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## MEMORANDUM

**To:** Public Service Commission

**From:** Division of Public Utilities  
Philip Powlick, Director  
Energy Section  
Marlin H. Barrow, Technical Consultant  
Artie Powell, Manager

**Date:** December 6, 2010

**Subject:** Docket No. 10-057-15, Questar Gas DSM Budget for 2011.

### **ISSUE:**

On October 6, 2010, Questar Gas Company (QGC) filed an application with the Utah Public Service Commission (PSC) for approval of its Energy Efficiency (EE) programs and Market Transformation Initiative Budget for 2011.

### **RECOMMEND PARTIAL APPROVAL:**

The Division of Public Utilities (Division) has reviewed the Application, as filed, and recommends to the PSC approval of most of QGC's 2011 EE Budget. The Division does not recommend approval of the new Direct-Vent Gas Fireplace Measure within the Builder Rebate Program.

### **DISCUSSION:**

#### **DSM Pilot Program Budget History:**

The original Demand Side Management programs and Market Transformation Initiative were the products of a collaborative effort of interested parties working with QGC to provide input and to

design programs to benefit QGC's GS rate class by reducing their usage of natural gas through programs designed to improve the efficiency of natural gas consumption by those GS rate customers. The process began with QGC's CET application to the PSC on December 16, 2005 in Docket No. 05-057-T01. Subsequent to that initial filing in Docket No. 05-057-T01, there were technical conferences and numerous meetings with the parties in that case.

During this period, an informal DSM working group was created. This working group, which consisted of members representing the PSC, Office of Consumer Services, the Division, QGC, Salt Lake CAP, Utah Weatherization, SWEEP, Utah Clean Energy, Utah Governor's Office, Dept. of Natural Resources and Energy Strategies met on seven separate occasions beginning March 1, 2006 through September 21, 2006. In this time period, initial work on developing DSM programs began and continued through to the time when the PSC, in an order<sup>1</sup> issued on October 5, 2006, established a formal DSM Advisory Group and gave QGC 60 days to present DSM programs to the PSC for its review.

The Advisory Group met on November 1, November 21 and on December 1 of 2006 to review, refine and provide feedback on the work that QGC and its consultants, Nexant and Portland Energy Conservation, Inc. (PECI), put into the DSM program development. The results of those efforts (filed with the PSC on December 5, 2006) included a first year 2007 budget for the DSM programs totaling \$6.989 million. As shown in Table 1 on the following page, actual results for 2007 DSM expenditures totaled \$7.413 million.

The Advisory Group continued to meet during 2007, when programs were reviewed and the QGC reported on market transformation efforts and program participation levels. Changes to existing programs and recommendations for new programs were reviewed and discussed by the Advisory Group. In a January 16, 2007 Order issued in Docket No. 05-057-T01, the Commission ordered the Company to submit a second year budget by October 1, 2007 and a third year budget by October 1, 2008 for the proposed DSM programs and the market transformation initiative.<sup>2</sup> The Company filed with the PSC on October 1, 2007 in Docket No.

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<sup>1</sup> PSC Order, Docket No. 05-057T01

<sup>2</sup> PSC Order, Docket No. 05-057-T01, p7 & 8.

07-057-08, a second year budget in the amount of \$10.5 million with actual expenditures totaling \$18.076 million as shown in Table 1. The Company filed with the PSC on October 1, 2008 in Docket No. 08-057-22 a third year budget totaling \$17.8 million for its existing DSM programs and its ongoing Market Transformation Initiative.

### **2009 ThermWise Weatherization Program Unanticipated Participation**

In March 2009, QGC filed an application with the PSC asking for tariff changes<sup>3</sup> in the Third Year Budget for Demand Side Management Programs and Market Transformation Initiative to reduce the rebate amounts for the insulation measures in the ThermWise Weatherization and Multi-Family Programs. This request for reduced rebate amounts in insulation measures was the result of fundamental changes in the market dynamics for insulation due to a decrease in insulation material costs and an increase in the number of insulation contractors participating in the program which drove the 2009 expenditures to \$31.486 million in the ThermWise Weatherization Program and a total 2009 DSM Program annual amount of \$47.449 million as shown in Table 1.

Table 1

#### QGC DSM PROGRAM YEARLY EXPENDITURES

	2006-07 Actual (000)	2008 Actual (000)	2009 Actual (000)
<b>ThermWise Appliance</b>	\$ 2,765.4	\$ 4,185.0	\$ 6,150.0
<b>ThermWise Mult-family</b>	NA	944.2	4,134.5
<b>ThermWise Builder</b>	1,186.6	2,592.1	2,499.9
<b>ThermWise Business</b>	450.9	709.3	702.3
<b>ThermWise Custom Business</b>	NA	102.9	97.4
<b>ThermWise Audit</b>	1,893.7	587.4	694.8
<b>ThermWise Weatherization</b>	NA	7,706.3	31,485.9
<b>Market Transformation</b>	866.6	999.2	1,184.2
<b>Low Income Weatherization</b>	250.0	250.0	500.0
<b>Total</b>	\$ 7,413.2	\$ 18,076.4	\$ 47,449.0

<sup>3</sup> Docket No. 09-057-T04.

## 2010 DSM Budget Request

The DSM Budget for 2010 was the first DSM Budget submitted that goes beyond the three year pilot program established in Docket No. 05-057-T01. The Cadmus Group was retained by Questar Gas Company to provide an independent review of the three-year DSM pilot program. On September 28, 2010 the Cadmus Group submitted their report that reviewed the DSM programs for the 2007-2009 years. The Division will discuss the results of the Cadmus Report in the review of the individual 2011 Energy Efficiency Programs submitted for 2011.

