actual natural gas sales during 2012 totaled 111.1 million Dth. This compares with the 111.0 million Dth projected in the 2012-2013 IRP. Average usage per system-wide General Service (GS) customer on an annual basis was 109.6 Dth, which is close to the projected average of 109.8 Dth. Temperature-adjusted system throughput (sales and transported volumes) was 173.1 million Dth in 2012 compared to last year's IRP forecast of 170.0 million Dth for the same period.

This year the rate of customer growth is expected to accelerate as the housing recovery gains momentum. Average GS usage is expected to continue to decline, caused in part by the shifting of a number of commercial GS customers to transportation service. Non-GS commercial and industrial consumption will continue to grow modestly, but electric generation will increase substantially in 2014 and beyond with major power plant expansions fueled by natural gas.

Temperature-Adjusted Dth Sales and Throughput Summary – 2013 IRP

This year's forecast of temperature-adjusted system sales projects 110.0 million Dth in 2013 and steady growth to 121.0 million Dth in 2023 (see Exhibit 3.11). The slight decrease in projected 2013 sales compared to 2012 sales results from the sales-to-transportation shift mentioned above.

This year's forecast projects 1,173,742 system GS customers by the end of 2023, with annual Utah GS usage per customer at 95.6 Dth (see Exhibits 3.1 and 3.2) and annual Wyoming GS usage per customer at 118.3 Dth (Exhibit 3.5). Note that the new Wyoming usage forecast reflects the temperature and elevation compensation in the computation of Dth that began in October of 2012 by order of the Wyoming Commission. The annual usage per Utah residential customer is projected to be 72.0 Dth (Exhibit 3.3) at the end of 2023, and average annual usage per Utah GS commercial customer is expected to be 423.9 Dth by the same time (Exhibit 3.4). The annual usage per Wyoming residential customer is projected to be at 77.7 Dth by the end of 2023 (Exhibit 3.6), and annual usage per Wyoming commercial customer is projected to be at 442.7 (Exhibit 3.7) Dth for the same period.

System throughput in this year's forecast is expected to increase from 173.0 million Dth in 2013 to 214.0 million Dth in 2023 (Exhibit 3.10). The current forecast includes the anticipated throughput for existing electric generation plants fueld by natural gas.

Residential Usage and Customer Additions

Utah

Utah residential GS customer additions in 2012 totaled 11,133, a notable increase over the 8,772 additions in 2011 and the highest number of residential additions since 2008. The rate of additions is expected to increase with the pace of housing recovery in the state beginning with 13,300 additions in 2013 and increasing to 15,200 in 2014. The rate of annual additions is expected to return to pre-recession levels of over 20,000 in 2016.

Actual temperature-adjusted residential usage per customer for the twelve months ending December 2012 was 82.31 Dth, a decrease of about 1.2 Dth from year-end 2011. An average of 81.2 Dth is projected for 2013 with the overall downward trend in average consumption continuing through 2023 as the pace of new dwelling construction increases and energy-efficiency programs continue to incentivize greater efficiency (see Exhibit 3.3).

The primary modeling tool for long-term residential usage is an end-use model that estimates consumption for space heat, water heating, and other natural gas appliance use based on appliance efficiency and housing characteristics. The model incorporates estimates of housing characteristics, natural gas appliance saturation by efficiency rating throughout the residential customer base, customer growth projections, and projected changes in economic variables that affect use per customer such as the average residential gas bill and household income. Effects on use per customer from the company's energy-efficiency programs based on past and projected participation have also been addressed in the model. No changes to the model beyond updated inputs have been applied. Along with the end-use model, statistical time series methods using SAS Enterprise Time Series 9.3 and Forecast Pro XE are also utilized in the forecasting process.

Wyoming

In Wyoming 57 residential GS customers joined Questar Gas' system in 2012, 64% less than the prior year's additions. However, improving economic conditions lead to a forecast of about 170 additions in 2013. The Company anticipates continued economic improvement will gradually increase customer additions to a pre-recession level of over 400 by 2015.

As noted, the Company has incorporated temperature and elevation compensation into the computation of Dth. When all 2012 residential usage is adjusted for this compensation, the average annual usage per residential customer in Wyoming was 91.13 Dth, a decrease of just under a Dth from the year prior (also adjusted for temperature and elevation compensation). As in Utah, a general trend toward greater housing and appliance efficiency accelerated by participation in the energy-efficiency programs is expected to perpetuate the general long-term decline in usage per customer through the

forecasted period. Average usage is projected at 90.3 in 2013 and is forecasted to continue to decline through 2023 (see Exhibit 3.6).

