

DEMAND SIDE MANAGEMENT

DSM History 2005-2006

In its 2005 IRP, Questar Gas stated that “in the interest of maintaining the momentum of this latest initiative” (that being the January 13, 2006 Demand Side Management (DSM) Technical Conference on the GDS Report and 2005 SENDOUT modeling results), “Questar Gas has sponsored a series of meetings for all interested parties to begin working on the design, evaluation and implementation of specific DSM programs.” Subsequent to these initial meetings and the submittal of the 2006 IRP, Questar Gas assigned a full time manager for DSM, then formalized and expanded these proceedings into the Questar Gas DSM Working Group (Working Group) greatly accelerating the pace of research, design and implementation for natural gas DSM in Utah.

The Questar Gas DSM Working Group consisted of many interested stakeholders, including: the Utah Commission, Division, Committee, Utah State Energy Program (USEP), Utah Governor’s Energy Office, Salt Lake Community Action Program (SLCAP), Utah Low Income Weatherization Assistance Program (ULIWAP), Southwest Energy Efficiency Project (SWEEP), Utah Clean Energy, Energy Strategies and Rocky Mountain Power (RMP). This group met on several occasions in the spring, summer and fall of 2006. The primary purpose of this group was to review, provide input and guide the immediate and detailed research, design and overall scope of initial DSM offerings in Utah.

A significant research initiative undertaken by Questar Gas, in conjunction with the Working Group, was to retain Nexant, Inc. (Nexant) to prepare a market characterization report to identify target markets and DSM programs expected to provide savings for customers in 2007 and beyond. Nexant recommended best practices for the Company to design its programs. This report was made available for review to members of the Working Group.

In parallel with the DSM work by the Company, Nexant and the Working Group, the Company along with many of the same interested DSM stakeholders, filed a Joint Application for the Conservation Enabling Tariff (CET) Adjustment Option and Accounting Orders with the Commission (Docket No. 05-057-T01). On October 5, 2006, the Commission issued its Order approving a Settlement Stipulation, and establishing a DSM deferral account (182.4), approving related DSM tariff sheets, the transfer of \$1.3 million of available research and development funds to the DSM deferral account, the formal transition of the Questar Gas DSM Working Group to the Questar Gas DSM Advisory Group (Advisory Group), establishment of a sixty-day time frame for the Company to make an initial application for DSM programs and the Company’s request for expedited approval of its application for DSM programs and a market transformation initiative to capitalize upon the impending initial winter heating season.

Subsequent to the CET Settlement Stipulation, the Company engineered and organized a process to complete the expedited DSM application. This process included several Advisory Group meetings that were held: November 1, November 21 and December 1. The primary role of the Advisory Group during this process was to review and provide input regarding the Company's detailed plans for DSM programs and the supporting market transformation initiative.

Based on the needs identified in the Nexant Market Characterization Study, the Working Group meetings, the CET approval and the compressed schedule for design and implementation of DSM programs, the Company retained the services of two outside DSM program implementation contractors, Nexant, Inc. and Portland Energy Conservation, Inc. (PECI) to assist with the design, implementation and administration of the initial set of DSM programs.

Through the combined efforts of the Company, PECI, Nexant and the Advisory Group, the Company proposed a comprehensive energy-efficiency campaign, including significant DSM programs, for expedited Utah Commission approval on December 5, 2006. The Company proposed five DSM programs targeting specific market segments. In addition, the Company proposed a supporting market transformation initiative to begin the process of transforming the Utah natural gas market to one that demands more energy-efficient appliances, products, buildings and practices.

The original five DSM programs proposed included: 1) Residential Appliance Rebates; 2) ENERGY STAR® New Homes Rebates; 3) Commercial Customer Rebates; 4) Residential Home Energy Audits and Weatherization Rebates; and 5) increased funding from the existing \$250,000 to a total annual funding level of \$500,000 for the LIWAP administered by the Utah Department of Community and Economic Development (DCED).

DSM Results 2007

The Company employed a comprehensive strategy to implement the original five energy-efficiency DSM programs including a wrap-around market transformation education and awareness campaign called ThermWise. Program names changed slightly as part of this strategy and now include the branding of ThermWise.

