

**UNS GAS, INC.
2011-2012
GAS ENERGY EFFICIENCY
IMPLEMENTATION PLAN**

APRIL 4, 2011

Table of Contents

I. EXECUTIVE SUMMARY.....1
II. INTRODUCTION.....2
III. PROGRAM PORTFOLIO OVERVIEW.....5
IV. RESIDENTIAL PROGRAMS.....17
V. COMMERCIAL AND INDUSTRIAL PROGRAMS.....21
VI. BEHAVIORAL COMPREHENSIVE PROGRAMS.....26
VII. RENEWABLE ENERGY TECHNOLOGY (“RET”).....31
VIII. SUPPORT PROGRAMS.....34
IX. PORTFOLIO MANAGEMENT.....39
X. MEASUREMENT, EVALUATION & RESEARCH.....42
XI. DSM TARIFF.....46
XII. OTHER ADMINISTRATIVE REQUESTS.....47

Exhibit 1: DSM Surcharge Tariff

Exhibit 2: DSM Surcharge Back-up

Appendix A: UNS Gas Multifamily Direct-Install

Appendix B: UNS Gas Behavioral Comprehensive

Appendix C: UNS Gas Codes Support

Appendix D: UNS Gas Solar/Thermal Water Heating

Appendix E: Education and Outreach

Appendix F: UNS Gas Measure Appendix

I. 2011-2012 Implementation Plan Executive Summary

UNS Gas, Inc. ("UNS Gas" or "Company") is pleased to present its 2011-2012 Gas Energy Efficiency Implementation Plan ("EE Plan") for Arizona Corporation Commission ("Commission") approval, in compliance with Arizona Administrative Code R14-2-2505. UNS Gas's Energy Efficiency Plan contains new programs, enhancements to existing programs, and continued implementation of already successful programs. The EE Plan is designed to comply with the Commission's Gas Energy Efficiency Standard ("EE Standard") and to provide a framework for future compliance.

For the Company's existing and proposed Demand-Side Management ("DSM") programs, the Plan estimates each programs total cost and cost per therm reduction, and explains how these programs comply with the requirements of the EE Standard. The EE Plan also includes a tariff filing that complies with A.A.C. R14-2-2506(A) and includes a request to modify and reset the existing adjustment mechanism for implementation through 2012 in order to ensure just and reasonable rates.

To implement the EE Plan, UNS Gas is seeking approval of its proposed 2011-2012 Plan Budget of approximately \$7.3 million. At this time, it is anticipated that the DSM Surcharge ("DSMS") required to implement the EE Plan will be approximately \$0.0308/therm, based on forecasted retail sales for the same 16 months making the average impact to a residential customer \$1.42 per month.

With approval of the proposed EE Plan budget, UNS Gas will be able to implement the following new programs: Multifamily Direct-Install, Behavioral Comprehensive (including Home Energy Reports and K-12 education), Education and Outreach, Codes and Support, and a Renewable Energy Technology program for Solar/Thermal Water Heating.¹ The Company will also be able to enhance, through the addition of new measures, the following existing programs: Existing Homes/Direct Install, and C&I Facilities. UNS Gas will increase eligibility for its existing Low-Income Weatherization Program and continue administering the Joint Utility Residential New Construction, and Energy Efficiency Residential Financing programs.

Because A.A.C. R14-2-2560(B) allows the Commission has 180 days to approve the Company's EE Plan and DSMS, it is unlikely that UNS Gas's EE Plan will be approved before October 2011. Due to this timeline, UNS Gas has projected that its 2011-2012 EE Plan will not be approved in time to implement new or enhanced programs with meaningful results before end-of-year 2011. While UNS Gas will make all efforts to achieve the 2011 EE target of .50% as a percent of prior year sales, the Company's current projections show a .22% achievement to be more likely, thus the Company's 2011-2012 EE Plan Budget is modeled on this .22% assumption. UNS Gas believes budgeting for a .22% reduction in 2010 sales levels is prudent as it will reduce the impact on customers as well as mitigate the possibility of an over-collection of DSM funds. UNS Gas expects to rely on its existing, Commission-approved DSM programs in maximizing its 2011 savings. For 2012, the Company hopes to achieve compliance with the annual EE target through the successful implementation of new programs in addition to improvements to existing programs.

¹ The New DSM programs are set forth in detail in the Appendices attached hereto and incorporated herein.

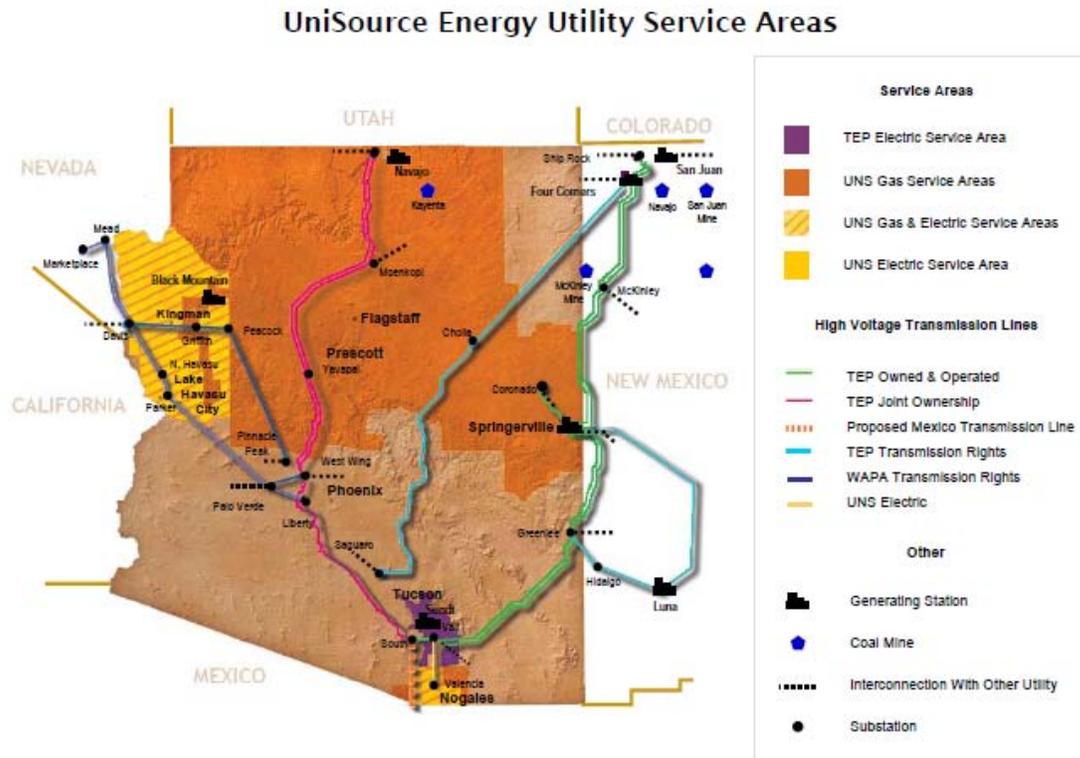
II. Introduction

The following Implementation Plan presents a detailed overview of the proposed gas energy efficiency programs targeted at the residential and commercial and industrial (C&I) sectors, as well as their associated implementation costs, savings, and benefit-cost results. The Implementation Plan presents detailed information on the approach, energy efficiency measures, and proposed incentive levels.

UNS Gas has designed a comprehensive portfolio of programs to deliver gas energy savings to meet annual DSM energy savings goals outlined in the Gas Energy Efficiency Standard. These programs include incentives, direct-install approaches for energy efficient products and services, educational and marketing approaches to raise awareness and modify behaviors, and partnerships with trade allies to apply as much leverage as possible to augment the rate-payer dollars invested.

For context and reference, service territory graphics are included below. Figure 2-1 shows UNS Gas service territory in the context of all Unisource Energy Corporation service territories.

Figure 2-1. UniSource Energy Corporation Service Territories



A. Implementation Plan Goals and Objectives

UNS Gas's high-level, efficiency-related goals and objectives for the 2011-2012 EE Standard are as follows:

- Design and implement a diverse group of programs that provide opportunities for participation for all customers;
- Maximize 2011 and 2012 energy savings;
- When feasible, maximize opportunities for program coordination with other efficiency programs (e.g., Arizona Public Service Company ("APS") and UNS Electric, Inc. ("UNS Electric")) to yield maximum benefits;
- Maximize program savings at a minimum cost by striving to achieve comprehensive cost-effective savings opportunities;
- Provide UNS Gas customers and contractors with web access to detailed information on all efficiency programs (residential and business) for electricity savings opportunities at www.uesaz.com;
- Expand the energy efficiency infrastructure in the state by increasing the number of available qualified contractors through training and certification in specific fields;
- Use trained and qualified trade allies such as electricians, HVAC contractors, builders, architects and engineers to transform the market for efficient technologies; and
- Inform and educate customers to modify behaviors that enable them to use energy more efficiently.

B. Planning Process

UNS Gas's portfolio of programs incorporates elements of the most successful energy efficiency programs across North America into program plans designed for UNS Gas customers in particular. A substantial amount of information including evaluations, program plans and potential studies were used to develop specific programs for UNS Gas. UNS Gas also used a benchmarking process to review the most successful energy efficiency programs from across the country, with a focus on successful Southwest programs to help shape the portfolio.

C. Portfolio Risk Management

As of March 2011, the Arizona economy remains in the midst of recovering from a severe economic recession. In this economic environment, UNS Gas's ability to convince residential and business customers to voluntarily take on additional debt for the installation of cost-effective measures, even with very short pay-back periods, will likely be challenging. UNS Gas recognizes this challenge and has developed a portfolio of programs that provides opportunities for participation at multiple levels. By proposing a multi-faceted and broad portfolio of programs that offers something for all ratepayers, UNS Gas will attempt to capitalize on those sectors of the market willing to invest in energy efficiency, regardless of the challenging economic landscape. In balance, this will allow us to meet aggressive regulatory efficiency goals.

UNS Gas used the following strategies to minimize the risks and produce the lowest cost associated with its portfolio of energy efficiency programs:

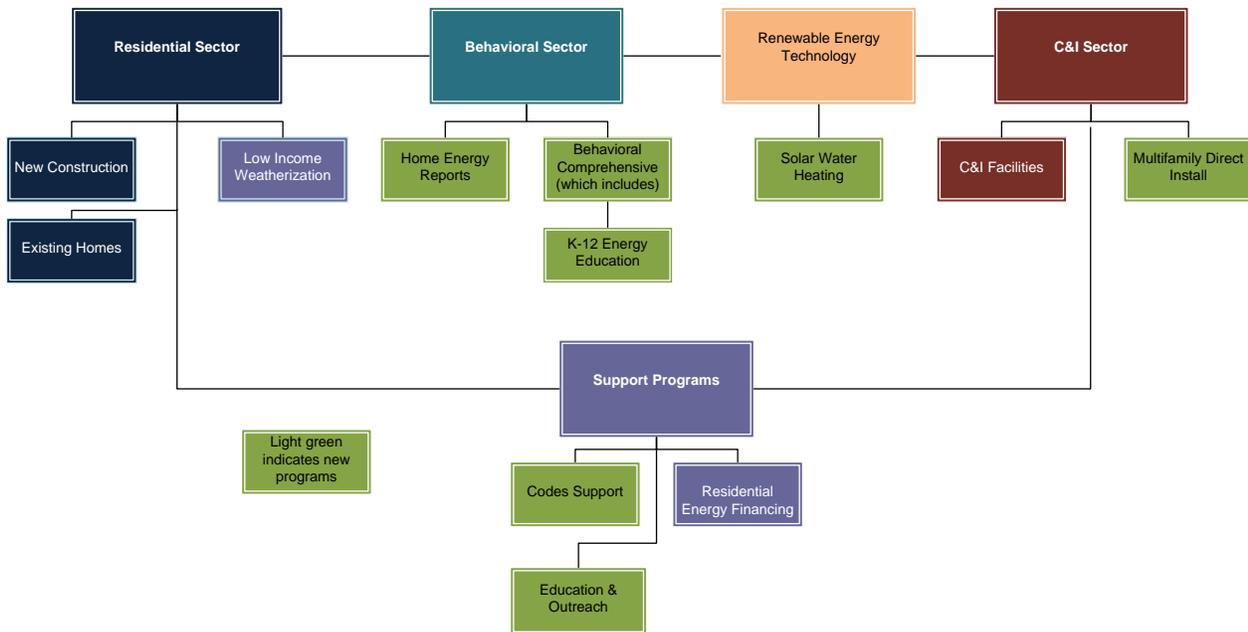
UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

- Implementing primarily “tried and true” programs that have been successfully implemented by utilities in the Southwest and across the country.
- Implement programs through a combination of third-party implementation contractors and utility staff. UNS Gas designs programs on the most cost-effective basis utilizing Implementation Contractors where they provide the lowest cost per therm and likewise utilizing UNS Gas staff when appropriate.

III. Program Portfolio Overview

As demonstrated in Figure 3-, UNS Gas’s portfolio of programs can be divided into residential, commercial, behavioral, and support sectors with administrative functions providing support across all program areas provided by UNS Gas. Detailed information on existing program design, measure savings, costs and other technical details are available in Section 5 through Section 10 and detailed information for all new programs are included in the appendices.

Figure 3-1. UNS Gas Portfolio of Programs



A. Savings, Budgets, Benefit Cost Results Overview

While this plan presents a two-year portfolio of investments, UNS Gas will continue to monitor projected program funding and program participation. As such, we expect there may be some slight adjustments in the forecasted investment levels. Additionally, incentive levels and other program elements will be reviewed and modified on an annual basis to reflect changes in market conditions or implementation processes in order to maximize cost-effective savings. Such modifications will be reported in the annual reports submitted to the Commission.

As detailed in tables 3-2 through 3-5, UNS Gas has developed this plan with the intent to deliver the maximum possible gas savings for 2011 and 2012. Current projections show the Company achieving a 0.22% reduction as a percent of prior year sales for 2011. For 2012, the Company is projecting gas savings of 0.70% as a percent of prior year sales. For 2011, UNS Gas’s budget forecast is approximately \$2.8 million increasing to \$4.5 million in 2012.

UNS Gas based its gas savings projections and resulting budgets on the following factors:

- Existing, Commission-approved programs are anticipated to provide gas savings for 2011 of 0.22% of 2010 gas sales.
- The anticipated timing for Commission approval of UNS Gas’s EE Plan is October of 2011.

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

- Upon Commission approval, UNS Gas will likely need 30 to 90 additional days (depending on the program) to prepare and launch programs to customers.
- Previous experience with existing programs indicates there will be a ramp-up period of customer acceptance and participation.
- UNS Gas does not believe it is reasonable to anticipate meaningful EE Plan implementation for 2011, and thus is not projected to meet the 2011 EE Standard target of .50%.
- UNS Gas has budgeted accordingly to prevent over-collection of DSM funds from UNS Gas ratepayers.

Table 3-2. Summary of Costs and Savings

Program Year	Total Budget*	Annual Savings (MTherms)*	Lifetime Savings (MTherms)*	Total Net Benefits**	Portfolio Societal Cost Test**
2011	\$2,819,035	305	5,138	\$665,146	1.1
2012	\$4,543,484	982	10,207	\$2,324,696	1.4
Total	\$7,362,519	1,286	15,345	\$2,989,841	1.3

Table 3-3 provides the EES savings goal for 2011 and 2012 as a percent of sales of the previous calendar year, and the projected savings from UNS Gas’s proposed portfolio of new and expanded programs.

Table 3-3. Planned Savings and EES Target

	2011	2012
Annual Gas Savings Goal as % of Sales	0.50%	0.70%
MTherms Savings Goal	695	972
Energy Efficiency Programs Only		
Planned MTherms Savings	305	953
Planned MTherms Savings as % of Sales	0.22%	0.69%
Percent of Savings Goal Achieved	44%	98%
RET Program Only		
Planned MTherms Savings	-	29
Planned MTherms Savings as % of Sales	0.00%	0.02%
Percent of Savings Goal Achieved	0%	3%
Total (Energy Efficiency + RET)		
Planned MTherms Savings	305	982
Planned MTherms Savings as % of Sales	0.22%	0.71%
Percent of Savings Goal Achieved	44%	101%

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

Table 3-4 provides costs and savings detail per program over 2011 and 2012 period combined.

Table 3-4. 2011-2012 Costs and Savings by Program

		2011-2012 Total			
		Annual Savings (MTherms)	Total Cost	Percent of Annual Savings	Percent of Total Portfolio Cost
Residential	Residential New Construction	150	\$399,903	12%	5%
	Existing Homes	380	\$2,705,554	30%	37%
	Low Income Weatherization	25	\$690,588	2%	9%
	Subtotal	556	\$3,796,045	43%	52%
Commercial	C&I Facilities	331	\$1,370,578	26%	19%
	Multifamily Direct Install	13	\$178,774	1%	2%
	Subtotal	344	\$1,549,352	27%	21%
Behavior	Home Energy Reports - Pilot	321	\$198,284	25%	3%
	Behavioral Comprehensive Program	37	\$52,562	3%	1%
	Subtotal	358	\$250,846	28%	3%
Support Programs	Education and Outreach	-	\$102,580	0%	1%
	Residential Energy Financing	-	\$1,096,857	0%	15%
	Codes Support	-	\$76,155	0%	1%
	Program Development, Analysis and Reporting Software	-	\$233,519	0%	3%
	Subtotal	-	\$1,509,111	0%	20%
Subtotal	Energy Efficiency Subtotal	1,258	\$7,105,353	98%	97%
RET	Solar Water Heating	29	\$257,166	2%	3%
Total	Energy Efficiency + RET Total	1,286	\$7,362,519	100%	100%

Table 3-5 provides program level budgetary break downs as well as program and portfolio level cost effectiveness results. It should be noted that RET programs are not required to deliver a positive societal cost test result, but UNS Gas believes the Utility Cost Test to be the best determinant test for this program. The Utility Cost Test result of 0.9 indicates advantages to this program.

Table 3-5. 2011 and 2012 Program Budgets, Net Benefits, and Cost Effectiveness

		2011 Total Program Budget	2011 Program Level Societal Cost Test	2012 Total Program Budget	2012 Program Level Societal Cost Test
Residential	Residential New Construction	\$191,939	1.7	\$207,963	2.0
	Existing Homes	\$1,220,437	1.3	\$1,485,118	1.4
	Low Income Weatherization	\$340,191	0.4	\$350,397	0.4
	Subtotal	\$1,752,567	1.3	\$2,043,478	1.4
Commercial	C&I Facilities	\$385,676	1.7	\$984,902	1.9
	Multifamily Direct Install	\$50,074	0.0	\$128,700	1.1
	Subtotal	\$435,750	1.5	\$1,113,602	1.9
Behavior	Home Energy Reports - Pilot	\$22,204	0.0	\$176,080	1.0
	Behavioral Comprehensive Program	\$4,157	0.0	\$48,405	7.7
	Subtotal	\$26,361	0.0	\$224,485	2.5
Support Programs	Education and Outreach	\$29,731	N/A	\$72,849	N/A
	Residential Energy Financing	\$432,670	N/A	\$664,187	N/A
	Codes Support	\$0	N/A	\$76,155	N/A
	Program Development, Analysis and Reporting Software	\$115,034	0.0	\$118,485	0.0
	Subtotal	\$577,435	N/A	\$931,675	N/A
Subtotal	Energy Efficiency Subtotal	\$2,792,113	1.1	\$4,313,240	1.4
RET	Solar Water Heating	\$26,921	0.0	\$230,244	0.9
Total	Energy Efficiency + RET Total	\$2,819,035	1.1	\$4,543,484	1.0

B. 2011 Portfolio Results

Table 3-6 presents a detailed review of the 2011 projected savings. UNS Gas is projecting a .22% reduction in 2010 level sales due to the end of year approval of the EE Plan. If UNS Gas achieves greater savings sooner, the Company will need to adjust, through a filing with the Commission, its DSMS.

Table 3-6. 2011 Savings Goal

	2010 Gas Sales (MTherm)	Percent Savings	Program Savings (Mtherms)
Target	139,043	0.50%	695
2011 Savings Forecast		0.22%	305
Difference		-0.28%	(391)
Percent of Target Reached			44%

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

Table 3-7 presents a detailed review of 2011 portfolio savings and costs in terms of program level costs per first year and lifetime energy and demand savings.

Table 3-7. 2011 Annual and Lifetime Portfolio Savings and Costs

		2011					
		Annual Gas Savings (MTh)	Total Program Budget	Program Cost per Lifetime therm Saved (\$/therm)	Program Cost per First Year therm Saved (\$/therm)	Percent of MTh Savings by Program	Percent of Budget by Program
Residential	Residential New Construction	60	\$191,939	\$0.213	\$3.20	20%	7%
	Existing Homes	165	\$1,220,437	\$0.426	\$7.40	54%	43%
	Low Income Weatherization	12	\$340,191	\$2.305	\$27.66	4%	12%
	Subtotal	237	\$1,752,567	\$0.448	\$7.38	78%	62%
Commercial	C&I Facilities	67	\$385,676	\$0.31	\$5.73	22%	14%
	Multifamily Direct Install	0	\$50,074	\$0.000	\$0.00	0%	2%
	Subtotal	67	\$435,750	\$0.356	\$6.47	22%	15%
Behavior	Home Energy Reports - Pilot	0	\$22,204	\$0.00	\$0.00	0%	1%
	Behavioral Comprehensive Program	0	\$4,157	\$0.00	\$0.00	0%	0%
	Subtotal	0	\$26,361	#DIV/0!	#DIV/0!	0%	1%
Support Programs	Education and Outreach	0	\$29,731	N/A	N/A	0%	1%
	Residential Energy Financing	0	\$432,670	N/A	N/A	0%	15%
	Codes Support	0	\$0	N/A	N/A	0%	0%
	Program Development, Analysis and Reporting Software	0	\$115,034	\$0.00	\$0.00	0%	4%
	Subtotal	0	\$577,435	N/A	N/A	0%	20%
Subtotal	Energy Efficiency Subtotal	305	\$2,792,113	\$0.543	\$9.16	100%	99%
RET	Solar Water Heating	0	\$26,921	\$0.00	\$0.00	0%	1%
Total	Energy Efficiency + RET Total	305	\$2,819,035	\$0.549	\$9.25	100%	100%

Table 3-8 presents 2011 portfolio costs, by program, segmented by the amount projected to be spent on incentives, program delivery, program marketing, utility program administration, and evaluation and program development, analysis and reporting software costs.

