REPORT OF THE
NATURAL GAS DSM ADVISORY GROUP
TO THE
UTAH PUBLIC SERVICE COMMISSION

Assessment of Natural Gas DSM Potential in Questar's Service Territory

Docket No. 02-057-02

January, 2005

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EXECUTIVE SUMMARY

STIPULATION AND COMMISSION ORDER

On December 30, 2002, the Utah Public Service Commission ("Commission") issued its Report and Order, In the Matter of the Application of Questar Gas Company ("QGC") for a General Increase in Rates and Charges, Docket No. 02-057-02, approving a Demand-Side Management Stipulation and Settlement ("Stipulation No. 3") submitted by QGC, the Division of Public Utilities ("DPU"), Committee of Consumer Services ("Committee") and Utah Energy Office ("UEO"). Stipulation No. 3 established a work group consisting of utility regulators, other state agencies, energy consumer groups, energy efficiency specialists, environmental groups, and other organizations interested in the development of natural gas DSM in QGC's Utah service territory.

This work group, the Natural Gas DSM Advisory Group, ("Advisory Group"), was charged with evaluating the additional information needed by QGC to adequately address DSM funding in future Integrated Resource Plan ("IRP") proceedings. Additionally, it called for QGC and UEO to jointly fund a study, *The Maximum Achievable Potential of Gas DSM for Questar Gas,* (the "GDS study").

The GDS study was prepared to provide information and analysis for the use of the Advisory Group in its evaluation of natural gas energy efficiency issues. The study focused on the question of the nature, extent, and magnitude of untapped, cost-effective natural gas demand-side energy efficiency opportunities within the state.

The Advisory Group was also mindful of the Commission order to study the Low-Income Weatherization program and "consider the optimal level of state funding". The Advisory Group established a low income working group and with funding provided by the Division of Housing and Community Development's Weatherization Assistance Program, hired GDS to undertake a separate study to evaluate the potential cost-effective demand side savings available to Questar in the low income sector.

OVERVIEW OF NATURAL GAS DEMAND-SIDE RESOURCES

Demand-side management (DSM) consists of market interventions to increase the productivity with which natural gas (or other forms of energy) is used. DSM originated over two decades ago when some electric utilities experiencing rapid load growth decided to develop programs to reduce customer demand that was driving load growth during the peak and near-peak hours. From its specific early focus, DSM matured rapidly during the late 1980s and early 1990s to encompass a broader perspective, energy efficiency.

The GDS study found that there are many different gas DSM programs offered by the natural gas utilities in the U.S. Twenty-one companies offer gas DSM programs and the average number of programs offered by these twenty-one utilities are eight programs.

Investing in cost-effective DSM has the potential of producing long-term benefits to both the utility and public. DSM may extend the supply life of limited Company-owned, cost-of-service natural gas resources, may mean a smaller (and therefore less costly) transmission and distribution infrastructure, may mean less pollution, and may reduce stress on lands and water resources. For consumers, the efficient and wise use of natural gas lowers energy costs and increases discretionary income. For businesses, cost-effective DSM lowers energy costs and can improve competitiveness.

Effectively designed DSM programs also promote the development of a diversified natural gas supply portfolio (one of integrated resource planning's goals) and provide an alternative strategy for addressing the resource needs of the Questar system. Increased population and economic growth in Utah, especially along the Wasatch front, poses supply-side challenges in the long run, including increased investment in natural gas distribution systems and upward pressure on natural gas prices. Implementation of DSM can help meet the challenges facing the development of traditional supply-side resources, distribution system expansion, and natural gas price volatility.

NATURAL GAS USAGE IN THE QGC SERVICE TERRITORY

The May 2003 IRP reports that system gas sales are projected to increase from 98.3 million decatherms in 2003 to 108.5 million decatherms in 2013, or about one percent a year.

The residential sector will experience annual growth rates of less than one percent, estimated to be .8%, though this sector will continue to be the largest market for natural gas and account for 63% of Questar Gas Company's sales through 2013. Over the forecast period of 2004 through 2013, over 205,000 new residential customers will be added to Questar's system in Utah. While the number of customers is expected to increase 30 percent, natural gas use by the residential sector is only projected to increase 5.2 million decatherms to 67.9, an increase of only 8.3%.

The market sector with the fastest growing sales is the commercial sector that is projected to experience an estimated sales growth of 1.4% per year through the forecast period. Natural gas sales to the estimated 55,823 commercial sector customers in 2003 were projected to be 29.4 million decatherms, representing nearly 30% of total sales. Over the forecast period of 2004 through 2013, 14,216 new commercial customers are projected to be added to Questar's system in Utah. Natural gas use by the commercial sector is estimated to increase 4.4 million decatherms to 33.8, an increase of 14%.