Table 2 incorporates the 2010 budget amount of \$36.125 million. The Division reported the 2<sup>nd</sup> Quarter 2010 actual results in a report filed with the Commission on September 23, 2010 in Docket No. 09-057-15. As indicated in that report, although certain 2010 measures within each program are doing better or worse than anticipated in the budget, the Company still expects the total expenditures of all programs to come in around the budgeted amount of \$36 million.<sup>4</sup>

Table 2

QGC DSM PROGRAM YEARLY EXPENDITURES

	2006-07 Actual (000)	2008 Actual (000)	2009 Actual (000)	2010 Budget (000)
ThermWise Appliance	\$ 2,765.4	\$ 4,185.0	\$ 6,150.0	\$ 5,229.1
ThermWise Mult-family	NA	944.2	4,134.5	3,218.1
ThermWise Builder	1,186.6	2,592.1	2,499.9	2,018.4
ThermWise Business	450.9	709.3	702.3	895.6
ThermWise Custom Business	NA	102.9	97.4	357.8
ThermWise Audit	1,893.7	587.4	694.8	718.5
ThermWise Weatherization	NA	7,706.3	31,485.9	21,831.3
Market Transformation	866.6	999.2	1,184.2	1,356.5
Low Income Weatherization	250.0	250.0	500.0	500.0
<b>Total</b>	<b>\$ 7,413.2</b>	<b>\$ 18,076.4</b>	<b>\$ 47,449.0</b>	<b>\$ 36,125.3</b>

<sup>4</sup> Docket No. 09-057-15, Review of 2<sup>nd</sup> Quarter 2010 QGC DSM Programs, p8.

## 2011 ENERGY EFFICIENCY PLAN SUMMARY

For 2011, Questar Gas Company is changing the name of its Demand Side Management Initiative to the Questar Energy Efficiency (EE) Initiative. Table 3 summarizes QGC's proposed 2011 EE Budget by program as compared to the 2010 DSM Budget with the Division's recommended removal of the Direct-Vent Fireplace measure. As shown in Table 3, the EE Budget for 2011 is \$32.228 million (Col D Ln 13). This is 10.8% below the 2010 DSM Budget (Col F Ln 13). Columns I and J compare the 2011 Budget Utility Cost Test ratios (UCT) to the 2010 Budget UCT for the EE programs. The decrease in ratios from 2010 to 2011 is the result of the changes in assumed gas prices between the two years. In 2010, the average summer/winter gas price was \$7.06/\$9.41 per Dth respectively. In 2011, the average summer/winter gas price is \$3.41/\$4.40 per Dth.

Table 3: DSM Energy Efficiency Report Summary										
QUESTAR GAS COMPANY										
DSM ENERGY EFFICIENCY REPORT										
2011 Budget and 2010 Budget										
DOCKET NO. 10-057-15										
	A	B	C	D	E	F	G	H	I	J
		2011	2010	2011	2010	% 2011 Budget	2011	2010	2011	2010
		Budgeted	Budgeted	Budget	Budget	over (under)	Dth	Dth	UCT	UCT
		Participants	Participants	(000)	(000)	2010 Budget	Savings*	Savings*	Ratio	Ratio
5	ThermWise Appliance	31,445	33,669	\$ 7,533.8	\$ 5,612.6	34.2%	230,145	133,793	2.2	2.9
6	ThermWise Builder	3,657	3,430	\$ 2,639.7	\$ 2,223.5	18.7%	31,006	38,903	1.1	2.4
7	ThermWise Business	1,039	1,847	\$ 1,299.2	\$ 895.6	45.1%	48,534	51,424	2.7	4.5
8	ThermWise Custom Business	20	15	\$ 452.6	\$ 357.8	26.5%	10,018	7,513	1.3	2.0
9	ThermWise Audit	3,773	3,773	\$ 760.6	\$ 718.5	5.9%	9,334	9,699	0.5	1.0
10	ThermWise Weatherization	78,826	102,251	\$ 17,296.8	\$ 24,460.9	-29.3%	308,162	554,381	1.9	3.9
11	Market Transformation	NA	NA	\$ 1,752.1	\$ 1,356.5	29.2%	NA	NA	NA	NA
12	Low Income Weatherization	NA	NA	\$ 500.0	\$ 500.0	0.0%	NA	NA	NA	NA
13	<b>Total</b>	118,760	144,985	\$ 32,234.8	\$ 36,125.3	-10.8%	637,199	795,714	1.8	3.2
	*Savings reflects the net Dth deemed savings based on budgeted participants with an 80% net-to-gross ratio applied.									

For 2011, both the number of expected participants and Dth savings are below the 2010 budgeted amounts. Also of note, in 2011, the ThermWise Multi-Family program measures that existed in 2008-2010 have been melded into the ThermWise Appliance, ThermWise Builder and ThermWise Weatherization programs. This was done to improve efficiency in the management of the programs.

Table 4 shows the September 30, 2010 actual results and compares the 2011 budget to the 2010 budget by total customer rebates and program administrative & overhead costs. The table shows the 10.8% decrease from the 2010 budget is attributed to a reduction in expected Customer Rebates.