Table 3-8. 2011 Summary Portfolio Implementation Costs

		2011							
		Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
Residential	Residential New Construction	\$43,200	\$114,208	\$15,158	\$11,991	\$7,382	\$191,939	\$224,716	1.7
	Existing Homes	\$585,876	\$459,138	\$104,501	\$23,981	\$46,940	\$1,220,437	\$474,401	1.3
	Low Income Weatherization	\$300,000	\$19,113	\$0	\$7,994	\$13,084	\$340,191	-\$144,491	0.4
	Subtotal	\$929,076	\$592,459	\$119,660	\$43,966	\$67,406	\$1,752,567	\$554,627	1.3
Commercial	C&I Facilities	\$133,500	\$215,877	\$17,469	\$3,997	\$14,834	\$385,676	\$301,987	1.7
	Multifamily Direct Install	\$0	\$47,204	\$944	\$0	\$1,926	\$50,074	-\$50,074	0.0
	Subtotal	\$133,500	\$263,081	\$18,413	\$3,997	\$16,760	\$435,750	\$251,914	1.5
Behavior	Home Energy Reports - Pilot	\$0	\$22,204	\$0	\$0	\$0	\$22,204	-\$22,204	0.0
	Behavioral Comprehensive Program	\$0	\$0	\$0	\$3,997	\$160	\$4,157	-\$4,157	0.0
	Subtotal	\$0	\$22,204	\$0	\$3,997	\$160	\$26,361	-\$26,361	0.0
Support Programs	Education and Outreach	\$0	\$25,735	\$0	\$3,997	\$0	\$29,731	\$0	N/A
	Residential Energy Financing	\$150,000	\$243,673	\$30,000	\$3,997	\$5,000	\$432,670	\$0	N/A
	Codes Support	\$0	\$0	\$0	\$0	\$0	\$0	\$0	N/A
	Program Development, Analysis and Reporting Software	\$0	\$115,034	\$0	\$0	\$0	\$115,034	-\$115,034	0.0
	Subtotal	\$150,000	\$384,442	\$30,000	\$7,994	\$5,000	\$577,435	-\$115,034	N/A
Subtotal	Energy Efficiency Subtotal	\$1,212,576	\$1,262,185	\$168,073	\$59,953	\$89,326	\$2,792,113	\$665,146	1.1
RET	Solar Water Heating*	\$0	\$17,204	\$688	\$7,994	\$1,035	\$26,921	-\$26,921	0.0
Total	Energy Efficiency + RET Total	\$1,212,576	\$1,279,389	\$168,761	\$67,947	\$90,361	\$2,819,035	\$638,224	1.1
	Percent of Cost by Category	43%	45%	6%	2%	3%	100%		

*Societal Cost Test cell reflects Program Utility Cost Test result since RET does not need to pass Societal Cost Test.

Table 3-9 presents a detailed explanation of activities represented in each budget category including incentives; program delivery; program marketing; utility program administration; evaluation; and program development, analysis and reporting software.

Table 3-9. Budget Item Definitions

Incentives	<p>Costs for approved customer incentives. Costs include but may not be limited to:</p> <ul style="list-style-type: none"> • Direct customer incentives; • Agency payments for low-income weatherization program; and • Contractor payments for direct-install programs.
Program Delivery	<p>Costs associated with implementing programs after they are approved. Costs include but may not be limited to:</p> <ul style="list-style-type: none"> • Implementation contractor labor, travel and expenses; • Testing equipment and IC Contractor database modifications; • Energy efficiency education and technical assistance; • Engineering analysis to support custom incentives; • Development and distribution of technical consumer educational materials; • Field inspections and testing; • Data entry and validation; • Sales, oversight and management of programs and budgets; • Training, technical assistance and problem resolution; • Travel and expenses; and • Administration, review and recommended modifications.
Program Marketing	<p>Costs related to marketing programs and increasing DSM consumer awareness that are considered direct program marketing costs as opposed to general consumer education. Costs include but may not be limited to:</p> <ul style="list-style-type: none"> • Agency and internal costs to develop materials; • Production costs for radio, television, or internet ads; • Internal labor costs to develop materials and marketing plan; and • Costs for ad placement and reproduction and mailing.
Utility Program Administration	<p>Internal costs related to management and reporting; Costs include but may not be limited to:</p> <ul style="list-style-type: none"> • Tracking program activity; • Developing ACC DSM and compliance reports; • Preparing data requests; • Avoided costs evaluation; • Request for proposal (“RFP”) and contractor selection; • Contractor and contract management; and • Financial monitoring and compliance.
Evaluation	<p>Costs related to Measurement, Evaluation, and Research (“MER”) by an independent 3rd party MER contractor. Costs include but may not be limited to:</p> <ul style="list-style-type: none"> • Identification of baseline efficiency levels and the market potential; • Process and impact evaluations; • Verification of installed energy efficient measures; • Validation of reported energy savings; and • Research into new and emerging technologies.
Program Development, Analysis and Reporting Software	<p>Costs related to program design, development and resources necessary to meet reporting requirements of the Gas Energy Efficiency Standard. Costs include but may not be limited to:</p> <ul style="list-style-type: none"> • Measure and program research and benefit-cost analysis; • Codes and Standards research and analysis; • Education and training on new technologies; • Incremental cost studies; • Program design, development and analysis; • Software for tracking and reporting to remain in compliance with GEES

C. 2012 Portfolio Results

Table 3-10 presents a detailed review of the 2012 projected savings compared to EES. This section presents a detailed review of the 2012 projected savings. UNS Gas’s proposed portfolio of new and expanded programs is projected to meet the annual 2012 goal of 0.70% of previous year retail sales.

Table 3-10. 2012 Savings Goal

	2011 Gas Sales (MTherm)	Percent Savings	Program Savings (Mtherms)
Target	138,851	0.70%	972
2012 Savings Forecast		0.71%	982
Difference		0.01%	10
Percent of Target Reached			101%

Table 3-11 presents a detailed review of 2012 portfolio savings and costs in terms of program level costs per first year and lifetime energy and demand savings.

Table 3-11. 2012 Annual and Lifetime Portfolio Savings and Costs

		2012					
		Annual Gas Savings (MTh)	Total Program Budget	Program Cost per Lifetime therm Saved (\$/therm)	Program Cost per First Year therm Saved (\$/therm)	Percent of MTh Savings by Program	Percent of Budget by Program
Residential	Residential New Construction	90	\$207,963	\$0.15	\$2.30	9%	5%
	Existing Homes	215	\$1,485,118	\$0.40	\$6.89	22%	33%
	Low Income Weatherization	13	\$350,397	\$2.30	\$27.66	1%	8%
	Subtotal	318	\$2,043,478	\$0.39	\$6.42	32%	45%
Commercial	C&I Facilities	264	\$984,902	\$0.26	\$3.73	27%	22%
	Multifamily Direct Install	13	\$128,700	\$1.01	\$10.08	1%	3%
	Subtotal	277	\$1,113,602	\$0.29	\$4.03	28%	25%
Behavior	Home Energy Reports - Pilot	321	\$176,080	\$0.55	\$0.55	33%	4%
	Behavioral Comprehensive Program	37	\$48,405	\$0.13	\$1.30	4%	1%
	Subtotal	358	\$224,485	\$0.32	\$0.63	36%	5%
Support Programs	Education and Outreach	0	\$72,849	N/A	N/A	0%	2%
	Residential Energy Financing	0	\$664,187	N/A	N/A	0%	15%
	Codes Support	0	\$76,155	N/A	N/A	0%	2%
	Program Development, Analysis and Reporting Software	0	\$118,485	\$0.00	\$0.00	0%	3%
	Subtotal	0	\$931,675	N/A	N/A	0%	21%
Subtotal	Energy Efficiency Subtotal	953	\$4,313,240	\$0.44	\$4.53	97%	95%
RET	Solar Water Heating	29	\$230,244	\$0.54	\$8.03	3%	5%
Total	Energy Efficiency + RET Total	982	\$4,543,484	\$0.45	\$4.63	100%	100%

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

Table 3-12 presents 2012 portfolio costs, by program, segmented by the amount projected to be spent on incentives, program delivery, program marketing, utility program administration, and evaluation costs. Refer to Table 3-8 for an explanation of activities included in each cost category.

Table 3-12. 2012 Summary Portfolio Implementation Costs

		2012							
		Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
Residential	Residential New Construction	\$65,000	\$106,134	\$16,480	\$12,350	\$7,999	\$207,963	\$418,949	2.0
	Existing Homes	\$754,576	\$521,148	\$127,572	\$24,701	\$57,120	\$1,485,118	\$631,930	1.4
	Low Income Weatherization	\$309,000	\$19,686	\$0	\$8,234	\$13,477	\$350,397	-\$148,826	0.4
	Subtotal	\$1,128,576	\$646,969	\$144,053	\$45,285	\$78,595	\$2,043,478	\$902,053	1.4
Commercial	C&I Facilities	\$411,750	\$441,693	\$85,344	\$8,234	\$37,881	\$984,902	\$1,202,236	1.9
	Multifamily Direct Install	\$11,249	\$103,783	\$4,601	\$4,117	\$4,950	\$128,700	\$8,399	1.1
	Subtotal	\$422,999	\$545,476	\$89,946	\$12,350	\$42,831	\$1,113,602	\$1,210,635	1.9
Behavior	Home Energy Reports - Pilot	\$152,500	\$17,720	\$0	\$4,117	\$1,743	\$176,080	\$5,663	1.0
	Behavioral Comprehensive Program	\$20,000	\$22,427	\$0	\$4,117	\$1,862	\$48,405	\$324,829	7.7
	Subtotal	\$172,500	\$40,147	\$0	\$8,234	\$3,605	\$224,485	\$330,492	2.5
Support Programs	Education and Outreach	\$0	\$61,813	\$0	\$8,234	\$2,802	\$72,849	\$0	N/A
	Residential Energy Financing	\$263,200	\$362,603	\$25,000	\$8,234	\$5,150	\$664,187	\$0	N/A
	Codes Support	\$0	\$60,095	\$9,014	\$4,117	\$2,929	\$76,155	\$0	N/A
	Program Development, Analysis and Reporting Software	\$0	\$118,485	\$0	\$0	\$0	\$118,485	-\$118,485	0.0
	Subtotal	\$263,200	\$602,996	\$34,014	\$20,584	\$10,881	\$931,675	-\$118,485	N/A
Subtotal	Energy Efficiency Subtotal	\$1,987,275	\$1,835,588	\$268,012	\$86,452	\$135,912	\$4,313,240	\$2,324,696	1.4
RET	Solar Water Heating*	\$187,237	\$17,720	\$8,198	\$8,234	\$8,856	\$230,244	-\$1,546,079	0.9
Total	Energy Efficiency + RET Total	\$2,174,512	\$1,853,308	\$276,211	\$94,686	\$144,768	\$4,543,484	\$778,617	1.0
	Percent of Cost by Category	46%	43%	6%	2%	3%	100%		

*Societal Cost Test cell reflects Program Utility Cost Test result since RET does not need to pass Societal Cost Test.

D. Review of Different Benefit-Cost Tests and Results

As required in A.C.C. R14-2-2512, UNS Gas must ensure that the incremental benefits to society of the overall DSM portfolio exceed the incremental costs to society using the Societal Cost Test. For the analysis of program benefits, a software program we will term *NAVdesign* was developed by Navigant Consulting, Inc. for use by UNS Gas. *NAVdesign* applies avoided cost savings generated by each measure or program, across the entire portfolio. Measure and program level benefit-cost details are available in the appendices.

Program Development

Program development involves selecting the technologies to include in each program as well as estimating participation levels and program costs. Though the DSM portfolio must be cost-effective, there are a number of perspectives on cost effectiveness. Some of these alternative perspectives are described below.

Types of Benefit-Cost Tests

As detailed in Table 3-13, there are five major benefit-cost tests commonly utilized in the energy efficiency industry, each of which addresses different perspectives. The Arizona EES established that the societal cost test should be used as the key perspective for judging the cost-effectiveness of the energy efficiency measures and programs. Regardless of which perspective is used, benefit-cost ratios greater than or equal to 1.0 are considered beneficial. While various perspectives are often referred to as tests, the following list of criteria demonstrates that decisions on program development go beyond a pass/fail test.

Table 3-13. Comparative Benefit-Cost Tests

	SOCIETAL TEST	TOTAL RESOURCE COST TEST	UTILITY RESOURCE COST TEST	PARTICIPANT COST TEST	RATE IMPACT MEASURE TEST
BENEFITS					
Reduction in Customer's Utility Bill				X	
Incentive Paid by Utility/Program Administrator				X	
Any Tax Credit Received		X		X	
Avoided Supply Costs	X	X	X		X
Avoided Participant Costs	X	X		X	
Participant Payment to Utility (if any)			X		X
External Benefits	X				
COSTS					
Utility Admin Costs	X	X	X		X
Participant Costs	X	X		X	
Incentive Costs			X		
External Costs	X				
Lost Revenues					X

Although only required to submit a societal cost test, UNS Gas evaluated the cost-effectiveness of the measures, programs and overall portfolio based on all of the following standard tests:

Societal Cost Test

The Societal Cost Test (“SCT”) is similar to the Total Resource Cost (“TRC”) test however it is also intended to account for the effects of externalities (such as reductions in carbon dioxide (“CO₂”), nitrogen oxides (“NO_x”), and sulfur dioxide (“SO₂”). One additional difference between the TRC and the SCT is that the SCT uses a societal discount rate in the analysis. The SCT is the regulated benefit cost analysis required in the EES and UNS Gas has provided a SCT that accounts for the societal discount rate. UNS Gas is however, unable to provide a true societal test given the uncertain values of environmental externalities. As required by the Commission, UNS Gas will work in 2011 with stakeholders to develop appropriate metrics and monetize costs for water, SO_x, PM10, and NO_x emissions savings as part of the societal cost test in program filings and energy efficiency implementation plans but until a true market is available for CO₂ CO₂ will not be separately monetized. In compliance with Commission Decision No. 72028 (December 12, 2010), UNS Gas will re-file the societal costs with the results of the stakeholder meetings.

Total Resource Cost

The Total Resource Cost test is a test that measures the total net resource expenditures of a DSM program from the point of view of the utility and its ratepayers. Resource costs include changes in supply and participant costs. A DSM program, which passes the TRC test (i.e., a ratio greater than 1), is viewed as beneficial to the utility and its customers because the monetary value of the lifetime energy savings are greater than the DSM costs incurred by the utility and its customers.

Utility Resource Cost Test

The Utility Resource Cost Test, also referred to as the Program Administrator Test (“PAT”) measures the net benefits of a DSM program as a resource option based on the costs and benefits incurred by the utility (including incentive costs) and excluding any net costs incurred by the customer participating in the efficiency program. The benefits are the avoided supply costs of energy and demand, the reduction in transmission, distribution, generation and capacity valued at marginal costs for the periods when there is a load reduction. The costs are the program costs incurred by the utility, the incentives paid to the customers, and the increased supply costs for the periods in which load is increased.

Participant Cost Test

The Participant Cost Test (“PCT”) illustrates the relative magnitude of net benefits that go to participants compared to net benefits achieved from other perspectives. The benefits derived from this test reflect reductions in a customer’s bill and energy costs plus any incentives received from the utility or third parties, and any tax credit. Savings are based on gross revenues. Costs are based on out-of-pocket expenses from participating in a program, plus any increases in the customer’s utility bill(s).

Rate Impact Measure Test

The Rate Impact Measure (“RIM”) Test measures the change in utility energy rates resulting from changes in revenues and operating costs. Higher RIM test scores indicate there will be less impact on increasing energy rates. While the RIM results provide a guide as to which technology has more impact on rates, generally it is not considered a pass/fail test. Instead, the amount of rate impact is usually considered at a policy level. The policy level decision is whether the entire portfolio’s impact on rates is so detrimental that some net benefits have to be forgone.

Table 3-14 summarizes results of the various program level cost effectiveness tests.

Table 3-14. Comparative Benefit-Cost Test Results

		2011 - 2012				
		Societal Cost Test	Total Resource Cost Test	Utility Cost Test	Participant Cost Test	Ratepayer Impact Test
Residential	Residential New Construction	1.8	1.4	2.7	3.3	0.6
	Existing Homes	1.4	1.0	1.1	3.1	0.4
	Low Income Weatherization	0.4	0.3	0.1	2.8	0.0
	Subtotal	1.3	1.0	1.1	3.1	0.4
Commercial	C&I Facilities	1.9	1.4	1.7	3.6	0.6
	Multifamily Direct Install	0.8	0.4	0.4	N/A	0.3
	Subtotal	1.8	1.3	1.6	3.6	0.6
Behavior	Home Energy Reports - Pilot	0.9	0.9	0.9	3.2	0.3
	Behavioral Comprehensive Program	7.1	3.7	3.7	15.0	0.6
	Subtotal	2.2	1.5	1.5	4.6	0.4
Support Programs	Education and Outreach	N/A	N/A	N/A	N/A	N/A
	Residential Energy Financing	N/A	N/A	N/A	N/A	N/A
	Codes Support	N/A	N/A	N/A	N/A	N/A
	Program Development, Analysis and Reporting Software	N/A	N/A	N/A	N/A	N/A
	Subtotal	N/A	N/A	N/A	N/A	N/A
Subtotal	Energy Efficiency Subtotal	1.3	0.9	1.0	3.3	0.4
RET	Solar Water Heating	0.1	0.1	0.8	N/A	0.4
Total	Energy Efficiency + RET Total	1.1	0.8	1.0	2.3	0.4

The section of the EES on cost effectiveness, A.A.C. R14-2-2512, also requires that the incremental benefits to society of the entire DSM portfolio must exceed the incremental costs to society. Table 3-15 summarizes the benefit-cost ratio of the DSM portfolio using the SCT as well as showing results of several other methods of calculating cost effectiveness. It should be noted that RET programs are not required to meet the SCT, and RET has been excluded from Table 3-15.

Table 3-15. DSM Portfolio Cost Effectiveness

Year	Societal Cost Test	Total Resource Cost Test	Utility Cost Test	Participant Cost Test	Ratepayer Impact Test
2011 - Portfolio	1.1	0.8	0.9	3.3	0.4
2012 - Portfolio	1.4	1.0	1.1	3.3	0.4
2011-2012 Total	1.3	0.9	1.0	3.3	0.4

E. Environmental Benefits

UNS Gas estimates that implementation of the proposed portfolio will result in significant reductions in CO₂, NO_x and SO₂ from fossil fuel power plant emissions over the lifetime of the installed efficiency measures. Table 3-16 details both annual and lifetime environmental benefits of the 2011 and 2012 portfolios.

Table 3-16. Environmental Benefits

	2011-2012 Total					
	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
2011 - Portfolio	1,617	1.3	0.0	27,268	21	0.2
2012 - Portfolio	5,058	3.8	0.0	49,910	39	0.4
2011-2012 Total	6,675	5.1	0.1	77,178	61	0.7

IV. Residential Programs

The following section presents updates of UNS Gas's residential programs, with specific focus on new measures and proposed changes consistent with requirements of Section R-14-2-2507 of Decision No. 72042. This section also presents a summary discussion of UNS Gas's new programs. Detailed program descriptions and cost-effectiveness results for each new program are included in the appendices.

A. Residential New Construction

UNS Gas is requesting budget approval to continue this program with one modification that updates the construction standard and energy savings to Energy Star[®] v3.

Program Description

This program is a continuation of the existing program design that was approved by Decision No. 72023 (December 10, 2010) for the "Energy Smart Home-Joint Program". This is a joint-utility residential new construction program. The Program is designed with an incentive schedule that awards builders an additional incentive for installation of more efficient gas heating and water heating equipment than that required in the electric service providers residential new home construction program. To qualify for an incentive, homes must first qualify for the APS Energy Star new home program, be tested by an approved energy rater, and meet the required Home Energy Rating System ("HERS") Index score. On the HERS index scale, a score of 100 is considered the average efficiency of baseline new construction. A HERS index score of 0 represents a home that produces all of its energy through on-site generation from renewable energy. Therefore, the lower the HERS score, the more efficient the home. Tier 1 requires a minimum of a HERS that is ≤ 85 , Tier 2 requires a minimum of HERS ≤ 70 .

Program Objectives and Rationale

The objectives of the residential new home construction program are to advance energy efficient building practices, through builder training; customer awareness of the benefits of energy efficient construction; and the installation of higher efficiency gas furnaces (Minimum 92 AFUE) and more efficient hot water systems (Minimum 0.67 EF) in the warmer climates of Kingman and Santa Cruz County, and installation of even higher efficiency gas furnaces (Minimum 94 AFUE) and more efficient hot water systems (Minimum 0.67 EF) in colder climates of Flagstaff, Prescott, Show Low, etc.

New Measures for 2011-2012

No new measures are anticipated for 2011 or 2012; however, new savings estimates were completed to update construction standards to Energy Star[®] v3.

Delivery and Marketing Strategy

Program delivery is provided jointly, by a third party implementation contractor selected through competitive bid, UNS Gas staff and participation of independent RESNET approved home energy raters (HERs). The contractor provides outreach to targeted builders, conduct builder training on marketing Energy Star[®] homes and on the Energy Star[®] performance standard, and coach and mentor participating builders and raters.

The program is marketed to select builders primarily through direct business-to-business contacts. The program is marketed to consumers at home shows, parade of homes, and other events focused on home-building as advertised through mass market and targeted media outlets.

Measurement, Evaluation, and Research Plan

The MER plan is consistent with previously filed strategy.

B. Existing Homes and Audit Direct Install

UNS Gas is requesting budget approval to continue this program plus approval for adding these additional measures: high-efficiency residential boilers; pipe wrap; and hi-efficiency pool and spa heaters.

Program Description

The Existing Homes and Audit Direct Install Program is a newly approved program that replaces the former Residential HVAC program. The program was approved by Commission Decision Nos. 72045 (December 10, 2010) and 72056 (January 6, 2011). The program is targeted to all existing homes in need of energy efficiency improvements. The program has two components. The first component is an initial energy audit (includes the direct installation of low-flow shower heads and faucet aerators), followed by the identification of actionable, larger scale home energy efficiency improvements, which is then followed by a referral to a local Building Performance Institute (“BPI”) certified contractor to implement major home energy improvements such as insulation, air-sealing, and HVAC. The second component is the promotion of the installation of pipe wrap, high-efficiency storage water heaters, and high-efficiency pool and spa heaters. In order to increase the number of approved energy efficiency upgrades to the existing homes in its service territory, UNS Gas is requesting approval to add high-efficiency residential boilers, pipe wrap, and high-efficiency pool and spa heaters to the list of approved measures. These additional energy efficiency options will reduce gas consumption, further improve the energy efficiency of existing homes in the UNS Gas service territory, and assist UNS Gas in achieving energy efficiency goals.

UNS Gas plans to submit the Existing Home Program to the Environmental Protection Agency (“EPA”) with a request to utilize EPA labeling as Home Performance with Energy Star®.

Program Objectives and Rationale

The program achieves energy savings from the installation of energy efficient measures and contributes toward transforming the industry to emphasize best practice building science principles. The program invests in training and mentorship of participating contractors to understand the “house as a system” building science and to achieve BPI certification. UNS Gas has included a Residential Financing Pilot Program in this Plan for 2011-2012 which will be used to enhance participation in this program.

New Measures for 2011-2012

Table 4-1 presents new measures to be rebated by the program in 2011 and 2012. Previously approved measures, and associated incentive levels and participation forecasts are included in Appendix F.

Table 4-1. Measure Efficiencies, Incentive Level and Participation, Benefit-Cost

Measure Name	Base Efficiency	High Efficiency	Unit	Avg. Incentive Per Unit	2011 Est. Units	2012 Est. Units	Measure Level Societal Cost Test
High Efficiency Space Heating Boiler	AFUE 80	AFUE 88	System	\$500	50	60	1.2
Pipe Wrap	No Pipe Wrap	Pipe Wrap on First 6 Feet	Wrap	\$12	200	300	1.2
High Efficiency Pool and Spa Heater (<500 kBtuh)	AFUE 83	AFUE 86	Heater	\$150	5	5	2.2

*Additional detail on measure level savings, societal benefits/costs, and environmental benefits of both new and existing measures is included in Appendix F.

Delivery and Marketing Strategy

UNS Gas provides program management oversight and marketing. A third party implementation contractor will be responsible for recruitment, training, and mentorship of participating contractors, retailers and manufacturers, training energy auditors, data tracking, rebate processing, and technical support. Energy auditors will provide referrals to BPI certified contractors and solar installers, and referral information will be reported to UNS Gas. Measure installation to residential customers will be provided by participating independent contractors. In 2011-2012, program delivery will be coordinated with APS and UNS Electric to address programming overlap among the utilities.

UNS Gas provides program marketing and customer awareness-building through website promotion, community interest groups, mass-market channels (e.g. radio, newspaper, et cetera), brochures and bill inserts, high bill inquiries, trade ally marketing efforts, contractor enrollment and training.