ESTIMATE OF ACHIEVABLE NATURAL GAS DSM IN UTAH

The GDS study was undertaken to assess the potential of achieving cost-effective natural gas demand savings by accelerating the market penetration of known and available gas efficiency technologies, programs and practices.

The objective of the GDS study was to determine the maximum achievable cost-effective natural gas energy-efficiency potential in Questar's Utah service territory. While the study quantified the entire technical potential of cost-effective demand-side savings, the real focus of the analysis was on savings that were cost-effective and achievable through the application of new DSM program funding that could produce significant energy savings, with projected benefits in excess of projected costs.

The GDS study shows there are significant savings potential in Utah for implementation of new, long-lived natural gas energy-efficiency measures. If all energy-efficiency measures analyzed in this study were implemented immediately where technically feasible, the study estimated that overall natural gas cumulative annual savings for Questar in Utah would be 41.2 million decatherms (Dth) by 2013 (a 38% reduction in the projected forecast for natural gas sales in Utah in 2013). More realistically, if all measures that are cost effective were implemented, and consumer acceptance trends and the timing of equipment replacements in the market are factored in, the maximum achievable cost effective potential natural gas savings would amount to 21.4 million decatherms, a 20% reduction in the projected 2013 sales forecast for natural gas sales in Utah.

The net present savings to Questar's residential and commercial customers from implementation of cost-effective natural gas DSM programs identified in the GDS Study was over $1.5 billion in 2004 dollars.[1] The Total Resource Cost benefit/cost ratio for the maximum achievable cost-effective potential savings scenario was 2.39 for residential and commercial DSM programs analyzed in the study.

FINDINGS AND RECOMMENDATIONS

The Advisory Group makes the following recommendations for the Commission's consideration:

1. The Advisory Group believes that the GDS study should be viewed as a credible indicator that there is strong potential for increased demand-side management involving natural gas. The Advisory Group does not, however, feel that the Commission should accept the GDS quantifications without further testing of the GDS assumptions. Questar has agreed to use the GDS data as applicable in its IRP examination of DSM, including the utilization of its SENDOUT model. The Advisory Group recommends that this is an appropriate way to proceed.

2. The Advisory Group recommends that QGC examine the use of pilot or demonstration programs to gain experience with program design costs and implementation issues before necessarily committing to the scope and cost of the programs assumed in the GDS studies.

[1] The $1.5 billion in total resource savings includes savings of natural gas, electricity and water.

3. The Advisory Group recommends that the Commission provide QGC with guidance concerning the cost-effectiveness criteria on which potential DSM programs are evaluated. Parties have varying viewpoints about the assumption followed by GDS, which judged cost effectiveness by the Total Resource Test. There are also issues concerning potential differences between gas and electric systems, which should be evaluated when choosing the appropriate cost-effectiveness test for DSM programs sponsored by Questar.

4. The Advisory Group has identified several barriers to the successful implementation of Gas DSM. It is recommended that the Commission address the policy issues that act as barriers. The primary example is the issue of Questar's economic sensitivity to the loss of gas load that increased DSM would foster.

5. The GDS Study presumed an aggressive DSM effort with funding sufficient to pursue all DSM that was "cost effective" and "achievable" under the GDS assumptions. The Advisory Group has identified the funding level as a policy issue that must be addressed by the Commission.

6. As a topic of discussion among the Advisory Group members and as detailed in the study *Optimal Level of Funding for the Utah Low-Income Weatherization Program,* increased Questar funding for the LIWP can be justified on the basis of both economic and societal benefits. It is recommended that the Commission address, as a matter of policy, whether or not additional funding of LIWP is to be determined solely on the basis of cost effectiveness and its value as a demand-side resource in Questar's resource portfolio or whether consideration should be given to broader societal needs such as health, safety, and financial assistance to the economically disadvantaged as advocated by some in previous cases. The GDS Optimal Funding study limited its findings to the potential contribution the Utah LIWP could make to the pursuit of cost-effective demand-side resources by Questar for its resource portfolio; but these findings are subject to all of the reservations expressed in the LIWP section of this report, many of which require further commission guidance.

7. There are cost-effective natural gas and electric savings associated with a number of residential and commercial natural gas DSM programs analyzed in the GDS study. The Advisory Group recognizes the potential synergies and opportunities to improve administrative efficiency and lower costs of DSM program delivery if some DSM programs were jointly implemented by PacifiCorp and Questar. Accordingly, the Advisory Group recommends the Commission investigate and consider regulatory mechanisms that would enable coordination and/or joint implementation of DSM programs by Utah's gas and electric utilities for those programs that would result in substantial, cost-effective natural gas and electric savings for ratepayers.

8. The Advisory Group recognizes the value of continued collaboration between Questar and the parties that participated on the Natural Gas DSM Advisory Group and recommends Questar continue to involve and consult with the Advisory Group on the design, evaluation and implementation of future natural gas DSM programs.