

**NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION**

**ENERGYNORTH NATURAL GAS, INC.**

**D/B/A**

**NATIONAL GRID NH**

**nationalgrid**

**NORTHERN UTILITIES INC.**

**D/B/A**



**ENERGY EFFICIENCY PLAN**

**January 01, 2011 through December 31, 2012**

**NHPUC Docket No.  
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**Exhibit A:** Projected Program Expenses: presents detailed budgets by program and year.

**Exhibit B:** Benefit Cost Analysis: summarizes the two-year benefit cost (BC) ratios for the programs as well as each year's BC ratio by sector with and without shareholder incentive.

**Exhibit C:** Program Input Assumptions: shows the per participant savings, costs, and rebates for each program measure.

**Exhibit D:** Shareholder Incentive Calculation: estimates the Companies' projected shareholder incentive for successful implementation of their energy efficiency programs.

## **I. FORWARD**

This document presents to the New Hampshire Public Utilities Commission (NHPUC or the Commission) EnergyNorth Natural Gas, Inc. d/b/a National Grid NH's and Northern Utilities, Inc. d/b/a Unitil (the Companies) proposed Energy Efficiency (EE) plan for the two-year period January 1, 2011 through December 31, 2012. The Companies' current programs, which were approved by Commission Order 24,636 for National Grid NH and Commission Order 24,968 for Unitil, expire on December 31, 2010. This proposed EE Plan provides updated program descriptions, benefit/cost analyses, program budgets and program goals for this two-year time period and is structured to more closely align with the CORE EE programs which was contemplated by Orders 24,636 and 24,968.

The Companies are proposing a few changes to their current program offerings. On the residential side, the Companies are including rebates for residential energy efficient storage water heaters and National Grid NH is adding a program element to address individually metered gas multifamily facilities (five or more units) in the Home Performance with ENERGY STAR program and the Energy Audit and Home Performance program. The Home Performance with ENERGY STAR program single family (1-4 Units) provides home assessment, insulation to customers in conjunction with air sealing. Energy Audit and Home Performance multi family (5+ Units) individually metered provides education to participants either through phone support or an in-home audit, energy saving measures, insulation in conjunction with air sealing. The Low Income Program will also be expanded and will serve individually metered gas multifamily facilities within the Low Income Program. Low Income program budgets have been increased to account for these individually metered low income multifamily facilities and to accommodate the expiration of other funding sources. The increased budget will allow the Companies to serve a similar volume of participants as in the past two years.

On the commercial side, the Companies are proposing a new program structure which aligns with the electric utilities. The programs are C&I New Equipment and Construction Program, C&I Large Retrofit Program, and Small Business Energy Solutions Program. The C&I Equipment and C&I Large Retrofit Program contain both prescriptive and custom retrofit measures, and the C&I Small Business Program is a new program targeted at gas customers with annual gas consumption up to 40,000 therms.

In our continuing effort to coordinate with the CORE electric utilities, the Companies are presenting a filing that more closely aligns to the CORE plan:

1. In this filing, the Companies are providing proposed EE budgets using the same budget categories as the electric energy efficiency filings (see Exhibit A). This will allow for comparability between planning and reporting.

2. The presentation of the performance-based shareholder incentive mechanism has been different in the gas and electric EE plans. The Companies are adopting the presentation that can be found in the electric EE plans here (see Exhibit D).

The remainder of this EE Plan provides an overview of proposed programs, a more detailed discussion of EE efforts for residential customers, a more detailed discussion of EE efforts for commercial and industrial customers, proposed outreach and communication efforts, evaluation and reporting, and a discussion about proposed performance-based shareholder incentives.

Four exhibits are provided in support of this EE Plan:

1. Exhibit A: Projected Program Expenses presents detailed budgets by program and year. This exhibit also includes program participation and lifetime savings.
2. Exhibit B: Benefit Cost Analysis summarizes the two-year benefit cost (BC) ratios for the programs as well as each year's BC ratio by sector with and without shareholder incentive.
3. Exhibit C: Program Input Assumptions document sources for savings, incremental costs, and measure lives for each program.
4. Exhibit D: Shareholder Incentive Calculation estimates the Companies' projected shareholder incentive for successful implementation of their energy efficiency programs.

## II. OVERVIEW OF ENERGY EFFICIENCY PROGRAMS

### A. *Program Overview*

Many of the programs described are a continuation of programs currently offered and approved by the Commission. Regional initiatives and collaborative groups have also influenced the Plan. Overall, the Companies have developed programs that address a wide variety of energy efficiency opportunities for natural gas customers. These programs are summarized in Table II. The Companies have included recent rebate changes and program updates agreed to by the regional GasNetworks™ collaborative with state specific customization for New Hampshire to ensure the same rebate levels are offered by the Companies and other gas companies throughout the region and to support coordinated program delivery with NH Saves (Core electric programs). The Companies may make changes to incentive levels for eligible heating, water heating, and controls equipment during the proposed two year period in response to consumer demand and other market factors. Additional energy efficient measures may also be added if there is reliable evidence of cost effectiveness. See Table III for a list of eligible measures and the associated incentive level.

**Table I: Proposed Energy Efficiency Plan Offerings (Programs)**

<b>Table I: Energy Efficiency Programs</b>	
<b>Residential Market</b>	
High-Efficiency Heating, Water Heating, and Controls Program	\$500 incentive for boilers (85% AFUE), \$1000 incentive (90% AFUE) . \$400 incentive for high-efficiency furnaces (92% AFUE) with ECM Motor and \$650 incentive on furnaces (94% AFUE). Combined High-Efficiency Boiler and Water Heating unit with a minimum AFUE rating of 90.%.
	\$300 incentive for indirect water heating system connected to an ENERGY STAR® rated natural gas forced hot water boiler and \$300 for on demand water heaters (EF .82 with an electronic ignition). \$50 for ENERGY STAR® .62 EF storage water heaters.
	\$25 incentive each for up to two programmable thermostats. \$100 for boiler reset controls.
New Home Construction with ENERGY STAR®	Free building plans review, certification, and incentives for new ENERGY STAR® residential construction. National Grid NH only.
Home Performance with ENERGY STAR Energy Audits with Home Performance 5+ Units	Incentive of 75% of installed cost of qualifying insulation and weatherization measures installed by participating contractors up to \$4,000 for 1-4 unit homes. Multi family 5+ unit dwellings where each dwelling is individually metered up to \$750. Air sealing on average up to \$650 for 5+ units. (National Grid NH only.)
Residential Building Practices and Demonstration Program	Participate in funding for demonstration projects that apply to new or underutilized technologies. National Grid NH only.
Residential Low Income Program	Energy audit conducted and measures installed (up to \$4,500 per residence) at no cost to income eligible customers (up to 200% of Federal Poverty Level Guidelines). National Grid only.
<b>Commercial &amp; Industrial Markets</b>	
New Equipment and Construction Program	This program targets eligible customers with new construction, major renovation, or failed equipment replacement projects. The program offers prescriptive and custom incentives designed to cover up to 75% of incremental costs up to the customer's incentive cap. The program also offers Technical Assistance including project evaluation, measure identification, equipment monitoring, and efficiency studies.
Large C&I Retrofit Program	This program targets eligible customers and larger, operating aging, inefficient equipment and systems. The program offers prescriptive and custom rebates designed to cover up to 50% of equipment and installation costs up to the customer's incentive cap. The program also offers Technical Assistance including project evaluation, measure identification, equipment monitoring, and efficiency studies.
Small Business Energy Retrofit Program	This program targets C&I Gas customer with an annual usage up to 40,000 therms. This program works with the customer to identify energy saving opportunities and helps customers move forward with the implementation of these measures.
C&I Multi-family Program	This program targets multi-family (>4 units), master-metered customers and landlords. The program offers an incentive up to 50% of equipment and installation costs with an incentive cap of \$50,000 per master-metered account.

During the 2011-2012 program years, the Companies will build upon the existing portfolio of programs by:

- Continuing to manage existing programs cost-effectively;
- Coordinating closely with the NH Core Electric Energy Efficiency programs and each other;
- Identifying and developing new, cost-effective programs; and,
- Integrating discrete initiatives to more comprehensively address all energy uses and markets and barriers to energy efficiency.

The energy efficiency programs use different models of delivery depending on the type of services provided. For equipment rebate programs offered through High-Efficiency Heating, Water Heating, and Controls and New Equipment and Construction Program, customers receive incentives for qualified energy efficient products. These products may be purchased from and installed by any qualified contractor selected by the customer. The Companies generally do not perform direct product installation programs, but instead encourage contractor participation. All contractors are permitted to compete for the customer's business on an equal basis, though weatherization contractors will need to be trained in proper air sealing techniques to participate in programs. Through their trade ally programs, the Companies provide training and encourage contractors to recommend and provide bids for qualifying energy efficient products. Each utility will continue to have flexibility in its implementation strategies and may deliver its programs in a particular way.

In designing the proposed energy efficiency programs, wherever practical, the Companies have established efficiency standards consistent with the ENERGY STAR<sup>®</sup> labeling program standards of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). ENERGY STAR is a collaborative effort of the DOE and EPA to prevent pollution and encourage conservation by helping consumers buy products that use less energy. The ENERGY STAR label and promotional activities raise awareness of the environmental and economic benefits of energy efficient products and help consumers easily identify them.

In other instances the Companies has established program criteria consistent with the specifications adopted by the Consortium for Energy Efficiency (CEE) on products including furnaces, and boilers.

***B. Program Budgets***

The proposed combined budgets for the Companies' energy efficiency programs are \$7,250,634 and \$7,862,289 respectively, in calendar year 2011 and 2012. Detailed budgets are presented below in Table II.