Measurement, Evaluation, and Research Plan

The MER plan is consistent with previously filed strategy.

C. Low Income Weatherization

UNS Gas is requesting budget approval to continue the Low-Income Weatherization Program (“LIWP”) and, as ordered in Commission Decision No. 71623 (April 14, 2010), to modify income eligibility from 150% of poverty level to match the poverty level set by LIHEAP, as it may change from time to time. The current level set by LIHEAP is 200% of poverty level. UNS Gas is also requesting a change to increase the maximum spending per home from \$2,000 to \$3,000 to be consistent with UNS Electric and TEP.

Program Description

The LIWP is an ongoing element of the program portfolio and was approved by Commission Decision No. 70180 (February 27, 2008). LIWP helps conserve energy and lower utility bills for UNS Gas households with limited incomes by funding the weatherization of eligible homes. Weatherization measures fall into four major categories: duct repair, pressure management/infiltration control, attic insulation, and repair or replacement of non-functional or hazardous appliances. Weatherization is conducted in accordance with the Weatherization Assistance Program (“WAP”), a program funded by the U.S. Department of Energy. Household income and participation guidelines will be consistent in an on-going manner with current policy criteria used by the Arizona Energy Office, a division of the Arizona Department of Commerce.

Program Objectives and Rationale

The objectives of the program are: 1) to coordinate with the Arizona Energy Office to follow approved state WAP rules when using funding from UNS Gas; 2) to lower the average household energy consumption for low-income customers; and 3) to increase the number of homes weatherized annually. The program funding provides up to \$3,000 per residence for energy efficient weatherization measures, equipment replacement and/or repair, et cetera, for low-income customers within the UNS Gas service area. Agencies are allowed to use up to 25% of their annual budget for health and safety related repairs. Agencies may request a waiver of the \$3,000 limitation on a case-by-case basis;

New Measures for 2011-2012

No new measures are included in the program for 2011 and 2012.

Delivery and Marketing Strategy

LIWP is delivered by Western Arizona Council of Governments (WACOG), Northern Arizona Council of Governments (NACOG) and Southeastern Arizona Community Action Program (SEACAP), who are State-approved weatherization agencies, providing program administration, planning, program promotion, coordination, participant eligibility and priority, labor, materials, equipment and entering results into tracking software. Funding is provided to all agencies from UNS Gas upon documentation of work completed.

Due to the popularity of the program, DSM revenues are not allocated for advertising and promotion. Program promotion occurs mainly through community action agency partners that deliver presentations to community organizations, and/or by leaving information at neighborhood community and recreation centers, and by responding to calls directed from UNS Gas. UNS Gas also provides website promotion and information during speaking engagements and outreach presentations.

Measurement, Evaluation, and Research Plan

The MER plan is consistent with previously filed strategy.

V. Commercial & Industrial Programs

The following section presents updates of UNS Gas’s previously approved Commercial and Industrial (“C&I”) Facilities Program, with specific focus on new measures and proposed changes consistent with requirements of A.A.C. R-14-2-2507 (effective January 4, 2011). This section also presents a summary discussion of UNS Gas’s new commercial program, the Multifamily Direct-Install Program. Detailed program descriptions and cost-effectiveness results for each new program are included in the appendices.

A. C&I Facilities

Program Description

UNS Gas is requesting budget approval to continue the C&I Facilities program plus approval for adding measures, removing incentive caps for C&I customers and for School Districts, and modifying the delivery of the program to a direct install program similar in all respects to the Tucson Electric Power Company (“TEP”) Small Business Program and the UNS Electric C&I Facilities Program. UNS Gas is requesting approval to add the following 16 measures:

- High-Efficiency (“HE”) Fryers;
- HE Vat Fryers;
- HE Combination Ovens;
- HE Convection Ovens;
- HE Conveyor Ovens (<25” and >25”);
- HE Rack Ovens (Single and Double);
- HE Energy Star[®] Steam Cookers;
- HE Condensing Unit Heaters (131,000 – 305,000 Btuh);
- Power-Vented Unit Heaters – Early Retirement of Gravity-Vented Unit Heaters (150,000 – 300,000 Btuh);
- Programmable Thermostats;
- HE Space Heating Steam Boilers (>300 kBtuh)
- HE Pool and Spa Heaters (<500 kBtuh);
- Commercial Multi-Family Clothes Washers, CEE Tiers 1, 2 and 3;
- Steam Trap Surveys and Replacements;
- Low-Flow Pre-Rinse Spray Valves; and
- Custom Measures.

Program Description

UNS Gas is requesting approval to modify the delivery of the C&I Facilities program to parallel the TEP Small Business Direct Install program and the UNS Electric C&I Facilities program by paying incentives directly to installing contractors. The existing program, approved previously in Commission Decision No. 70180 (February 27, 2008), provided a prescriptive incentive structure

where incentives are paid directly to customers. The original program offers incentives for a very limited group of energy efficiency measures in existing facilities. Participation in the existing program has been very low to date. As such, the new program significantly increases the group of eligible cost-effective measures offered to C&I Customers, including boilers, storage water heating, furnace replacement, and a wide array of cooking equipment. In order to increase program participation, UNS Gas is requesting approval to modify delivery of this program, with average incentive levels of 75% of incremental cost paid directly to the contractor. Such a program design has been extremely successful for TEP and UNS Electric, and UNS Gas believes this change will remove existing barriers that limit participation in the program, as customers will only be required to pay the amount of the retro-fit that is not covered by utility incentives. UNS Gas is also requesting removal of the \$8,000 incentive cap for C&I customers and the \$25,000 incentive cap per school district, as these caps provide a disincentive to customer participation.

Program Objectives and Rationale

The C&I Facilities program is designed to address the barriers to this market segment, including limited investment capital, limited awareness of energy cost savings, and required short-term payback. The program's purpose is to persuade small business customers to install high-efficiency equipment at their facilities and encourage contractors to promote the program.

New Measures for 2011-2012

Previously approved measures, and associated incentive levels and participation forecasts are included in Appendix F. Table 5-1 presents the average incentive levels anticipated for the new measures. UNS Gas specifically notes that incentive levels are average as they represent the weighted result of the average incentive for a measure, which varies depending on the size, type, or Btu/h output of the equipment being rebated. Incentives that the public see for these measures may be slightly higher or lower, depending again on the size of the equipment under consideration. Overall, incentive levels have been designed to not exceed 75% of incremental costs.

Table 5-1. Measure Efficiencies, Incentive Level and Participation, Benefit-Cost

Measure Name	Base Efficiency	High Efficiency	Unit	Avg. Incentive Per Unit	2011 Est. Units	2012 Est. Units	Measure Level Societal Cost Test
High Efficiency Space Heating Steam Boiler	AFUE 78	AFUE 82	Boiler	\$1,800	0	10	2.6
High Efficiency Fryer	35% Efficiency	50% Efficiency	Fryer	\$900	0	15	2.2
High Efficiency Large Vat Fryer	35% Efficiency	50% Efficiency	Fryer	\$900	0	15	2.6
High Efficiency Combination Oven	35% Efficiency	40% Efficiency	Oven	\$1,000	0	10	2.0
High Efficiency Convection Oven	30% Efficiency	44% Efficiency	Oven	\$1,000	0	10	1.6
High Efficiency Conveyor Oven (<25")	20% Efficiency	42% Efficiency	Oven	\$400	0	10	10.0
High Efficiency Conveyor Oven (>25")	20% Efficiency	42% Efficiency	Oven	\$900	0	10	5.1
High Efficiency Rack Oven (Single)	30% Efficiency	50% Efficiency	Oven	\$1,000	0	10	5.4
High Efficiency Rack Oven (Double)	30% Efficiency	50% Efficiency	Oven	\$1,000	0	10	7.8
High Efficiency Energy Star® Steam Cooker	15% Efficiency	38% Efficiency	Cooker	\$1,750	0	10	4.4
Condensing Unit Heater	AFUE 83	AFUE 92	System	\$400	0	10	3.3
Power Vented Unit Heater	AFUE 63	AFUE 83	System	\$2,000	0	10	3.2
Programmable Thermostats	Baseline Thermostat	Energy Star®	Building	\$100	0	50	1.7
High Efficiency Pool and Spa Heater (<500kBtuh)	AFUE 83	AFUE 86	Heater	\$150	0	5	2.2
Low-Flow Pre-Rinse Spray Valve	Standard	Low Flow	Valve	\$50	0	50	4.6
Commercial/Multifamily Clothes Washer CEE Tier 1	Standard	CEE Tier 1; MEF 2; WF 6	Washer	\$75	0	50	3.8
Commercial/Multifamily Clothes Washer CEE Tier 2	Standard	CEE Tier 2; MEF 2.2; WF 4.5	Washer	\$75	0	50	4.0
Commercial/Multifamily Clothes Washer CEE Tier 3	Standard	CEE Tier 3; MEF 2.4; WF 4	Washer	\$75	0	50	2.1
Steam Trap Survey and Replacement - Commercial	Standard	Survey and replace failed traps	Trap	\$250	0	200	2.3
Steam Trap Survey and Replacement - Industrial	Standard	Survey and replace failed traps	Trap	\$250	0	25	11.7
**Custom Measures	No Action	Custom	Customer	\$2,700	0	5	4.8

*Additional detail on measure level savings, societal benefits/costs, and environmental benefits of both new and existing measures is included in Appendix F.

**Custom incentive is based on a projection of covering 75% of incremental cost for a typical custom project and is equivalent to \$2,700 based on first year savings.

Delivery and Marketing Strategy

The program will be operated as an “up-stream” market program, offering incentives directly to pre-qualified installing contractors to provide turn-key installation services to customers, intended to reduce the measure payback to one year or less. The program also includes consumer and trade ally educational and promotional pieces designed to provide decision makers in the small business market with the information necessary to make informed choices (and increase awareness).

The marketing strategy includes education seminars tailored to the small business market, major media advertising, website promotion, outreach and presentations at professional and community forums, and direct outreach to customers.

Measurement, Evaluation, and Research Plan

The MER plan is consistent with previously filed strategy.

B. Multifamily Direct-Install Program

Program Description

UNS Gas is requesting budget approval to add a Multifamily Direct-Install program to the UNSG Portfolio. A full program description for this program is included as Appendix A.

Multifamily housing has traditionally been a difficult sector to reach for utility DSM programs. These buildings represent huge efficiency potential and also substantial barriers to implementation. The major barriers include lack of capital, and lack of knowledge/awareness of the benefits of energy efficiency improvements. Further complicating matters, multifamily housing is defined differently by different money lending entities. Properties with 2-4 dwelling units typically fall under residential financing guidelines and the decisions makers are usually individuals. Larger properties with 5 dwelling units or more typically fall under commercial lending guidelines and decision-makers (at least for larger complexes) are typically corporate, institutional, or trusts (e.g., Real Estate Investment Trusts). As such, the decision making process and access to capital differs significantly between these two market segments. With this distinction in mind, the 2-4 unit market segment can be best served by the residential Existing Homes Program, and the 5+ Multifamily Housing market segment will be served by both the Multifamily Direct-Install Program and/or the C&I Facilities program.

In order to encourage energy efficiency upgrades, the program will initially offer the following delivery tracks:

- A direct installation of selected low cost energy efficiency improvements in existing complexes; and
- Common area energy efficiency improvements in existing complexes that will be handled through the C&I Facilities program.

As the program develops and matures, UNS Gas will examine a third track to encourage more comprehensive dwelling unit energy efficiency improvements in existing complexes. With these delivery options to choose from, property owners and managers have a variety of solutions to fit their needs. A full program description and benefit cost analysis is included in Appendix A.

Program Objectives and Rationale

By delivering this program with a focus on reducing key market barriers and targeting key decision makers, this program can contribute significantly to the achievement of UNS Gas’s DSM program energy savings goals by lowering energy usage in multifamily housing complexes.

The objectives of the program are to:

- Reduce overall energy consumption in the multifamily housing market segment;
- Promote energy efficiency retrofits of both dwelling units and common areas in this market segment;
- Increase overall awareness about the importance and benefits of energy efficiency improvements to the landlord and property ownership community; and
- Help meet the energy savings targets of the UNS Gas DSM program portfolio.

Energy Savings and Cost Effectiveness

Table 5-2 presents measures to be rebated by the program in 2011 and 2012, measure efficiencies and participation goals. A full program description and benefit cost analysis is included in Appendix A.

Table 5-2. Measure Savings, Incentive Level and Participation, Benefit-Cost

Measure Name	Base Efficiency	High Efficiency	Unit	Avg. Incentive Per Unit	2011 Est. Units	2012 Est. Units	Measure Level Societal Cost Test
Low Flow Showerhead	4 GPM	1.5 GPM	Showerhead	\$35	0	275	8.6
Kitchen Faucet Aerators	2.2 GPM	1.5 GPM	Aerator	\$3	0	275	36.6
Bathroom Faucet Aerators	2.2 GPM	1 GPM	Aerator	\$3	0	275	33.8

Delivery and Marketing Strategy

In order to help ensure energy efficiency upgrades in existing complexes, delivery of this program will be through a direct installation effort, focusing on the implementation of faucet aerators, and low flow showerheads in existing dwelling units. The installation will be at no cost to the owner, and the program will pay the full cost of product installation. The installation can be completed either through the facility’s existing maintenance or management personnel or via a program authorized installation contractor. Common area energy efficiency improvements in existing complexes will be handled through the C&I Facilities program.

Measurement Evaluation and Research Plan

The MER team will develop a MER research plan and conduct annual evaluation research on the achievements of this program.

VI. Behavioral Comprehensive Programs “UNS Gas Energy Partnership”

This section presents a summary discussion of UNS Gas’s proposed new program offerings in the behavioral suite of programs. Detailed program descriptions and cost-effectiveness results for each new program are included in Appendix B.

A. Behavioral Comprehensive

Program Description

The Behavioral Comprehensive program is a new program offering in the 2011-2012 portfolio. This filing provides information on behavioral approaches, which together are being called the Behavior Comprehensive program. UNS Gas is requesting budget approval to add this program to the UNS Gas portfolio.

Behavioral based energy efficiency programs are designed to affect several types of energy use behaviors, such as habitual behaviors (e.g., turning off lights or adjusting the thermostat), purchasing behaviors (e.g. buying efficient lights and appliances), and the behavior of being motivated to participate in utility DSM programs. The new Behavioral Comprehensive program targets specific and relevant efficiency recommendations to each customer, making it easier for each customer to take action on the recommendations and programs most relevant to them. .

The following types of behaviors targeted in this comprehensive program will generate both gas and electric savings through a variety of customer actions:

- Habitual behaviors:
 - Adjust thermostat setting; and
 - Using cold water for laundry;
- Small purchasing and maintenance behaviors:
 - Purchase and install faucet aerators and low flow shower heads; and
 - HVAC maintenance;
- Larger purchasing decisions:
 - Purchase an Energy Star® appliance ; and
 - Purchase higher EE heating and cooling system through participation in a UNS Gas DSM program.

In 2011-2012, the Behavioral Comprehensive program will be limited to the Home Energy Reports Pilot Program, discussed separately, and K-12 Education (Table 6-1). UNS Gas will evaluate additional delivery mechanisms for future Plans and consider adding more mechanisms to this list in 2013.

Table 6-1. Summary of Behavioral Programs

Behavioral Programs			
1	Home Energy Reports		Comparison of energy use to that of neighbors
2	Behavior Comprehensive	K-12 Education	Classroom education including take home direct install kits

Program Objectives and Rationale

The main objective of behavioral programs is to provide customers with more information to allow them to better understand and manage their energy usage. Several approaches are being

implemented and will be assessed to determine the effectiveness and benefits of making this information available.

Some of the programs' major objectives include:

- Generate significant savings for DSM portfolio objectives;
- Enhance relationships with UNS Gas customers leading to other areas of participation in UNS Gas's portfolio of DSM programs;
- Promote efficient building operations;
- Lower energy bills for the consumer; and
- Educate the next generation of consumers via the school education programs so they are aware of the importance of energy efficiency.

Delivery and Marketing Strategy

Initially, this program will be offered through two implementation contractors. One implementation contractor will work with teachers in K-12 Educational facilities and another will deliver the Home Energy Reports.

Measurement, Evaluation, and Research Plan

An overview of the MER plan for this program is included as part of the larger program design filing, detailed in Appendix B.

B. Home Energy Reports Pilot Program

Program Description

UNS Gas's Home Energy Report Pilot program offered by OPOWER is part of the Behavioral Comprehensive program. Due to limited information for gas-only or for dual-fuel programs, the energy savings provided by OPOWER is based on the implementation contractor's best estimate of potential savings. Given the dual-fuel strategy for capturing both electric and gas savings via home energy reports, it is possible that customers may elect to proceed with measures that generate more electric or more gas savings. UNS Gas is therefore suggesting the Home Energy Report program as a pilot program through 12/31/2012 to enable UNS Gas and the implementation contractor time to evaluate savings on the gas side from both options.

UNS Gas's Home Energy Report Pilot Program is designed to affect: i) habitual behaviors like adjusting the thermostat; ii) purchasing behaviors such as buying efficient gas appliances; and iii) the behavior of participating in utility DSM programs. This is accomplished through distributing reports on an opt-out basis that compare a customer's energy use to that of neighbors with similar home attributes, which has been documented to instill a sense of competition and action in customers, leading to reduced energy consumption

The major objectives from this Program are to:

- Generate significant savings toward DSM portfolio objectives;
- Educate and inspire customers to take advantage of other DSM programs;
- Enhance a positive utility image;
- Promote efficient building operations; and
- Reduce energy bills for consumers.

UNS Gas service territory includes customers who receive gas service from UNS Gas and electric service from UNS Electric. UNS Gas service territory also includes customers who receive gas service from UNS Gas and electric service from APS. UNS Electric and APS have already filed an order to include Home Energy Reports in their individual DSM Portfolios, but these reports would not include recommendations for gas efficiency.

UNS Gas has developed a unique methodology to maximize potential savings and reduce total costs for dual fuel customers in the UNS Gas/UNS Electric joint service territories. UNS Electric has agreed to work with the implementation contractor to deliver dual-fuel reports to customers in this joint-utility service territory and UNS Gas will bear the incremental increase in cost to develop dual-fuel reports. UNS Electric will report the electric energy savings from these joint-utility customers and UNS Gas will report the gas energy savings from the same homes.

In the northern part of the UNS Gas service territory that is jointly served by APS, UNS Gas discussed a similar arrangement with APS. It was determined that APS will be concentrating Home Energy Reports through their program in the metro-Phoenix and Yuma areas due to the significantly higher electric energy use of these customers. Therefore, APS customers in the joint service territory with UNS Gas will not be included in early years of the APS program. Customers in this northern area for UNS Gas are customers with the highest gas consumption in the territory and it is important to include this group of customers in the program. Therefore, UNS Gas will include this northern area in its Home Energy Report program as gas-only reports and bear the entire cost of these reports in the UNS Gas program budget.

All Home Energy Report products will be automatically mailed to the target market by the implementation contractor. Thus, no direct marketing is anticipated for this program. UNS Gas will, however, jointly develop the marketing message contained in the Home Energy Reports with the contractor. The program will also be included in the integrated marketing approach developed and used for all DSM measures.

Program Objectives and Rationale

The major objectives from this program are to: generate significant savings for DSM portfolio objectives; educate and empower customers to take advantage of other DSM programs; promote efficient building operations; and reduce energy bills through behavioral modifications for consumers.

New Measures for 2011-2012

Table 6-2 presents measures to be implemented by the program in 2011 and 2012, description of base and high efficiency, and the schedule for implementation as noted by the year in which the initiatives will be rolled out. The energy savings is based on the implementation contractor's best estimate of potential savings and represents the average annual two-year energy savings for both dual-fuel customers and gas-only customers. It is common for the first-year energy savings to be less than the second-year energy savings due to the persistence of messaging received by customers and the impact of this messaging on customer behavior. Savings estimates for this two-year pilot program were determined by assuming 0.85% savings in year one and 1.35% in year two, or an average of 1.15% savings for each of the two years. A full program description and benefit cost results are included in Appendix B.

Table 6-2. Measure Efficiencies, Incentive Level, and Participation, Benefit-Cost

Measure Name	Base Efficiency	High Efficiency	Unit	Avg. Incentive Per Unit	2011 Est. Units	2012 Est. Units	Measure Level Societal Cost Test
Home Energy Reports (Gas Only – 2011)	No Action	1.15% Savings	Customer	\$7	0	-	1.02
Home Energy Reports (Gas Only – 2012)	No Action	1.15% Savings	Customer	\$7.50	-	15,000	0.96
Home Energy Reports (Dual Fuel Only – 2011)	No Action	1.15% Savings	Customer	\$2	0	-	1.9
Home Energy Reports (Dual Fuel Only – 2012)	No Action	1.15% Savings	Customer	\$2	-	20,000	1.9

Program Implementation Schedule

Immediately following Commission approval for the Home Energy Reports, UNS Gas will begin working with the implementation contractor to design dual-fuel reports and messaging to include on reports. UNS Gas and the implementation contractor will also work to secure customer data sharing to enable selection of the target group and the control group. It is anticipated that the Home Energy Reports Pilot will be launched within 6 months of Commission approval.

C. K-12 Education Program

The K-12 Education approach is an extension of the existing UNS Electric education program. In this approach, in addition to energy based class room curriculum, students will be instructed in energy saving approaches that can be implemented in their homes. Students will be provided a take home kit which includes several energy saving devices such as low-flow shower heads, faucet aerators and educational materials regarding actions that can be taken to reduce energy use. UNS Gas will target teachers who are willing to add the energy based classroom curriculum and provide students with this educational opportunity. K-12 Education program will be delivered by a third party implementation contractor experienced in this approach. Energy savings related to this program are derived from items included in the take-home kit and information on the response card collected by the teacher as to what measures were installed.

Program Marketing and Communication Strategy

Marketing of the behavior approaches will be handled by the implementation contractors and coordinated with UNS Gas’s overall messaging to reinforce the effectiveness of the behavior programs. Each approach will involve a unique strategy. The K-12 Education approach involves sending students home with energy conservation kits. Those who receive the kits will be those who receive the energy curriculum provided by the implementation contractor. The program will not be marketed through traditional channels. Effort will be made when possible to coordinate the school program with other efforts in the same neighborhood.

New Measures for 2011-2012

Table 6-3 presents measures to be implemented by the program in 2011 and 2012, description of base and high efficiency, and the schedule for implementation as noted by the year in which the initiatives will be rolled out. A full program description is included in Appendix B.

Table 6-3. Measure Efficiencies, Incentive Level and Participation, Benefit-Cost

Measure Name	Base Efficiency	High Efficiency	Unit	Avg. Incentive Per Unit	2011 Est. Units	2012 Est. Units	Measure Level Societal Cost Test
K-12 Education Kit	No Action	1 showerhead, 1 furnace whistle, 1 faucet aerator	Kit	\$33	0	600	18.7

Program Implementation Schedule

Immediately following Commission approval for the K-12 Education program, UNS Gas will begin recruiting teachers. The curriculum and take-home kits will be offered during the next available school semester following program approval.

VII. Renewable Energy Technology (“RET”)

This section presents a summary discussion of UNS Gas’s proposed new RET program for solar/thermal water heating. A detailed program description and cost-effectiveness results for this new program is provided in the appendices. UNS Gas is requesting budget approval to add this program to the UNS Gas Portfolio.