Below are brief descriptions of the 2007 ThermWise programs (original five programs) and market transformation initiative:

ThermWise Appliance Rebates - This program is delivered to existing residential customers and administered by PECI. Incentives are paid for qualifying program measures and mailed to participating customers upon proof of purchase and installation. Program measures include high-efficiency space and water-heating appliances, high-efficiency natural gas clothes dryers and ENERGY STAR qualified clothes washers. The program is delivered through local retail and distributor channels.

ThermWise Builder Rebates - This program is available to residential builders and includes incentives for installing natural gas energy-efficiency measures in new construction. A qualifying residence is a structure that has up to and including four separately metered residential dwelling units. Incentives under the program are be paid directly to a home builder or owner-builder for ENERGY STAR whole house certifications and/or installing specific energy-efficient natural gas measures, including high-efficiency natural gas space heating and water heating appliances. Implementation, training, support and administration are provided by PECI in coordination with a Questar Gas Program Manager.

ThermWise Business Rebates – This program is a comprehensive program that offers rebates to Questar Gas GS commercial customers. Rebates are available for purchasing and installing qualifying gas efficiency measures at separately metered commercial units. Qualifying measures include those that target cost-effective natural gas savings including retrofits of existing systems and first time installations. Incentives are paid directly to participating customers. Initial program measures include high-efficiency space-and water heating applications, high-efficiency clothes washers and gas dryers, programmable thermostats, high-efficiency gas unit heaters, gas-infrared heaters, gas boilers, safety tune-ups and low flow pre-rinse spray valves. This program is designed to leverage the marketing access and existing delivery channels of local businesses, wholesalers and retailers. Primary program delivery functions have been contracted to Nexant.

ThermWise Home Energy Audits - The home energy audit includes two separate delivery channels. Customers are able to request a self-completed mail-in audit survey at no charge, or request that a Questar Gas technician perform an in-home audit. Questar Gas requires customers pay a \$25 fee per residence for the in-home audit, which is fully refundable upon participation in a Questar Gas' rebate program. Customers participating in either in-home or mail-in home energy audits will receive a customized report recommending home improvements that can be implemented to reduce natural gas usage. During the in-home audit, Questar Gas technicians will provide certain energy-efficiency measures at no charge or with a rebate in the case of the programmable thermostat. Customers choosing to complete the mail-in audit survey will receive, at no charge, a packet containing appropriate low-cost energy-efficiency measures for installation in their residences.

ThermWise Weatherization Rebates - This program offers incentives for qualifying weatherization measures. These measures include ENERGY STAR windows, increased insulation, duct sealing and duct insulation and programmable thermostats (rebates for programmable thermostats require participation in a ThermWise Home Energy audit prior to purchasing / installing). Weatherization-measure delivery will leverage the marketing access and existing delivery channels of local businesses, wholesalers and retailers. For duct measures, customers will be required to have measures installed by a pre-qualified

contractor in order to qualify for incentives. This program is administered by Nexant.

Low Income Weatherization Assistance Program Funding - The Settlement Stipulation provided that Questar Gas provide additional funding of \$250,000 to LIWAP. The Settlement Stipulation provides, “At least \$250,000, subject to Commission approval, of the amount spent on DSM in the first year of the Pilot Program will be allocated to the Low-Income Weatherization Program that the Company currently funds or other low-income energy-efficiency programs.” The Company disbursed \$125,000 at six month intervals.

ThermWise Market Transformation - An overriding goal of the Company energy-efficiency programs is to provide programs that are cost-effective and support Governor Huntsman’s goal of reducing energy consumption in Utah by 20% by 2015. To support this goal, a transformation in the natural gas market needs to take place. Market transformation involves ongoing and lasting changes to the natural gas appliance and home building markets. In addition to the DSM programs described above, Questar Gas implemented a wrap-around awareness campaign to ensure a comprehensive market transformation initiative with four distinct components:

The first component is a market awareness campaign designed to introduce the Company’s interest and involvement in energy-efficiency and conservation.