**Table II: Summary Budget**

	<b>2011</b>	<b>2012</b>
Internal Administration	446,859	489,066
External Administration	909,561	994,066
Rebates/Services	5,235,489	5,686,047
Internal Implementation	211,170	215,146
Marketing	261,286	276,781
Evaluation	186,269	201,182
<b>Total</b>	<b>7,250,634</b>	<b>7,862,289</b>

### ***C. Reallocation of Budgets***

Occasionally market conditions necessitate the shifting of money from one program area to another. The Companies recommend continuation of the budget adjustment guidelines currently in place. Specifically,

- Once the budgets are approved, there will be no movement of funds between the residential and commercial industrial sectors unless specifically approved by the Commission.
- Budget transfers to or from individual programs of 20% of the individual program's budget or less can be made without consultation and without Commission approval. Notice to the Staff and interested parties are required.
- Budget transfers to or from individual programs greater than 20% of the individual program's budget shall be filed with the Commission. Staff and interested parties may file any comments with the Commission within two weeks of the filing. If no action has been taken by Staff and interested parties, the budget transfer request shall be deemed approved unless the Commission notifies the company of the need for a more in-depth review within thirty (30) days of the filing.
- Notwithstanding the 2<sup>nd</sup> and 3<sup>rd</sup> bullets above, no funds shall be transferred out of the Home Energy Assistance Program without prior approval by the Commission.

### III. RESIDENTIAL PROGRAMS

#### A. Residential High-Efficiency Heating, Water Heating and Controls Program

Heating is frequently the largest energy expense for a household, particularly in a cold climate such as New Hampshire. Reducing a household’s heating load benefits the consumer over time with lower energy bills and benefits the environment with fewer emissions. The foundation of the Residential High-Efficiency Heating, Water Heating and Controls Program is providing incentives for customers to purchase high-efficiency gas heating equipment and controls. The Companies encourage customers to choose the high-efficiency option by offsetting a portion of the high efficiency price premium. The program goals include:

- Making customers aware of high-efficiency gas heating equipment, controls, and the energy savings achievable;
- Increasing market sector awareness and demand for high-efficiency gas heating equipment and controls;
- Facilitating the purchase of high efficiency gas heating equipment and controls;
- Providing training to Trade Allies such as plumbing and heating contractors and increasing trade ally awareness of the benefits of high-efficiency gas heating equipment and controls.

Table III: Residential High-Efficiency Heating Program Incentive Qualifications

<b>Product</b>	<b>Rating</b>	<b>Incentive</b>
Furnaces with Electronic Commutated Motor(ECM)	92% AFUE or greater	\$400
Warm Air Furnaces 94% with Electronic Commutated Motor (ECM)	94% AFUE or greater	\$650
Hot water Boiler	85% AFUE or greater	\$500
Hot water Boiler	90% AFUE or greater	\$1,000
Combined Boiler and Water Heating unit	90% AFUE or greater	\$1,300
Indirect Water Heater (attached to a natural gas boiler)	(30-70 gallon tank size)	\$300
On-Demand, Tankless Water Heater	.82 EF (Energy factor) or greater with electronic ignition	\$300
ENERGY STAR® Rated Storage Water Heater	.62 EF (Energy Factor) or greater	\$50
Programmable Thermostats	Programmable	\$25 (2 per household)
Boiler Rest Control		\$100

In addition to offering high efficiency heating and water heating equipment, the Companies include incentives for controls. The Controls category includes programmable thermostats and boiler reset controls. The Companies plan to continue to offer customers incentives for high performance programmable thermostats, which are an excellent means of controlling and reducing energy use. The following describes the Companies' ongoing commitment to the highly-successful thermostat program and incentives for boiler reset controls.

Residential heating customers are eligible for a \$25 mail-in incentive for the installation of up to two programmable thermostats, for a maximum of \$50 per household. When applying for a thermostat incentive, customers are required to submit proof-of-purchase for the unit. Eligible thermostats may be installed by homeowners and HVAC contractors.

When used properly, programmable thermostats can save a notable amount of energy. Because older model thermostats are a common source of mercury, these thermostats should be properly recycled. The U.S. Environmental Protection Agency (EPA) modified its thermostat program from a performance specification to consumer education on May 1, 2007. The EPA's action is based partly on studies weighted toward regions of the country where central cooling is the major energy load and, as a result, use of programmable thermostats result in minimal savings. However, in New England, where a major energy load is heating, there is ample evidence that programmable thermostats can significantly reduce energy consumption. A 2007 RLW Analytics study, commissioned by GasNetworks™, estimated an average savings of 75 ccf of natural gas per heating season per thermostat installed. While there will be changes to this EPA designation, the Companies continue to see merit in promoting programmable thermostats and thus intend to continue offering incentives to customers.

The Companies continue to offer incentives for the installation of boiler reset controls. This technology works by monitoring the outdoor temperature and adjusting the frequency that the boiler responds to heat demand. For example, on a relatively mild winter day, a thermostat won't call for heat as often, so the boiler will not need to work as hard. The reset control adjusts the water supply temperature allowing it to drop to lower temperatures before firing.

Boiler reset controls have been available for residential heating systems for more than 30 years. However, due to relatively high installation costs, lack of promotion by manufacturers, and the lack of incentives in energy efficiency programs, there has been little market penetration. The Companies propose offering an incentive of \$100 per reset control installed. This incentive is only available for newer boilers without built-in controls.

#### Target Market / Market Approach

Target markets for the program include both new construction and existing residences. Incentives are available to residential customers (builders and/or homeowners). The program is jointly marketed with the regional GasNetworks™ collaborative and will be promoted through a variety of marketing and educational awareness campaigns including, but not limited to: company websites, [www.nhsaves.com](http://www.nhsaves.com), direct mail campaigns, bill inserts, trade ally events, sponsorships, program brochures, and the GasNetworks™ website ([www.gasnetworks.com](http://www.gasnetworks.com))

where consumers and contractors will have the opportunity to download program incentive applications, as well as learn about program announcements and updates. In addition, the Companies will continue retailer outreach programs with national home improvement chains, local hardware stores, suppliers, and distributors. These outreach efforts provide training for sales personnel regarding the incentive programs and coordinate the ongoing distribution of program brochures and incentive applications. Information collected from the Companies' contractors suggests that installation contractors have a large impact on the choice of heating equipment to be installed. A strong emphasis will be placed on working with builders and contractors who install gas heating equipment and controls.

Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table IV summarizes the Companies' 24 month budget, projected savings, goal and estimated participation levels for the Residential High-Efficiency Heating, Water Heating and Controls Program.

**Table IV: Residential High Efficiency Heating, Water Heating & Controls**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$1,024,081	\$1,069,356
Lifetime MMBTU Savings	393,171	414,706
Participation	2,430	2,584

***B. Home Performance with ENERGY STAR® Program***

The Home Performance with ENERGY STAR Program (“HPwES”) program is a national effort sponsored by the U.S. EPA and U.S. DOE with the primary mission of improving the energy performance and comfort of existing homes. The program design offers a comprehensive, whole-house approach to improving energy efficiency and comfort at home, while helping to protect the environment. The objective of the program is to weatherize gas heated homes, capture all cost effective opportunities for saving gas, and collaborate with other programs to improve program effectiveness, capture electric and other energy saving opportunities and to deliver seamless services to our customers. These opportunities include incentives to weatherize as well as offer incentives to encourage the installation of high-efficiency gas HVAC equipment via the Residential GasNetworks® Program.

In the event of stronger than expected participation that may lead to program closures, the Companies will explore adjusting the per participant incentive level in an effort to serve more customers and keep the program open throughout the course of the year.

National Grid NH will administer the Home Performance with ENERGY STAR Program through a single implementation coordinator (IC). This IC will be responsible for the day to day administration of the Program. This IC will perform all home assessments to determine which measures can be installed. Upon completion of the home assessment the customer will be provided with a report which will include a list of pre-qualified BPI contractors to deliver the weatherization component.

Recommended technologies include air sealing, duct sealing, insulation, programmable thermostats, heating system controls, heating system pipe insulation, attic ventilation (only in conjunction with attic insulation), high efficiency heating system and DHW replacements, and custom cost-effective improvements that advance the goal of “Deep Energy Retrofits.”<sup>[7]</sup> The program will explore renewable technologies when appropriate. All such projects must be cost-effective. Air sealing is required to be performed prior to installing any insulation measures. Other improvements which are paid by the customer may include; drywall, siding and other non-energy saving construction related to the installation of approved energy saving measures.

It is the responsibility of the installation contractor to complete and submit incentive applications with proper supporting documentation to verify that the work was performed. Work completed through the program must meet all applicable state and local code requirements. It is anticipated that all measures installed will meet ENERGY STAR OR Building Performance Institute (BPI) guidelines, where applicable.

To be eligible for an incentive, a pre-qualified contractor must install program measures. Do-it-yourself work is not permitted. Contractors wishing to become a pre-qualified contractor eligible to offer this program to the Companies’ heating customers must meet each Company’s contractor requirements. This includes providing evidence of Building Performance Institute (BPI) certification and carrying insurance in amounts and coverage at the Companies’ contractor partner specified levels.

The Companies will continue to reach out to the contractor community in order to increase the number of pre-qualified contractors participating in the program. For quality control purposes, at least 10 % of completed jobs will be inspected. The inspection process will consist of a visual review of all work reported to be performed at the job site. Infrared scanning may be selectively employed to inspect wall insulation and air sealing work that cannot be observed with the naked eye. Infrared scanning not only provides a quality control tool, but also serves to raise insulation installation standards. Ongoing annual training will be conducted to familiarize contractors with industry building science best practices. To address health and safety concerns, pre- and post- carbon monoxide testing is required.

#### Target Market / Market Approach

The primary market for this program is all non-low income residential customers living in gas heated 1-to-4 unit buildings that are committed to making their homes more energy efficient. The marketing approach will be to collaborate with electric utilities in New Hampshire to deliver a statewide Home Performance with ENERGY STAR program. The Companies will leverage national marketing materials, utility bill inserts, newsletters, the website [www.nhsaves.com](http://www.nhsaves.com), the Home Heating Index (HHI) tool, trade shows and other low-cost/no-cost community outreach efforts, as well as, develop trade allies to recruit participants through contractor marketing efforts.

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<sup>[7]</sup> National Grid NH and Unitil seek to maintain flexibility to support new technologies, and high performance energy saving improvements on a case by case basis within the HPWES program’s budget constraints and benefit/cost parameters.

### Market Barriers Addressed by this Proposed Program

The major market barriers addressed by this proposed program are:

- Customer’s lack of cash or credit to fund high first cost items/measures;
- Limited product awareness by consumers, contractors, supply houses, and other market actors;
- Higher initial purchase price of efficient equipment and items/measures; and
- Reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies.

### Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table V summarizes the Companies’ 24 month budget, projected savings, goal and estimated participation levels for the Home Performance with ENERGY STAR Program.

**Table V: Home Performance with ENERGY STAR**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$1,675,631	\$1,810,406
Lifetime MMBTU Savings	359,296	415,696
Participation	1,226	1,426

Residential High-Efficiency Heating, Water Heating and Controls Program and HPwES experienced high customer demand in the previous program year. With growing awareness of energy efficiency and the environment, both of these programs have received an overwhelming response in the 2010 program year and had to be closed early due to budget constraints. The GDS study, “Additional Opportunities for Energy Efficiency in New Hampshire” identified “the greatest potential for natural gas savings in the residential sector comes from replacement of inefficient gas furnaces and boilers in multifamily and single family homes (nearly 9% and 6% respectively)”. Page 12 of the Final Report also indicates that Weatherization makes up 16% of the available potential savings (all non-electric fuels) for multifamily and single family homes.

The study and prior experience support the Companies’ projection that these programs will see a similar overwhelming response in 2011 and 2012. In anticipation of strong market interest, the Companies seek the opportunity to keep the programs open all year to achieve maximum potential savings and will reconcile any overspending in their annual 2011 and 2012 LDAC filings. The Companies will notify the Commission when/if a program approaches an overspending status.

### ***C. Income-Eligible Program***

The Companies will continue to offer this energy efficiency program to residential customers who meet 200% of federal poverty guidelines established by New Hampshire's Weatherization Assistance Program, as coordinated by the State Office of Energy and Planning. Previously referred to as the "Low Income Program," this program will continue to provide eligible customers with qualifying energy saving measures at no cost to the customer. The program's purpose is designed to increase the energy efficiency in qualified customer's homes using cost effective, gas-saving measures.

Eligible energy saving measures provided through the program cover a range of cost effective, residential efficiency measures, including attic insulation, wall insulation, air sealing, faucet aerators, and heating system replacement on a qualifying basis, as well as health and safety measures. Small energy-related repairs for eligible heating units can also be performed. The Companies will continue to fund the installation of carbon monoxide detectors when Federal funds are unable to support this measure.

The Companies deliver this program in cooperation and coordination with the New Hampshire Community Action Agencies (CAAs) in their service territories. The CAAs are responsible for ensuring that customers meet the eligibility requirements for program participation, and for providing weatherization services to customers. CAAs work with installation contractors to ensure that program requirements, from selected measures, to installation best practices, are met. The Companies expect to continue utilizing CAAs to ensure comprehensive coverage of the program while providing necessary flexibility to address any customer's unique circumstances related to energy efficiency. However, it is the Companies' preference to utilize and employ other vendors as needed to achieve the program's savings and budget goals.

The CAAs play a critical role in maximizing how available funds are utilized for each customer. In order to serve the maximum number of eligible customers each year, the CAAs leverage the Companies' program dollars with other sources, including the Department of Energy (DOE) weatherization funds and participating electric utility programs, as well as other state and local resources, in order to make the greatest savings impact.

The Companies hold quarterly meetings to manage the program through collaboration with all identified stakeholders. These meetings ensure that the program's objectives are being met, in conjunction with the CAAs and stakeholders from the State of New Hampshire, as well as consumer advocates. This meeting provides a regular forum for the Companies to seek out opportunities to strengthen their relationships with State energy programs, and other utility administered programs, in order to better serve their customers.

The Companies solicit direct feedback from program participants through its post-installation letters to participants. The letter, mailed directly to those customers where weatherization work was performed, allows customers to share their input and impressions of the program directly with the Companies. This direct link from customer to the Companies allows the Companies to monitor program performance and customer perceptions of the program. The Companies market the program via the CAA's outreach efforts, bill inserts, and the Companies' websites.

The Companies continue to work with the CAAs to identify and enlist additional contractors to participate in the program. The Companies are committed to train existing contractors and market to new, eligible contractors in order to expand the contractor base. Efforts may also include outreach to technical/trade schools, and providing assistance to potential contractors for technical training.

Target Market / Market Approach

The primary focus of the program will continue to be servicing income eligible customers in the 1-4 unit housing stock, as well as, income eligible customers living in individually metered multifamily dwellings with five or more units. The Companies may explore energy saving opportunities, on a case-by-case basis, to provide weatherization services to organizations that provide critical services to the program’s target audience, e.g. housing authorities, food banks, homeless shelters, and organizations whose mission is to work with low income citizens.

Market Barriers Addressed by this Proposed Program

- The market barriers that will be addressed by this program include:
- Limited access to education regarding technologies or benefits;
- The customer’s lack of cash or credit to fund high first-cost items/measures;
- Higher initial purchase price of efficient equipment and items/measures;
- Reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies;
- Split incentive between landlords and tenants.

Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table VI summarizes the Companies’ 24 month budget, projected savings, goal and estimated participation levels for the Income Eligible Program.

**Table VI: Income Eligible**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$840,895	\$903,062
Lifetime MMBTU Savings	86,751	90,844
Participation	283	300

## IV. UTILITY SPECIFIC PROGRAMS

The following programs and initiatives are specific to Utility as indicated below:

### A. *New Home Construction with ENERGY STAR Program – National Grid NH*

National Grid NH will continue its support of energy efficient new home construction through the New Hampshire New Home Construction with ENERGY STAR Program. This Program is designed to encourage builders to construct their homes to a higher level of energy efficiency beyond standard code requirements. The New Home Construction with ENERGY STAR Program offers a combination of utility incentives geared specifically to home buyers and builders, incentives which promote the construction of homes that meet national ENERGY STAR Home efficiency standards. The program's objective is to transform the residential new construction market to build homes that are designed beyond code expectations and meet stricter guidelines for energy efficiency.

ENERGY STAR Homes are recognized nationally for lower operating costs and energy consumption, increased durability, comfort, safety and greater resale value. ENERGY STAR Homes feature the best in efficient building practices and technologies, including: increased insulation levels, high-efficiency heating and air conditioning equipment, superior duct systems, and high performance windows. Most segments of the housing market are eligible to participate in the New Homes with ENERGY STAR Program, including new and existing residential single family and low-rise multifamily dwellings, townhouses and condominium developments.

All participants in the program receive design and technical support services, testing and inspection of energy efficiency measures, and an ENERGY STAR certification following the passing of the ENERGY STAR Homes rating test by qualified home raters. Each participating home receives a complete plan evaluation, computer energy model, and inspections during construction, and ongoing builder consultation, and on-site training as the home is being built. In order to earn an ENERGY STAR Homes certificate, each house, or a sampling protocol for model units within a larger development, is performance tested to verify the quality of installed energy features. This involves conducting a blower-door test once the home is completed to measure the building's overall air leakage, and a ventilation test to verify airflow rates.

This program is jointly sponsored through a consortium of participating New Hampshire utilities that meet on a regular basis to plan and implement the program. National Grid NH and the electric utility provider in the specific territory of an ENERGY STAR Home being developed will share the costs and savings of providing technical support and certification testing services, from "sign-up" through certification testing for each qualifying home. In certain cases, the Company may pay the entire cost of an ENERGY STAR Home's participation fee if the home is constructed in a community served by a municipal electric utility that does not participate in the Program.

## Target Market / Market Approach

Marketing activities for the ENERGY STAR Homes program consist primarily of direct outreach to builders by qualified home raters and home inspectors throughout the state's most active building regions. The ENERGY STAR Homes toll-free phone number and website are essential resources for prospective builders that link home construction projects to participating home raters in the region. In addition to outreach, participating utilities may sponsor ENERGY STAR training sessions specifically for builders and homebuyers throughout the year.

During the coming year, the Company anticipates that participation in this program could be impacted by certain barriers, including the downturn in the New Hampshire new construction market. In an effort to combat this, National Grid NH will look to increase builder trainings as well as program marketing.

**Table VII: New Home Construction with ENERGY STAR**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$79,355	\$89,769
Lifetime MMBTU Savings	20,400	23,120
Participation	30	34

### ***B. Energy Audit with Home Performance – National Grid NH***

For customers living in individually metered units, in a facility with five or more dwelling units, National Grid NH provides a comprehensive assessment of energy use in the individual unit. Customers will be given a detailed report containing the recommendations of the audit including information about improving the efficiency of their home which may lead to participation in other energy efficiency programs. Incentives will be provided to encourage participation and overcome the split incentive that often exists between landlords owning buildings but not paying utility bills and tenants paying utility bills but not owning the properties and therefore not having an incentive to invest in energy efficiency.

Tenants and landlords will benefit from improvements made by their utility in their facilities. Insulation, air sealing, and domestic hot water measures will improve tenant health and comfort and reduce tenant heating bills.

The Company will administer the Energy Audit with Home Performance Program through a single implementation coordinator (IC). This IC will be responsible for the day to day administration of the Program. Responsibilities will include all site visits to determine which measures can be installed. Eligible building owners, and/or facility managers or associations will receive a comprehensive energy audit, energy education, and the installation of no-cost efficiency measures. The implementation coordinator will also be responsible for all air sealing and DHW measures. All insulation measures for properties with greater than 20 units will be put out to competitive bid. Insulation contractors that have been previously approved by the Companies will be eligible to bid on these jobs.

Major measures will include attic insulation, wall insulation, basement/crawl space insulation, rim joist insulation, duct insulation, heating system pipe insulation, attic ventilation (in conjunction with attic insulation), ductwork leakage testing, ductwork leakage sealing, air infiltration testing, and air infiltration sealing. In addition, this Program will be coordinated with the New Hampshire electric utilities. Other measures may be added to the program menu, upon demonstration of cost-effectiveness and subject to available funding.

National Grid NH will pay 50% of the cost of installed weatherization measures such as insulation, duct insulation and sealing up to a maximum of \$750 per dwelling unit. National Grid will pay 100 % of the cost of air sealing and installed domestic hot water measures such as showerheads, aerators, pipe wrap and tank wraps installed by the IC. The customer will be responsible for paying 100% of the cost of installing attic ventilation.