Table 4	ThermWise 2011 EE Program			
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	22,094.2	26,488.2	22,576.9	-14.8%
Program Costs	6,272.4	9,637.1	9,657.9	0.2%
Total Costs	\$ 28,366.6	\$ 36,125.3	\$ 32,234.8	-10.8%
Projected Dth Savings *	659.7	795.7	637.2	-19.9%
Participants	123.4	145.0	118.8	-18.1%
Total \$ / Dth Savings (\$0.00)	\$ 43.00	\$ 45.40	\$ 50.59	11.4%
California Test Results				
Total Resource Cost Test B/C	2.2	2.2	1.3	NA
Participants Test B/C	2.5	2.5	2.7	NA
Utility Cost Test B/C	3.4	3.2	1.8	NA
Rate Payer Impact Test B/C	2.2	2.1	1.2	NA

## PROGRAM REVIEW

For 2011, the Energy Efficiency programs are: 1) the ThermWise Appliance Program; 2) the ThermWise Builder Program; 3) the ThermWise Business Program; 4) the ThermWise Custom Business Program; 5) the ThermWise Home Energy Audit Program; 6) the ThermWise Weatherization Program. In addition to these programs, the Market Transformation campaign, designed to inform and educate customers about the importance of energy conservation, continues as part of the 2011 budget as well as the Low-Income Weatherization Assistance Program administered by the Utah Department of Community and Economic Development.

## **THERMWISE APPLIANCE REBATES PROGRAM**

The ThermWise Appliance Rebates Program for 2011 is available to all GS single-family and multi-family residential customers. The Program has made some major changes to the measures or choices from those offered in 2010. In 2011, the measure for High-Efficiency Gas Furnaces is refined into three tiers with each tier offering a different rebate amount. In 2010, \$300 was offered for any furnace upgrade with a 90% plus AFUE rating. In 2011, any furnace rated between 90% -91.9% AFUE receives a \$200 rebate, furnaces rated between 92% -94% AFUE receives a \$300 rebate and furnaces rated 95% plus AFUE receives a \$350 rebate. The Tankless Gas Water Heater measure is expanded to a second tier with an EF of .90 or greater offering a \$350 rebate, an increase of \$50 from the 2010 level. A Tankless Gas Water Heater rated between .82-.89 EF receives the same \$300 rebate offered in 2010. Eligibility for the Residential Gas Boiler measure has been changed to require an AFUE rating of 95% or greater in order to qualify for a rebate. The rebate has also been changed from \$400 to \$600. The Solar Assisted Gas Water Heating measure has also had eligibility tightened to require that a system achieve a Solar Rating Certification Corporation certification under its requirements to OG 300. The ENERGY STAR Clothes Washer measure is reduced from two tiers to now needing to meet a minimum Modified Energy Factor (MEF) rating of 2.6 or greater in order to receive the same \$50 rebate. In addition to these changes, new measures for a High-Efficiency Condensing Gas Storage Water Heater with an Energy Factor (EF) of .90 plus and a High-Efficiency Hybrid Gas Water Heater with a Thermal Efficiency (TE) of .90 or greater has been added, both with a \$350 rebate. The Gas Dryer measure has been discontinued due to high levels of market penetration (most models that are now available have moisture sensors).

The Company has proposed a new program measure that would provide rebates for direct-vent gas fireplace with an AFUE rating of 70% plus with intermittent ignition, heat rated and thermostatically controlled with a blower. The Division only partially agrees that this measure should be added to the program. The Division believes that although, the efficiency of the Direct Vent Fireplaces have improved, the devices are primarily decorative rather than used as a heating appliance and therefore incenting the purchase of new fireplaces sends the wrong signal to

customers concerning efficient use of natural gas. Even if used as a heating appliance, 70% should not be considered an efficient use of natural gas. On the other hand, the Division recognizes that there are already many gas fueled fireplaces in Questar's service territory that are operated at very low heating efficiencies. To the extent that such appliances are used, providing incentives for replacement by significantly more efficient models is desirable. Thus the Division recommends that this measure be approved only for replacement of existing gas fueled fireplaces in existing homes.

This program is administered by PECEI and has a 2011 QGC proposed budget cost of \$7.528 million compared to a 2010 budget of \$5.937 million, an increase of 26.8% from the 2010 budget. Again, as with the previous year's budgets, the actual customer rebates will vary depending on customer participation.

Table 5 summarizes the ThermWise Appliance Program by Customer Rebates and Program Costs showing actual results through September 30, 2010, the 2010 budget and the 2011 budget. The table also shows benefit cost ratios that are all above 1.0.

Table 5	ThermWise Appliance Program			
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	4,618.7	\$ 4,263.4	5,695.0	33.6%
Program Costs	871.5	1,673.7	1,838.8	9.9%
Total Costs	\$ 5,490.2	\$ 5,937.1	\$ 7,533.8	26.9%
Projected Dth Savings *	146.5	133.8	230.1	72.0%
Participants	36.9	33.7	31.4	-6.6%
Total \$ / Dth Savings (\$0.00)	\$ 37.49	\$ 44.38	\$ 32.73	-26.2%
California Test Results				
Total Resource Cost Test B/C	2.0	1.9	1.9	NA
Participants Test B/C	2.2	2.2	4.0	NA
Utility Cost Test B/C	3.2	2.9	2.2	NA
Rate Payer Impact Test B/C	2.0	1.9	1.3	NA

Table 5a provides a variance reconciliation of participants and budget dollars for the 2011 Appliance Program Budget and the 2010 Appliance Program Budget by the most significant measures.