A. Solar/Thermal Water Heating

Program Description

UNS Gas will offer Solar Thermal Water Heating System incentives to existing residential, residential new construction and existing and new small commercial customers in the UNS Gas service territory. Incentives will be offered to participating customers on qualified solar thermal systems upon proof of purchase and after the system is installed and operational. In order to qualify for the UNS Gas incentive, each system must be listed by the Solar Rating Certification Council (“SRCC”) and have OG-300 certification. This renewable technology incentive will be in addition to renewable incentives offered by electric utilities. Renewable Energy Standards and Tariff (“REST”) rules clearly outline the maximum utility incentive that can be paid, listed as a percentage of total system cost. This maximum incentive would be the total incentive from both electric and gas utilities. UNS Gas will assure that the total combined incentive will not exceed the maximum allowed utility incentive as outlined in the REST rules by first, applying the appropriate calculation to determine the incentive customers will receive from the electric service utility. Next, calculations will be made to determine the incentive customers will receive from UNS Gas. The UNS Gas incentive will be adjusted if necessary, so the total utility incentive to the customer does not exceed the allowable percentage of total installed cost necessary to meet REST rules. See Appendix D for further detail.

The major barriers to installation of solar thermal water heating systems include lack of up-front capital and lack of knowledge/awareness of the benefits solar thermal water heating offers as an energy efficiency improvement. The UNS Gas program will help remove barriers to the installation of solar thermal water heating and increase customer acceptance and program participation. Customers can either choose to receive the incentive themselves, or choose to assign the incentive payment directly to the installer, thus reducing initial out-of-pocket investments.

Program Objectives and Rationale

As noted in A.A.C. R14-2-2504 (A), RET programs are approved in the Gas EES and energy savings from RET programs (expressed in therms or equivalent therms) may be included toward meeting the energy saving goal. For gas utilities with limited gas end-use appliances/measures, water heating provides one of the largest gas end-uses. The inclusion of solar water heating as an approved RET program will be a critical element for UNS Gas to meet the 6% cumulative energy savings goals by 2020. Southwest Gas Company has developed a similar program offering including similar incentives to the program proposed by UNS Gas. By delivering this program with a focus on reducing key market barriers and by leveraging promotion and delivery through approved energy efficiency programs, this program can contribute significantly to the achievement of UNS Gas’s DSM savings goal.

The objectives of the program are to:

- Provide opportunities for participation for all customers;
- When feasible, maximize opportunities for program coordination with other UNS Gas efficiency programs (e.g., Existing Homes Program, Joint-Utility New Home Program, C&I Facilities Program) and with electric utility efficiency programs to yield maximum benefits;
- Maximize program savings at a minimum cost by striving to achieve comprehensive cost-effective savings opportunities.;
- Use trained and qualified trade allies such as electricians, HVAC contractors, builders, architects engineers and solar installers to transform the market for efficient technologies; and
- Inform and educate customers to encourage more efficient energy use decisions.

New Measures for 2011-2012

Table 7-1 presents measures to be implemented by the program in 2011 and 2012, description of base and high efficiency, and the schedule for implementation as noted by the year in which the initiatives will be rolled out. A full program description is included as Appendix D.

Table 7-1. Measure Efficiencies, Incentive Level and Participation, Benefit-Cost

Measure Name	Base Efficiency	High Efficiency	Unit	Avg. Incentive Per Unit	2011 Est. Units	2012 Est. Units	Measure Level Societal Cost Test
Residential Retrofit	No Solar	OG300 Rated System	Home	\$672 or \$7/therm	0	200	0.2
Residential New Construction	No Solar	OG300 Rated System	Home	\$672 or \$7/therm	0	50	0.2
Commercial Retrofit	No Solar	OG100 Rated System	Collector	\$400 per panel	0	50	0.2

*Additional detail on measure level savings, societal benefits/costs, and environmental benefits of new measures is included in Appendix F. Note- it is not a Commission requirement that RET programs be cost-effective.

Delivery and Marketing Strategy

This program will be delivered by solar installers in the UNS Gas service territory who are listed as approved contractors for the electric service utility in the area. Training and certification required by the electric service utility will be sufficient to meet the needs of UNS Gas. Contractors must maintain all licenses, and bonding required by the electric service utility in order to participate in the UNS Gas program.

Key elements of the implementation strategy may include:

- Approved systems must have SRCC OG-300 certification to qualify for incentives.
- It is preferred that existing homes and commercial properties with current gas water heating systems install gas back-up for the solar/thermal unit. However, customers will be provided the option to install either gas or electric back-up. If electric back-up is installed, UNS Gas will report the therm equivalent savings provided by the solar system.
- It is preferred that new homes and commercial properties with gas to the property install gas back-up for the solar/thermal unit. In the event that gas service is not available to the

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

property, UNS Gas will report savings based on the therm-equivalent energy savings received from the renewable technology.

- Marketing for solar/thermal water heating systems will be incorporated in the messaging offered through the Existing Homes Program, the C&I Facilities Program and the Joint-Utility New Homes Program offered by UNS Gas.
- System acceptance inspections, as required by the electric service utility will be completed by the electric service utility in exchange for system information to allow electric service utility to claim and report available Renewable Energy Credits.

As the program develops and matures, UNS Gas will examine the effectiveness of this program and determine if modifications are necessary to assure success.

Measurement, Evaluation, and Research Plan

An overview of the MER plan for this program is included as part of the larger program design filing, detailed in Appendix D.

VIII. Support Programs

Support programs cut across the other program areas and provide technical and financial support for the effective implementation of all other programs.

A. Education and Outreach

UNS Gas is requesting budget approval to add this program to the UNS Gas portfolio. A full program description is included in Appendix E.

Program Description

UNS Gas believes that to meet overall performance goals for energy savings, the concept of energy efficiency must be understood and embraced by its customers. Messages that communicate the general concept of DSM and the importance of energy efficiency to the customer should be included in many areas of communication. This education and outreach is intended to encourage higher levels of participation in DSM programs offered by UNS Gas, and is an essential piece of any market transformation effort.

The goal of residential and commercial energy education program is to educate UNS Gas's residential and commercial consumers on how to conserve energy and lower their gas utility bills. Educating customers about their energy use decisions, actions and inactions, as well as options for greater efficiency, provides a foundation from which efficient actions can take place. This is accomplished in a variety of ways discussed later in this report.

Program Objectives and Rationale

The program's goal is to provide customers with the tools and knowledge necessary to better manage their energy use. This is accomplished through targeted education on ways to conserve energy, lower their electric utility bills, achieve cost effective energy savings, and reduce peak demand. The Education and Outreach Program is intended to help customers understand and embrace the concept of DSM to encourage higher levels of participation in DSM programs offered by UNS Gas. Further, the goal is to generate awareness among tomorrow's consumers about the implications of energy use decisions, actions and inactions, the value of energy and the need to use it wisely for a better future for all.

The Education and Outreach program has the potential to deliver messaging that will result in energy reductions. This program also supports all DSM program marketing and advertising efforts. To achieve energy reduction goals from the DSM portfolio of programs, the customer must hear similar and supporting messages through many avenues of communication. The Education and Outreach program provides the opportunity for all utility customer segments to hear supporting messages and become more knowledgeable about energy use and energy cost saving opportunities in their homes and businesses.

Delivery and Marketing Strategy

UNS Gas will communicate and educate residential and commercial customers through a variety of avenues:

- Bill messages will be used to provide information to current customers;
- uesaz.com will display information during the winter months to help Web users quickly find the energy savings information;

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

- UNS Gas customer care representatives will be trained to answer any customer questions and they will know where to direct customers on uesaz.com;
- Brochures will be created to be mailed on demand. These will be distributed through the call center and uesaz.com and will be available for various public awareness events (school training, presentations, seminars, etc);
- Inserts will be added to customer bills to educate them on ways to help lower their gas bills;
- Email newsletter article featuring energy savings tips will be sent to all registered uesaz.com users;
- Media relations will be prepared to answer questions posed by the media; and
- Personal outreach at fairs, exhibits, science competitions, etc. to distribute information, flyers, etc., about energy conservation and renewable energy.

UNS Gas's existing "Bright" family energy efficiency brand marketing platform will continue to be used to communicate with customers via social media outlets such as Facebook and Twitter.

Measurement, Evaluation, and Research Plan

It is not possible to monitor many of the components of the Education and Outreach program due to the nature of the advertising and communication plans used where there is no direct feed-back loop. Where possible however, UNS Gas will collect data to determine participation.

B. Codes Support

UNS Gas is requesting budget approval for a new Codes Support Pilot program in 2011. A full program description is included in Appendix C.

Program Description

Building energy codes are widely recognized as a relatively simple, cost-effective means of achieving substantial energy savings that will accrue over the lifetime of new and renovated buildings. However, barriers to the effective implementation of improved building energy codes in Arizona exist. UNS Gas believes the Energy Codes Support Program ("ECSP") will reduce energy consumption in its service territory and help improve compliance with existing and future building energy codes.

The ECSP will be an ongoing element of the UNS Gas portfolio. The program will employ a variety of tactics aimed at: 1) improving levels of compliance with existing building energy codes, and 2) supporting and informing periodic updates to energy codes as warranted by changing market conditions. Specific program activities will depend on the market needs expressed by local code officials and are likely to include a combination of efforts to:

- Better prepare code officials and building professionals to adhere to existing standards;
- Provide data and market insight to document the specific local benefits of code enforcement, and inform energy code changes over time;
- Ensure utility incentive programs align well with local energy codes;

- Collaborate with relevant stakeholders to help build a more robust community working to advance strong and effective building energy codes across the local jurisdictions within TEP, UNS Electric and UNS Gas service territories; and
- Advocate for energy code updates over time.

Program Objectives and Rationale

The objective of the program is to increase energy savings in new construction and renovated buildings in both the residential and commercial sectors through efforts to: 1) improve levels of compliance with existing building energy codes, and 2) support and inform periodic energy code updates as warranted by changing market conditions.

As a “home rule” state, building codes in Arizona vary widely across local jurisdictions. Many code officials lack the time, knowledge and resources necessary to effectively enforce existing codes, and to stay current on market trends that may warrant gradual code updates over time. These challenges are particularly pronounced during current economic conditions. Building design and construction professionals also may be confused about certain code requirements and could likely benefit from additional education and training.

In jurisdictions that currently lack a building code of any sort, public officials could benefit from information and assistance in developing and advocating the adoption of a building code.

New Measures for 2011-2012

There are no measures in the program for 2011 and 2012.

Delivery and Marketing Strategy

Program activities will be selected based on research into effective approaches implemented in leading jurisdictions (e.g., California and Massachusetts), as well as feedback from local code officials, and municipal leaders in locations that currently lack building codes. Once program activities are selected, program staff will maintain a consistent level of activity and engagement with relevant stakeholders.

Key elements of the implementation strategy may include:

- Supporting local energy code adoption through participation in energy code adoption committees for both minimum energy code requirements, and voluntary “stretch codes” (such as Leadership in Energy & Environmental Design (“LEED”) and other sustainable/green codes);
- Providing technical support to code adoption committees (e.g., benefit cost analysis of potential code updates, research and information sharing related to the market penetration of particular energy efficient technologies);
- Providing public testimony in support of code adoption before city councils;
- Ensuring that ongoing DSM programs align well with energy code requirements; and
- Providing funding and/or other resources to better equip local code agencies to enforce and improve energy code compliance over time. Program staff may select a set of jurisdictions to receive a higher level of assistance on an annual basis. This will help increase the level of impact on those target communities with a high likelihood for producing the greatest amount of incremental savings. Support provided to these target jurisdictions may include activities such as:

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

- classroom training sessions for code officials, and building professionals (architects, engineers, specifiers, builders and contractors);
- brown bag training sessions for code officials, and building professionals at their places of business via a circuit rider;
- field training sessions for code officials and building professionals;
- purchasing energy code books for officials that currently lack such resources;
- supporting energy code-related certifications for code officials;
- conducting energy code compliance assessments by 2017 to fulfill ARRA requirements to demonstrate 90% energy code compliance (this could be done in coordination with energy efficiency program MER activities); and
- Collaborating with the Southwest Energy Efficiency Project (“SWEEP”) and other regional groups to support research on and adoption of building codes and equipment standards.

UNS Gas staff will be responsible for administering the program. Responsibilities include coordination, planning and implementation of all program activities. MER activities would be conducted by a third-party contractor.

Measurement, Evaluation, and Research Plan

An overview of the MER plan for this program is included as part of the larger program design filing, detailed in Appendix C.

C. Residential Energy Financing

The Residential Energy Financing program is a newly approved program. The program was approved by Commission Decision No. 72062 (January 6, 2011). UNS Gas is requesting budget approval to continue this pilot program in 2011 and 2012 with no modifications.

Program Description

UNS Gas received Commission approval to offer the Residential Energy Financing program as a two year pilot program, which will allow sufficient time to evaluate the program, including participation, default rates, and overall value to customers. The program offers energy efficiency loans to UNS Gas customers who are seeking financing for the energy efficiency improvements to their homes. Loan proceeds can be used for energy efficiency measures that have been approved by the Commission as part of the Existing Homes/ Direct Install Program. The program may also offer classroom training sessions for contractors, and building professionals who will offer the financing program to customers, collaborate with the SWEEP and other regional groups to support research on utility financing programs; and work together with APS and UNS Electric to determine a plan to partner on financing programs offered in joint territories with different financing partners.

Program Objectives and Rationale

The Residential Financing Program’s objective is to offer 9.99% interest unsecured loans with a 2% interest rate buy-down resulting in a low-interest loan at 7.99%. Loans are available for up to \$10,000 for energy efficiency measures installed in existing homes with repayment terms up to 12 years. The Financing Program will provide customers with the capital needed to make cost-effective energy efficiency upgrades to their homes and is anticipated to improve customer

UNS Gas 2011-2012 Gas Energy Efficiency Implementation Plan

participation as well as expand the pool of customers that can afford to participate in energy efficiency programs.

New Measures for 2011-2012

This program is a financing program used to support other program measure adoption. Therefore, the addition of high efficiency residential boilers, pipe wrap, and high efficiency pool and spa heaters will be added to the list of approved measures with Commission approval.

Delivery and Marketing Strategy

A utility program manager will coordinate between the lender and UNS Gas on all fund transfers, provide overall management, marketing oversight, planning and tracking of customer and contractor participation, and coordinate all activities necessary to develop application forms and contractor training. Partnerships with community interest groups, HVAC, insulation, and air sealing contractors and solar installers trained in program procedures and Arizona Energy Office or other industry experts are to provide training, education and awareness.

UNS Gas will provide program marketing, and customer outreach and awareness through a range of strategies including: website promotions, brochures, training and seminars for participating trade allies and contractors, and promotions through contractors and community interest groups.

Measurement, Evaluation, and Research Plan

An overview of the MER plan for this program is included in the original program filing.

IX. Portfolio Management

UNS Gas will serve as the overall program administrator for delivery of the energy efficiency portfolio. To expedite a quick launch of the programs, and to take advantage of cutting-edge program implementation experience from other parts of the country, UNS Gas plans to implement programs through a combination of third-party implementation contractors and utility staff. UNS Gas designs programs on the most cost-effective basis utilizing implementation contractors where they provide the lowest cost per therm and likewise utilizing UNS Gas staff when appropriate. Contractors will be selected through a competitive request for proposal process for delivery of programs.

UNS Gas anticipates providing high-level administrative, contract management, program design and marketing oversight of the selected implementation contractors. A portfolio of this proposed size and scope will require careful management oversight. UNS Gas will have a small and dedicated group of energy efficiency program staff overseeing third-party implemented programs and promotion of cross-sector education and awareness activities.

UNS Gas will also develop a comprehensive tracking database to ensure accurate and comprehensive recording of all program participation. Additionally, the database will allow UNS Gas to research and track participation by customer class and geographic area, to identify trends and untapped opportunities to advance program goals. UNS Gas staff will also take primary responsibility for general energy efficiency education and awareness strategies and activities, including the corporate web site, online energy audit software, mass-market general education and efficiency awareness promotions.

In summary, UNS Gas will provide comprehensive program contract oversight, strategic planning, including management, financial planning and budgeting, as well as:

- High-level guidance and direction to the implementation contractors, including review and revision of proposed annual implementation plans and proposed milestones, and, additionally, engage with the contractor team on a daily basis when working through strategy and policy issues;
- Review and approval of implementation contractor invoices and ensure program activities are within investment and on schedule;
- Review of implementation contractor operational databases for accuracy, ensuring incorporation of data into UNS Gas's comprehensive portfolio tracking database to be used for overall tracking and regulatory reporting;
- Review of measure saving estimates maintained by the implementation contractor;
- Oversight and coordination of evaluation, measurement, and verification contractors;
- Public education and outreach to community groups, trade allies and trade associations;
- Provide guidance and direction on new initiatives or strategies proposed by the implementation contractors;
- Communicate to implementation contractors other UNS Gas initiatives that may provide opportunities for cross-program promotion;
- Review and approve printed materials and advertising plans from implementation contractors;

- Create and provide collateral material for advertising on program delivered by the utility;
- Evaluate portfolio and program effectiveness and recommend modifications to programs and approach as needed; and
- Perform periodic review of program metrics, conduct investment analysis, and review evolving program design.

A. Marketing and Outreach Strategy

The marketing and outreach strategy for this portfolio of programs will encourage participation among customers, key market players and trade allies. The objective of the marketing and communications strategy is to make customers and key market actors aware of program offerings and benefits, and to influence their decision making when purchasing or installing energy systems or equipment in favor of more energy efficient options.

The specifics of the marketing strategy will depend on the program and the demographics of the group being engaged. Depending on the market to be reached, marketing will generally include a mix of broadcast, Internet, print media, radio, direct contact, direct mail, bill inserts, or presentations. The program descriptions describe the proposed marketing approach for each program.

Additionally, UNS Gas will work with regional, state, and national programs and partners to optimize cooperative marketing programs and campaigns. Marketing efforts will be designed to dovetail with other statewide or regional efficiency programs and campaigns, including those offered by APS.

B. Tracking and Reporting

UNS Gas plans to build a comprehensive internal tracking and reporting system to record all activities from the energy optimization portfolio of programs. Data tracking systems are being used successfully in numerous other states, and UNS Gas intends to benefit from the learning that has occurred there. Implementation contractors will be responsible for tracking and reporting energy efficiency program activities by entering details of each project into the comprehensive data tracking system. The system will allow customized reporting to meet any reporting requirements in a quick, transparent and accurate manner.

C. Midstream Adjustments

While this plan presents detailed information on approach, energy efficiency measures and proposed incentive levels, unforeseen changing market conditions, will require regular review and revisions of portions of this plan to reflect new information. As such, adjustments to these programs will likely be necessary. When this is the case, the Commission will be updated in a timely manner and given opportunity to provide input.

D. Inter-Utility Coordination

UNS Gas will work with APS and UNS Electric to maximize the effectiveness of the programs; in particular, where gas and electric services overlap, regular communication and coordination will be necessary. This collaboration will involve working together to identify savings opportunities, as well as providing consistent messaging and parallel programs to reduce confusion and difficulty for customers and trade allies. UNS Gas intends to continue to collaborate with others to send cohesive marketing messages, as well as designing incentive programs, forms and incentive levels that are easily transferable with adjacent utilities.

E. Leveraging Other Efficiency Initiatives

Within Arizona, several entities are promoting energy efficiency including: the state government; SWEEP; U.S. Environmental Protection Agency and U.S. Department of Energy's "Energy Star[®]" brand; as well as Federal tax credits. UNS Electric and its implementation contractors will work diligently to remain aware and up to date, and to cooperate with efficiency efforts being directed at Arizona energy users. Wherever feasible, co-marketing efforts will be employed in an attempt to send a clear and consistent message on the benefits of energy efficiency and the resources available to help achieve it. Additionally, UNS Electric is planning to benefit from experiences in other areas of the country by joining the Consortium for Energy Efficiency (CEE) and E-Source, which will provide UNS Gas program managers information and contacts to assist with continuous program design and delivery improvements of the portfolio.

F. Trade Ally Coordination

Trade allies are essential to effective implementation of energy efficiency programs. Trade allies are considered program partners and will be treated accordingly. Relationships with trade allies will be cultivated and nurtured through numerous methods to ensure effective communication in both directions. Trade allies will be regularly informed of program progress. Changes and feedback from trade allies about "what is working and what is not" in the field are essential. To ensure good two-way communication, we will emphasize coordination, "listening sessions," and frequent communications with these key partners to advance program goals. A schedule of meetings, workshops, educational seminars, program update breakfasts, and clear and concise program descriptions will be distributed to the trade allies at the program kick off meetings. Ongoing training and program updates also will be a key part of program delivery.

X. Measurement, Evaluation & Research

UNS Gas is required by the Commission to carry out MER activities as a means to verify program savings impacts and monitor program performance.² Evaluation activities will also benefit UNS Gas's DSM program efforts by documenting actual program level savings being delivered, identifying areas for improvement and helping to maximize the efficiency and effectiveness energy efficiency investments. The evaluation principles discussed in this section are informed by the leading guidance documents in the DSM evaluation field. These documents include:

- U.S. EPA's Model Energy Efficiency Impact Evaluation Guide: A Resource of the National Action Plan for Energy Efficiency (2007);
- Efficiency Evaluation Organization's International Performance Measurement and Verification Protocol (2009);
- California Public Utility Commission's California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals (2006); and
- EPRI's End-Use Performance Monitoring Handbook.

What is referred to as MER in Arizona is often called program evaluation, measurement, and verification ("EM&V") elsewhere. Effective EM&V ensures that expected results are measurable, achieved results are robust and defensible, program delivery is effective in maximizing participation, and the overall portfolio is cost-effective.

A. Definition of Evaluation, Measurement, and Verification

Evaluation encompasses process, impact and market evaluation activities as defined below:

Process evaluations

Process evaluations are directed at addressing whether the programs were implemented as designed, examining perceived market barriers and opportunities, measuring participant satisfaction, documenting the program process, and exploring opportunities for efficiency improvements.

Impact evaluations

Impact evaluations validate the energy and demand savings produced by a program. These evaluations validate program-reported savings by verifying the type, quantity and efficiency of measures installed, examining the measures replaced by the program for retrofit applications, or estimating the normal or standard baseline equipment for new construction applications.

Market evaluations

Market evaluations examine program and market assessment indicators developed for each program and assess how these indicators change over time. The indicators are typically derived from a program logic formulation developed during program design and early implementation. The program logic model is a simple representation of the program and the underlying hypotheses that are expected to account for the program's success in the market. Typically, program logic models are organized around the program inputs, processes, and outputs. From this formulation, a set of key market indicators that can be tracked over time is developed (and modified over time, as needed).

² Arizona Corporation Commission Decision No. 72042, Section R14-2-2415.

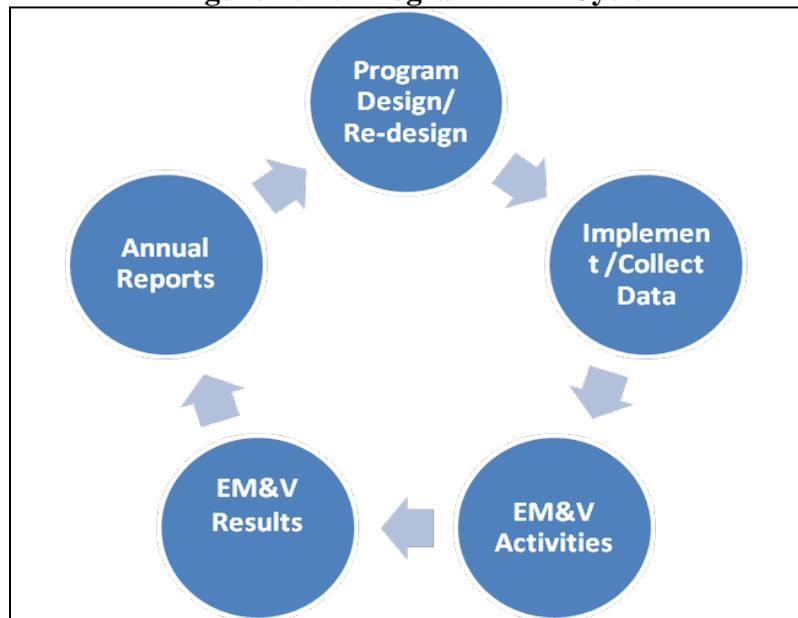
- *Monitoring* includes developing a program data tracking system to support the evaluation effort (i.e., monitoring of results and verifying the installation and retention of measures and equipment promoted by the DSM program where appropriate); and
- *Verification* includes a review, audit, and verification of claimed program savings and recommendations for improvement.