The second component is a market awareness campaign designed to change consumer and market participant behaviors and to encourage persistent supply and demand for energy-efficient products and practices.

Third, the State Energy Program, a sub-division of the Utah Geological Survey, conducted over twenty separate building code training seminars funded in part (50%) by Questar Gas. These seminars support the statewide adoption, implementation and adherence to the International Energy Conservation Code (IECC 2006). The IECC 2006 standards became effective in Utah on January 1, 2007. The training seminars were conducted by an outside vendor hired and managed by SEP.

Fourth, the Company launched a comprehensive energy-efficiency website – www.ThermWise.com. The website provides consumers and market participants complete ThermWise information, as well as tips and links on energy efficiency and conservation.

The Company will continue to pursue strategies to influence each market segment in the GS rate class to adopt higher levels of energy-efficiency. Initial market transformation goals include: 1) achieving higher penetration of high-efficiency furnaces and water heaters in new and existing buildings; 2) recruiting trade allies to deliver a complete line of energy-efficiency products; 3) encouraging trade allies to price the

higher-efficiency products competitively with lower-efficiency products; 4) positioning energy-efficiency products as the market leaders; and 5) working with code enforcement officials to ensure energy-efficiency aspects of the building codes are understood and adopted by builders.

In addition to implementing the ThermWise campaign in 2007, the Company continued to work with the DSM Advisory Group. Two specific areas of focus for the Company and the DSM Advisory Group in 2007 included:

- 1) Program Evaluation – The Company and the DSM Advisory Group worked with the Division to develop a program evaluation plan that was approved by the Utah Commission on November 20, 2007. The plan calls for a two-phase program evaluation including process and impact evaluations. Based on the Commission Order, the Company is responsible for developing, issuing and managing an RFP process in the first half of 2008. Upon completion of the RFP process, one contractor is to be selected to perform both phases of the evaluation. The Phase 1 report will be completed in October 2008 and the Phase 2 report will be completed in June 2010.
- 2) Program Application for 2008 – The Company and the DSM Advisory Group worked together to identify and assess opportunities to develop and enhance the Company's ThermWise offerings. These meetings and work resulted in the Company filing for 2008 ThermWise programs on October 1, 2007 and receiving Commission approval on December 17, 2007. The 2008 ThermWise programs include a budget of \$10.5 million or a 50% increase over 2007 budget and a projected Dth savings of 206,588 or a 55% increase over 2007 budget.

During 2007, the DSM Advisory Group held ten separate meetings to discuss the Company's energy-efficiency initiative, including the two primary focuses above. Meetings were held on the following dates: January 31, March 7, April 4, May 10, June 6, June 28, August 8, September 5, October 3, and December 18.

ThermWise results for 2007 were better than expected with participation rates (as well as associated costs) surpassing budget by 6% and achieving deemed savings surpassing target by 22%. With the approval of the CET Pilot Program, the Company is committed to continuing to offer energy-efficiency programs that are cost-effective for customers.

Since the Company's original DSM filing, the Company has developed an Excel-based cost-effectiveness model (DSM Model). The DSM Model is an easy to use and flexible model that is used to analyze and report cost effectiveness of the Company's energy-efficiency efforts. The DSM Model can also easily be used to conduct sensitivity analyses using many different variables such as natural gas price, customer participation and costs, as well as incentive levels. Use of the DSM Model allows for accurate, timely

and understandable screening and analysis of energy-efficiency measures, programs and at the portfolio level.

The DSM Model is based on the California Standard Practice Manual (CA Manual) for the Economic Analysis of Demand-Side Programs and Projects, dated October 2001. The DSM Model has been reviewed by Nexant and the DSM Advisory Group for quality control and accuracy. The CA Manual identifies four primary tests for evaluating the cost effectiveness of DSM measures and programs. First of the tests is the Total Resource Cost Test (TRC). For many DSM programs around the country, the TRC is the only test used to evaluate cost effectiveness. However, for Questar Gas programs, the Advisory Group agreed that all four tests should be modeled and provided. The other three tests include: Participant Test (PT), Program Administrator Test (PAT) and the Ratepayer Impact Test (RIM). The cost-effectiveness tests included in this application have been calculated using a 7% discount rate. This rate is consistent with the Company's IRP report.