<b>Table 5a</b>	<b>Participant #</b>	<b>Rebate \$</b>
<b>EE ThermWise Appliance Program</b>	<b>2011 Budget</b>	<b>2011 Budget</b>
	<b>over (under)</b>	<b>over (under)</b>
	<b>2010 Budget</b>	<b>2010 Budget</b>
	<b>(000)</b>	<b>(000)</b>
<b>Furnance All Tiers</b>	4.2	\$ 1,747.7
<b>Water Heaters All Tiers</b>	2.0	\$ 124.5
<b>Tankless Water Heater</b>	0.8	\$ 292.8
<b>Boilers</b>	0.1	\$ 92.4
<b>Clothers Washers</b>	(6.7)	\$ (760.0)
<b>Dryers</b>	(2.8)	\$ (84.0)
<b>Other measures</b>	0.0	\$ 12.3
<b>Administrative &amp; Overheads</b>		\$ 165.1
	(2.3)	\$ 1,590.7

The Cadmus Report issued on September 28, 2010 summarized the ThemWise Appliance Program as;

...very successful. The ThermWise Appliance Rebates Program continues to succeed, with high levels of participation, and continued overall satisfaction from both retailers and participants.<sup>5</sup>

In reviewing the Appliance Program, Cadmus reported a 90% realization rate from the PECCI model estimated gross decatherm savings for each measure and a 31% free ridership rather than the assumed 20% used in the annual budgets. As shown in Table 6 on the following page, applying the Cadmus Report factors to the measures in the Appliance Program has minimal effect when compared to Table 5, with projected Dth saved decreasing from 229.9 thousand decatherms to 193.4 thousand decatherms, the Total Resource Cost Benefit ratio decreasing from 1.9 to 1.8, the Utility Cost Benefit ratio decreasing from 2.2 to 1.8 and the Rate Payer Impact Cost Benefit ratio decreasing from 1.3 to 1.2. Therefore, even with a 10% reduction in the realization rate and an 11% increase in assumed free-ridership, all four test's benefit cost ratios remain above 1.0 for the Appliance Rebate Program.

<sup>5</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p 69.

Table 6	ThermWise Appliance Program			Cadmus Report Fact
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	4,618.7	\$ 4,263.4	5,695.0	33.6%
Program Costs	871.5	1,673.7	1,838.8	9.9%
Total Costs	\$ 5,490.2	\$ 5,937.1	\$ 7,533.8	26.9%
Projected Dth Savings *	146.5	133.8	193.6	44.7%
Participants	36.9	33.7	31.4	-6.6%
Total \$ / Dth Savings (\$0.00)	\$ 37.49	\$ 44.38	\$ 38.92	-12.3%
California Test Results				
Total Resource Cost Test B/C	2.0	1.9	1.8	NA
Participants Test B/C	2.2	2.2	4.0	NA
Utility Cost Test B/C	3.2	2.9	1.8	NA
Rate Payer Impact Test B/C	2.0	1.9	1.2	NA

## THERMWISE BUILDER REBATES PROGRAM

The ThermWise Builder Program has undergone some major changes for 2011. The first and foremost change is providing three different Energy Star Home compliance options coupled with the requirement that an energy efficient furnace and water heater must also be installed in the qualifying home. The first option is a home that meets the 2010 Energy Star Standard and has a 90% plus furnace installed and a water heater with an EF of .62 or greater. The second option is a home that meets the 2011 Energy Star Standard with a 92% plus furnace and a .62 or greater EF rated water heater. The third option is a High Performance Home that meets the 2012 Energy Star Standard with a 95% plus furnace, water heater with an EF of .62 or greater and one that exceeds the 2006 IECC standard by 30%.

For builders that don't build to the Energy Star Standard, there are 11 other stand-alone energy efficiency measures available to them in order to qualify for rebates that are the same as the prescriptive appliance program measures described above. For the reasons described above, the Division recommends the removal of the Direct Vent Fireplace measure from the ThermWise Builder Program which decreases the number of estimated participants by 30, reduces the costs by \$6,000 and removes 68 deemed decatherm savings from what was submitted. This program

is administered by PECI and has a 2011 budget of \$2.639 million, a 3.0% increase from the 2010 budget.

The Cadmus Report summarized the results of the Builder Program by concluding;

The billing analysis indicated a low realization rate, which could be attributed to high levels of energy-efficiency measures already in the new construction market. This, paired with a high free-ridership percentage, dramatically reduced program savings, precluding the program's cost-effectiveness.<sup>6</sup>

Subsequent to the Cadmus report being filed, the Company undertook an investigation into the results and discovered that one-third of the surveyed results were in homes that qualified as Energy Star Homes however, those homes did not have high energy efficient furnaces or water heaters which the Company assumed was a requirement of the Energy Star Certification. This has prompted the Company to make this a noted requirement of the 2011 program in their tariff in order to receive any rebate. The 2011 projected Dth Savings are lower than the 2010 budget because the Company adjusted the decatherm savings to reflect the results from the Cadmus Report as shown on the following page in Table 7, which summarizes the ThermWise Builder Program by Customer Rebates and Program Costs with actual results through September 30, 2010, the 2010 budget and the 2011 budget. The table shows that the benefit cost ratios, with the exception of the Rate Payer Impact Test are above 1.0 (Total Resource Cost Test is 1.04).

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<sup>6</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p 31.