B. Approach to Evaluation

The overall evaluation approach is based on an integrated cross-disciplinary model that includes evaluators as members of project teams involved in the various stages of program planning, design, monitoring and evaluation. This is a cost-effective method that has proven successful for other utilities.

Figure 10-1 shows the program evaluation cycle. As shown, the stages of the program lifecycle inform one another. Findings from MER activities provide valuable inputs into program redesign, and the MER process plays an important role in enhancing program effectiveness and improving outcomes.

Figure 10-1. Program MER Cycle



This approach ensures the program evaluation effort is fair and objective. MER planning must consider a variety of factors in determining the timing and scope of evaluation activities to be conducted in a given year. These factors include distribution of regulatory requirements, savings across programs, available evaluation resources, and the stage of each program’s implementation.

Approximately 4% of overall portfolio program costs will be allocated to the following activities. UNS Gas plans to invest an appropriate level of resources into the impact evaluation tasks to comply with regulatory requirements, but to ensure that sufficient resources are available to conduct market research. Allocating resources to process evaluation and market research is important because findings from this research will inform the future direction of the programs going forward.

C. Examples of EM&V Related Activities

Implementation and/or evaluation support contractors will assist in the development of key program and evaluation related components. These include:

- Compilation and review of the savings estimates used for prescriptive measures including measure savings assumptions, base efficiency, high efficiency, measure size, and measure life estimates;
- Review the portfolio tracking system database that captures measure and/or project data, develops initial estimates of savings, and retains participant information to assist with subsequent EM&V activities; and
- Direct market baseline research and market characterization to support improved plan implementation.

D. Project Savings Verification and Due Diligence

UNS Gas will work with implementation contractors to develop and implement quality assurance (“QA”)/ quality control (“QC”) inspections, and due diligence procedures for those programs for which deemed savings are not appropriate. These procedures will vary by program and are necessary to assure customer eligibility, completion of installations, and the reasonableness and accuracy of savings. The activities that UNS Gas will undertake in performing MER procedures may include, but are not limited to, the following:

- Review custom rebate applications and project proposals for eligibility and completeness;
- Inspect and verify a statistically valid sample of installations for purposes of ensuring compliance with program requirements; and
- Prepare and facilitate MER plans where needed based on the project, and assure adherence to IPMVP protocols.

E. Independent Program Evaluations

Preliminary descriptions of proposed evaluations for each program are included in the program plans. The key components of the process and impact evaluations include:

- Evaluations conducted by an independent, DSM evaluation consultant. Verification, by an appropriate sample, that efficiency measures are installed as expected;
- In-field measure performance measurement and data collection;
- Energy and demand savings analysis to compute the results that are being achieved;
- Process evaluation to indicate how well programs are working to achieve objectives; and
- Identification of important opportunities for improvement.

F. Assessment of Annual Impacts

UNS Gas’s MER contractor will prepare an annual report of energy efficiency program results, which will incorporate findings from evaluation activities completed that year, changes to programs, and new programs implemented, as well as reported and verified savings by program and portfolio. It is anticipated that the MER contractor’s work, as well as participation in the process by the implementation contractor, will result in numerous areas where improvements and refinements are necessary.

UNS Gas will require implementation contractors or staff to routinely contact or visit a sample of participating customers to assess the quality of program delivery and the installation of measures for which incentives were claimed.

G. Coordinate Evaluation Activities with Other Players

As noted above, wherever it is practical and appropriate, evaluation activities will be conducted in conjunction with other utilities and agencies in the state to leverage funding and help ensure consistency.

XI. Demand-Side Tariff

Pursuant to A.A.C. R14-2-2509(D), UNS Gas requests that the reporting requirements in the EE Standard be found to be in compliance with the Company’s existing reporting requirements in Decision No. 70011 (November 27, 2008). Currently, UNS Gas is required to file its DSM surcharge on April 1st and its semi-annual DSM reports on March 1st and September 1st of each year. The reporting requirements contained in R14-2-2509 require that certain DSM reports be filed April 1st and October 1st respectively. In order to avoid confusion or duplicative filings, UNS Gas requests that the reporting requirements set forth in A.A.C. R14-2-2509 be used and that the Commission find that the use of such reporting requirements by UNS Gas in making its filings is in compliance with Decision No. 70011.

UNS Gas further requests expedited review and approval of its DSMS so that it may become effective on June 1, 2011. On a going forward basis, UNS Gas requests a timing change beginning in 2013 so that the DSMS becomes effective on January 1 of each year. This timing request is necessary to align calendar year spending with calendar year collections, eliminating the current five month time lag between spending and collection, resulting in a more accurate true-up of over collection or under collection due to the current DSMS. In furtherance of this goal, UNS Gas will file a new DSMS in June 2012 for the 2013 EE Plan to become effective on January 1, 2013. A true-up of actual over or under collection for 2011 will be included in the Company’s 2013 EE Plan, and a true-up of actual over or under collection for 2012 will be included in the Company’s 2014 EE Plan.

For 2011 and 2012, UNS Gas is proposing to recover \$7.3 million in program costs through the DSMS, as allowed by A.A.C. R14-2-2510(A). The total DSMS for 2011-2012 will be \$.0308/therm compared to the 2010 DSMS of \$.0084. The 2011-2012 surcharge would contribute \$1.42 per month to the average residential customer bill compared to \$0.39 from the current DSMS. Table 11-1 shows the total projected spending for this 2-year plan, and includes a true-up of both the DSMS over-collection through 2010 and an estimated collection of funds through May 2011 under the current DSMS.

Table 11-1. Total Projected Spending for 2011-2012

Cost Category	Costs
2011 - 2012 Program Costs	\$7,129,000
Program Development, Analysis & Reporting Software	\$233,519
Total	\$7,362,519
DSMS over collection (through Dec 2010)	(\$161,555)
DSMS collection Jan - May 2011	(\$613,449)
Grand Total	\$6,587,516

The total DSMS requested in this EE Plan with the resulting surcharges is depicted in Table 11-2.

Table 11-2. DSM Surcharge Total

Cost Category	2011	2012	Total
Program Budget	\$2,819,034	\$4,543,485	\$7,362,519
Current DSMS collection & over collection			(\$775,003)
Total			\$6,587,516
Requested Surcharge			\$0.0308
Current Surcharge			\$0.0084
Incremental Change			\$0.0224

XII. Other Administrative Requests

Flexibility

In an effort to maintain participation in highly successful energy efficiency programs, UNS Gas requests approval from the Commission for the flexibility to shift approved funds between programs and to moderately increase the budgets outlined in the 2011-2012 implementation plan, where cost-effective, until approval of the next regularly scheduled implementation plan for 2013-2014. This flexibility will allow utilities to accept applications for customer inclusion in each energy efficiency program even though an individual program may be, at the time, oversubscribed for the current implementation plan year(s). Inclusion of this clause is necessary to maximize participation in highly successful commercial and residential programs within the 2-year implementation plan timeline. The Company respectfully requests Commission approval for this added flexibility clause.

Utilities will be allowed to shift up to 50% of approved funds from Residential to Commercial or from Commercial to Residential programs as deemed necessary based on program activity and Utilities will be allowed the option of moderately increasing, up to 25% of the total Energy Efficiency budget where cost-effective, to continue participation until approval of the next regularly scheduled Energy Efficiency Implementation plan.

UNS Gas will evaluate program progress and requirements to shift funds from one program to another and provide updates to the Commission at any interval requested by the Commission.

EXHIBIT 1

DSM Surcharge Tariff

CLEAN



UNS Gas, Inc.
Rider R-2
Demand Side Management Surcharge (DSMS)

APPLICABILITY

The Demand Side Management Surcharge (DSMS) applies to all customers, except customers who take service under the Customer Assistance Residential Energy Support (C.A.R.E.S) pricing plan, in all territory served by UNS Gas, Inc as mandated by the Arizona Corporation Commission, unless otherwise specified. C.A.R.E.S. customers taking service under pricing plan R-12 are exempt from the DSM surcharge.

RATE

The following DSM Surcharge will be effective June 1, 2011 through December 31, 2012. The DSMS shall be applied to all monthly net bills except C.A.R.E.S. customers at the following rate:

All therms @ \$0.0308 per therm

REQUIREMENTS

The UNS Gas, Inc. DSMS will be calculated and filed with the Arizona Corporation Commission (ACC) for approval on or before June 1st. The ACC will approve the surcharge to be billed to all applicable pricing plans for twelve (12) months beginning each January 1.

TAX CLAUSE

To the charges computed under the above rate, including any adjustments, shall be added the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of the Company, and/or the price of, or revenue from, gas sales or service sold and/or the volume of gas sales generated or purchased for sale and/or sold hereunder.

RULES AND REGULATIONS

The standard Rules and Regulations of the Company as on file from time to time with the Arizona Corporation Commission shall apply where not inconsistent with this pricing plan.

Filed By: Raymond S. Heyman
Title: Senior Vice President, General Counsel
District: Entire Gas Service Area

Tariff No.: Rider R-2 DSMS
Effective: June 1, 2011
Page No.: 1 of 1

REDLINED



UNS Gas, Inc.
Rider R-2
Demand Side Management Surcharge (DSMS)

APPLICABILITY

The Demand Side Management Surcharge (DSMS) applies to all customers, except customers who take service under the Customer Assistance Residential Energy Support (C.A.R.E.S) pricing plan, in all territory served by UNS Gas, Inc as mandated by the Arizona Corporation Commission, unless otherwise specified. C.A.R.E.S. customers taking service under pricing plan R-12 are exempt from ~~the any~~ DSM surcharges ~~effective June 1, 2009~~.

RATE

~~The following DSM Surcharge will be effective June 1, 2011 through December 31, 2012.~~ The DSMS shall be applied to all monthly net bills ~~except C.A.R.E.S. customers~~ at the following rate:

All therms @ \$0.0~~30808400~~ per therm

REQUIREMENTS

The UNS Gas, Inc. DSMS will be calculated and filed with the Arizona Corporation Commission (ACC) for approval on or before ~~June~~~~April~~ 1st. The ACC will approve the surcharge to be billed to all applicable pricing plans for twelve (12) months beginning each ~~January~~~~June~~ 1.

TAX CLAUSE

To the charges computed under the above rate, including any adjustments, shall be added the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of the Company, and/or the price of, or revenue from, gas sales or service sold and/or the volume of gas sales generated or purchased for sale and/or sold hereunder.

RULES AND REGULATIONS

The standard Rules and Regulations of the Company as on file from time to time with the Arizona Corporation Commission shall apply where not inconsistent with this pricing plan.

Filed By: Raymond S. Heyman
Title: Senior Vice President, General Counsel
District: Entire Gas Service Area

Tariff No.: Rider R-2 DSMS
Effective: June 1, 201~~10~~
Page No.: 1 of 1

EXHIBIT 2

DSM Surcharge Back-up

Exhibit 2 – DSMS Backup

Table 1: 2010 Expenditures and 2011-2012 Proposed Budgets

DSM Support Programs	2010 Expenditures	2010 Approved Budgets	2011 Budget	2012 Budget	Combined 2011-2012 Budget
Education & Outreach	NA	NA	\$29,731	\$72,849	\$102,580
Residential Energy Financing	NA	NA	\$432,670	\$664,187	\$1,096,857
Codes Support	NA	NA	\$0	\$76,155	\$76,155
Support Programs Subtotal	\$0	\$0	\$462,401	\$813,191	\$1,275,592
Behavioral Programs					
Home Energy Reports	NA	NA	\$22,204	\$176,080	\$198,284
Behavioral Comprehensive Program	NA	NA	\$4,157	\$48,405	\$52,562
Behavioral Subtotal	\$0	\$0	\$26,361	\$224,485	\$250,846
Residential Efficiency Programs					
Low-Income Weatherization	\$147,792	\$200,000	\$340,191	\$350,397	\$690,588
Residential New Construction	\$113,145	\$445,578	\$191,939	\$207,963	\$399,902
Existing Home (was Efficient Home Heating)	\$258,170	\$318,270	\$1,220,437	\$1,485,118	\$2,705,555
Residential Subtotal	\$519,107	\$963,848	\$1,752,567	\$2,043,478	\$3,796,045
Non-Residential Efficiency Programs					
C&I Facilities Program	\$125,240	\$212,180	\$385,676	\$984,902	\$1,370,578
Multi-Family Direct Install	NA	NA	\$50,074	\$128,700	\$178,774
Non-Residential Subtotal	\$125,240	\$212,180	\$435,750	\$1,113,602	\$1,549,352
EE Program Subtotals	\$644,347	\$1,176,028	\$2,677,079	\$4,194,756	\$6,871,835
RET Programs					
Solar Water Heating	NA	NA	\$26,921	\$230,244	\$257,165
EE + RET Program Totals	\$644,347	\$1,176,028	\$2,704,000	\$4,425,000	\$7,129,000
Program Development, Analysis & Reporting Software ¹	\$112,279	NA	\$115,034	\$118,485	\$233,519
Baseline Study	\$127,847	\$144,000	NA	NA	NA
Portfolio Total	\$884,473	\$1,320,028	\$2,819,034	\$4,543,485	\$7,362,519

1. Expenses are necessary for compliance and reporting requirements of GEES.

Table 2: DSMS Cost Recovery Calculation

Cost Category	Costs
2011 - 2012 Program Costs	\$7,129,000
Program Development, Analysis & Reporting Software	\$233,519
Total	\$7,362,519
DSMS over collection (through Dec 2010)	(\$161,555)
DSMS collection Jan - May 2011	(\$613,449)
Grand Total	\$6,587,516

Exhibit 2 – DSMS Backup

Table 3: DSMS Rate Calculation

UNS GAS, INC.		
DEMAND SIDE MANAGEMENT ENERGY EFFICIENTCY SURCHARGE		
FOR THE PERIOD JUNE 2011 THROUGH DECEMBER 31, 2012		
(a)	Total Therm Sales (Includes CARES):	220,791,811
(b)	Less Carees Forecast:	6,772,025
(a) - (b) = C	Total Therm Thruput for Calculation:	214,019,786
(d)	Total Budget	\$6,587,516
(d) / C	Surcharge (6/2011 - 12/2012)	<u>\$0.0308</u>
	Current Rate	\$0.0084
	Annual Monthly Average Residential Therm	46
	Current Rate (\$/month)	\$0.3864
	New Rate (\$/month)	\$1.4168
	Average Incease	\$1.0304

APPENDIX A:

UNS Gas Multifamily Direct Install

UNS Gas, Inc. Multifamily Direct-Install Program

Appendix A

Program Description

In order to encourage energy efficiency upgrades to multi-family buildings of five or more units, the Multifamily Direct Install Program will be delivered via direct installation of selected low cost energy efficiency improvements in existing complexes. Common area energy efficiency improvements in existing complexes will be handled through the Small Business Direct Install Existing Facilities Program.

As the program develops and matures, UNS Gas, Inc. (“UNS Gas”) will examine a third track for encouraging more comprehensive dwelling unit energy efficiency improvements in existing complexes. With these delivery options to choose from property owners and managers have a variety of solutions to fit their needs.

Program Objectives and Rationale

Multifamily housing has traditionally been a difficult sector to reach for utility Demand-Side Management (“DSM”) programs. These buildings represent huge efficiency potential and also substantial barriers to implementation. The major barriers include lack of capital, and lack of knowledge/awareness of the benefits of energy efficiency improvements. Further complicating matters, multifamily housing is defined differently by different money lending entities. Properties with 2-4 dwelling units typically fall under residential financing guidelines and the decisions makers are usually individuals. Larger properties with 5 dwelling units or more typically fall under commercial lending guidelines, and decision-makers (at least for larger complexes) are typically corporate, institutional, or trusts (e.g., Real Estate Investment Trusts). As such, the decision making process and access to capital differs significantly between these two market segments. With this distinction in mind, the 2-4 unit market segment can be best served by the Residential Existing Homes Program, and the 5+ Multifamily Housing market segment will be served by both the Multifamily Direct-Install Program and/or the C&I Facilities program.

Other utilities around the country are offering specific multifamily energy efficiency programs in an effort to capture some of the savings potential in this housing market. Those utilities include San Diego Gas and Electric, Southern California Edison, Pacific Gas and Electric, Austin Energy, Puget Sound Energy and others. Many of these programs offer similar incentives and delivery options to the program proposed by UNS Gas. . By delivering this program with a focus on reducing key market barriers and targeting key decision makers, this program can contribute significantly to the achievement of UNS Gas’s DSM program energy savings goals by lowering energy usage in multifamily housing complexes.

The objectives of the program are to:

- Reduce overall energy consumption in the multifamily housing market segment;
- Promote energy efficiency retrofits of both dwelling units and common areas in this market segment;
- Increase overall awareness about the importance and benefits of energy efficiency improvements to the landlord and property ownership community; and
- Help meet the energy savings targets of the UNS Gas DSM program portfolio.

UNS Gas, Inc. Multifamily Direct-Install Program

Appendix A

Target Market

The Multifamily Direct-Install Program will be promoted to residential rental properties with five or more units. The focus of marketing, outreach and incentives will be the property owners or managers. A primary emphasis will be placed on larger and older, less efficient complexes.

Program Eligibility

All existing multifamily housing complexes and new construction projects within UNS Gas service territory with 5 dwelling units or more are eligible for the program. The program promotes energy efficiency improvements in both dwelling units and common areas. Eligible facilities include apartment complexes, and common areas of apartment and condominium complexes. All UNS Gas customers who are property owners of existing residential multifamily complexes or developers of new complexes with five or more dwelling units are eligible for the program.

Current Baseline Conditions

The energy efficiency potential in the multifamily housing market remains largely untapped and represents significant efficiency potential for the UNS Gas program portfolio. Due to various market barriers, such as capital constraints, and lack of awareness, energy efficiency improvements typically fall far below other types of improvements on the priority list. Thus, multifamily housing units are often very energy inefficient. Although the current commercial energy efficiency programs offer some opportunities for energy efficiency improvements in this market, primarily through the C&I Facilities Program, there is not a comprehensive offering that addresses the unique needs of this market. Through the direct installation framework, this program seeks to fill this important gap in the UNS Gas program portfolio and provide substantial energy savings.

Products and Services

This program will be delivered through a direct installation approach in order to help ensure energy efficiency upgrades in existing complexes:

- Delivery to be through a direct installation effort, focusing on the implementation of faucet aerators, and low flow showerheads in existing dwelling units. The installation will be at no cost to the owner, and the program will pay the full cost of product installation. The installation can be completed either through the facility's existing maintenance or management personnel or via a program authorized installation contractor. Common area energy efficiency improvements in existing complexes will be handled through the C&I Existing Facilities Program.

As the program develops and matures, UNS Gas will examine a third track for encouraging more comprehensive dwelling unit energy efficiency improvements in existing complexes.

UNS Gas, Inc. Multifamily Direct-Install Program

Appendix A

Program Marketing and Communication Strategy

Marketing and communications strategies will include notifying apartment managers and owners through direct outreach, updates to website; local newspapers and radio; bill messages and bill inserts; training seminars; direct mail promotion; outreach to rental housing industry associations; and work with contractors and industry specialists.

Program Implementation Schedule

To be implemented beginning in 2011, pending Commission approval.

Delivery Strategy, Incentive Processing, and Administration

The program will be coordinated and managed directly by UNS Gas staff and/or implementation contractors and delivered via a partnership with facility managers. Specifically, UNS Gas will develop a pre-qualification application form, and coordinate the direct shipment and verification of installation of the efficient products in the multi-family buildings, as well as be responsible for quality control. It is envisioned that property managers will take advantage of the offer and donate their labor to install the low-flow devices.

Measurement Evaluation and Research Plan

The Measurement, evaluation, and research (“MER”) team will develop a MER research plan and conduct annual evaluation research on the achievements of this program.

Quality Assurance and Control

On-site inspections of at least 10% of all participating facilities will be made by UNS Gas and/or the implementation contractors.

Program Costs and Benefits

Energy savings for the direct-install faucets and aerators, participation and benefit/cost results are shown in Table 1-1. Budgets for 2011 and 2012 are shown in Table 1-2.

Table 1-1. Measure Savings, Incentive Level, Participation, and Benefit-Cost

Measure	Annual Energy Savings (Therms/Unit)	Avg. Incentive / Unit	Unit	2011 Units	2012 Units	Measure Level Societal Test Result
Low Flow Showerhead – 1.5 GPM	28	\$35	Showerhead	-	275	8.6
Kitchen Faucet Aerator – 1.5 GPM	10	\$3	Aerator	-	275	36.6
Bathroom Faucet Aerator – 1 GPM	9	\$3	Aerator	-	275	33.8

UNS Gas, Inc. Multifamily Direct-Install Program

Appendix A

Table 1-2. Program Budgets

	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
2011	\$0	\$47,204	\$944	\$0	\$1,926	\$50,074	-\$50,074	0.0
2012	\$11,249	\$103,783	\$4,601	\$4,117	\$4,950	\$128,700	\$8,399	1.1

Environmental Benefits

Direct installation of energy saving measures also provides non-monetary environmental benefit to society. Tables 1-3 show the positive environmental impacts from the Multifamily Direct-Install Program offered by UNS Gas.

Table 1-3. Environmental Benefits

	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
2011	-	-	-	-	-	-
2012	68	0.05	0.00	678	1	0

UNS Gas, Inc. Multifamily Direct-Install Program

Appendix A

Measure Analysis Sheets

Incentive Calculations
Water Measures Direct Installation

MultiFamily - Water Direct Install

PROGRAM DATA		RATE DATA		OPERATING DATA		OTHER FACTORS	
Showerhead Measure Life (yrs):	10	Rate		Hourly Load Factor - Shower:	3%	Application	RET
Aerator Measure Life (yrs):	10	\$/ Therm:	\$1.04	Hourly Load Factor - Sink:	5%	Cost Basis:	Full Install
Program Life (yrs):	5			In-Service Rate:	100%		
Gas Energy AC (\$/ therm):	0.78						
Water Savings (\$/ Gal):	0.004						
Administration Costs (\$/ unit)	-						
Discount Rate:	8.03%						
Societal Discount Rate:	4.00%						
Cost of Audit per home:	\$350						
NTG Ratio:	100%						

DEMAND/ENERGY SAVINGS				INCENTIVE CALCULATIONS						CUSTOMER COST/SAVINGS				WG.T.	%Incent	Societal	
Fixture Type	Base	EE	Gas	Water	IRP	Societal	Recommended	PV	NPV	Incr. Cost	Savings	Payback		Weighting Factor*	%	BC Ratio	
	Flow Rate	Flow Rate	Energy Savings	Water Savings	PV Benefit	PV Benefit	Incentive**	Program Cost				wo/ Inc.	w/ Inc.				
	(GPM)	(GPM)	(Thems)	(Gal/ Year)	(\$)	(\$)	(\$)	%PV	(\$)	(\$)	(\$)	(\$)	(yrs)	(yrs)			
Low Flow Showerhead with ShowerStart Technology	4	1.5	28	3,969	145	305	35	24%	35	110	35	29	1.2	0.0	100%	100%	8.6
Kitchen Aerator	2.2	1.5	10	1,209	51	101	3	5%	3	48	3	10	0.3	0.0	100%	100%	36.6
Bathroom Aerator	2.2	1.0	9	1,116	47	93	3	6%	3	44	3	9	0.3	0.0	100%	100%	33.8
Total			46	6,294	243	499	41	36%	41	202	41	48	1.8	0.0	100%	100%	12.2

* The ratios are our best engineering assumptions, pending detailed MER work.
 ** The design of the program is such that direct install measures and the cost of the audit are considered incentives
 *** "Total" row calculates incremental cost of the whole audit while the other values in this column are incremental costs of each individual measure.