Customers will apply for incentives for residential-sized heating and hot water heating equipment, and thermostats incentives through the Residential High Efficiency Heating, Water Heating and Controls Program. Facilities with central heating plants and domestic hot water systems that are interested in natural gas savings measures will be served through the Commercial High-Efficiency Heating and Commercial Energy Efficiency Programs.

#### Target Market / Market Approach

The Company plans to promote the Energy Audit with Home Performance Program through advertising, including bill inserts, direct mail, and the National Grid website. Customers interested in learning more about the program will be able to call a toll-free number where they will also be able to learn about all of the residential energy efficiency programs. The program will be coordinated with the electric utilities' Home Performance with ENERGY STAR.

#### Quality Assurance/Quality Control (QA/QC)

In the interest of achieving high quality installations, National Grid NH, subject to contract terms and available trained personnel, will work toward a system where verifications are conducted by a different organization than the installation contractor. Therefore, the Company seeks to have a third party QA/QC administrator in place for third party verification services in 2011. In addition to third party quality assurance, the Company will closely monitor the audit and installation process to ensure that all program protocols are being adhered to by the auditing vendor, as well as, the installation contractors. Finally, the Company will track the amount of follow up work being conducted by all parties.

#### Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Participation levels, savings, and budget for the Energy Audit with Home Performance Program are combined with the Home Performance with ENERGY STAR section. The audits feed directly into the Weatherization program.

**C. Residential Building Practices and Demonstration Program – National Grid NH**

The purpose of the Residential Building Practices and Demonstration Program is to explore and demonstrate new and/or underutilized energy efficiency practices and equipment that can enhance a home’s overall energy saving potential. This unique program allows the Company to support new and/or advanced energy saving technologies installed by residential customers.

National Grid NH plans to explore renewable energy for water heating, advanced home heating systems, insulation and building envelope techniques, and new home construction practices. Ideas will be drawn from the Company and other utilities, program vendors, and interested business partners. Eligible participants in this program will include home owners, landlords, and new home builders. Each participant may be asked to allow monitoring of the installation and publication of the results in case study format.

Target Market / Market Approach

Marketing of the program will rely on networking with industry, developing or offering new or underutilized natural gas energy efficiency technologies, as well as other interested organizations, such as the Office of Energy and Planning Renewable Energy Program, the New Hampshire Sustainable Energy Association (NHSEA), and the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED).

Table VIII summarizes the Company’s 24 month budget, projected savings, goal and estimated participation levels for the Residential Building Practices and Demo Program.

**Table VIII: Residential Building Practices and Demo**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$25,329	\$25,329
Lifetime MMBTU Savings	-	-
Participation	10	10

**D. Energy Efficiency On-Line Tools - Unitil**

Unitil will continue to offer its web-based analysis tools known as HomeEnergySuite™ (“HES”) and CommercialEnergySuite™ (“CES”). Accessible through the Company’s website ([www.unitil.com](http://www.unitil.com)), customers are provided with on-line tools which allow them to explore how they use energy in their homes and businesses. The HES features a home energy calculator that allows residential customers to estimate energy use and costs based on individual home profile inputs. Customers who run audits receive customized actionable items, and as a result, learn how to make a real difference in energy use in their home and/or business. Customers will be directed to energy efficiency program offerings upon completion of the on-line home energy audit. Also featured in HES is an interactive house that customers can explore to help them understand where and how energy is used in the home. Other tools in the HES include appliance and lighting calculators, a residential energy library, the Fundamentals of Electricity module, and the popular Kids Korner.

The CES module helps commercial customers, primarily small-to-medium-sized, understand their energy use and find ways to reduce their operating costs. CES includes an energy calculator (ComCalc) and reference libraries of technical information about commercial buildings and energy use, including the *Understanding Demand* library.

#### Target Market/Market Approach

This program offers residential and small-to-medium commercial customers a convenient way to examine their energy use and better understand their energy costs. To the extent it can eliminate on-site audits, it is a relatively inexpensive way to provide customers with the information they need to control their energy use. It also provides an alternative option for customers who may not be ready to make energy efficiency investments or simply wish to make improvements on their own. Overall, the website tools provide Unifil's customers with a high value marketing, informational and promotional tool for energy efficiency.

## V. COMMERCIAL AND INDUSTRIAL PROGRAMS

### A. *New Equipment and Construction Program*

This program is designed to promote the installation of ENERGY STAR-rated high efficiency gas furnaces and hot water boilers, energy efficient steam boilers as well as controls and food service equipment in commercial and industrial applications. Incentives are offered for new construction and replacement equipment (i.e., lost-opportunity) applications. This program targets Commercial, Industrial, and Multi-family<sup>1</sup> customers on a qualifying rate code with new construction, major renovation, or failed equipment replacement projects. The program offers prescriptive and custom incentives designed to cover up to 75% of incremental costs up to the customer's incentive cap. The program also offers Technical Assistance including project evaluation, measure identification, equipment monitoring, and efficiency studies. Technical Assistance and Commissioning services may require a customer co-payment.

#### Prescriptive Incentives for Installed Measures

The table below shows the eligible gas prescriptive measures and associated incentive levels available through the program. These prescriptive measures include high efficiency heating, water heating, and kitchen equipment.

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<sup>1</sup> Unitil's multi-family customers are served through a separately budgeted multi-family program.

Table IX: Eligible Prescriptive Measures for New Equipment and Construction Program

Measure	Rating	Incentive
Furnace <=300 MBH w/ECM Motor	> 92% AFUE or greater	\$ 400
Furnace <=300 MBH w/ECM Motor	> 94% AFUE or greater	\$ 650
Infrared heater	low intensity	\$ 500
On demand, Tankless Water Heater	.82 Energy Factor or greater	\$ 300
Indirect Water Heater		\$ 500
Condensing Stand Alone 75 to 300 MBH	95% Thermal Eff. or greater	\$ 500
Integrated water heater/condensing boiler	.9 Energy Factor and 90% AFUE rating or greater	\$ 1,300
ENERGY STAR Storage Water Heater	.62 Energy Factor or greater	\$ 50
Condensing boiler <= 300 MBH	90% AFUE or greater	\$ 1,000
Condensing boiler 301-499 MBH	90% AFUE or greater	\$ 3,000
Condensing boiler 500-999 MBH	90% AFUE or greater	\$ 5,000
Condensing boiler 1000-1700 MBH	90% AFUE or greater	\$ 10,000
Condensing boiler 1701+ MBH	90% AFUE or greater	\$ 15,000
Hydronic boiler <= 300 MBH	85% AFUE or greater	\$ 500
Hydronic boiler 301-499 MBH	85% AFUE or greater	\$ 2,000
Hydronic boiler 500-999 MBH	85% AFUE or greater	\$ 2,500
Hydronic boiler 1000-1700 MBH	85% AFUE or greater	\$ 3,500
Hydronic boiler 1701+ MBH	85% AFUE or greater	\$ 5,000
Condensing Unit Heaters up to 300 MBH	90% Thermal Eff. or greater	\$ 500
Fryers	Energy Star or greater	\$ 1,000
High Efficiency Gas Steamer	Energy Star or 38% eff. or greater	\$ 1,000
High Efficiency Gas Convection Oven	40% eff. or greater	\$ 1,000
High Efficiency Gas Combination Oven	40% eff. or greater	\$ 1,000
High Efficiency Gas Conveyer Oven	40% eff. or greater	\$ 1,000
High Efficiency Gas Rack Oven	50% eff. or greater	\$ 1,000
High Efficiency Gas Griddle	Energy Star or greater	\$ 500

Target Market / Market Approach

This program directly targets customers who heat their businesses with natural gas, food service operations, the builders/developers and heating/plumbing contractors who plan/install these systems, as well as the manufacturers, distributors, and wholesalers who bring this equipment to market. The Companies will be responsible for delivery of this program through multiple channels including: Account Executives and Energy Service Representatives working directly with customers; Economic Development staff working with new prospects as well as assisting customers who are relocating; and Energy Efficiency Program Administrators generating leads through the building development community, real estate professionals, and town permitting offices. The program will emphasize the benefits of selecting premium efficiency alternatives during the design stage of a project.

This program is promoted through bill inserts, customer newsletters, the Companies' websites, various company-sponsored plumbing and heating training events, and home shows. In addition to individual company specific marketing activities, the Companies promote this incentive program through trade shows and trade ally events in conjunction with GasNetworks®. Further, the Companies will promote program education and awareness

utilizing opportunities at the manufacturer/distributor level by using their marketing and training infrastructure as a platform to educate contractors and wholesalers at a regional level.

Market Barriers Addressed by this Proposed Program

The market barriers that will be addressed by this proposed program include:

- Limited access to education regarding technologies or benefits;
- Disproportionate focus on first costs rather than long term costs;
- Customer’s lack of cash or credit to fund high first cost items/measures
- Limited product awareness by consumers, plumbing and heating contractors, supply houses, and other market actors;
- Limited higher initial purchase price of efficient equipment and items/measures; and
- Reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies.

Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table X summarizes the Companies’ 24-month budget, projected savings goal, and estimated participation levels for the New Equipment and Construction Program.

**Table X: New Equipment and Construction Program**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$1,107,155	\$1,210,371
Lifetime MMBTU Savings	335,657	370,010
Participation	369	433

***B. Large C&I Retrofit Program***

This program targets Commercial, Industrial, and Multi-family<sup>2</sup> customers, on a qualifying rate code, that are operating aging, inefficient equipment and systems. The program offers prescriptive and custom incentives designed to cover up to 50% of equipment and installation costs up to the customer’s incentive cap. Opportunities typically include condensing boilers, high efficiency water heaters, high efficiency cooking equipment, as well as custom measures. The program also offers Technical Assistance including project evaluation, measure identification, equipment monitoring, steam trap assessments, and energy audits. Technical Assistance services may require a customer co-payment. This program also includes an educational component that will offer training seminars of interest to commercial, municipal and industrial customers. Training seminars being considered include Commercial Audit Training, Building Operator Certification, Certified Energy Manager Class, and Department of Energy Trainings.

Prescriptive Incentives for Installed Measures:

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<sup>2</sup> Unital’s multi-family customers are served through a separately budgeted multi-family program.

The table below shows the eligible gas prescriptive measures and associated incentive levels available through the program. These prescriptive measures include low-flow pre-rinse spray valves, boiler reset controls, steam traps, and programmable thermostats.