Prior to the Company's original DSM filing, the DSM Model was demonstrated and made available to the Advisory Group for input and scrutiny. In addition, a special meeting for interested parties representing many members of the Advisory Group was held on November 29, 2006 to provide a detailed overview of the operation and use of the DSM Model.

A summary of the cost-effectiveness for each ThermWise program from 2007 actual participation is shown below.

2007 Projected and Actual B/C	Total Resource Cost Test		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test	
	2007 Projected B/C	2007 Actual B/C	2007 Projected B/C	2007 Actual B/C	2007 Projected B/C	2007 Actual B/C	2007 Projected B/C	2007 Actual B/C
Residential Appliance Program	1.4	1.9	2.3	2.3	2.1	2.9	1.4	1.9
Commercial Rebate Program	2.8	4.6	4.7	4.6	4.2	7.0	2.6	4.0
Energy Star New Homes	1.4	2.0	2.2	2.5	2.4	3.2	1.5	2.0
Residential Home Energy Audit & Weatherization	1.1	2.4	5.4	3.5	1.1	2.6	0.9	1.8
Low Income Weatherization Program	1.0	1.1	N/A	N/A	1.0	1.1	0.8	0.9
Market Transformation	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0
TOTALS	1.3	2.0	2.5	2.7	1.9	2.7	1.3	1.9

DSM Plan 2008

Based on work with the Advisory Group, Utah-based trade allies, program administrators and other energy-efficiency stakeholders, the Company proposed and the Utah Commission approved the continuation of the six (the Home Energy Audit and Weatherization Rebates programs were split into separate programs in 2008) DSM programs from 2007. This continuation included the update and/or revision of certain program measures to improve customer uptake and/or program cost effectiveness.

In 2007, the Company's DSM efforts focused primarily on single-family dwellings and had limited programs for multi-family and some commercial customers. Consequently, in keeping with its commitment to provide energy-efficiency programs for all segments of the GS rate class, and based on input from the previously mentioned groups/stakeholders, the Company implemented several new measures for existing programs and two new programs. The new measures and two new programs will enhance customer participation, increase gas savings and improve cost effectiveness overall. Most of the new measures target the commercial market. One of the new programs targets the multi-family residential market and the other is a new commercial program. The new measures added to existing programs are in the ThermWise Appliance Rebates, ThermWise Builder Rebates and ThermWise Business Rebates programs and are described in greater detail below. The two new programs include a ThermWise Multi-Family Rebates program and a ThermWise Business Custom Rebates program also described below.

ThermWise Appliance Rebates. In 2008 the Company is continuing this program with the addition of two new measures. The new measures are: 1) high-efficiency gas boilers; and 2) solar assisted gas water heating. In addition, the Company has modified the storage water heater measure eligibility requirement from 0.63 EF (Energy Factor) to 0.62 EF, to more closely align with the availability of water heaters offered by Utah retailers and HVAC and plumbing contractors and in anticipation of a possible ENERGY STAR labeling at this level. This program continues to be offered to customers in the Company's Utah service territory and administered by PECEI.

ThermWise Builder Rebates. In 2008 the Company is continuing this program with the addition of three new measures. The three new measures are: 1) high-efficiency gas boilers; 2) solar assisted gas water heating; and 3) federal tax credit level home. As with the ThermWise Appliance Program, the Company has modified the storage water heater measure eligibility requirement from 0.63 EF to 0.62 EF. This program continues to be administered by PECEI and is available to residential builders in the Questar Gas Utah service territory.