Small Commercial Usage and Customer Additions

Utah

Temperature-adjusted Utah GS commercial usage per customer for the twelve months ended December 2012 was 461.29 Dth. This year's forecast reflects a continuation of a general downward trend that will be amplified in 2013 and 2014 with the departure of a substantial number of large GS customers shifting to transportation service. Average annual consumption is projected at 455.11 Dth at the end of 2013 and 449.85 Dth at the end of 2014 (see Exhibit 3.4).

Utah GS commercial customer additions are expected to change in direct proportion to the changes in Utah GS residential customer additions. Historically, the relationship of commercial customers to residential customers has remained stable. The Company anticipates that approximately 470 customers will be added in 2013. The rate of annual additions will follow residential customer additions and gradually increase to 1,200 additions and above per year from 2016 on.

Wyoming

Usage for commercial GS customers in Wyoming for the twelve months ending December 2012 was 486.25 Dth when all months of the year are adjusted for temperature and elevation. Average usage is projected to end 2013 at 481.31 Dth and continue its general decline through the forecast period.

The forecast projects about 20 additions in 2013 and a gradual increase to roughly 60 additions in 2016 as economic conditions improve. As with Utah, these projections are driven primarily by residential customer increases.

Large Commercial, Industrial and Electric Generation Gas Demand

As shown in Exhibit 3.8, annual gas demand among large commercial and industrial customers is steady with gradual increase. Demand is expected to grow from 46.0 million Dth in 2013 to 49.1 million Dth in 2023.

Annual demand among electric generation customers is projected to remain steady through 2013 at around 26 million Dth and then increase substantially beginning in 2014 with the completion of significant power plant extensions. Demand is projected to double by 2015, reaching a level of around 51 million Dth annually.

Firm Customer Design-Day Gas Demand

As in prior years, the design-day demand projections are based on a one-in-twenty year (five occurrences in 100 years) weather event. More specifically, the design-day firm customer gas demand projection is based on a theoretical day where the mean temperature is –5 degrees Fahrenheit at the Salt Lake Airport weather station and corresponding design-day temperatures are seen coincidentally across the Company's service territory.

Wind speed, average December, January and February Utah GS sales, and prior days' temperatures and sales are factors that have been statistically significant in predicting daily gas send-out during the winter heating season. The design-day demand projections distinguish between firm sales customers and firm transportation customers for gas supply and system capacity planning purposes.

As shown in Exhibit 3.9, the firm sales and firm transportation for the years 2009-2013 reflect send out volumes where peak-day conditions did not occur. The firm sales customer design-day gas supply projection for the 2013-2014 heating season is 1.267 million Dth. The design-day projection grows to a level of 1.377 million Dth in the winter of 2022-2023.

Periods of Interruption

It is estimated that under peak conditions 59,000 Dth could be curtailed across the system, 50,000 Dth of interruptible transportation and 9,000 Dth of interruptible sales.

The Utah Questar Gas Tariff states, "At times there may be a need for interruption on an isolated portion of the Company's system." In 2009 the Company performed an analysis to determine if isolation of certain system segments could alleviate pressure concerns while limiting the impact on customers that are neither affected by nor can affect pressures on that segment.

Source Data

Where available, the Company has obtained economic, demographic and other data from state and local sources such as the University of Utah (Bureau of Economic and Business Research) and the Utah Governor's Office of Planning and Budget. When current local data were not available, the Company used nationally recognized sources such as the U.S. Energy Information Administration, the U.S. Census Bureau and IHS Global Insight.

The Utah and Wyoming Economic Outlook

In Tables 3.1 and 3.2 below, is a review of recent history and the current economic outlook:

Table 3.1
Summary of Utah Economy
Annual Percentage Change

Description	2007 – 2012	2012 - 2013	2012 - 2017	2012 – 2020
Population	1.9%	1.6%	1.7%	1.8%
Personal Income	2.9%	5.7%	6.3%	5.9%
Construction Employment	-7.8%	7.7%	11.4%	8.4%
Manufacturing Employment	-1.8%	3.4%	2.1%	1.5%
Non-Manufacturing Employment	0.1%	3.4%	2.9%	2.5%
Total Employment	-0.1%	3.4%	2.8%	2.4%
Average Housing Starts	11,727	13,605	20,147	22,367

Source: Based on Spring, 2013 long-term forecasts by IHS Global Insights.

Table 3.2
Summary of Wyoming Economy
Annual Percentage Change

Description	2007 – 2012	2012 - 2013	2012 - 2017	2012 – 2020
Population	1.5%	1.3%	0.8%	0.7%
Personal Income	2.6%	5.0%	5.5%	5.1%
Construction Employment	-3.9%	4.9%	5.1%	3.3%
Manufacturing Employment	-1.6%	5.0%	1.5%	1.0%
Non-Manufacturing Employment	0.1%	0.3%	1.2%	1.0%
Total Employment	0.1%	0.5%	1.2%	1.0%
Average Housing Starts	2460	1840	2231	2232

Source: Based on Spring, 2013 long-term forecasts by IHS Global Insights.