Table7	ThermWise Builder Program			
	Thousands			
	2010 3Q	2010	2011	% 2011 Budget
	Actual YTD	Budget	Budget	over (under)
				2010 Budget
Customer Rebates	1,465.4	\$ 1,207.7	1,557.3	28.9%
Program Costs	699.0	1,355.2	1,082.4	-20.1%
Total Costs	\$ 2,164.4	\$ 2,562.9	\$ 2,639.7	3.0%
Projected Dth Savings *	48.7	38.9	31.0	-20.3%
Participants	3.7	3.4	3.7	6.6%
Total \$ / Dth Savings (\$0.00)	\$ 44.41	\$ 65.88	\$ 85.14	29.2%
California Test Results				
Total Resource Cost Test B/C	1.9	1.6	1.0	NA
Participants Test B/C	2.4	2.3	3.1	NA
Utility Cost Test B/C	3.2	2.4	1.1	NA
Rate Payer Impact Test B/C	2.0	1.7	0.8	NA

## THERMWISE BUSINESS REBATES PROGRAM

This program is available to the GS Rate Class commercial customers and offers thirty six prescriptive measures designed to leverage the marketing access and existing delivery channels of local businesses, wholesalers and retailers to provide cost-effective natural gas savings opportunities. For 2011, Hybrid Gas Water Heater and Condensing Water Heater measures have been added to the programs, while, as previously mentioned, the Gas Dryer measure has been discontinued due to high levels of market penetration. There also have been some minor improvements to the efficiency requirements of some of the existing measures as well as changes in the rebate amounts available to participating customers. The program is administered by Nexant. The 2011 budget is \$1.299 million, which is 37.1% over the 2010 budget, as shown in Table 8 on the next page. The table summarizes the ThermWise Builder Program by Customer Rebates and Program Costs with actual results through September 30, 2010, the 2010 budget, the 2011 budget. Table 8 shows benefit cost ratios that are all above 1.0.

Table 8	ThermWise Business Program			
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	553.6	\$ 531.6	775.6	45.9%
Program Costs	157.3	416.0	523.6	25.9%
Total Costs	\$ 710.9	\$ 947.6	\$ 1,299.2	37.1%
Projected Dth Savings *	33.6	51.4	48.5	-5.6%
Participants	0.8	1.8	1.0	-43.7%
Total \$ / Dth Savings (\$0.00)	\$ 21.14	\$ 18.43	\$ 26.77	45.3%
California Test Results				
Total Resource Cost Test B/C	3.6	2.6	1.6	NA
Participants Test B/C	3.4	2.9	3.1	NA
Utility Cost Test B/C	6	4.5	2.7	NA
Rate Payer Impact Test B/C	3.6	3.0	1.7	NA

The Cadmus Report summarizes the Business Rebate Program as

...well received, and participants generally have rated their satisfaction high. However, with many respondents waiting more than six weeks for payment, rebate processing may be an issue for the program.<sup>7</sup>

In reviewing the Business Program, Cadmus reported a 122% realization rate from the budget estimated gross decatherm savings for each measure and a 26% free ridership rather than the assumed 20% used in the annual budgets. Applying these same factors to the measures in the Business Program, as shown in Table 9, increases the projected Dth saved from 48.3 thousand decatherms to 55.3 thousand decatherms, the Utility Cost Benefit ratio decreasing from 2.7 to 2.5 and the Rate Payer Impact Cost Benefit ratio decreasing from 1.7 to 1.6 as shown below. Therefore, when the Cadmus Report results are factored in, the Benefit Cost ratios all remain well above 1.0 indicating a strong program that benefits commercial customers in the GS rate class.

<sup>7</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p 93.

Table 9	ThermWise Business Program			Cadmus Report Fact
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	553.6	\$ 531.6	775.6	45.9%
Program Costs	157.3	416.0	523.6	25.9%
Total Costs	\$ 710.9	\$ 947.6	\$ 1,299.2	37.1%
Projected Dth Savings *	33.6	51.4	55.3	7.5%
Participants	0.8	1.8	1.0	-43.7%
Total \$ / Dth Savings (\$0.00)	\$ 21.14	\$ 18.43	\$ 23.51	27.6%
California Test Results				
Total Resource Cost Test B/C	3.6	2.6	1.6	NA
Participants Test B/C	3.4	2.9	3.1	NA
Utility Cost Test B/C	6	4.5	2.5	NA
Rate Payer Impact Test B/C	3.6	3.0	1.6	NA

## THERMWISE BUSINESS CUSTOM REBATES PROGRAM

This program is a customer initiated program and is administered by Nexant. The 2011 budget has increased from the 2010 budget by 10.4% due to expected increased participation, which, although not shown in the table below due to rounding, is expected to increase from 15 participants in 2010 to 20 in 2011.

Table 10 compares the 2011 budget to the 2010 budget. The table shows that all but one of the benefit cost ratios above 1.0 for the 2011 plan year. The Rate Payer Impact Test is at .959.

Table 10	ThermWise Custom Business Program			
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	48.9	\$ 75.1	100.2	33.4%
Program Costs	136.6	334.7	352.4	5.3%
Total Costs	\$ 185.5	\$ 409.8	\$ 452.6	10.4%
Projected Dth Savings *	7.4	7.5	10.0	33.3%
Participants	0.0	0.0	0.0	33.3%
Total \$ / Dth Savings (\$0.00)	\$ 25.21	\$ 54.54	\$ 45.18	-17.2%
California Test Results				
Total Resource Cost Test B/C	2.0	1.7	1.1	NA
Participants Test B/C	3.0	5.2	5.3	NA
Utility Cost Test B/C	3.7	2.0	1.3	NA
Rate Payer Impact Test B/C	2.5	1.6	1.0	NA

In evaluating this program, it should be noted that project development times are much longer than the prescriptive incentive payments. This program requires pre-installation engineering studies, negotiated contracts, and implementation of the recommended energy saving measures before rebates are paid to the customers. Although the expected participants are few in the number, each project is expected to yield large decatherm savings. In terms of cost per Dth saved, this program, excluding Program Costs, has the best Customer Rebate Cost / Dth Savings at \$10.00/ Dth. This program is designed to be coordinated with RMP FinAnswer Program.