File Name: WaterDI_MAS_MF_UNSG_2011_02_21

APPENDIX B:

UNS Gas Behavioral Comprehensive

Appendix B

Program Description

Behavioral based energy efficiency programs are designed to affect several types of energy use behaviors such as habitual behaviors (e.g., turning off lights or adjusting the thermostat), purchasing behaviors (e.g., buying efficient lights and appliances), and the behavior of being motivated to participate in utility Demand-Side Management (“DSM”) programs. The new Behavioral Comprehensive programs target specific and relevant efficiency recommendations to each customer, including information about energy efficiency programs appropriate for them, making it easier for each customer to take action on the recommendations and programs most relevant to them.

The types of behaviors to be influenced in this comprehensive program will generate both gas and electric savings through a variety of customer actions including:

- Habitual behaviors:
 - Adjust thermostat setting;
 - Adjust water heater set point;
 - Turn off unnecessary lights;
 - Run dishwasher only when full;
 - Wash clothes in cold water; and
 - Line dry laundry;
- Small purchasing and maintenance behaviors:
 - Purchase install and program a programmable thermostat;
 - Purchase and install faucet aerators and low flow shower heads;
 - Request home energy audit to improve energy efficiency; and
 - HVAC maintenance; and
- Larger purchasing decisions:
 - Purchase an ENERGY STAR[®] gas appliance;
 - Install extra insulation and implement air sealing to make home more energy efficient;
 - Install energy efficient windows and doors; and
 - Purchase higher energy efficient heating and cooling system.

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

UNS Gas will influence these behaviors through a suite of initiatives including:

- Home Energy Reports: comparing energy use of one customer to neighbors or comparable households; and
- K-12 education: harnessing the enthusiasm of kids and the community focal point of schools to mobilize parents to take action with respect to energy efficiency.

Program Objectives and Rationale

Technology-based energy efficiency achieves only a portion of total efficiency potential. The barriers to wider spread implementation of energy efficiency are sociological not technological. In fact, in recent Federal testimony, the American Council for an Energy Efficient Economy (ACEEE) stated that recent studies suggest that:

“...the potential behavior-related energy savings in the residential sector alone represent roughly 25 percent of current residential sector energy consumption.”

Capturing a larger fraction of energy efficiency potential requires behavior change. Recognition of behavior change as efficiency potential is essential to the evolution of utility energy efficiency programs. Efficiency programs will need to integrate behavior change strategies into their DSM portfolios in order to fully realize their achievable potential.

There is much utility interest in behavior based initiatives as is evidenced by significant increase in the number and attendance of events taking place in this nascent field. Data is accumulating that show the real and measurable savings to be had through behavior based initiatives. That being said, some behavior based programs represent a divergence from the historical approach to energy efficiency program design and implementation and care must be taken to design programs that will generate verifiable savings that will sustain the rigor of evaluation protocol.

Energy usage feedback based in behavioral science, targeted marketing, data analytics, and cutting-edge software are the tools being applied to the Home Energy Report program to broadly and deeply engage utility customers. Utility based behavior initiatives can be categorized into four broad categories: 1) Mass Media/Social Media; 2) Community Based Social Marketing; 3) Feedback; and 4) Competitions. UNS Gas’s proposed plan includes aspects of all of these.

The primary barriers to wider spread implementation of this approach are:

- Efficiency is invisible;
- Most people when asked if they want to save energy will say “yes”. Often they think they are already doing what they can to be energy efficient;
- Not knowing what to do, or what to do first;
- Not knowing where to obtain energy efficient products and services;
- Perceptions of cost, financial constraints;
- Doubt regarding the ability to make a significant difference in energy use/cost;
- Methodologies to measure savings through behavioral initiatives are not widely known; and
- Questions regarding the persistence of savings from behavioral initiatives.

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

Some of the major objectives from this program are to:

- Generate significant savings toward DSM portfolio objectives;
- Enhance relationships with UNS Gas customers leading to other areas of participation in UNS Gas's portfolio of DSM programs;
- Promote efficient building operations;
- Lower energy bills for the consumer; and
- Educate the next generation of consumers via the school education programs so they are aware of the importance of energy efficiency.

Target Market

Behavioral initiatives apply to all UNS Gas customers. They can be targeted at homes and/or businesses. The focus for this effort is on behavioral change within residences.

Program Eligibility

All UNS Gas residential customers will be eligible for this program.

Current Baseline Conditions

While consumer attitudes and awareness regarding the impacts of our energy use and the potential of energy efficiency are increasing, and an ever increasing percentage of people express a willingness to take action, there is often confusion about energy efficiency terms, what concrete steps can be taken and how much of an impact they will have. Awareness of and favorable attitudes toward energy efficiency in general do not necessarily correlate with intentions to purchase specific energy efficient products or take particular energy efficient actions. There is also typically a significant gap between awareness and action that must be addressed through specific targeted actionable messages. Many people believe they are "doing all they can" while the reality is they could easily do more.

"Consumers have been conditioned to think that their driving habits are the best way to help the environment. They have not realized that the biggest thing they can do is... be more energy efficient" —Shelton Research Group

Products and Services

Behavior programs are made up of the Home Energy Reports Program, and the Behavior Comprehensive Program, which is currently made up of the K-12 Education initiatives. UNS Gas will evaluate other Behavioral initiatives such as direct canvassing, and community education as future additions to this program.

Each initiative is described in some detail in the succeeding sections.

Delivery Strategy, Incentive Processing and Administration

Doug McKenzie-Mohr, PhD, is an environmental psychologist and a leading expert in the design of programs to promote sustainable behavior. Dr. McKenzie-Mohr, a noted pioneer and expert in

Appendix B

behavior based energy efficiency initiatives, suggests the following steps in designing a successful behavior based campaign:

- Identify barriers and benefits;
- Develop strategies using behavior change tools;
- Pilot the initiative as a carefully designed experiment and refine according to findings;
- Implement; and
- Evaluate.

As outlined throughout this section, this plan follows that path. In addition to being new, behavior based programs are relatively unique and require specialized expertise to implement. Accordingly, UNS Gas issued an RFP for behavior based implementation providers and each of the two behavior based approaches are being delivered by separate implementation contractors.

Home Energy Reports Pilot Program

UNS Gas's Home Energy Report Pilot Program is designed to affect: (1) habitual behaviors like adjusting the thermostat; (2) purchasing behaviors such as buying efficient gas appliances; and (3) the behavior of participating in utility DSM programs. This is accomplished through distributing reports on an opt-out basis that compare a customer's energy use to that of neighbors with similar home attributes, which has been documented to instill a sense of competition and action in customers leading to reduced energy consumption

The major objectives from this Program are to:

- Generate significant savings toward DSM portfolio objectives;
- Educate and inspire customers to take advantage of other DSM programs;
- Enhance a positive utility image;
- Promote efficient building operations; and
- Lower energy bills for consumers.

UNS Gas service territory includes customers who receive gas service from UNS Gas and electric service from UNS Electric. UNS Gas service territory also includes customers who receive gas service from UNS Gas and electric service from Arizona Public Service ("APS"). UNS Electric and APS have already filed an order to include Home Energy Reports in their individual DSM Portfolio's but these reports would not include recommendations for gas efficiency.

UNS Gas has developed a unique methodology to maximize potential savings and reduce total costs for dual fuel customers in the UNS Gas/UNS Electric joint service territories. UNS Electric has agreed to work with the implementation contractor to deliver dual-fuel reports to customers in this joint-utility service territory. At this time, there is limited information available to gauge savings targets for gas only or for dual fuel reports. Given the dual-fuel strategy for capturing both electric and gas savings via home energy reports, it is possible that customers may elect to proceed with measures that generate more electric or more gas savings. Given this uncertainty, UNS Gas is therefore suggesting the Home Energy Report Program as a Pilot

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

program through 12/31/2012 to enable UNS Gas and the implementation contractor time to evaluate savings on the gas side from both options. UNS Gas will bear the incremental increase in cost to develop dual-fuel reports. UNS Electric will report the electric energy savings from these joint-utility customers and UNS Gas will report the gas energy savings from the same homes, without converting the electric savings into therm equivalents.

In the northern climate of the UNS Gas service territory that is jointly served by APS, UNS Gas discussed a similar arrangement with APS. It was determined that APS will be concentrating Home Energy Reports through their program in the metro-Phoenix and Yuma areas due to the significantly higher electric energy use of these customers. Therefore, APS customers in the joint service territory with UNS Gas will not be included in early years of the APS program. Customers in this northern climate for UNS Gas are customers with the highest gas consumption in the territory and it is important to include this group of customers in the program. Therefore, UNS Gas will include this northern climate in its Home Energy Report program as gas-only reports and bear the entire cost of these reports in the UNS Gas program budget.

All Home Energy Report products will be automatically mailed to the target market by the implementation contractor. Thus, no direct marketing is anticipated for this Program. UNS Gas will, however, jointly develop the marketing message contained in the Home Energy Reports with the contractor. The Program will also be included in the integrated marketing approach developed and used for all DSM measures.

K-12 Education

The K-12 Education approach is an extension of the existing UNS Electric education program. In this approach, in addition to energy based class room curriculum, students will be instructed in energy saving approaches that can be implemented in their homes. Students will be provided a take home kit which includes several energy saving devices such as low-flow shower heads, faucet aerators and educational materials regarding actions that can be taken to reduce energy use. UNS Gas will target teachers who are willing to add the energy based classroom curriculum and provide students with this educational opportunity. K-12 Education Program will be delivered by a 3rd party implementation contractor experienced in this approach. Energy savings related to this program is derived from items included in the take-home kit and information on the response card collected by the teacher as to what measures were installed.

Program Marketing and Communication Strategy

Marketing of the behavior approaches will be handled by the implementation contractors and coordinated with UNS Gas's overall messaging to reinforce the effectiveness of the behavior programs. Each approach will involve a unique strategy:

- Home energy reports will be offered in an opt-out approach; in other words, participants who will receive the reports will be chosen at random and limited to those selected. The program will not be marketed through traditional channels but is itself a tool to educate and encourage energy efficiency behaviors including the behavior of participating in other programs; and
- The K-12 Education approach involves sending students home with energy conservation kits. Those who receive the kits will be those who receive the energy curriculum

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

provided by the implementation contractor. The program will not be marketed through traditional channels. Effort will be made when possible to coordinate the school program with other efforts in the same neighborhood.

Program Implementation Schedule

Immediately following Commission approval for the Home Energy Reports, UNS Gas will begin working with the implementation contractor to design dual-fuel reports and messaging to include on reports. UNS Gas and the implementation contractor will also work to secure customer data sharing to enable selection of the target group and the control group. It is anticipated that the Home Energy Reports Pilot will be launched within 6 months of Commission approval.

Immediately following Commission approval for the K-12 Education program, UNS Gas will begin recruiting of teachers. The curriculum and take-home kits will be offered during the next available school semester following program approval.

Measurement, Evaluation, and Research Plan

UNS Gas will conduct an evaluation of Program participants to assess the effectiveness of behavior program initiatives. UNS Gas will determine how effective the initiatives have been in encouraging customers to make behavioral changes that save energy and how effective the initiatives have been in encouraging participation in other available energy efficiency programs. For Home Energy Reports, the implementation contractor and UNS Gas will also measure energy savings of both groups (dual fuel and gas only) against a control group to determine actual energy savings and which of the initiatives are most effective. Results will be analyzed and Program design refined according to findings. Other similar behavioral applications may also be analyzed in the future to take advantage of new found insights.

In recognition of the fact that behavior based initiatives must provide a highly reliable evaluation protocol, we have proactively designed one that gets at the key issues of:

- Boomerang effect: Low-energy users may respond to the usage feedback and neighbor comparison by increasing energy consumption;
- Growth/decay effect: Over time the treatment effect may evolve, perhaps growing (energy savings increases), perhaps decaying;
- Treatment persistence: Energy savings may persist after termination of treatment; and
- Rebound effect: After an extended period without treatment a household may respond to renewed treatment with a savings “bounce”.

In order to accomplish this, the pilot design includes setup of test and control groups:

- Divide targeted population into two statistically equivalent groups
- Verify Groups: Verify no historical difference in usage between test and control groups
Deploy the strategy to test group only, no action taken with control group
- Measure Impact: Compare average energy use pre and post reports for both groups

UNS Gas will evaluate the energy savings from the behavioral initiatives by using a third party evaluator experienced in evaluating behavioral initiatives.

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

Quality Assurance and Control

The initiatives will be delivered by implementation contractors who are experienced in their unique areas of program delivery. Implementation contractors each have internal QC protocols appropriate to their specific approach. The implementation contractors will be managed and quality assurance will be maintained by the program administrator. Customers will be surveyed and spot checks made to assure quality program delivery.

Program Costs and Benefits –Home Energy Reports

Due to limited information for gas only or for dual-fuel programs, the energy savings shown in Table 1-1 below is based on the implementation contractor’s best estimate of potential savings and represents the average annual two-year energy savings for both dual-fuel customers and gas only customers. It is common for the first-year energy savings to be less than the second-year energy savings due to the persistence of messaging received by customers and the impact of this messaging on customer behavior. Savings estimates for this two year pilot program were determined by assuming 0.85% savings as a percent of annual gas therms consumed in year one and 1.35% in year two, or an average of 1.15% savings for each of the two years. Budgets for the 2-year pilot program are shown in Table 1-2.

Table 1-1. Measure Savings, Incentive Level, Participation and Benefit-Cost

Measure	Annual Energy Savings (Therms/Unit)	Avg. Incentive / Unit	Unit	2011 Units	2012 Units	Measure Level Societal Test Result
Gas Only – 2011	13	\$7	Customer	-	-	1.02
Gas Only – 2012	13	\$7.50	Customer	-	15,000	0.96
Dual Fuel Only – 2011	7	\$2	Customer	-	-	1.9
Dual Fuel Only – 2012	7	\$2	Customer	-	20,000	1.9

Table 1-2. Program Budgets – Home Energy Reports

	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
2011	\$0	\$22,204	\$0	\$0	\$0	\$22,204	-\$22,204	0.0
2012	\$152,500	\$17,720	\$0	\$4,117	\$1,743	\$176,080	\$5,663	1.0

Program Costs and Benefits (K-12 Education)

The energy savings shown in Table 1-3 includes the average therm savings from installation of one low-flow showerhead, one kitchen aerator and one furnace whistle. A student report-card will be developed to determine how many of the items delivered in the kit, were actually

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

installed. Savings estimates will include only those measures that have been reported installed through the student report-card. Budgets for the 2-year K-12 Education Program are included in Table 1-4.

Table 1-3. Measure Savings, Incentive Level, and Participation, Benefit-Cost

Measure	Annual Energy Savings (Therms/Unit)	Avg. Incentive / Unit	Unit	2011 Units	2012 Units	Measure Level Societal Test Result
K-12 Education Kit	62	\$33	Kit	-	600	18.7

Table 1-4. Program Budgets (K – 12 Education)

	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
2011	\$0	\$0	\$0	\$3,997	\$160	\$4,157	-\$4,157	0.0
2012	\$20,000	\$22,427	\$0	\$4,117	\$1,862	\$48,405	\$324,829	7.7

Environmental Benefits:

Successful implementation of energy efficiency programs through installation of energy saving measures or from reduced energy consumption resulting from behavioral changes by customers also provides non-monetary environmental benefits to society. Tables 1-5 and 1-6 show the positive environmental impacts from the Behavioral suite of programs offered by UNS Gas.

Table 1-5. Environmental Benefits - Home Energy Reports

	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
2011	-	-	-	-	-	-
2012	1,703	1.34	0.01	1,703	1	0

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

Table 1-6. Environmental Benefits (K-12 Education)

	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
2011	-	-	-	-	-	-
2012	197	0.16	0.00	1,974	2	0

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

Measure Analysis Sheets

Home Energy Report - Pilot

Incentive Calculations
Home Energy Report (Residential)
Dual Fuel Homes

PROGRAM DATA						RATE DATA				OTHER FACTORS			
Measure Life (yrs):	1					Rate: Residential				Application	Existing		
Program Life (yrs):	1					\$/therm: 1.23				Cost Basis:	Retrofit		
Levelized AC (\$/therm):	\$0.59												
Administrative Costs (\$):	-												
Discount Rate:	8.03%												
Societal Discount Rate	4.00%												
NTG Ratio:	100%												

DEMAND/ENERGY SAVINGS						INCENTIVE CALCULATIONS						CUSTOMER COST/SAVINGS				WGT.	Societal
Program	Program	Annual	Annual	Equivalent	Total Annual	IRP	Societal			PV		Incr.	Cost	Payback		Weighting	BC Ratio
Year	Savings	Them	Electric	Them	Them	PV	PV	Recommended	Program	NPV	Cost	Cost	Savings	wo/Inc.	w/Inc.		
(Year)	(% of Sales)	(therms/yr)	(kWh)	(Therms)	(Therms)	(\$)	(\$)	(\$)	%PV	(\$)	(\$)	(\$)	(\$)	(yrs)	(yrs)	(%)	
Year 1	1.15%	6.6	0	0.0	6.6	3.57	3.71	2.00	56%	2.00	1.57	2.00	8.08	0.2	0.00	100%	1.9

File Name:

HomeEnergyReport_DualFuel_MAS_Res_UNSG_2011_02_28

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

Measure Analysis Sheets

Home Energy Report - Pilot

Incentive Calculations
Home Energy Report (Residential)
Gas Only Homes

PROGRAM DATA		RATE DATA		OTHER FACTORS	
Measure Life (yrs):	1	Rate: Residential		Application	Existing
Program Life (yrs):	1	\$/them:	1.23	Cost Basis:	Retrofit
Levelized AC (\$/them):	\$0.59				
Administrative Costs (\$):	-				
Discount Rate:	8.03%				
Societal Discount Rate	4.00%				
NTG Ratio:	100%				

DEMAND/ENERGY SAVINGS						INCENTIVE CALCULATIONS						CUSTOMER COST/SAVINGS				WGT.	Societal
Program	Program	Annual	Annual	Equivalent	Total Annual	IRP	Societal			PV		Incr.	Cost	Payback		Weighting	BC Ratio
Year	Savings	Them	Electric	Them	Them	PV	PV	Recommended	Program	Cost	NPV	Cost	Savings	wo/Inc.	w/Inc.		
(Year)	(% of Sales)	(therms/yr)	(kWh)	(Therms)	(Therms)	(\$)	(\$)	(\$)	%PV	(\$)	(\$)	(\$)	(\$)	(yrs)	(yrs)	(%)	
Year 1	1.15%	12.7	0	0.0	12.7	6.90	7.17	7.00	101%	7.00	-0.10	7.00	15.58	0.4	0.00	100%	1.02

File Name:

HomeEnergyReport_GasOnly_MAS_Res_UNSG_2011_02_28

UNS Gas, Inc. Behavioral Comprehensive Program

Appendix B

Measure Analysis Sheets

Behavioral Comprehensive - Water Heating

Incentive Calculations
K-12 Education Kit

PROGRAM DATA		RATE DATA		OPERATING DATA				OTHER FACTORS	
Showerhead Measure Life (yrs)****:	10	Rate		Hourly Load Factor - Shower:	3%	Application	Retrofit		
Aerator Measure Life (yrs)****:	10	\$/ Therm:	\$1.23	Hourly Load Factor - Sink:	5%	Cost Basis:	Full Install		
Furnace Filter Whistle Life (yrs)****:	3			In-Service Rate:	100%				
Program Life (yrs):	5								
Gas Energy AC (\$/ them):	0.78								
Water Savings Value (\$/ Gal):	0.004								
Administration Costs (\$/ unit)	-								
Discount Rate:	8.03%								
Societal Discount Rate:	4.00%								
NTG Ratio:	100%								

Fixture Type	DEMAND/ ENERGY SAVINGS							INCENTIVE CALCULATIONS						CUSTOMER COST/SAVINGS				WG.T.	% Incent	Societal		
	Base	EE	Annual	Annual	Equivalent	Total	Annual	IRP	Societal	PV	Recommended		PV	Incr. Cost***	Savings	Payback					Weighting Factor*	BC Ratio
	Flow Rate	Flow Rate	Therm Savings	Electric Savings	Therm Savings	Annual Savings	Water Savings	PV Benefit	PV Benefit	Incentive**	Program Cost	NPV	wo/ Inc.			w/ Inc.						
(GPM)	(GPM)	(Therms/ Unit)	(kWh/ Unit)	(Therms/ Unit)	(Therms/ Unit)	(Gal/ Yr)	(\$)	(\$)	(\$)	%PV	(\$)	(\$)	(\$)	(\$)	(yrs)	(yrs)						
Low Flow Shower Head	4	2.5	21	0	0	21	2,656	109	218	11	10%	11	98	11	26	0.4	0.0	33%	100%	19.6		
Kitchen Aerator	2.2	0.5	34	0	0	34	4,404	179	360	18	10%	18	161	18	42	0.4	0.0	55%	100%	19.6		
Furnace Whistle			7	0	0	7	0	15	46	4	27%	4	11	4	9	0.4	0.0	12%	100%	11.8		
Total						62	7,060	303	624	33	11%	33	269	33	77	1.3	0.0	100%	100%	18.7		

* Proportional to Savings for Cost and Incentive distribution.
 ** The design of the program is such that direct install measures and the cost of the audit are considered incentives
 *** "Total" row calculates incremental cost of the whole kit while the other values in this column are incremental costs of each individual measure derived from total incremental cost of the kit. This division of incremental cost is on the basis of measure savings.
 ****Engineering Assumption.

File Name: Kto12EducationKit_MAS_Res_UNSG_2011_02_20

APPENDIX C:

UNS Gas Codes Support

UNS Gas, Inc. Energy Codes Support Program

Appendix C

Program Description

Building energy codes are widely recognized as a relatively simple, cost-effective means of achieving substantial energy savings that will accrue over the lifetime of new and renovated buildings. However, barriers to the effective implementation of improved building energy codes in Arizona exist. UNS Gas, Inc. (“UNS Gas” or the “Company”) believes the Energy Codes Support Program (“ECSP”) will reduce energy consumption in its service territory and help improve compliance with existing and future building energy codes.

Program Objectives and Rationale

The objective of the program is to increase energy savings in new construction and renovated buildings in both the residential and commercial sectors through efforts to: 1) improve levels of compliance with existing building energy codes, and 2) support and inform periodic energy code updates as warranted by changing market conditions.

As a “home rule” state, building codes in Arizona vary widely across local jurisdictions. Many code officials lack the time, knowledge and resources necessary to effectively enforce existing codes, and to stay current on market trends that may warrant gradual code updates over time. These challenges are particularly pronounced during current economic conditions. Building design and construction professionals also may be confused about certain code requirements and could likely benefit from additional education and training.

In jurisdictions that currently lack a building code of any sort, public officials could benefit from information and assistance in developing and advocating the adoption of a building code.