The U.S. Economic Outlook

Tables 3.3 and 3.4 contain a review of recent history and the consensus economic outlook:

Table 3.3
U.S. MACROECONOMIC FORECAST
Source: IHS GLOBAL INSIGHT Review of the U.S. Economy – April, 2013

						Forecast	
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Real Gross Domestic Product 1/	1.9	-0.3	-3.1	2.4	1.8	2.2	2.0
GDP Price Index - Chain Wt. 1/	2.9	2.2	0.9	1.3	2.1	1.8	1.3
CPIU 1/	2.9	3.8	-0.3	1.6	3.1	2.1	1.4
Real Disposable Income 1/	2.4	2.4	-2.8	1.8	1.3	1.5	1.2
Pre-tax Profits 1/	-6.1	-17.4	7.5	26.8	7.3	6.8	1.0
Unemployment Rate 3/	4.6	5.8	9.3	9.6	8.9	8.1	7.7
Housing Starts 4/	1.3	0.9	0.6	0.6	0.6	0.8	1.0
3-month Treasury Bills 3/	4.4	1.4	0.2	0.1	0.1	0.1	0.1
30-Year Fixed Mortgage Rate 3/	6.3	6.0	5.0	4.7	4.5	3.7	3.5
Trade Balance 2/	-710	-677	-382	-442	-466	-475	-431
Vehicle Sales – Total 4/	16.1	13.2	10.4	11.6	12.7	14.4	15.3
Real Non-Res Fixed Investment 1/	6.5	-0.8	-18.1	0.7	8.6	8.0	4.7
Industrial Production 1/	2.5	-3.4	-11.3	5.7	3.4	3.6	3.2

1/ Annual Rate of Change (Percent)
2/ Billions of 1996 chained dollars
3/ Percent
4/ Million Units

Table 3.4
Long-term U.S. Economic Outlook
Source: IHS GLOBAL INSIGHT Review of the U.S. Economy – April, 2013

	2014	2015	2016	2017	2018	2019	2020
Real Gross Domestic Product 1/	2.8	3.2	2.8	2.9	2.6	2.6	2.4
GDP Price Index - Chain Wt. 1/	1.7	1.5	1.5	1.5	1.6	1.6	1.7
CPIU 1/	1.6	1.6	1.7	1.8	1.9	1.9	2.0
Real Disposable Income 1/	3.5	3.1	3.0	3.2	2.7	2.6	2.3
Pre-tax Profits 1/	2.8	2.6	-0.2	-0.3	0.7	1.6	1.0
Unemployment Rate 3/	7.3	6.7	6.3	6.0	5.8	5.6	5.5
Housing Starts 4/	1.3	1.6	1.6	1.6	1.6	1.6	1.6
3-month Treasury Bills 3/	0.1	0.2	1.7	3.4	3.7	3.7	3.7
30-Year Fixed Mortgage Rate 3/	3.9	4.6	5.7	6.5	6.7	6.7	6.7
Trade Balance 2/	-415	-432	-433	-429	-422	-383	-342
Vehicle Sales - Total 4/	15.7	16.2	16.6	16.6	16.4	16.4	16.3
Real Non-Res Fixed Investment 1/	6.6	7.2	5.2	5.1	3.9	3.1	3.0
Industrial Production 1/	3.0	3.3	2.7	3.0	2.8	2.9	2.4

1/ Annual Rate of Change (Percent)
2/ Billions of 1996 chained dollars
3/ Percent
4/ Million Units

Alternatives to Natural Gas

Questar Gas customers have alternatives to using natural gas for virtually every application. Some energy applications are dominated by another fuel (cooking, clothes drying) while others are dominated by natural gas (space and water heat). A material shift in customer preference would affect future demand and load profiles.

Solar

The Company does not anticipate that solar space or water heat will have a significant impact in the Company's service territory. The large investment required does not allow for an attractive payback, thereby limiting the potential.

Air-Source Heat Pumps

Air-source heat pumps are becoming more competitive. There are significant risks to the Company and its customers if these devices proliferate. The loads placed on

the system will be substantially lower than a similar customer with conventional natural gas space and water heat, yet the investment to serve the customer will not be any lower. Most air-source heat pumps require a back-up heat source for those times when the outside air temperature is too low for the heat pump to meet the load. Since natural gas is the most economic heat source is likely that most customers will select natural gas for the back-up role.