The Cadmus Report summarizes the Custom Business Rebate Program as:

...[The program] provides an opportunity for projects that otherwise would not be eligible for an incentive. While only a few projects have been completed, the program has directed many projects to the Business Rebates program, where prescriptive rebates have been available for common measures.<sup>8</sup>

The Cadmus report indicates that the Cadmus staff visited four sites that participated in the Custom Rebates Program. The report indicates that those projects were found to be well implemented, with realization rates at 100%.<sup>9</sup>

## **THERMWISE HOME ENERGY AUDIT REBATES PROGRAM**

The ThermWise Home Energy Audit is administered by Questar. For 2011, the program will no longer offer water heater blankets in the program's measures or processes. The home energy audits can either be an on-site audit, conducted by QGC technicians, or a mail in audit in which the participant answers questions and receives advice from QGC. A \$25 fee is charged for the on-site audits. This fee is fully refundable upon participation in any ThermWise energy-efficiency rebate program. In addition, the program will provide certain low-cost energy-efficiency measures at no charge.

The 2011 budget is \$760,600, which is 1.3% below the 2010 budget. Table 11 on the following page compares the 2011 Budget to the 2010 Budget along with 3Q 2010 YTD actual results.

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<sup>8</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p 97.

<sup>9</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p96.

The table shows that most of the benefit cost ratios are below 1.0. Even though most of the benefit cost ratios are below 1.0, this program becomes a gateway to many of the appliance upgrades and weatherization measures implemented by customers (for which incentives are received through other EE programs) as a result of their identification in home audits. This program has benefits beyond those seen in the data below as it introduces customers to the potential savings they may realize by implementing additional energy efficiency measures.

Table 11	ThermWise Audit Program			
	Thousands			
	2010 3Q	2010	2011	% 2011 Budget
	Actual YTD	Budget	Budget	over (under) 2010 Budget
Customer Rebates	14.3	\$ 43.1	24.3	-43.5%
Program Costs	539.0	727.3	736.3	1.2%
Total Costs	\$ 553.3	\$ 770.4	\$ 760.6	-1.3%
Projected Dth Savings *	4.4	9.7	9.3	-3.8%
Participants	1.6	3.8	3.8	0.0%
Total \$ / Dth Savings (\$0.00)	\$ 126.93	\$ 79.43	\$ 81.49	2.6%
California Test Results				
Total Resource Cost Test B/C	0.6	1.1	0.5	NA
Participants Test B/C	25.0	20.6	31.2	NA
Utility Cost Test B/C	0.6	1.0	0.5	NA
Rate Payer Impact Test B/C	0.5	0.9	0.5	NA

The Cadmus Report summarizes the Audit Program as

Overall, customers were very satisfied with the Home Energy Audit Program. Customers were very pleased with the auditors performing the in-home energy audit, and rated them as knowledgeable and thorough.<sup>10</sup>

The Report found a 90% realization rate from the assumed Dth saved used in budget presentations but reported 0% free ridership for all the measures offered by the auditors.

<sup>10</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p 43.

Table 12 shows that when the Cadmus Report factors are applied to the Audit Program, an improvement in the Total Resource Cost Test and Utility Cost Test can be seen.

Table 12	ThermWise Audit Program Cadmus Report Factors			
	Thousands			
	2010 3Q	2010	2011	% 2011 Budget
	Actual YTD	Budget	Budget	over (under) 2010 Budget
Customer Rebates	14.3	\$ 43.1	24.3	-43.5%
Program Costs	539.0	727.3	736.3	1.2%
Total Costs	\$ 553.3	\$ 770.4	\$ 760.6	-1.3%
Projected Dth Savings *	4.4	9.7	10.5	8.3%
Participants	1.6	3.8	3.8	0.0%
Total \$ / Dth Savings (\$0.00)	\$ 126.93	\$ 79.43	\$ 72.44	-8.8%
California Test Results				
Total Resource Cost Test B/C	0.6	1.1	0.7	NA
Participants Test B/C	25.0	20.6	31.2	NA
Utility Cost Test B/C	0.6	1.0	0.7	NA
Rate Payer Impact Test B/C	0.5	0.9	0.5	NA

## THERMWISE WEATHERIZATION REBATES PROGRAM

This program offers both GS single-family and multi-family residential customer rebates for installing qualifying weatherization measures. There is one major change from the 2010 program. In order for attic, floor, and wall insulation projects to be eligible for rebates, an approved contractor will be required. The Company has chosen to utilize an approved contractor list in order to provide customers and the Company more confidence that the insulation measures are properly installed to insure the decatherm savings will be realized. In order for contractors to qualify they must meet the minimum criteria to (1) have the proper licensing, training, and insurance, (2) understand and agree to accurately represent both the program requirements and the contractor's relationship to Questar Gas Company, (3) agree to maintain a high quality of work product and (4) agree to address and resolve customer complaints<sup>11</sup>. (Included as an attachment to this report is the presentation Questar Gas Company is making to insulation contractors explaining this change in the insulation weatherization measures.) Subsequent to the Company's filing of this budget application, the Company filed on December 1, 2010, a Motion

<sup>11</sup> As presented to DSM Advisory Group Meeting, September 20, 2010.

for Substitution of Section 2.17 of Exhibit 1.8 modifying the language in Section 2.17 of its proposed tariff to allow a broader inclusion of required contractor licenses the State of Utah's Department of Professional Licensing (DOPL) deems appropriate for weatherization work. This list of required licenses will be maintained on the Company's website and interested contractors will be directed to that site by the Company. The Division agrees with the Company's proposal to require QGC approval of qualified insulation contractors. The DPU views this as an appropriate means to address problems of job quality and other program problems that have arisen in a small number of projects under the weatherization program. The Division did attend one meeting that Questar Gas held for insulation contractors to explain the new changes in the insulation weatherization program. Those contractors in attendance supported the program changes and felt it would further improve the program. Exactly what effect the program changes will have on participation levels remains to be seen.