Table XI: Eligible Prescriptive Measures for Large C&I Retrofit Program

Measure	Incentive
Low-Flow Pre-Rinse Spray Valve	\$ 25
Boiler Reset Controls (retrofit only)	\$ 200
Steam Traps	\$ 25
Programmable Thermostats	\$ 25

Account Executives and Energy Service Representatives will offer this program directly to customers. Audits may be used to identify the opportunities for energy efficiency improvements. Customers wishing to take advantage of this program will sign a rebate application that documents what will be done, the estimated completion date, and the anticipated incentive amount.

Target Market / Market Approach

This program directly targets the Companies’ commercial and industrial customers with annual consumption greater than 40,000 therms respectively on the Company’s commercial rates. Key elements of the marketing approach include direct outreach, direct mail to target customers, outreach to local business associations, and collaboration with local cities and towns, as well as bill inserts, customer newsletters and the Companies’ websites.

Major Market Barriers Addressed by this Proposed Program

The major market barriers addressed include:

- Limited access to education regarding technologies or benefits;
- Disproportionate focus on first costs rather than long term costs;
- Customer’s lack of cash or credit to fund high first cost items; lack of product awareness by consumers, plumbing and heating contractors, supply houses, and other market actors;
- Higher initial purchase price of efficient equipment and items/measures; and reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies.

Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table XII summarizes the Companies’ 24-month budget, projected savings goal, and estimated participation levels for the Large C&I Retrofit Program.

**Table XII: Large Commercial & Industrial Retrofit Program**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$1,946,294	\$2,131,924
Lifetime MMBTU Savings	760,176	830,934
Participation	231	275

***C. Small Business Energy Solutions Program***

This program will provide turnkey energy efficiency services for Commercial, Industrial, and Multi-family<sup>3</sup> customers with annual consumption less than 40,000 therms that use natural gas for the purpose of space conditioning, water heating and/or process heat. Program offerings include but are not limited to insulation, programmable thermostats, heat recovery, and boiler reset control measures. The program offers an incentive up to 50% of the total eligible cost of purchasing and installing the energy-saving measures with up to the customer's incentive cap.

A Small C&I Administrative and Auditing Contractor will deliver the energy audit. The auditor will discuss identified opportunities to save energy with the customer/owner. If the customer/owner indicates an interest in pursuing some or all of the identified energy saving measures, the auditor will follow-up with a computer-generated model of the building to estimate the potential savings. Eligible measures will then be presented to the customer/building owner on a printed report, including estimated costs for implementation. If the customer elects to adopt some or all of the measures identified in the report, the auditor will contract with the customer and coordinate the installation by contracting with qualified subcontractors. Alternatively, after executing a written agreement with the Multifamily Administrative and Auditing Contractor to secure the incentive, the customer may contract with independent installation contractors to perform the energy efficiency related work.

Target Market/Marketing Approach

This program directly targets the Companies' small commercial and industrial customers with annual consumption less than 40,000 therms. Key elements of the marketing approach include direct outreach, direct mail to target customers, outreach to local business associations, and collaboration with local cities and towns, as well as bill inserts, customer newsletters and through Companies; websites.

Major Market Barriers Addressed by this Proposed Program

The major market barriers that will be addressed include:

- Limited access to education regarding technologies or benefits;
- Disproportionate focus on first costs rather than long term costs;
- Customer's lack of cash or credit to fund high first cost items;

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<sup>3</sup> Unital's multi-family customers are served through a separately budgeted multi-family program.

- Lack of product awareness by consumers, plumbing and heating contractors, supply houses, and other market actors;
- Higher initial purchase price of efficient equipment and items/measures;
- Reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies; and
- Incorrect installation techniques that result in suboptimal performance of energy efficient products.

Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table XIII summarizes the Companies’ 24-month budget, projected savings goal, and estimated participation levels for the Small Business Energy Solutions Program.

**Table XIII: Small Business Energy Solutions Program**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$398,123	\$468,302
Lifetime MMBTU Savings	174,184	203,371
Participation	34	40

***D. Multi-Family Retrofit - Unital***

Unital<sup>4</sup> offers an energy efficiency program targeting multifamily, master-metered customers and landlords. Master-metered accounts are those buildings with greater than four (4) dwelling units on a single meter and on a commercial rate. The program is designed to inform, educate, guide and assist customers in ways to save energy and money by making their buildings more energy-efficient.

This multifamily custom measures program offers a no-cost, no-obligation energy audit of the building, to be delivered by a Multifamily Administrative and Auditing Contractor. At the conclusion of the energy audit, the auditor will discuss identified opportunities to save energy with the customer/owner. If the customer/owner indicates an interest in pursuing some or all of the identified energy saving measures, the auditor will follow-up with a computer-generated model of the building to estimate the potential savings. Eligible measures will then be presented to the customer/building owner on a printed report, including estimated costs for implementation. If the customer elects to adopt some or all of the measures identified in the report, the auditor will contract with the customer and coordinate the installation by contracting with qualified subcontractors. Alternatively, after executing a written agreement with the Multifamily Administrative and Auditing Contractor to secure the incentive, the customer may contract with independent installation contractors to perform the energy efficiency related work.

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<sup>4</sup> National Grid NH delivers this program through their C&I Programs

The Company offers an incentive up to 50% of the total eligible cost of purchasing and installing the above energy-saving measures with an incentive cap of \$50,000 per master-metered account.

Target Market / Market Approach

This program directly targets multifamily (greater than four unit dwellings), master-metered customers and landlords on the Company’s commercial rates. Key elements of the marketing approach include direct outreach, direct mail to target market, and collaboration with cities and towns, as well as bill inserts, customer newsletters and the Company website.

Major Market Barriers Addressed by this Proposed Program

The major market barriers that will be addressed include:

- Limited access to education regarding technologies or benefits;
- Disproportionate focus on first costs rather than long term costs; customer’s lack of cash or credit to fund high first cost items;
- Lack of product awareness by consumers, plumbing and heating contractors, supply houses, and other market actors;
- Higher initial purchase price of efficient equipment and items/measures; reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies;
- Incorrect installation techniques that result in suboptimal performance of energy efficient products.

Proposed Budget, Projected Savings Goal, and Estimated Participation Levels

Table XIV summarizes the Company’s 24-month budget, projected savings goal, and estimated participation levels for the Multi-Family Program.

**Table XIV: Multi-Family Program**

	<i>2011</i>	<i>2012</i>
Total Program Budget	\$153,771	\$153,771
Lifetime MMBTU Savings	32,197	32,197
Participation	5	5

## **VI. OUTREACH AND COMMUNICATION**

### ***A. Energy Efficiency Communication and Education***

Education of customers and trade allies is critical to the success of the Companies' energy efficiency efforts. One of the most common barriers to the increased use of energy efficient equipment or practices is a lack of awareness by customers of the potential energy and financial savings. Another common barrier is the lack of customer awareness as to how their utility can help reduce their energy costs. To overcome these barriers and help customers make informed energy decisions, the Companies plan to maintain a consistent and high level of program outreach to its customers and trade allies.

A component of program outreach will be the ongoing development and refinement of brochures, direct mail pieces, bill inserts, and educational literature to promote the Companies' initiatives.

The Companies will continue to take advantage of every opportunity to disseminate energy efficiency information through personal contact at home shows, trade shows, community events, landlord events, new homeowner workshops, energy information fairs, and energy awareness events at major employers. The Companies will also continue to use their websites as tools to promote energy efficiency. The Companies also offer regular training to their call center representatives about the Companies' energy efficiency programs and how to direct customers to participate in energy efficiency programs.

In addition, the Companies plan to partner with technical schools, community colleges, contractors, and trade organizations to promote energy efficiency and opportunities in the energy efficiency industry.

### ***B. Trade Ally Training and Codes & Standards Program***

Energy efficiency awareness by the Companies' trade allies and customers is crucial to reducing market barriers to energy efficiency and increasing acceptance of new technologies. Educational activities will be a critical piece of the Companies' promotion efforts.

The Companies will support and undertake a wide range of training events in collaboration with GasNetworks™ and the manufacturing representatives and other trade allies. GasNetworks™ was recently authorized to award continuing education credits for the Plumbing, Heating and Cooling Contractors (PHCC) of New Hampshire. The PHCC requires training and education credits as a part of membership.

Additional outreach will extend to engineers, architects, builders, landlords, facility managers, housing authorities and other customers. The objective of all training activities will be to increase trade ally awareness of the benefits of energy efficiency and the technology options in high-efficiency equipment. Trade ally training also works to provide trade allies with the technical tools to properly size, install and maintain energy efficient products and provide

customers with the knowledge to select energy efficient products. Training activities will be promoted via site visits, direct mail and newsletters. The Companies work with the PHCC local chapters and attends the regional shows.

The GasNetworks™ website ([www.gasnetworks.com](http://www.gasnetworks.com)) will also be used as a vehicle for promotion, offering trade allies a central source of information on special event training efforts, in addition to joint energy efficiency programs.

The budget for the Trade ally training program is included within each program's budget.

### ***C. Building Operators Certification Program***

The Companies plan to offer the Building Operator Certification (BOC) program. The BOC program provides curriculum selection, instructors, testing, certifications, as well as administrative functions. The target audience for the BOC program is individuals responsible for the maintenance and operation of equipment and systems in commercial buildings, industrial plants and public facilities. A BOC certificate is awarded to students who complete eight full days of classroom instruction, homework projects and testing.

In 2011, the BOC program will offer two to four sessions throughout the New England region. Each session will enroll approximately 40 students. The gas program will coordinate with the electric programs to reach out to a greater number of building operator population. Each student is scheduled for two days of classroom instruction per month over a four month training cycle.

## VII. EVALUATION AND REPORTING

### *A. Monitoring and Evaluation*

During 2009 and 2010, the Companies completed an impact evaluation of the Low Income Program and an impact evaluation of advanced heating and water heating equipment promoted through the Residential High-Efficiency Heating and Water Heating Program with GasNetworks™. Results of these evaluations have been used to screen programs for future filings. The Companies routinely update their estimates of measure and program savings in its analysis of program cost effectiveness.