ThermWise Business Rebates. In 2008 the Company is continuing this program with the addition of eight new measures. The new measures include: 1) ENERGY STAR commercial fryers; 2) ENERGY STAR steam cookers; 3) high-efficiency convection ovens; 4) high-efficiency combination ovens; 5) high-efficiency griddles; 6) roof insulation; 7) wall insulation; and 8) high-efficiency windows. In addition to the new measures, several measures in this program have been updated with new eligibility

requirements and cost-effectiveness inputs. These updates more closely align with market conditions. This program will continue to be available to GS commercial customers in the Company's Utah service territory and administered by Nexant

ThermWise Weatherization Rebates. The Company is continuing this program with one modification. The modification removes the Solar Heat Gain Coefficient (SHGC) eligibility requirement on the high-efficiency window measure. The SHGC was originally included as a requirement to be in direct alignment with RMP's Home Energy Savers Program. However, after market experience and more thorough investigation and analysis, the Company has determined that this requirement is reducing customer and supplier participation with this program measure and is causing market confusion. Furthermore, the SHGC requirement is a "cooling load" related requirement and has virtually no impact on natural gas usage or natural gas savings. The remaining eligibility requirement for the windows measure will be a 0.35 U-factor or lower. Meeting this eligibility requirement results in natural gas space heating savings and is in alignment with ENERGY STAR requirements and current federal tax incentives. This program will continue to be available to existing residential customers in the Company's Utah service territory and administered by Nexant.

ThermWise Home Energy Audit. The Company is continuing this program with no significant changes. The ThermWise Home Energy Audit Program is offered and administered by Questar Gas with periodic consulting and assistance from Nexant. This program includes two primary components: in-home energy audits performed by trained and experienced Questar Gas Auditors and "do-it-yourself" mail-in audits with on-line data input availability. This program will continue to be available to customers in the Company's Utah service territory and administered by Questar Gas.

Low-Income Weatherization Assistance. The Company will continue funding the LIWAP at \$250,000 per year from the DSM budget (\$500,000 total Company funding). The Company proposes to disburse \$125,000 every six months, with the disbursements occurring in January and in July.

ThermWise Multi-Family Rebates. To help broaden energy-efficiency participation throughout the GS class, the Company added this new program for 2008. This program targets both new and existing multi-family projects. The 2007 ThermWise programs did not include the multi-family market segment. This program will be available to Questar Gas Utah service territory property owners/managers, builders, developers, home owner associations and directly to tenants. Adding this program will help to ensure program offerings to all GS customer classes. Existing multi-family projects will be offered rebates for installation of high-efficiency space and water heating appliances, ENERGY STAR clothes washers, gas clothes dryers with moisture sensors, high-efficiency window replacements, upgrades to insulation and high-efficiency space and water heating appliances. In addition, builders of multi-family construction projects will be offered rebates for adhering to or exceeding ENERGY STAR requirements for multi-family projects. This program will be administered by PECL.

ThermWise Business Custom Rebates. To broaden energy efficiency offerings to the commercial market segment, the Company is adding this new program for 2008. This program targets new and existing Utah GS commercial customers. This program augments the existing ThermWise Business Rebates program by offering rebates to business customers for energy savings resulting from more customized energy system improvements that are not otherwise available through a rebate from other ThermWise programs. The rebate would be in the form of a one-time cash payment to the customer upon successful completion and savings verification of the project. This program will be administered by Nexant.

A summary of the cost-effectiveness used in the DSM model for each ThermWise program based upon 2008 budget and projections is shown below.

2008 Projections	Total Resource Cost Test		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test	
	2008 Projected NPV	2008 Projected B/C	2008 Projected NPV	2008 Projected B/C	2008 Projected NPV	2008 Projected B/C	2008 Projected NPV	2008 Projected B/C
ThermWise Appliance Rebates	\$2.37	1.6	\$4.22	2.2	\$3.54	2.4	\$2.45	1.7
ThermWise Business Rebates	\$1.20	2.5	\$1.41	3.2	\$1.50	4.0	\$1.27	2.7
ThermWise Builder Rebates	\$2.16	1.6	\$3.94	2.3	\$3.34	2.4	\$2.33	1.7
ThermWise Weatherization Rebates	\$1.01	2.2	\$1.53	2.8	\$1.08	2.4	\$.76	1.7
ThermWise Home Energy Audit	\$.14	1.2	\$.85	19.1	\$.13	1.2	-\$0.02	1.0
Low Income Weatherization	\$.09	1.4	\$.26	0.0	\$.09	1.4	\$.03	1.1
ThermWise Multifamily Rebates	\$.81	1.4	\$2.17	2.5	\$1.11	1.6	\$.62	1.3
ThermWise Business Custom Rebates	\$.26	1.4	\$.64	2.7	\$.43	1.9	\$.35	1.6
Market Transformation	-\$1.22	0.0	\$0	N/A	-\$1.22	0.0	-\$1.22	0.0
TOTALS	\$6.88	1.5	\$15.02	2.5	\$9.99	2.0	\$6.63	1.5