Following is a list of the primary barriers in this market and the program elements addressing those barriers:

Table 1-1. Market Barriers and Program Elements

Market Barrier	Program Element
<ul style="list-style-type: none">▪ Lack of knowledge and resources to facilitate compliance with existing codes▪ Inconsistency in codes across the state▪ Lack of resources to advocate for adoption of new codes	<ul style="list-style-type: none">▪ Participation on committees and collaboration with relevant stakeholders to promote exchange of information▪ Trainings for code officials and the building community▪ Advocacy in support of adopting new codes, as appropriate

Target Market

Program staff will collaborate with: 1) local entities responsible for energy code compliance and enforcement, and approving code changes (e.g., public officials, committees, city councils, et cetera), and 2) regional and national organizations that track market trends and can provide insight into best practices for energy code improvements and enforcement. Trainings to promote code compliance would target local code officials, building design professionals (e.g., engineers, architects and specifiers, builders and contractors.)

UNS Gas, Inc. Energy Codes Support Program

Appendix C

Program Eligibility

Eligible projects include new construction and existing facilities that receive gas service from UNS Gas. All UNS Gas customers who are property owners of existing residential or small commercial facilities, new home builders, and commercial property developers are eligible for the program.

Current Baseline Conditions

Arizona is a “home rule” state with no mandatory state-wide energy efficiency code. However, many counties and cities have adopted an energy efficiency code, most often the 2006 International Energy Conservation Code (“IECC”).

Products and Services

The ECSP will strive to maximize energy savings through adoption and adherence to local building energy codes across the local jurisdictions within the utility service area. The program will employ a variety of tactics aimed at: 1) Adopting codes where they don’t exist, 2) improving levels of compliance with existing building energy codes, and 3) supporting and informing periodic updates to energy codes as warranted by changing market conditions. Specific program activities will depend on the market needs expressed by local code officials. Activities are likely to include a combination of efforts to:

- Better prepare code officials and building professionals to adhere to existing standards;
- Provide data and market insight to document the specific local benefits of code enforcement, and inform energy code changes over time;
- Ensure utility incentive programs align well with local energy codes;
- Collaborate with relevant stakeholders to help build a more robust community working to advance strong and effective building energy codes across the local jurisdictions within UNS Electric, Inc. and UNS Gas;
- Advocate for energy code updates over time.

Delivery Strategy, Incentive Processing and Administration

Program activities will be selected based on research into effective approaches implemented in leading jurisdictions (e.g., California and Massachusetts), as well as feedback from local code officials, and municipal leaders in locations that currently lack building codes. Once program activities are selected, program staff will maintain a consistent level of activity and engagement with relevant stakeholders.

Key elements of the implementation strategy may include:

- Supporting local energy code adoption through participation in energy code adoption committees for both minimum energy code requirements, and voluntary “stretch codes” (such as Leadership in Energy & Environmental Design (“LEED”) and other sustainable/green codes;

UNS Gas, Inc. Energy Codes Support Program

Appendix C

- Providing technical support to code adoption committees (e.g., benefit cost analysis of potential code updates, research and information sharing related to the market penetration of particular energy efficient technologies);
- Providing public testimony in support of code adoption before city councils;
- Ensuring that ongoing DSM programs align well with energy code requirements; and
- Providing funding and / or other resources to better equip local code agencies to enforce and improve energy code compliance over time. Program staff may select a set of jurisdictions to receive a higher level of assistance on an annual basis. This will help increase the level of impact on those target communities with a high likelihood for producing the greatest amount of incremental savings. Support provided to these target jurisdictions may include activities such as:
 - classroom training sessions for code officials, and building professionals (architects, engineers, specifiers, builders and contractors);
 - brown bag training sessions for code officials, and building professionals at their places of business via a circuit rider;
 - field training sessions for code officials and building professionals;
 - purchasing energy code books for officials that currently lack such resources;
 - supporting energy code-related certifications for code officials;
 - conducting energy code compliance assessments by 2017 to fulfill American Recovery and Reinvestment Act (“ARRA”) requirements to demonstrate 90% energy code compliance (this could be done in coordination with energy efficiency program measurement, evaluation and research (“MER”) activities); and
 - Collaborating with the Southwest Energy Efficiency Project (“SWEEP”) and other regional groups to support research on and adoption of building codes and equipment standards.

UNS Gas staff will be responsible for administering the program. Staff required to implement the program include one-quarter of a full-time-equivalent (“FTE”) staff person at a middle management level, and one-quarter FTE junior staff person. Responsibilities for these staff will include coordination, planning and implementation of all program activities. MER activities would be conducted by a third-party contractor.

Appendix C

Program Marketing and Communication Strategy

Key elements of the marketing strategy will include:

- Direct outreach to local code officials and to other local officials drawing on industry association contact lists (e.g., the International Code Council), and networks of municipal leaders;
- Participation in committees conducting activities related to building code enhancement;
- Communications with other UNS Gas energy efficiency program implementation staff in order to cross-market across programs; and
- Easy-to-locate information posted on UNS Gas’s website.

Program Implementation Schedule

Upon program approval by the Arizona Corporation Commission (“Commission”), UNS Gas plans to immediately engage stakeholders in assessing energy code requirements and compliance status, as well as indentifying best avenues for energy code enhancement throughout the service territory.

Measurement, Evaluation, and Research Plan

All evaluation activities will be conducted by UNS Gas’s MER contractor. An integrated evaluation approach will be taken that includes the following components:

- Addressing evaluation at the onset of program design and collecting evaluation data as part of program administration;
- Assessing and documenting baseline conditions;
- Establishing tracking metrics, especially baseline energy code compliance per major local jurisdiction;
- Developing and refining deemed savings methodologies for estimating program savings from energy code enhancement and adoption activities; and
- Conducting primary and secondary research as part of the impact and process evaluations.

The overall goal of the impact evaluation will be to develop savings methodologies for estimating savings from more stringent energy code adoption and increased energy code compliance rates in both the residential and commercial sectors. A calculation methodology to apportion energy savings attribution from energy codes will be developed and proposed to the Commission.¹

Process related evaluation activities will review utility energy code promotion implementation strategies and seek to identify ways to improve program delivery and market adoption of more aggressive residential and commercial energy codes. Self-report surveys with key stakeholders (code officials, builders, architects, et cetera) as well as on-site verification of a sample of new construction projects will be used to assess program awareness, barriers to participation,

¹ Arizona Corporation Commission; Docket No. RE-00000C-09-0427, Decision No. 71436 issued December 16, 2009, p. 8.

UNS Gas, Inc. Energy Codes Support Program

Appendix C

participant satisfaction, and other process evaluation issues. Interviews will also be conducted with program managers and the implementation contractor. These surveys will be enhanced by collecting market data and assessing trends. Wherever it is practical and appropriate, evaluation activities will be conducted in conjunction with other utilities and agencies in the state to efficiently utilize resources and help ensure consistency.

Quality Assurance and Control

- The energy codes enhancement program will seek to be an additional informational resource to assist code officials, architects, engineers, builders, contractors, and other stakeholders with technical guidance with respect to energy code adoption and compliance activities;
- Utility staff will seek to further strengthen existing contacts with code officials, architects, engineers, builders, contractors, and other stakeholders to advance energy code upgrades and greater levels of energy code compliance, which will include occasional on-site verification visits, especially for those projects receiving utility incentives for efficiency upgrades;
- For any utility sponsored energy code training classes, participant satisfaction surveys will be issued as a standard feature of the class; and
- The program evaluation process (described above) will provide an additional level of quality assurance for the program.

Program Costs and Benefits

Table 1-2 provides an update of 2011 and 2012 budgets required for the ECSP. Energy savings from this program will be determined after the impact evaluation is approved and completed. The overall goal of the impact evaluation will be to develop savings methodologies for estimating savings from more stringent code adoption and increased code compliance rates in both the residential and commercial sectors.

Table 1-2. Program Budgets

	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
2011	\$0	\$0	\$0	\$0	\$0	\$0	\$0	N/A
2012	\$0	\$60,095	\$9,014	\$4,117	\$2,929	\$76,155	\$0	N/A

APPENDIX D:

UNS Gas Solar/Thermal Water Heating

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

Program Description

UNS Gas, Inc. (“UNS Gas” or the “Company”) will offer Solar Thermal Water Heating System program incentives to existing residential, residential new construction and existing and new small commercial customers in the UNS Gas service territory. Incentives will be offered to participating customers on qualified solar thermal systems upon proof of purchase and after the system is installed and operational. In order to qualify to the UNS Gas incentive, each system must be listed by the Solar Rating Certification Council (“SRCC”) and have OG-300 certification. This renewable technology incentive will be in addition to renewable incentives offered by electric utilities, but UNS Gas will have to calculate the total combined incentive so the combined utility incentive does not exceed the maximum utility incentive, as outlined in the Renewable Energy Standards and Tariff (“REST”) rules. The electric service provider will modify incentive offerings if necessary, to assure the customer pays a minimum of 15% of the installed cost.

The major barriers to installation of solar thermal water heating systems include lack of up-front capital and lack of knowledge/awareness of the benefits solar thermal water heating offers as an energy efficiency improvement. The UNS Gas program will help remove barriers to the installation of solar thermal water heating and increase customer acceptance and program participation. Customers can either choose to receive the incentive themselves, or choose to assign the incentive payment directly to the installer, thus reducing initial out-of-pocket investments.

UNS Gas will promote the program through local newspapers, on the Company web-site, during presentations to community groups as well as leverage resources from other energy efficiency programs to reduce costs and increase efficiency of program delivery. The solar thermal program will be cross-marketed and promoted as follows:

- UNS Gas will cross-market and promote through existing Demand-Side Management (“DSM”) programs, such as the Existing Homes, Residential New Construction and C&I Facilities programs, as follows:
 - UNS Gas or a third party implementer will include estimates of savings and cost information for solar thermal water heating in the detailed energy assessment conducted as a part of the **Existing Homes Program** and provide information to each customer on how to participate in the solar thermal water heating program. This will help reduce promotional costs and increase participation in this program;
 - UNS Gas staff, participating home energy raters (“HERS”), or other third party implementers will provide information on how to participate in the solar thermal water heating program to local homebuilders as part of the promotion for participation in the **Residential New Construction Program**. This information will include estimates of costs and all available incentives; and
 - UNS Gas or a third party implementer will include estimates of costs and savings for solar thermal water heating during discussion with commercial customers as part of the proposed **C&I Facilities** direct install program and provide

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

information to each customer on how to participate in the solar thermal water heating program;

- UNS Gas will refer customers to electric service utilities to enable the customer to receive incentives provided from electric service utilities and to allow electric service utilities to claim Renewable Energy Credits (“REC”) associated with installation of solar thermal systems included in the UNS Gas program. Compliance inspections will be completed by electric service utilities as part of the REST requirements for electric service utilities to claim REC’s; and
- Local solar installers will also promote participation in this program.

Program Objectives and Rationale

As noted in A.A.C. R14-2-2504 (A), Renewable Energy Resource Technology (“RET”) Programs are approved in the Gas Utility Energy Efficiency Standard (“EES”) (January 2011) and energy savings from RET programs expressed in therms or equivalent therms may be included toward meeting the energy saving goal. For gas utilities with limited gas end-use appliances/measures, water heating provides one of the largest gas end-uses. The inclusion of solar water heating as an approved RET program will be a critical element for UNS Gas to meet the 6% cumulative energy savings goals by 2020. Southwest Gas Corporation has developed a similar program offering including similar incentives to the program proposed by UNS Gas. By delivering this program with a focus on reducing key market barriers and by leveraging promotion and delivery through approved energy efficiency programs, this program can contribute significantly to the achievement of UNS Gas’s DSM savings goal.

The objectives of the program are to:

- Provide opportunities for participation for all customers;
- When feasible, maximize opportunities for program coordination with other UNS Gas efficiency programs (e.g., Existing Homes Program, Joint-Utility New Home Program, C&I Facilities Program) and with electric utility efficiency programs to yield maximum benefits;
- Maximize program savings at a minimum cost by striving to achieve comprehensive cost-effective savings opportunities;
- Use trained and qualified trade allies such as electricians, HVAC contractors, builders, architects engineers and solar installers to transform the market for efficient technologies; and
- Inform and educate customers to encourage more efficient energy use decisions.

Target Market

The Solar/Thermal Water Heating program will be promoted to existing residential, residential new construction and both new construction and existing C&I customers within the UNS Gas service territory.

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

Program Eligibility

Eligible projects include new construction and existing facilities that receive gas service from UNS Gas. All UNS Gas customers who are property owners of existing residential or small commercial facilities, new home builders, and commercial property developers are eligible for the program.

Current Baseline Conditions

Customers in the UNS Gas service territory own and operate either conventional gas or electric storage water heaters. These water heating systems are often very energy inefficient. Due to various market barriers including capital constraints and lack of awareness, energy efficiency improvements often do not reach the top of the priority list. Thus, reduced energy consumption from water heating represents significant savings potential for the UNS Gas program portfolio. Although existing energy efficiency programs offer some opportunities for energy efficiency improvements through installation of higher efficiency gas storage water heaters in this market, there is not a comprehensive offering from gas utilities that addresses the installation of renewable energy technologies to reduce water heating energy consumption. This program seeks to fill this important gap in the UNS Gas program portfolio and provide substantial energy savings. Based on recommendations from the installer, customers will be allowed to install either gas or electric back-up. If electric back-up is installed, UNS Gas will report the therm equivalent savings provided by the solar system.

Products and Services

This program will be delivered by solar installers in the UNS Gas service territory who are listed as approved contractors for the electric service utility in the area. Training and certification required by the electric service utility will be sufficient to meet the needs of UNS Gas. Contractors must maintain all licenses, and bonding required by the electric service utility in order to participate in the UNS Gas program.

Key elements of the implementation strategy may include:

- Approved systems must have SRCC OG-300 certification to qualify for incentives;
- It is preferred that existing homes and commercial properties with current gas water heating systems install gas back-up for the solar/thermal unit. However, customers will be provided the option to install either gas or electric back-up. If electric back-up is installed, UNS Gas will report the therm equivalent savings provided by the solar system;
- It is preferred that new homes and commercial properties with gas to the property install gas back-up for the solar/thermal unit. In the event that gas service is not available to the property, UNS Gas will report savings based on the therm-equivalent energy savings received from the renewable technology;
- Marketing for solar/thermal water heating systems will be incorporated in the messaging offered through the Existing Homes, Joint-Utility New Homes, and the C&I Facilities programs offered by UNS Gas.
- System acceptance inspections, as required by the electric service utility will be completed by the electric service utility. UNS Gas will refer customers to electric service

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

utilities to enable the customer to receive incentives provided from electric service utilities and to allow electric service utilities to claim REC's associated with installation of solar thermal systems included in the UNS Gas program.

As the program develops and matures, UNS Gas will examine the effectiveness of this program and determine if modifications are necessary to assure success.

Program Marketing and Communication Strategy

Marketing and communications strategies will include notifying UNS Gas customers through updates to website; local newspapers and radio; bill messages and bill inserts; training seminars; call center on-hold messages; direct mail promotion; outreach to new home builders and home builder associations; and working directly with contractors and industry specialists.

Program Implementation Schedule

UNS Gas plans to implement this program in fall of 2011, following approval by the Commission.

Delivery Strategy Incentive Processing, and Administration

Program delivery is provided by a combination of UNS Gas staff, and approved solar installers who will provide implementation services, including system sizing, eligibility verification and scheduling of delivery and system installation. UNS Gas will work closely with Arizona Public Service Company ("APS") and UNS Electric, Inc. to develop strategies for customer applications and reporting requirements. The implementation contractor will work with UNS Gas to deliver necessary documentation to coordinate prompt processing of incentive payments.

Measurement Evaluation and Research Plan

The Measurement, evaluation, and research ("MER") team will develop a research plan and conduct annual evaluation research on the achievements of this program primarily through information collected from the electric service utility during compliance inspections associated with the REST program.

Quality Assurance and Control

Electric service providers will provide quality assurance and control during REST compliance inspections.

Program Costs and Benefits

UNS Gas is sensitive to the fact that customers will receive incentive payments for the same system from both the electric utility and the gas utility. REST rules clearly outline the maximum utility incentive that can be paid, listed as a percentage of total system cost and requirements that customers pay at least 15% of system installed cost. This maximum incentive would be the total incentive from both electric and gas utilities. UNS Gas has designed its incentive structure so the total combined incentive will not exceed the maximum allowed utility incentive as outlined in the REST rules. This is accomplished by first, applying the appropriate calculation to determine the incentive customers will receive from the electric service utility. Next, calculations are made

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

percentage of system cost covered by utility incentives after applying the UNS Gas incentive. The electric utility incentive will be adjusted if necessary, to assure customer payment of 15% of total installed cost necessary to meet REST rules. UNS Gas will offer an incentive of \$7.00/Therm based on first year anticipated savings for existing and new construction residential units. UNS Gas will offer \$400.00/panel to small commercial customers with a maximum of 60 panels. The limitation of 60 panels is necessary to meet the maximum incentive allowed to a small commercial customer by APS. UNS Gas will report energy savings resulting from the installations and electric utilities will report REC's. An example of the up-front incentive structure is illustrated in Table 1-1. UNS Gas will also consider an equivalent payment under the electric utility performance-based incentive structure in the event that requests are received.

Table 1-1. Illustrative Example of Combined Incentives

Residential Solar Water Heating Electric Utility Rebate Structure				
	Rating	Base Incentive	Incentive/kWh	Maximum
Arizona Public Service	OG-300	\$0.00	\$0.50	\$0.00
UniSource Electric	OG-300	\$750.00	\$0.25	\$1,750

NEW CONSTRUCTION - GAS TO GAS - SOLAR INCENTIVE CALCULATION							
System model: TE40P-80-2G	Btu	kWh	Therms	System Cost	UNS Gas Incentive/Therm	UNS Gas Max Rebate	% of Total Cost with Elect & Gas Incentive
OG-300 Residential Typical	9,556,400	2800	95.564	\$5,500	\$7.00		
UniSource Electric Rebate		\$1,450.00				\$668.95	35%
APS Rebates		\$1,400.00				\$668.95	35%

Table 1-2 provides measure savings, incentive levels and participation anticipated in 2011 and 2012. As a RET program, installation of solar water heating is not subject to meeting the same requirements of energy efficiency programs for achieving a positive societal cost test. However, UNS Gas believes it is prudent that the offering meet a positive Utility Cost Test.

Table 1-2. Measure Savings, Incentive Level, Participation and Benefit-Cost

Measure	Annual Energy Savings (Therms/Unit)	Avg. Incentive / Unit	Unit	2011 Units	2012 Units	Measure Level Utility Cost Test Result
Residential Retrofit	96	\$669 or \$7/therm	Home	-	200	1.04
Residential New Construction	96	\$669 or \$7/therm	Home	-	50	1.04
Commercial Retrofit	96	\$400 per panel	Collector	-	50	1.74

Table 1-3 provides both a breakdown of budget categories and total program budgets for 2011 and 2012. Incentives represent 0% of the total program budget for 2011 and 81% of the total program budget for 2012.

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

Table 1-3. Program Budgets

	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Utility Cost Test
2011	\$0	\$17,204	\$688	\$7,994	\$1,035	\$26,921	-\$26,921	0.0
2012	\$187,237	\$17,720	\$8,198	\$8,234	\$8,856	\$230,244	-\$1,546,079	0.9

Environmental Benefits

Installation of renewable energy technologies also provides non-monetary environmental benefit to society. Table 1-4 provides information on the environmental impacts from the UNS Gas Solar/Thermal Water Heating Program.

Table 1-4. Environmental Benefits

	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
2011	-	-	-	-	-	-
2012	152	0.12	0.00	2,282	2	0

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

Measure Analysis Sheets

Solar Water Heating

Incentive Calculations
Solar Hot Water Heater

PROGRAM DATA				RATE DATA				OTHER FACTORS					
Measure Life (yrs):	15			\$/Therm	1.04	Application	ROB						
Program Life (yrs):	5					Cost Basis:	Full						
Levelized \$/ Therms	0.85												
Program Admin Cost (\$/ unit):	-												
IRP Discount Rate:	8.03%												
Social Discount Rate	4.00%												
NTG Ratio:	100%												

DEMAND/ ENERGY SAVINGS				INCENTIVE CALCULATIONS						CUSTOMER COST/ SAVINGS				WGT.	%Incent	Societal	
Measure Type	Annual Therm Savings	Annual Electric Savings	Equivalent Therm Savings	Total Annual Therm Savings	IRP PV Benefit	Social PV Benefit	Recommended Incentive***	%PV	PV Program Cost	NPV	Incr. Cost	Cost Savings	Payback		Weighting Factor	%	BC Ratio
	(Therms/ Panel)	(kWh/ Panel)	(Therms/ Panel)	(Therms/ Panel)	(\$/ Panel)	(\$/ Panel)	(\$/ Panel)		(\$/ Panel)	(\$/ Panel)	(\$/ Panel)	(\$/ Panel)	wo/ Inc. (yrs)	w/ Inc. (yrs)			
Existing Facility Gas to Gas Backup**	96	-	-	96	697	906	400	57%	6,000	-5,303	6,000	100	60.2	56.2	100%	7%	0.15
Weighted Average	96	-	-	96	697	906	400	57%	6,000	-5,303	6,000	100	60.2	56.2	100%	7%	0.15

*Navigant Consulting engineering assumption.
 **There is no calculation for Electric to Gas Backup system due to lack of feasibility based on engineering and financial criteria.
 ***2011 UES Program Planning.

Weighted Average Check	OK																
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SolarWaterHeater_MAS_SWH_UNSG_2011_03_16

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

Measure Analysis Sheets

Solar Water Heating - Residential Retrofit

Incentive Calculations
Solar Hot Water Heater

PROGRAM DATA					RATE DATA		OTHER FACTORS			
Measure Life (yrs):	15				\$/Therm	1.23	Application	ROB		
Program Life (yrs):	5						Cost Basis:	Full		
Levelized \$/ Therms	0.85									
Program Admin Cost (\$/system):	-									
IRP Discount Rate:	8.03%									
Social Discount Rate	4.00%									
NTG Ratio:	100%									

DEMAND/ ENERGY SAVINGS					INCENTIVE CALCULATIONS						CUSTOMER COST/ SAVINGS				WGT.	%Incent	Societal
Measure Type	Annual Therm Savings	Annual Electric Savings	Equivalent Therm Savings	Total Annual Therm Savings	IRP PV Benefit	Social PV Benefit	Recommended Incentive***	%PV	PV Program Cost	NPV	Incr. Cost	Cost Savings	Payback		Weighting Factor****	%	BC Ratio
	(therms/ yr)	(kWh)	(Therms)	(Therms/ System)	(\$/ System)	(\$/ System)	(\$/ System)		(\$/ System)	(\$/ System)	(\$/ System)	(\$/ System)	wo/ Inc. (yrs)	w/ Inc. (yrs)			
Existing Home Gas to Gas Backup**	96	-	-	96	697	906	669	96%	6,000	-5,303	6,000	118	51.0	45.3	50%	11%	0.15
Existing Home Gas to Electric Backup		2,800	96	96	697	906	669	96%	6,000	-5,303	6,000	118	51.0	45.3	50%	11%	0.15
Weighted Average	48	1,400	48	96	697	906	669	96%	6,000	-5,303	6,000	118	51.0	45.3	50%	11%	0.15

*Navigant Consulting engineering assumption.
 **There is no calculation for Electric to Gas Backup system due to lack of feasibility based on engineering and financial criteria.
 ***2011 UES Program Planning.
 ****Weighting Factor based on installation information from Eric Shoberg and Gabriel Torres, TEP.