During 2010-2011 the Companies plan to conduct an impact evaluation of their Home Performance with ENERGY STAR Program<sup>5</sup> as a joint effort with the electric utilities. This evaluation is expected to begin in the fall of 2010 and continue into 2011.

Additional evaluations may be conducted during the proposed 24-month period. Wherever possible, the Companies will explore opportunities to decrease the cost of planned evaluation efforts by performing research in collaboration with industry partners such as GasNetworks™, GTI, NEEP, AESP, JMC, CEE and other utilities.

### *B. Reporting*

The Companies propose to provide the Commission and parties with the following reports:

#### Quarterly Reports

The Companies, consistent with the practice adopted by the electric utilities will provide the Commission with quarterly reports about ongoing program efforts. These reports will provide information about program costs and savings compared to annual budgets and savings goals by month. These reports will be filed with the Commission no later than 45 days following the end of each quarter in the year.

#### Updated Program Plans for 2012

By September 30, 2011, the Company will file an update to its calendar year 2012 energy efficiency plans. The update will include updated program descriptions, benefit/cost analyses, program budgets, and program goals.

#### Shareholder Incentive Report

By June 30, 2012 the Companies will file independent reports with the Commission to document their performance for the January 1, 2011 – December 31, 2011 time period under the proposed shareholder incentive mechanism. The Companies will also file a report with the

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<sup>5</sup> National Grid NH conducted a residential weatherization program in 2009.

Commission to document its performance for 2011 by June 30, 2012. Shareholder incentive and performance for 2012 will be filed with the Commission by June 30, 2013.

Next Multi-Year Energy Efficiency Plan

The Companies anticipate filing its next multi-year gas energy efficiency plan by October 15, 2013. The Plan will likely be filed jointly with the other gas and electric utilities in the state.

**VIII.**

## **IX. SHAREHOLDER INCENTIVE**

The Companies are proposing that all programs in this filing be included in the determination of the performance incentive. In accordance with Commission Order No. 24,203, issued September 5, 2003, the utilities will continue to utilize the approved performance incentive mechanism with one enhancement, described below. The current incentive mechanism fosters efficient program implementation efforts and the achievement of program goals while retaining most funding for program efforts. The performance incentive also serves as a motivating factor for the NH Utilities and holds each utility accountable for meeting their individual program goals. If any individual utility does not meet its program goals, it will not earn its target incentive, and the Commission can require the utility to take corrective measures.

The Companies continue to participate in the shareholder incentive working group which was convened in 2010 to explore potential enhancements to the current performance incentive. The working group continues to deliberate but has identified one proposed enhancement included in this filing. In order to ensure that the Companies have the ability to earn on any dollar collected for energy efficiency only once, the utilities are proposing to calculate the earned incentive, if any, using actual expenses as the basis for quantifying the target incentive amount.

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### Exhibit A: Projected Program Expenses

#### National Grid NH Gas Energy Efficiency Planned Budget New Hampshire Program Year ONE (January 1, 2011 - December 31, 2011)

New Hampshire Residential Low- Income Gas Weatherization Impact Evaluation Cadmus February 16, 2010

Sector	Internal Admin	External Admin	Rebates/ Services	Internal Impl	Marketing	Evaluation	Budget Total	Participant Goal	Lifetime MMBTU Savings
<b>Residential</b>									
Low Income	\$52,000	\$275,278	\$397,977		\$5,641	\$0	\$730,895	260	70,954
Residential High-Efficiency Heating, Water-Heating, Controls Program	\$23,067	\$166,136	\$475,294		\$48,592	\$1,375	\$714,464	1,983	306,840
New Home Construction with Energy Star	\$727	\$28,628	\$45,000		\$5,000	\$0	\$79,355	30	20,400
Res Building Practices and Demo	\$1,556	\$4,523	\$15,000		\$3,750	\$500	\$25,329	10	0
Energy Audit with Home Performance and Weatherization	\$30,967	\$131,244	\$1,329,164		\$36,534	\$12,722	\$1,540,631	1,200	338,400
<b>Residential Total</b>	<b>\$108,316</b>	<b>\$605,809</b>	<b>\$2,262,435</b>		<b>\$99,516</b>	<b>\$14,597</b>	<b>\$3,090,674</b>	<b>3,483</b>	<b>736,594</b>
<b>Commercial &amp; Industrial</b>									
Large C & I Retrofit Program	\$160,000	\$150,000	\$1,425,000		\$58,625	\$62,669	\$1,856,294	226	699,027
New Equipment and Construction Program	\$95,000	\$100,000	\$765,000		\$34,875	\$37,280	\$1,032,155	307	280,381
Small Business Energy Solutions Program	\$25,792	\$38,688	\$202,500		\$9,349	\$9,994	\$286,323	23	111,884
<b>Commercial &amp; Industrial Total</b>	<b>\$280,792</b>	<b>\$288,688</b>	<b>\$2,392,500</b>		<b>\$102,849</b>	<b>\$109,943</b>	<b>\$3,174,772</b>	<b>556</b>	<b>1,091,292</b>
<b>Grand Total</b>	<b>\$389,108</b>	<b>\$894,497</b>	<b>\$4,654,935</b>		<b>\$202,365</b>	<b>\$124,540</b>	<b>\$6,265,446</b>	<b>4,039</b>	<b>1,827,886</b>

#### National Grid NH Gas Energy Efficiency Planned Budget New Hampshire Program Year TWO (January 1, 2012 - December 31, 2012)

\$5.49/therm based on 50% of project cost

\$3.08/therm based on 50% of project cost.

Sector	Internal Admin	External Admin	Rebates/ Services	Internal Impl	Marketing	Evaluation	Budget Total	Participant Goal	Lifetime MMBTU Savings
<b>Residential</b>									
Low Income	\$55,000	\$291,159	\$420,937		\$5,966	\$0	\$773,062	275	75,048
Residential High-Efficiency Heating, Water-Heating, Controls Program	\$25,767	\$178,054	\$503,406		\$51,087	\$1,425	\$759,739	2,137	328,375
New Home Construction with Energy Star	\$824	\$32,445	\$51,000		\$5,500	\$0	\$89,769	34	23,120
Res Building Practices and Demo	\$1,556	\$4,523	\$15,000		\$3,750	\$500	\$25,329	10	-
Energy Audit with Home Performance and Weatherization	\$34,295	\$149,166	\$1,440,692		\$37,623	\$13,631	\$1,675,406	1,400	394,800
<b>Residential Total</b>	<b>\$117,441</b>	<b>\$655,347</b>	<b>\$2,431,035</b>		<b>\$103,926</b>	<b>\$15,556</b>	<b>\$3,323,305</b>	<b>3,856</b>	<b>821,343</b>
<b>Commercial &amp; Industrial</b>									
Large C & I Retrofit Program	\$176,000	\$165,000	\$1,567,500		\$64,488	\$68,936	\$2,041,924	270	769,785
New Equipment and Construction Program	\$104,500	\$110,000	\$841,500		\$38,363	\$41,008	\$1,135,371	371	314,735
Small Business Energy Solutions Program	\$32,240	\$48,360	\$253,125		\$10,284	\$12,493	\$356,502	29	141,071
<b>Commercial &amp; Industrial Total</b>	<b>\$312,740</b>	<b>\$323,360</b>	<b>\$2,662,125</b>		<b>\$113,134</b>	<b>\$122,437</b>	<b>\$3,533,796</b>	<b>670</b>	<b>1,225,591</b>
<b>Grand Total</b>	<b>\$430,181</b>	<b>\$978,707</b>	<b>\$5,093,160</b>		<b>\$217,060</b>	<b>\$137,993</b>	<b>\$6,857,101</b>	<b>4,526</b>	<b>2,046,933</b>

### Exhibit B Total Resource Benefit Cost Analysis

January 1, 2011 - December 31, 2011 TRC BENEFIT COST TEST  
National Grid  
Gas Energy Efficiency Programs

Summary of Benefit, Costs Program Year 2011 (January 1, 2011 - December 31, 2011)

		Total Resource Cost Test						
BCR Activity	TRC Benefit/Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Participant Goal	Lifetime MMBTU Savings
<b>Residential</b>								
Low Income	1.06	\$43	\$774	\$731	\$731	\$0	260	70,954
Energy Audit with Home Performance and Weatherization	1.94	\$1,789	\$3,690	\$1,901	\$1,541	\$360	1,200	338,400
Residential High-Efficiency Heating, Water-Heating, Controls Program	3.14	\$2,257	\$3,313	\$1,056	\$714	\$342	1,983	306,840
New Home Construction with Energy Star	1.69	\$87	\$213	\$126	\$79	\$47	30	20,400
Res Building Practices and Demo	N/A	(\$25)	\$0	\$25	\$25	\$0	10	-
Shareholder Incentive			\$247		\$247		-	-
<b>Subtotal: Residential</b>	<b>1.96</b>	<b>\$4,150</b>	<b>\$7,990</b>	<b>\$4,087</b>	<b>\$3,338</b>	<b>\$749</b>	<b>3,483</b>	<b>736,594</b>
<b>Commercial &amp; Industrial</b>								
Large C & I Retrofit Program	1.45	\$2,099	\$6,713	\$4,615	\$1,856	\$2,758	226	699,027
New Equipment and Construction Program	1.53	\$923	\$2,670	\$1,747	\$1,032	\$715	307	280,381
Small Business Energy Solutions Program	2.21	\$590	\$1,075	\$485	\$286	\$199	23	111,884
Shareholder Incentive					\$254		-	-
<b>Subtotal: Commercial &amp; Industrial</b>	<b>1.47</b>	<b>\$3,611</b>	<b>\$10,459</b>	<b>\$7,101</b>	<b>\$3,429</b>	<b>\$3,673</b>	<b>556</b>	<b>1,091,292</b>
<b>Grand Total</b>	<b>1.65</b>	<b>\$7,762</b>	<b>\$18,448</b>	<b>\$11,188</b>	<b>\$6,767</b>	<b>\$4,422</b>	<b>4,039</b>	<b>1,827,886</b>

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### Exhibit B

January 1, 2012 - December 31, 2012 TRC BENEFIT COST TEST  
National Grid  
Gas Energy Efficiency Programs

Summary of Benefit, Costs Program Year 2012 (January 1, 2012 - December 31, 2012)