\$ Shown in millions

SENDOUT Model Results for 2008

Projections from the approved 2008 DSM budget were entered into the SENDOUT model in response to the Utah Commission's request. Data entries for the 2008 DSM programs included participants and deemed lifetime Dth savings per program measure. Incentive (variable) and administration (fixed) costs for each program measure were also incorporated into the SENDOUT model.

The SENDOUT model used the projected 2008 participation and administration costs as the baseline for its analysis of each program. For each program, the model then examined what would happen if participation was reduced to as low as 12.5% or increased to as high as 150% of the 2008 projection. The model also examined different scenarios involving the escalation of annual administration costs per program. In these scenarios, administration costs per program were increased to 150% and 200% of the 2008 projection. SENDOUT then made the judgment as to whether a program should be "accepted" (100% on the included graph) or "rejected" (0% on the included graph) based on a given level of participation and administration costs. Please see Exhibits 8.1 to 8.7 for the SENDOUT results in graphic form.

The 2008 ThermWise Builder program was accepted by the model at 12.5% of projected participation if administration costs were held at 100% of their projection. The Business and Weatherization programs were accepted by the model at 12.5% of 2008 projected participation if administration costs were increased to 150% of their projection.

The 2008 ThermWise Appliance and Multifamily programs were both accepted by SENDOUT at 25% of projected participation if administration costs were held at 100% of their projection. The Business Custom program was accepted at 50% of participation and 150% of projected administration costs. The Home Energy Audit program was accepted by the model at 100% of participation and 100% of administration costs.

Another way to view the results of the SENDOUT model is to analyze the level that administration costs could increase to if participation was held at 100% of the 2008 projection. In this scenario, SENDOUT would suggest that the administration costs for the Builder, Business, and Weatherization programs could increase by eight times the 2008 budget projection and still be accepted. Appliance and Multifamily programs could increase by four times projected administration costs and Business Custom could increase by two times projected administration costs and still be accepted by SENDOUT.

In summary, the SENDOUT model results indicate that as a gas supply resource at the approved budget and participation levels, the 2008 DSM programs are accepted as qualifying and cost-effective resources when compared to other available resources. Furthermore, this holds true when participation rates are held constant and program administrative costs are increased by as much as eight times 2008 budget levels.

In comparison to the SENDOUT model which is a comprehensive resource planning and evaluation tool, the Questar Gas DSM model which was developed in-house by the Company with the assistance of the Questar Gas DSM Advisory Group and approved by the Commission, is used for the sole purpose of modeling Questar Gas' DSM programs. To this end, the Company relies on the Questar Gas DSM model for DSM program planning purposes and more importantly DSM program cost effectiveness (based on the California Standard Practices Model).

Using the Questar Gas DSM model, the Company analyzed the approved 2008 DSM programs at a "break-even" benefit / cost ratio ($B/C = 1.00$) by holding participation (and incentive payments) constant and increasing all other costs in a linear manner. This analysis resulted in a projected potential total DSM spending limit of \$20.6 million per year versus the current approved \$10.5 million per year for the 2008 projected Dth savings which is equal to 206,588. This analysis indicates that the maximum potential spending on DSM is directly related to the cost-effectiveness of realizing each Dth saved. Therefore, as long as the Company's DSM programs are determined cost-effective in the Questar Gas DSM model, accepted by the SENDOUT model when compared to other available resources and do not negatively impact company operations, DSM programs are an appropriate resource.