The insulation rebates are still available to individual customers that self-install if the need for insulation is verified through a Home Energy Audit. In addition to this change, a previously rebated attic insulation customer may qualify for a tier 2 rebate if it is recommended by a QGC audit or a Home Performance with Energy Star Audit.

The weatherization measures are customer initiated and the program is administered by Nexant with rebates mailed back to the participants. The 2011 budget is \$17.297 million, of which \$14.424 million is projected to be customer rebates, a decrease of 29.2% from the 2010 budget. \$5.6 million of the spending reduction is forecast to reflect an anticipated decline in customer participation as a result of requiring that approved contractors install the insulation measures.

Table 13 on the next page summarizes the ThermWise Weatherization Program by Customer Rebates and Program Costs for actual results through September 30, 2010, the 2010 budget and the 2011 budget. The table does show benefit cost ratios that are all above 1.0 although lower than the 2010 budget.

Table 13	ThermWise Weather Program			
	Thousands			
	2010 3Q	2010	2011	% 2011 Budget
	Actual YTD	Budget	Budget	over (under)
				2010 Budget
Customer Rebates	14,561.3	\$ 20,367.3	14,424.6	-29.2%
Program Costs	1,781.8	3,273.7	2,872.3	-12.3%
Total Costs	\$ 16,343.1	\$ 23,641.0	\$ 17,296.8	-26.8%
Projected Dth Savings *	396.0	554.4	308.2	-44.4%
Participants	75.9	102.3	78.8	-22.9%
Total \$ / Dth Savings (\$0.00)	\$ 41.27	\$ 42.64	\$ 56.13	31.6%
California Test Results				
Total Resource Cost Test B/C	2.6	2.6	1.2	NA
Participants Test B/C	2.6	2.6	2.3	NA
Utility Cost Test B/C	3.9	3.9	1.9	NA
Rate Payer Impact Test B/C	2.3	2.3	1.2	NA

The Cadmus Report summarizes the Weatherization Rebate Program as

Overall the program continues to function very well and customers continue to be satisfied. .... The program implementer should take the necessary steps-including clarifying rebate forms and eligibility requirements-to reduce rebate processing times to less than six weeks. ....Questar Gas should work to implement a stricter trade ally agreement for contractors...[and] educate contractors by implementing training, certification and program general energy-efficiency awareness.<sup>12</sup>

In reviewing the Weatherization Program, Cadmus reported different realization rates for different measures from the budget estimated gross decatherm savings. These realization rates ranged from 92% to 75% depending on the measure.<sup>13</sup> The report also reported for each measure a 23% free ridership rather than the assumed 20% used in the annual budgets. Applying these same factors to the measures in the Weatherization Program decreases the projected Dth saved from 308.2 thousand decatherms to 238.1 thousand decatherms, and all of the benefit cost ratios are reduced as shown in Table 14 with the Total Resource Cost Test ratio the only ratio to go below 1.0 at .953.

<sup>12</sup> The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, p 58-59.

<sup>13</sup> Windows, Duct Sealing and Insulation and Programmable Thermostat were at 92%, all insulation measures were at 75%, The Cadmus Group, Inc., Final Report, Questar Gas ThermWise Evaluation, September 28, 2010, Table 29, p 51.

Table 14	ThermWise Weather Program Cadmus Report Factors			
	Thousands			
	2010 3Q	2010	2011	% 2011 Budget
	Actual YTD	Budget	Budget	over (under)
				2010 Budget
Customer Rebates	14,561.3	\$ 20,367.3	14,424.6	-29.2%
Program Costs	1,781.8	3,273.7	2,872.3	-12.3%
Total Costs	\$ 16,343.1	\$ 23,641.0	\$ 17,296.8	-26.8%
Projected Dth Savings *	396.0	554.4	238.1	-57.1%
Participants	75.9	102.3	78.8	-22.9%
Total \$ / Dth Savings (\$0.00)	\$ 41.27	\$ 42.64	\$ 72.65	70.4%
California Test Results				
Total Resource Cost Test B/C	2.6	2.6	1.0	NA
Participants Test B/C	2.6	2.6	1.9	NA
Utility Cost Test B/C	3.9	3.9	1.5	NA
Rate Payer Impact Test B/C	2.3	2.3	1.0	NA

## LOW INCOME WEATHERIZATION ASSISTANCE PROGRAM

Part of the agreement reached in Docket 05-057-T01 contained the provision for QGC to increase the funding by \$250,000 for the state's Low Income Weatherization Program. In 2009, the budget funding of this program was increased by another \$250,000 for a total contribution of \$500,000 to the program's budget. The 2011 budget contains the same level of funding as the 2010 budget. This program should be viewed as part of the overall suite of DSM programs. This program does not drive the overall benefit cost ratio below the break-even point.