		Total Resource Cost Test						
BCR Activity	TRC Benefit/Cost	TRC Net Benefits	Total Benefits (\$000)	Total Costs (\$000)	PA Costs (\$000)	Participant Costs (\$000)	Participant Goal	Lifetime MMBTU Savings
<b>Residential</b>								
Low Income	1.07	\$57	\$830	\$773	\$773	\$0	275	75,048
Energy Audit with Home Performance and Weatherization	1.74	\$1,852	\$4,368	\$2,515	\$1,675	\$840	1,400	394,800
Residential High-Efficiency Heating, Water-Heating, Controls Program	3.20	\$2,473	\$3,598	\$1,125	\$760	\$365	2,137	328,375
New Home Construction with Energy Star	1.72	\$102	\$245	\$143	\$90	\$53	34	23,120
Res Building Practices and Demo	N/A	(\$25)	\$0	\$25	\$25	\$0	10	-
Shareholder Incentive			\$266		\$266		-	-
<b>Subtotal: Residential</b>	<b>1.87</b>	<b>\$4,460</b>	<b>\$9,041</b>	<b>\$4,847</b>	<b>\$3,589</b>	<b>\$1,258</b>	<b>3,856</b>	<b>821,343</b>
<b>Commercial &amp; Industrial</b>								
Large C & I Retrofit Program	1.48	\$2,441	\$7,515	\$5,074	\$2,042	\$3,032	270	769,785
New Equipment and Construction Program	1.58	\$1,121	\$3,051	\$1,930	\$1,135	\$795	371	314,735
Small Business Energy Solutions Program	2.27	\$771	\$1,378	\$608	\$357	\$251	29	141,071
Shareholder Incentive					\$283		-	-
<b>Subtotal: Commercial &amp; Industrial</b>	<b>1.51</b>	<b>\$4,333</b>	<b>\$11,945</b>	<b>\$7,894</b>	<b>\$3,816</b>	<b>\$4,078</b>	<b>670</b>	<b>1,225,591</b>
<b>Grand Total</b>	<b>1.65</b>	<b>\$8,793</b>	<b>\$20,986</b>	<b>\$12,742</b>	<b>\$7,406</b>	<b>\$5,336</b>	<b>4,526</b>	<b>2,046,933</b>

**RESIDENTIAL INPUT ASSUMPTIONS**  
**National Grid Gas Energy Efficiency Programs**

Program	Measure	Annual MMBTU Savings	Source of Savings	Incremental Cost	Cost Source	Lifetime	Lifetime Source
Home Performance with ENERGY STAR	Weatherization measures that include insulation and air sealing and DHW.	14.1 MMBTU	Based on average savings from January 2009 through December 2009 participation.	\$2,500	Average participant rebate from January 2009 through December 2009 was \$1,323 for weatherization and \$1,345 for audit.	20	The New England State Program Working Group Residential and Commercial/Industrial Measure Life Report for the ISO forward capacity market, June 2007. Pg A-2. Measure Life for weatherization measures.
Low Income Residential High-Efficiency Water Heating	New Hampshire Residential Low-Income Gas Weatherization Impact Evaluation Cadmus February 16, 2010	13.6 MMBTU	Based on TREAT modeling of homes that participated in the Company's weatherization programs from January 2009 through December 2009.	\$2,700	Average participant rebate from January 2009 through June 2010 was \$2,700. GDS: VT TRM - 4/9/08 (\$1350) less \$600 Standard Efficiency (DEER 2008)	20	The New England State Program Working Group Residential and Commercial/Industrial Measure Life Report for the ISO forward capacity market, June 2007. Pg A-2. Measure Life for weatherization measures.
Residential High-Efficiency Water Heating	Indirect Water Heater (attached to gas Energy Star FHW boiler)	8.0	NMR 2010 HEHE Eval DRAFT	\$750		20	GDS: 'Consumer Guide to Home Energy Savings' 8th ed. ACEEE 2003 Table 6.6
Residential High-Efficiency Water Heating	Stand Alone Storage Water Heater (EF 0.62)	1.9	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10	\$70	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg. 10	13	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10
Residential High-Efficiency Heating	Furnace (forced hot air) 92% AFUE w/ECM	11.8	NMR 2010 HEHE Eval DRAFT	\$679	NYSERDA Deemed Savings Database	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (.xls)
Residential High-Efficiency Heating	Furnace (forced hot air) 94% AFUE w/ECM	14.2	Adjusted based on results of NMR 2010 HEHE Eval DRAFT	\$688	GDS: DEER 2008 (assumed 80 kBtu furnace) Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (.xls)	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (.xls)
Residential High-Efficiency Heating	Boiler (forced hot water) >=85% AFUE	7.2	NMR 2010 HEHE Eval DRAFT	\$900	GDS Price comparison using RSM/Eans 2008 data and available pricing information for Weil-McLain, Buderus and Burnham boilers	20	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Boilers (.xls)
Residential High-Efficiency Heating	Boiler (forced hot water) >=90% AFUE	14.2	NMR 2010 HEHE Eval DRAFT	\$1,500	Summit Blue estimate; Natural Gas EE Potential Study in MA 4/2009	20	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Boilers (.xls)
Residential High-Efficiency Heating	Integrated water heater/condensing boiler	21.1	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009 RLW Analytics - Validating the Impacts of Programmable Thermostats, January 2007; pg 2. Conversion factor CCF to Therms is 1.024	\$2,185		20	Assume the same as a boiler
Residential High-Efficiency Heating	Energy Star Programmable Thermostats	7.5	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg. 2	\$92	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - ProgrammableThermostat (.xls)	15	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - ProgrammableThermostat (.xls)
Residential High-Efficiency Heating	Boiler Reset Controls (retrofit/add on only)	7.9	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg. 2	\$300	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg. 3	15	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg. 2

**COMMERCIAL INPUT ASSUMPTIONS**  
**National Grid Gas Energy Efficiency Programs**

Program	Measure	Annual MMBTU Savings	Source of Savings	Incremental Cost	Cost Source	Lifetime	Lifetime Source
C&I GasNetworks	Furnace (forced hot air) 92% AFUE w/ECM	19.6	NYSERDA Deemed Savings Database	\$679	NYSERDA Deemed Savings Database	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (xsls)
C&I GasNetworks	New Hampshire Residential Low-Income Gas Weatherization Impact Evaluation Cadmus February 16, 2010	23.6	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009 (baseline AFUE 78%)	\$688	GDS: DEER 2008 (assumed 80 kBtu furnace)	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (xsls)
C&I GasNetworks	Steam Boiler <=300 mbh	36.5	Annual full load equivalent hours, 2470, estimated by Nexant, based on monthly heating degree hours for all the counties in NY weighted by populations. 75% AFUE to 80%; NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name:	\$3,552	DEER; NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: H.STEAM-BOILER-GAS.<300000.CL...N	25	NH Potential Study; VT TRM
C&I GasNetworks	Condensing boiler (>90% AFUE) <= 300 mbh	32.3	Evaluation Study of Keyspan's Commercial and Industrial High Efficiency Heating Equipment Program - ODC Pg 40 Oct 2007; Gas savings = ((AFUEq-AFUEb)/AFUEq) x CAPY in therms/hour x EFLH; Assumed capacity of 165 MBH, 1500 EFLH, baseline of 80% going to 92%	\$2,675	Based on 'Burnham Hydronics Trade Price Book #186', Dunkirk 2008 Price Book, Lochinvar trade price 2008 and Onyx -'Metro NY All Equip' database	25	Efficiency Vermont Technical Reference Manual User ;TRM User Manual No. 2005-37 pg 161
C&I GasNetworks	Hydronic boiler (>85% AFUE <90% AFUE) <= 300 mbh	16.8	Evaluation Study of Keyspan's Commercial and Industrial High Efficiency Heating Equipment Program - ODC Pg 40 Oct 2007; Gas savings = ((AFUEq-AFUEb)/AFUEq) x CAPY in therms/hour x EFLH; Assumed capacity of 190 MBH, 1500 EFLH, baseline of 80% going to 85%	\$1,590	Based on 'Burnham Hydronics Trade Price Book #186', Dunkirk 2008 Price Book, Lochinvar trade price 2008 and Onyx -'Metro NY All Equip' database	25	Efficiency Vermont Technical Reference Manual User ;TRM User Manual No. 2005-37 pg 161
C&I GasNetworks	Infrared (low intensity)	74.4	Based on modeled data from infrared heaters installed through Bay State Gas custom C&I energy efficiency program	\$2,982	Based on equipment installed through Bay State Gas custom C&I energy efficiency program	17	Measure life based on GDS Gas Potential Study for Utah (2004); NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: A.INFR-UNIT HEATER...CL...N
C&I GasNetworks	Condensing Unit Heaters	40.92	Assuming input of 200,000 Btu/h: Nexant's "Gas Energy Efficiency Measure Analysis to Support NYSERDA's Con Edison Gas Efficiency Program" reported in August 2005; Savings of 204.6 Mmbtu's per million Btu/hr of heater input capacity. Savings based on effici	\$2,400	Assuming 200,000 Btu/h; \$12,000 per million Btu/h; Baseline (\$13,000 per million Btu/h) and retrofit (\$25,000 per million Btu/h) unit costs from "Analysis of Standard Options for Unit Heaters and Duct Furnaces" (PG&E, 2004).; NYSERDA Deemed Savings Database;	18	Natural Gas Efficiency and Conservation Measure Resource Assessment (ETO, 2003); NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: A.UNIT-HEATER-COND.<300000.CL...N
C&I GasNetworks	Fryers	58.6	Energy Star Calculator: Assumed 150 lbs food/day and 16 hours/day (FSTC), Cooking efficiency 55% (average efficiency of all fryers that are above 50% as of 4/1/09). Idle energy 8,500 btu/hour (based on ASTM testing on PITCO and ALTO SHAAM) and pre-heat en	\$3,400	CEE; Program Design Guidance Fryers April 2009	12	Food Service Technology Center http://www.fishnick.com/saveenergy/tools/calculators/gfryercalc.php
C&I GasNetworks	High Efficiency Gas Steamer (Energy Star >=38% efficiency)	153.6	Food Service Technology Center: Gas Steamer Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gsteamercalc.php	\$2,000	NYSERDA Deemed Savings Database	10	Food Service Technology Center: Gas Steamer Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gsteamercalc.php
C&I GasNetworks	High Efficiency Gas Convection Oven (>=40% efficiency)	24.8	CEE Tier 1, Technology Opportunity Assessment: Convection Ovens Pg 5	\$1,886	Workpaper PGECOFST101 Commercial Convection Oven; PG&E Dec 2007	12	Workpaper PGECOFST101 Commercial Convection Oven; PG&E Dec 2007
C&I GasNetworks	High Efficiency Gas Combination Oven (>=40% efficiency)	40.3	Food Service Technology Center: Gas Combination Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gcombiccalc.php	\$1,300	NYSERDA Deemed Savings Database	12	Food Service Technology Center: Gas Combination Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gcombiccalc.php
C&I GasNetworks	High Efficiency Gas Conveyor Oven (>=40% efficiency)	84.5	Food Service Technology Center: Gas Conveyor Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gconvoencalc.php	\$2,100	GDS Natural Gas EE Potential Study in MA 4/2009; Questar 2006 DSM Market Characterization Report Appendix E - Nexant	12	Food Service Technology Center: Gas Conveyor Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gconvoencalc.php
C&I GasNetworks	High Efficiency Gas Rack Oven (>=50% efficiency)	211.3	Food Service Technology Center: Gas Rack Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/grackovencalc.php	\$4,000	GDS Natural Gas EE Potential Study in MA 4/2009	12	Food Service Technology Center: Gas Rack Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/grackovencalc.php
C&I GasNetworks	High Efficiency Gas Griddle	18.5	Food Service Technology Center: Gas Griddle Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/ggridcalc.php	\$1,165	GDS Natural Gas EE Potential Study in MA 4/2010	12	Food Service Technology Center: Gas Griddle Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/ggridcalc.php
C&I GasNetworks	Spray Valve	33.6	Savings of 0.92 therms per day * 365 days per year = 335.8 therms (EM&V Report for the CA Urban Water Conservation Council Pre-Rinse Spray Head Distribution Program; SBW 2004) pg 20. Water savings of 170.7 gal/day (2.24 gallons/minute, avg daily use is 1	\$121	Program info: Cost for Fisher Ultra Spary 2949 is \$41 for the spray valve and \$80 for installation	5	Region of Waterloo Pre-Rinse Spray Valve Pilot Study; Veritec Consulting Jan 2005; pg 8
C&I GasNetworks	On demand, Tankless Water Heater >= 82.	7.1	FEMP Calculator for Electric & Gas Water Heater; Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 15	\$1,198	Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 15	20	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10; average of range
C&I GasNetworks	Indirect Water Heaters (Combined appliance efficiency rating >=85% (EF=.82)	30.4	Natural Gas EE Potential Study in MA 4/2009; Gas Fired Water Heater Screening Tool Esource	\$1,175	Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 16	15	Efficiency VT Reference Manual, p 409. April 2008 Edition
C&I GasNetworks	Condensing Stand Alone >95% TE, >75000 btu	25.0	Natural Gas EE Potential Study in MA 4/2009 GDS; Gas Fired Water Heater Screening Tool Esource	\$2,340	Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 15	15	Natural Gas EE Potential Study in MA 4/2009 GDS;ACEEE Emerging technologies and practices, 2004: W1-pg46
C&I GasNetworks	Intergrated water heater/condensing boiler (0.9 EF, 0.9 AFUE)	24.6	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009	\$2,185	Natural Gas EE Potential Study in MA 4/2009	20	Assume the same as a boiler