The first risk arises because these customers will increase the peak demand on the system. This risk is especially troubling because it will be very difficult to estimate the additional peak requirement caused by these customers. There are only a handful of days each winter when temperatures are too low for the air-source heat pumps to operate efficiently. As a result the potential for peak load attributable to these units will not be evident in the load data used to predict peak requirements.

The second risk is more significant for other customers. The cost to serve customers with air-source heat pumps is essentially identical to the cost to serve a similarly situated traditional customer. With the current rate design, the Company will only recover a portion of the cost to serve from air-source heat pump customers. The direct effect of this under-collection will be that other customers will be required to make up the difference. This may lead to a material cross subsidy between traditional customers and the air-source heat pump customers. The Company is monitoring the penetration of air-source heat pumps.

Ground-Source Heat Pumps

While ground-source heat pumps may have similar risks to the air-source heat pumps, the potential for significant penetration is very low. There is a large capital investment required for these installations. Commercial customers with adequate acreage have begun adopting this technology.

Lost and Unaccounted For Gas

The portion of gas that is lost or unaccounted for is calculated using a moving three-year average of annual proportions that are derived by dividing the total of system receipts for the twelve-month period ending June 30 into the sum of Company use gas (accounts 810 and 812), loss from tear-outs, and volumes that are unaccounted for during the same period. The most recent average of 0.494% reflects meter-level compensation for temperature and elevation in the Utah service territory that began in August of 2010 and in the Wyoming service territory in October of 2012.

The current calculation for the most recent 3 years is included in Table 3.5.

Table 3.5

QGC Estimated Company Use and Lost-and-Unaccounted-For-Gas Calculation

Three Year Rolling Average

Year	QGC Customer Sales	QGC Customer Transport.	Total Receipts	QGC Sales & Transportation	QGC Use Acct. 810&812	QGC Loss Due To Tearouts	QGC Loss & Unaccounted For Gas	Total Sales, Transport, Company Usage and L&U
2009-2010	116,891,696	57,431,097	174,322,793	173,831,634	241,077	23,346	226,736	174,322,793
2010-2011	115,784,799	54,875,429	170,660,228	169,816,873	236,702	16,335	590,318	170,660,228
2011-2012	107,765,322	57,613,566	165,378,888	164,193,992	188,196	23,351	973,349	165,378,888
Total	340,441,817	169,920,092	510,361,909	507,842,498	665,975	63,032	1,790,404	510,361,909
	Lost-&-Unaccounted-For-Gas %		0.351%		Company Use and Lost-&-Unaccounted-For-Gas %		0.494%	

Questar Gas has implemented the following activities to minimize the volume of lost or unaccounted for gas:

- **Temperature and Elevation Compensation**. In August of 2010 the Company began compensating for meter-level temperature and elevation in the computation of Dth in its Utah service territory as ordered by the Utah Commission. This same compensation began in the Wyoming service territory in October of 2012. The effect has been a reduction in the volume of unaccounted for gas.
- **Maintenance work on high pressure feeder lines.** When scheduled maintenance work requires the feeder line to be blown down, the line is allowed to feed down to the lowest possible pressure before being completely blown down. This minimizes the amount of gas that is blown down to the atmosphere. The pressure is recorded to allow the amount of gas that is blown down to be calculated.
- **Replacement project.** Replacement projects replace aging infrastructure to ensure the safety and reliability of the distribution system.
- **Hot tapping.** The Company utilizes hot taps when making branch connections on the feeder line system to eliminate the need to blow down sections of the feeder line. The hot tapping process allows this work to be completed while the line remains in service.
- **Excess flow valves.** The Company installs an excess flow valve on any new or replaced service line delivering up to 1,000 cubic feet per hour. The excess flow valve is designed to limit the amount of gas lost in the event of the service line being severed (i.e. third party damage).
- **Leak survey and repair.** The Company regularly conducts leak surveys and performs system maintenance as required. Additional leak surveys are conducted in high consequence areas or areas with aging infrastructure.
- **Response time to leak calls.** The Company continues evaluating ways to reduce response time to gas leak calls through efficiencies in how employees are dispatched to these gas leaks. A GPS system to allow

dispatchers the ability to dispatch personnel based on their geographic location with respect to the leak is currently being implemented.

- **Leak detection equipment.** The Company utilizes advanced technologies for locating and identifying leaks. Examples include the RMLD (remote methane leak detection) and the Rover (gas detector).
- **Research and Development.** The Company participated in a Gas Technology Institute study to identify factors for fugitive emissions from various types of facilities.

Forecast Exhibits

The following charts summarize the 11-year customer and gas demand forecast. All charts contain temperature-adjusted data.