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SolarWaterHeater_ExistingHomes_MAS_Res_UNSG_2011_03_16

UNS Gas, Inc. Solar/Thermal Water Heating Program

Appendix D

Measure Analysis Sheets

Incentive Calculations
Solar Hot Water Heater

Solar Water Heating - Residential New Construction

PROGRAM DATA					RATE DATA		OTHER FACTORS			
Measure Life (yrs):	15				\$/Therm	1.23	Application	NEW/		
Program Life (yrs):	5						Cost Basis:	Full Cost		
Levelized \$/ Therms	0.85									
Program Admin Cost (\$/ unit):	-									
IRP Discount Rate:	8.03%									
Social Discount Rate	4.00%									
NTG Ratio:	100%									

DEMAND/ ENERGY SAVINGS					INCENTIVE CALCULATIONS						CUSTOMER COST/ SAVINGS				WGT.	%Incent	Societal
Measure Type	Annual Therm Savings	Annual Electric Savings	Equivalent Therm Savings	Total Annual Therm Savings	IRP PV Benefit	Social PV Benefit	Recommended Incentive**	%PV	PV Program Cost	NPV	Incr. Cost	Cost Savings	Payback		Weighting Factor***	%	BC Ratio
	(therms/ yr)	(kWh)	(Therms)	(Therms)	(\$/ Unit)	(\$/ Unit)	(\$/ Unit)		(\$/ Unit)	(\$/ Unit)	(\$/ Unit)	(\$/ Unit)	wo/ Inc. (yrs)	w/ Inc. (yrs)			
New Home Gas to Gas Backup	96	-	-	96	697	906	669	96%	5,500	-4,803	5,500	118	46.7	41.0	95%	12%	0.16
New Home Electric to Gas Backup	96	-	-	96	697	906	669	96%	5,500	-4,803	5,500	118	46.7	41.0	5%	12%	0.16
Weighted Average	96	-	-	96	697	906	669	96%	5,500	-4,803	5,500	118	46.7	41.0	100%	12%	0.16
*Navigant Consulting engineering assumption. **2011 UES Program Planning ***Weighting Factor based on engineering assumptions.																	
Weighted Average Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

File: SolarWaterHeater_NewConstruction_MAS_Res_UNSG_2011_03_16

APPENDIX E:

Education and Outreach

UNS Gas, Inc. Education and Outreach Program

Appendix E

Program Description

UNS Gas, Inc. (“UNS Gas” or the “Company”) believes that to meet overall performance goals for energy savings, the concept of energy efficiency must be understood and embraced by its customers. Messages that communicate the general concept of Demand-Side Management (“DSM”) and the importance of energy efficiency to the customer should be included in many areas of communication. This education and outreach is intended to encourage higher levels of participation in DSM programs offered by UNS Gas. Education and outreach is an essential piece of any market transformation effort.

The goal of residential and commercial energy education program is to educate UNS Gas’s residential and commercial consumers on how to conserve energy and lower their gas utility bills. Educating customers about their energy use decisions, actions and inactions, as well as options for greater efficiency, provides a foundation from which efficient actions can take place. This is accomplished in a variety of ways discussed later in this report.

Program Objectives and Rationale

The program’s goal is to provide customers with the tools and knowledge necessary to better manage their energy use. This is accomplished through targeted education on ways to conserve energy, lower their electric utility bills, achieve cost effective energy savings, and reduce peak demand. The Education and Outreach program is intended to help customers understand and embrace the concept of DSM to encourage higher levels of participation in DSM programs offered by UNS Gas. Further, the goal is to generate awareness among tomorrow’s consumers about the implications of energy use decisions, actions and inactions, the value of energy and the need to use it wisely for a better future for all.

The Education and Outreach program has the potential to deliver messaging that will result in energy reductions. This program also supports all DSM program marketing and advertising efforts. To achieve energy reduction goals from the DSM portfolio of programs, the customer must hear similar and supporting messages through many avenues of communication. The Education and Outreach program provides the opportunity for all utility customer segments to hear supporting messages and become more knowledgeable about energy use and energy cost saving opportunities in their homes and businesses.

It is difficult to specifically attribute energy savings created by educational and outreach programs. Utilities and regulatory agencies throughout the country recognize this limitation and understand the importance of marketing education and outreach efforts to the overall effectiveness of a comprehensive market transformation effort.

Target Market

The Education and Outreach program will be targeted to approximately 131,000 residential and commercial customers in the UNS Gas service territory.

Program Eligibility

All UNS Gas residential and commercial customers will be eligible for this program.

UNS Gas, Inc. Education and Outreach Program

Appendix E

Current Baseline Conditions

In general, customers still do not have the tools or understanding to make informed decisions regarding their energy use and the ways to reduce consumption. Education regarding how different strategies might help reduce energy consumption in their home or business will allow for better energy management. Customers are also not well educated on the potential benefits from energy conservation in reducing greenhouse emissions and water use. The purpose of the four strategies included in the Education and Outreach program is to help communicate and educate these messages to all customers. The messages included in these general energy efficiency campaigns will support individual DSM program messages.

Products and Services

An energy efficiency media campaign designed to educate customers on simple low-cost conservation steps is produced annually. The campaign typically includes a gas bill insert, radio advertising and home page icons on UNS Gas's web site.

Delivery Strategy, Incentive Processing and Administration

This program will be administered in-house by UNS Gas employees. UNS Gas will provide program administration, marketing, planning, and consumer education activities.

Program Marketing and Communication Strategy

UNS Gas will communicate and educate residential and commercial customers through a variety of avenues:

- Bill messages will be used to provide information to current customers;
- Uesaz.com will display information during the winter months to help web users quickly find the energy savings information;
- UNS Gas customer care representatives will be trained to answer any customer questions and they will know where to direct customers on uesaz.com;
- Brochures will be created to be mailed on demand. These will be distributed through the call center and the utility website and will be available for various public awareness events (school training, presentations, seminars, et cetera);
- Inserts will be added to customer bills to educate them on ways to help lower their gas bills;
- Email newsletter article featuring energy savings tips will be sent to all registered uesaz.com users;
- Media relations will be prepared to answer questions posed by the media; and
- Personal outreach at fairs, exhibits, science competitions, et cetera, to distribute information, flyers, and such other materials available, about energy conservation and renewable energy.

UNS Gas's existing "Bright" family energy efficiency brand marketing platform will continue to be used to communicate with customers via social media outlets such as Facebook and Twitter.

UNS Gas, Inc. Education and Outreach Program

Appendix E

Program Implementation Schedule

Program implementation will begin immediately following Arizona Corporation Commission (“Commission”) approval.

Program Costs and Benefits

Program budget shown in Table 1-1 includes labor from program development, reporting, implementation, and campaign development. Budgets also include market delivery such as print and radio campaigns, printing brochures, print advertising, web advertising, and seminars to target groups.

Table 1-1. Program Budgets

	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Evaluation	Total Program Cost	Lifetime Net Benefits (\$)	Program Level Societal Cost Test
2011	\$0	\$25,735	\$0	\$3,997	\$0	\$29,731	\$0	N/A
2012	\$0	\$61,813	\$0	\$8,234	\$2,802	\$72,849	\$0	N/A

As an education, outreach and market transformation program there is no calculation for energy savings. UNS Gas is requesting approval to recover the cost of the program through DSM but will claim no energy savings. However, UNS Gas believes that this program directly impacts the participation in, and thus savings from, its other DSM programs. UNS Gas is not proposing to track the cost effectiveness of the educational programs. Again, however, UNS Gas believes that the cost effectiveness of its other DSM programs is positively impacted by the Education and Outreach program.

APPENDIX F:

UNS Gas Measure Appendix

UNS Gas, Inc. Measure Appendix – Appendix F

This information has been provided to Commission Staff electronically on a separate Excel file and is available to interested parties upon request.

Sector	Existing Measure	Program Name	RETI/RO/NC	End Use	Measure Name	Unit Basis	Baseline Product Description	Efficient Product Description	2011 Participation Units	2012 Participation Units	Measure Life (years)	Energy and Resource Savings					Total Incremental Cost per unit	Proposed Incentive per unit	Incentive % of Inc. Cost	Measure Level Social Cost Effectiveness (only includes incremental costs, no program costs)				Measure level annual CO2 savings (Metric Tons)	
												Direct Gas Savings (therms)	Electricity Savings (kWh)	Therms Equivalent Savings (therms)	Total Gas Savings (Therms+Therms equivalent)	Water Savings (Gal)				Societal Benefits	Societal Costs	Net Societal Benefits	Societal Cost		
Residential	Existing	Existing Homes	RCB	HVAC	HE-FURNACE, AFUE > 92	Per Home	AFUE 80	AFUE > 92	100	150	20	148	0	0	0	148	0	\$564	\$300	53%	\$1,845	\$564	\$1,281	3.3	0.79
Residential	Existing	Existing Homes	RCB	HVAC	HE-FURNACE, AFUE > 95	Per Home	AFUE 80	AFUE > 95	400	450	20	171	0	0	171	0	\$684	\$500	73%	\$2,125	\$684	\$1,441	3.1	0.91	
Residential	Existing	Existing Homes	RCB	HVAC	Air Sealing	Per Home	Reduced Air Leakage (65 - 4 ACH) in SF Home	Air Sealing	50	100	20	84	790	27	111	0	\$345	\$250	72%	\$1,282	\$345	\$1,037	4.0	0.90	
Residential	Existing	Existing Homes	RET	HVAC	Air Sealing-Air Sealing-Duct Repair	Per Home	no action	Air Sealing-Air Sealing-Duct Repair	30	30	20	152	1390	54	236	0	\$1,680	\$800	48%	\$2,534	\$1,680	\$1,253	1.7	1.22	
Residential	Existing	Existing Homes	RET	HVAC	Air Sealing & Air Sealing	Per Home	R19	R19	100	150	20	107	1030	35	142	0	\$1,140	\$800	70%	\$1,762	\$1,140	\$623	1.5	0.75	
Residential	Existing	Existing Homes	RCB	HVAC	Duct Test and Repair (prescriptive)	Per Home	AFUE 79	Duct Test and Repair	50	100	10	146	0	0	146	0	\$770	\$350	45%	\$924	\$770	\$154	1.2	0.77	
Residential	Existing	Existing Homes	RCB	HVAC	Duct Test and Repair (performance)	Per Home	AFUE 79	Duct Test and Repair	100	150	10	146	0	0	146	0	\$770	\$350	45%	\$924	\$770	\$154	1.2	0.77	
Residential	New	Existing Homes	RCB	HVAC	HE-Furnace Heating Boiler	Per Home	AFUE 80	AFUE 85	50	60	25	49	0	0	49	0	\$668	\$500	75%	\$1,044	\$668	\$376	1.2	0.37	
Residential	Existing	Existing Homes	RCB	Water Heating	High Eff. 40/50 Gal Storage Water Heater	Per Home	Energy Star, EF 0.67	Energy Star, EF 0.67	250	300	15	25	0	0	25	0	\$139	\$100	72%	\$207	\$139	\$68	1.5	0.13	
Residential	New	Existing Homes	RET	Water Heating	Pipe Wrap - Gas	Per Unit	no pipe wrap	Pipe wrap on first 6 feet	200	300	11	3	0	0	3	0	\$17	\$12	71%	\$20	\$17	\$3	0.2	0.02	
Residential	Existing	Existing Homes	RET	Water Heating	Low Flow Shower Head - 1.5 GPM (Audit DI)	Per Unit	4 GPM	1.5 GPM with ShowerStart Tech	250	250	10	42	5954	43	5954	0	\$33	\$33	100%	\$427	\$33	\$427	15.9	0.22	
Residential	Existing	Existing Homes	RET	Water Heating	Kitchen Faucet Aerators - 1.5 GPM (Audit DI)	Per Unit	2.5 GPM	1.5 GPM	250	250	10	15	0	0	15	0	\$1813	\$3	83	100%	\$31	\$3	\$148	54.9	0.08
Residential	Existing	Existing Homes	RET	Water Heating	Bathroom Faucet Aerators - 1 GPM (Audit DI)	Per Unit	2.2 GPM	1 GPM	250	250	10	13	0	0	13	1674	\$3	\$3	100%	\$140	\$3	\$137	50.7	0.07	
Residential	New	Existing Homes	RCB	Water Heating	HE Pool and Spa Heater (<500 kWh)	Per Unit	AFUE 80	AFUE 80	5	5	5	149	0	0	149	0	\$11	\$15	71%	\$460	\$11	\$249	2.2	0.79	
Residential	Existing	Residential New Construction	NC	Whole House	Smart Utility New Home Construction Program	Per Home	varies by climate zone	varies by climate zone	216	325	13	279	0	0	279	0	\$908	\$200	22%	\$2,037	\$908	\$1,129	2.9	1.48	
Residential	Existing	Low Income Weatherization	NC	Whole House	Low Income Weatherization	Per Home	no action	Weatherization	100	103	12	32	2667	91	123	0	\$1,977	\$2,000	101%	\$904	\$1,977	\$1,043	0.5	0.65	
Residential	New	Behavioral Comprehensive Program	RET	Water Heating	K-12 Education Kit	Per Kit	no action	1 showerhead + 1 faucet aerator + 1	62	600	10	62	0	0	62	7066	\$33	\$33	100%	\$622	\$33	\$589	18.7	0.13	
Residential	New	Home Energy Reports - Pilot	RET	Whole House	Home Energy Reports - Gas only (year 1)	Per Customer	no action	1.15 % savings	-	-	1	13	0	0	13	0	\$7	\$7	100%	\$7	\$7	\$0	1.0	0.07	
Residential	New	Home Energy Reports - Pilot	RET	Whole House	Home Energy Reports - Gas only (year 2)	Per Customer	no action	1.15 % savings	-	-	15,000	1	13	0	13	0	\$8	\$8	100%	\$7	\$8	\$0	1.0	0.07	
Residential	New	Home Energy Reports - Pilot	RET	Whole House	Home Energy Reports - Dual Fuel only (year 1)	Per Customer	no action	1.15 % savings	-	-	1	7	0	0	7	0	\$2	\$2	100%	\$4	\$2	\$2	1.9	0.03	
Residential	New	Home Energy Reports - Pilot	RET	Whole House	Home Energy Reports - Dual Fuel only (year 2)	Per Customer	no action	1.15 % savings	-	-	20,000	1	7	0	7	0	\$2	\$2	100%	\$4	\$2	\$2	1.9	0.03	
Commercial	Existing	C&I Facilities	RCB	HVAC	HE Space Heating HW Boiler < 300 kWh	Per Unit	AFUE 80	AFUE 85	20	20	20	718	0	0	718	0	\$1,318	\$800	61%	\$1,954	\$1,318	\$636	1.4	0.81	
Commercial	Existing	C&I Facilities	RET	HVAC	HE Space Heating Steam Boiler > 300 kWh	Per Unit	AFUE 78	AFUE 82	-	10	20	652	0	0	652	0	\$3,114	\$1,800	58%	\$8,107	\$3,114	\$4,993	2.6	3.46	
Commercial	Existing	C&I Facilities	RCB	HVAC	HE-FURNACE <500,000 Btu, AFUE > 92	Per Unit	AFUE 80	AFUE 92	50	75	20	182	0	0	182	0	\$684	\$500	73%	\$2,262	\$684	\$1,578	4.0	0.97	
Commercial	Existing	C&I Facilities	RCB	HVAC	HE-FURNACE <500,000 Btu, AFUE > 95	Per Unit	AFUE 80	AFUE 95	100	150	20	211	0	0	211	0	\$884	\$500	57%	\$2,630	\$884	\$1,746	3.8	1.12	
Commercial	Existing	C&I Facilities	RCB	Water Heating	Storage Water Heater > 75,000 Btu	Per Unit	AFUE 80	AFUE 90	25	50	15	329	0	0	329	0	\$1,139	\$500	44%	\$3,123	\$1,139	\$1,984	2.7	1.79	
Commercial	New	C&I Facilities	RCB	Cooking	High Eff Fryer	Per Unit	Standard Efficiency fryer (35% efficiency)	High Efficiency fryer (Min. 50% eff)	-	15	12	360	0	0	360	0	\$1,244	\$900	73%	\$2,733	\$1,244	\$1,489	2.2	1.91	
Commercial	New	C&I Facilities	RCB	Cooking	High Eff Large Vat Fryer	Per Unit	Standard Efficiency fryer (35% efficiency)	High Efficiency large vat fryer (Min. 50% eff)	-	15	12	420	0	0	420	0	\$1,248	\$900	72%	\$3,270	\$1,248	\$2,022	2.6	2.27	
Commercial	Existing	C&I Facilities	RCB	Cooking	High Eff Griddle	Per Unit	Standard Efficiency griddle (50% efficiency)	High Efficiency griddle (Min. 38% e)	-	15	12	185	0	0	185	0	\$482	\$300	62%	\$1,405	\$482	\$922	2.9	0.98	
Commercial	New	C&I Facilities	RCB	Cooking	HE Combination Oven	Per Unit	Standard Efficiency combination oven (35% efficiency)	High Efficiency combination oven (4	-	10	12	403	0	0	403	0	\$1,319	\$1,000	66%	\$3,060	\$1,319	\$1,741	2.0	2.14	
Commercial	New	C&I Facilities	RCB	Cooking	HE Convection Oven	Per Unit	Standard Efficiency convection oven (35% efficiency)	High Efficiency convection oven (4	-	10	12	306	0	0	306	0	\$1,468	\$1,000	68%	\$2,323	\$1,468	\$855	2.6	1.62	
Commercial	New	C&I Facilities	RCB	Cooking	HE Convection Oven	Per Unit	Standard Efficiency convection oven (35% efficiency)	High Efficiency convection oven (4	-	10	12	730	0	0	730	0	\$561	\$400	71%	\$5,581	\$561	\$5,020	10.0	3.90	
Commercial	New	C&I Facilities	RCB	Cooking	HE Convector Oven >25"	Per Unit	Standard Efficiency Convector Oven >25"	High Efficiency Convector Oven >25"	-	10	12	843	0	0	843	0	\$1,247	\$900	72%	\$6,416	\$1,247	\$5,170	5.1	4.48	
Commercial	New	C&I Facilities	RCB	Cooking	HE Rack Oven - Single	Per Unit	Standard Efficiency Rack Oven (30% efficiency)	High Efficiency Rack Oven - single (4	-	10	12	1034	0	0	1034	0	\$1,461	\$1,000	68%	\$7,851	\$1,461	\$6,390	3.4	5.49	
Commercial	New	C&I Facilities	RCB	Cooking	HE Rack Oven - Double	Per Unit	Standard Efficiency Rack Oven (30% efficiency)	High Efficiency Rack Oven - double	-	10	12	2113	0	0	2113	0	\$2,037	\$1,000	49%	\$16,044	\$2,037	\$13,967	7.8	11.23	
Commercial	New	C&I Facilities	RCB	Cooking	HE ENERGY STAR Steam Cooker	Per Unit	Standard Efficiency Steam Cooker (15% efficiency)	HE ENERGY STAR Steam Cooker (1	-	10	12	1533	0	0	1533	0	\$2,622	\$1,750	67%	\$11,659	\$2,622	\$9,033	4.4	8.13	
Commercial	New	C&I Facilities	RCB	HVAC	Condensing Unit Heater	Per Unit	AFUE 83	AFUE 92	-	10	20	321	0	0	321	0	\$1,227	\$400	33%	\$3,988	\$1,227	\$2,761	3.1	1.70	
Commercial	New	C&I Facilities	RET	HVAC	Ductwork Vent Unit Heater - Early Retirement Green Ventr	Per Unit	AFUE 63	AFUE 83	-	10	20	1245	0	0	1245	0	\$4,779	\$2,000	42%	\$15,494	\$4,779	\$10,715	3.2	6.61	
Commercial	New	C&I Facilities	RCB	HVAC	Programmable Thermostats	Per building	no action	Energy Star Programmable Ther	-	50	11	49	0	0	49	0	\$204	\$100	49%	\$343	\$204	\$139	1.7	0.26	
Commercial	Existing	C&I Facilities	RCB	Water Heating	Storage Water Heater < 75,000 Btu	Per Unit	EF 0.575	Energy Star, EF 0.67	100	100	13	114	0	0	114	0	\$178	\$100	56%	\$541	\$178	\$362	2.3	0.61	
Commercial	New	C&I Facilities	RCB	Water Heating	HE Pool and Spa Heater (<500 kWh)	Per Unit	AFUE 80	AFUE 85	-	3	5	149	0	0	149	0	\$211	\$150	70%	\$460	\$211	\$249	2.2	0.79	
Commercial	New	C&I Facilities	RET	Water Heating	Low-Flow Pre-Rinse Spray Valve	Per Unit	Standard Spray Valve	Low-Flow Pre-Rinse Spray Valve	-	50	5	44	0	0	44	0	\$42	\$40	95%	\$277	\$42	\$235	4.8	0.22	
Commercial	New	C&I Facilities	RCB	Water Heating	Commercial/Multifamily Clothes washer CEE Tier 1	Per Unit	Standard Clothes washer	CEE Tier 1, MEF = 2.2, WF = 4.5	-	50	11	14	2257	8	22	1854	\$186	\$75	40%	\$711	\$186	\$525	3.8	0.12	
Commercial	New	C&I Facilities	RCB	Water Heating	Commercial/Multifamily Clothes washer CEE Tier 2	Per Unit	Standard Clothes washer	CEE Tier 2, MEF = 2.2, WF = 4.5	-	50	11	14	310	11	27	1920	\$216	\$75	35%	\$884	\$216	\$668	4.0	0.14	
Commercial	New	C&I Facilities	RCB	Water Heating	Commercial/Multifamily Clothes washer CEE Tier 3	Per Unit	Standard Clothes washer	CEE Tier 3, MEF = 2.4, WF = 4	-	50	11	13	370	13	31	2048	\$433	\$75	17%	\$931	\$433	\$498	2.1	0.16	
Commercial	New	C&I Facilities	RCB	Process heat	Steam Trap Survey and Replacement - Commercial	Per Trap	Standard maintenance practice	Survey and replace failed traps	-	200	10	139	0	0	139	0	\$390	\$250	64%	\$881	\$390	\$491	2.3	0.74	
Commercial	New	C&I Facilities	RCB	Process heat	Steam Trap Survey and Replacement - Industrial	Per Trap	Standard maintenance practice	Survey and replace failed traps	-	25	10	638	0	0	638	0	\$347	\$250	72%	\$4,014	\$347	\$3,667	11.7	3.39	
Commercial	New	C&I Facilities	RCB	HVAC	Custom	Per customer	no action	custom measures	-	5	10	2700	0	0	2700	0	\$3,600	\$2,700	75%	\$17,115	\$3,600	\$13,515	4.8	14.33	
Commercial	New	Multifamily Direct Install	RET	Water Heating	Low Flow Shower Head - 1.5 GPM (DI)	Per Unit	4 GPM	1.5 GPM	-	275	10	28	0	0	28	3969	\$35	\$35	100%	\$309	\$35	\$269	8.6	0.13	
Commercial	New	Multifamily Direct Install	RET	Water Heating	Kitchen Faucet Aerators - 1.5 GPM (DI)	Per Unit	2.2 GPM	1.5 GPM	-	275	10	10	0	0	10	1209	\$3	\$3	100%	\$103	\$3	\$99	36.8	0.03	
Commercial	New	Multifamily Direct Install	RET	Water Heating	Bathroom Faucet Aerators - 1 GPM (DI)	Per Unit	2.2 GPM	1 GPM	-	275	10	9	0	0	9	1114	\$3	\$3	100%	\$93	\$3	\$90	33.8	0.05	
Residential	New	Solar Water Heating	RCB	Water Heating	Solar Hot Water Heater - Res Gas WH Retrofit	Per Home	EF																		