Table 15	ThermWise Low Income Weatherization Program			
	Thousands			
	2010 3Q	2010	2011	% 2011 Budget
	Actual YTD	Budget	Budget	over (under)
				2010 Budget
Customer Rebates	-	-	-	NA
Program Costs	500.0	500.0	500.0	0.0%
Total Costs	\$ 500.0	\$ 500.0	\$ 500.0	0.0%

## PROGRAM ADMINISTRATIVE COST:

As shown in Table 4 on page 6, the 2011 total program administrative costs are \$9,657.9 million, only a \$20.8 thousand increase over the 2010 budgeted program costs. Most of the measures,

with rebates, have program administrative costs that, as a percent of total costs, are lower than their 2010 budget. The exceptions to this are the ThermWise Audit Program, the ThermWise Weatherization Program and the ThermWise Market Transformation Program. The overall ThermWise Audit Program's administrative costs increase is very minor dollar wise, (\$9,000) due to shifts from Cadmus process impact evaluations to contractor program development from Nextent. The total administrative costs for the ThermWise Weatherization program are lower than the 2010 budget amount by \$400,000 due to decreased contractor administration costs. However, the percentage to total expenditures has increased from 13.9% in 2010 to 16.6% in 2011. This is due to the decrease in anticipated participation in the weatherization program resulting from requiring Questar approved qualified contractors to install insulation. This decrease in Weatherization is offset by a \$395,000 increase in the Market Transformation Program, as shown in Table 16, due to an increase in outreach and training to HVAC contractors and wholesalers of \$150,000, evaluation and development of a behavior-based energy-efficiency program for \$160,000 and development of a major university sports marketing partnership of \$75,000.

Table 16	ThermWise Market Transformation Program			
	Thousands			
	2010 3Q Actual YTD	2010 Budget	2011 Budget	% 2011 Budget over (under) 2010 Budget
Customer Rebates	-	-	-	NA
Program Costs	\$ 1,065.5	1,356.5	1,752.1	29.2%
Total Costs	\$ 1,065.5	\$ 1,356.5	\$ 1,752.1	29.2%

Table 17 compares the California Test results of the 2011 budget to the results of using the Cadmus Report Factors for all programs. Under this scenario, all benefit cost ratios are above 1.0. (The Rate Payer Impact Test B/C is 1.010) indicating that after the results of the Cadmus Report are factored in, based on an analysis of data from 2007-2009, the net Benefit Cost ratios for all EE programs provide a positive benefit to the GS rate class.

Table 17	ThermWise 2011 EE Budget	
	All Programs	
	2011 Budget	Cadmus Report
California Test Results		
Total Resource Cost Test	1.3	1.1
Participants Test B/C	2.7	2.5
Utility Cost Test B/C	1.8	1.5
Rate Payer Impact Test B	1.2	1.0

## GAS PRICE SENSITIVITY

Based upon forecasts by Global Insight and as previously mentioned, the 2011 budget assumes a first year average summer/winter gas price of \$3.41/\$4.40 per decatherm respectively with a 25 year projection of prices ending at \$7.14/\$9.21 per decatherm. This compares to a beginning summer/winter gas price range in the 2010 budget of \$7.057/\$9.409 per decatherm and ending at \$10.31/\$13.75 per decatherm.

Table 18 compares the results of using 2007 gas prices and the Cadmus Report factors to the 2011 budget using the Cadmus Report factors.

Table 18	ThermWise 2011 EE Program	
	Price Sensitivity using Cadmus Report factors	
	2011 Budget	Cadmus Report Factors
California Test Results	2011 Gas Prices	with 2010 Gas Prices
Total Resource Cost Test	1.1	2.0
Participants Test B/C	2.5	2.5
Utility Cost Test B/C	1.5	2.6
Rate Payer Impact Test B	1.0	1.8

As shown in Table 18, because current gas prices are relatively low compared to prices two to three years ago, any increase in gas prices from current projections will make the Benefit Cost ratios for the Total Resource Cost Test, Utility Cost Test and the Rate Payer Impact Test improve. In Table 19 below, the Division presents the gas price decrease from the 2011 budget

gas price that is required in order to reduce the Benefit Cost Ratios below 1.0 using the Cadmus Report factors.<sup>14</sup>

Table 19	ThermWise 2011 EE Program	
	Price Sensitivity	
	Price Decrease	2011 Budget
California Test Results	per Dth	
Total Resource Cost Test B/C	\$ (0.676)	0.999
Participants Test B/C	NA	2.465
Utility Cost Test B/C	\$ (2.110)	0.999
Rate Payer Impact Test B/C	\$ (0.074)	0.999

In July, 2010, the PSC issued an order<sup>15</sup>, based on the Division’s recommendation, approving a DSM amortization rate of \$0.375/ Dth for the GS rate class. This rate was to begin amortizing an estimated balance of \$36 million in Account 182.4 over the next twelve months. Although the overall benefit cost tests for these EE programs are positive, all GS class customers pay for these EE programs. Currently, the amount a typical GS customer pays, as part of their annual gas bill, whether or not these customers participate in any of the EE programs is \$30.00 per year.

## SUMMARY AND RECOMMENDATION

The Division supports the 2011 Energy Efficiency Budget with the recommended removal of the Direct-Vent Fireplace measures, as discussed, while keeping current reporting requirements in place and recommends the Commission approve the application as modified. The Division commends QGC for their commitment to develop and promote strong Energy Efficiency programs with the intent to promote the energy saving measures to an even broader base of GS customers.

Cc:                   Barrie Mckay, Questar Gas Company  
                           Steve Bateson, Questar Gas Company  
                           Michele Beck, Office of Consumer Services  
                           Eric Orton, Office of Consumer Services

<sup>14</sup> The price decreases are based on the pricing assumptions used in the 2011 EE Budget.

<sup>15</sup> PSC Order, Docket No. 10-057-11, July 28, 2010.