Program	Measure	Annual MMBTU Savings	Source of Savings	Incremental Cost	Cost Source	Lifetime	Lifetime Source
C&I GasNetworks	Intergrated water heater/condensing boiler (0.86 EF, 0.85 AFUE)	20.0	GDS/SB Calculation; Natural Gas EE Potental Study in MA 4/2009	\$1,300	Natural Gas EE Potental Study in MA 4/2009	20	Assume the same as a boiler
C&I GasNetworks	Boiler Reset Controls (retrofit/add on only)	35.5	GDS/SB Calculation; Natural Gas EE Potental Study in MA 4/2010	\$993	Natural Gas EE Potental Study in MA 4/2009 GDS; DEER Measure Cost Summary (05_30_2008) Revised (06_02_2008)	20	Natural Gas EE Potental Study in MA 4/2009 GDS; CA Statewide Commercial Sector NG EE Potental Study, Study ID #SW061, Prepared for PG&E by KEMA; May 2003 Appendix D
New Equipment and Construction Program Custom Measures	Eligible high efficiency gas measures.	634	Estimated total savings for projects completed during 2010.	\$5.49/therm based on 50% of project cost	Average of projects completed in 2010.	18	Average measure life of equipment installed.
Large C&I Retrofit Program Customer Measures	Eligible high efficiency gas measures.	266	Estimated total savings for projects completed during 2010.	\$3.08/therm based on 50% of project cost.	Average of projects completed in 2010.	15	Average measure life of equipment installed.
Small Business Energy Solutions	Eligible high efficiency gas measures.	324	Estimated total savings for projects completed during 2010.	\$2.67/therm based on 50% of project cost.	Average of projects completed in 2010.	15	Average measure life of equipment installed.

## Exhibit D - Shareholder Incentive Page 1 of 4

### National Grid Gas Energy Efficiency

Target Shareholder Incentive Year ONE- January 1, 2011 - December 31, 2011

#### Commercial/Industrial Incentive

New Hampshire Residential I

1. Target Benefit/Cost Ratio	1.47
2. Threshold Benefit/Cost Ratio	1.00
3. Target lifetime MMBTU	1,091,292
4. Threshold MMBTU	709,340
5. Budget	\$3,174,772
6. CE Percentage	4.00%
7. Lifetime MMBTU Percentage	4.00%
<b>8. Target C/I Incentive</b>	<b>\$253,982</b>
<b>9. Cap</b>	<b>\$380,973</b>

#### Residential Incentive

10. Target Benefit/Cost Ratio	1.96
11. Threshold Benefit/Cost Ratio	1.00
12. Target lifetime MMBTU	736,594
13. Threshold MMBTU	478,786
14. Budget	\$3,090,674
15. CE Percentage	4.00%
16. Lifetime MMBTU Percentage	4.00%
<b>17. Target Residential Incentive</b>	<b>\$247,254</b>
<b>18. Cap</b>	<b>\$370,881</b>
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$501,236</b>

#### Line No. Notes:

- 1, 3, 5, 10, 12, and 14. See Exhibit B
- 2, 6, 7, 11, 15, and 16. Report to the New Hampshire Public Utilities Commission on Ratepayer-Funded Energy Efficiency Issues in New Hampshire, Docket No. DR 96-150, page 21.
4. 65% of line 3.
8. 8% of line 5.
9. 12% of line 5.
13. 65% of line 12.
17. 8% of line 14.
18. 12% of line 14.
19. Line 8 plus line 17.

## Exhibit D - Shareholder Incentive Page 2 of 4

### National Grid Gas Energy Efficiency Target Benefit-Cost Ratio by Sector Year ONE- January 1, 2011 - December 31, 2011

	<u>Planned</u>
<b>Commercial &amp; Industrial:</b>	
1. Benefits (Value) From Eligible Programs	\$10,458,821
2. Implementation Expenses	\$3,174,772
3. Customer Contribution	\$3,672,739
4. Shareholder Incentive	\$253,982
5. Total Costs Including Shareholder Incentive	<b>\$7,101,493</b>
6. Benefit/Cost Ratio - C&I Sector	<b>1.47</b>
<b>Residential:</b>	
7. Benefits (Value) From Eligible Programs	\$7,989,660
8. Implementation Expenses	\$3,090,674
9. Customer Contribution	\$748,779
10. Shareholder Incentive	\$247,254
11. Total Costs Including Shareholder Incentive	<b>\$4,086,707</b>
12. Benefit/Cost Ratio - Residential Sector	<b>1.96</b>

#### Line No. Notes:

1 - 4 and 7-11. See Exhibit B.

5. Sum of lines 2-4.

6. Line 1 divided by line 5. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio (BCR). However, the shareholder incentive is supposed to be included as an EE cost in determining the BCR. For the purpose of calculating the shareholder incentive, the Company has calculated the planned BCR including the shareholder incentive for one iteration and will compare the actual BCR including the shareholder incentive to the planned BCR including shareholder incentives when determining the earned incentive.

11. Sum of lines 7 - 10.

12. Line 7 divided by line 11. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio. However, the shareholder incentive is supposed to be included as an EE cost in determining the benefit/cost ratio. For the purpose of calculating the shareholder incentive, the Company has calculated the planned benefit/cost ratio including the shareholder incentive for one iteration and will compare the actual benefit/cost ratio including the shareholder incentive to the planned benefit/cost ratio including shareholder incentives when determining the earned shareholder incentive.

## Exhibit D - Shareholder Incentive Page 3 of 4

### National Grid Gas Energy Efficiency

Target Shareholder Incentive Year TWO- January 1, 2012 - December 31, 2012

#### Commercial/Industrial Incentive

1. Target Benefit/Cost Ratio	1.51
2. Threshold Benefit/Cost Ratio	1.00
3. Target lifetime MMBTU	1,225,591
4. Threshold MMBTU	796,634
5. Budget	\$3,533,796
6. CE Percentage	4.00%
7. Lifetime MMBTU Percentage	4.00%
<b>8. Target C/I Incentive</b>	<b>\$282,704</b>
<b>9. Cap</b>	<b>\$424,056</b>

#### Residential Incentive

10. Target Benefit/Cost Ratio	1.87
11. Threshold Benefit/Cost Ratio	1.00
12. Target lifetime MMBTU	821,343
13. Threshold MMBTU	533,873
\$5.49/therm based on 50% of project cost	\$3,323,305
\$3.08/therm based on 50% of project cost.	4.00%
16. Lifetime MMBTU Percentage	4.00%
<b>17. Target Residential Incentive</b>	<b>\$265,864</b>
<b>18. Cap</b>	<b>\$398,797</b>
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$548,568</b>

#### Line No. Notes:

- 1, 3, 5, 10, 12, and 14. See Exhibit B
- 2, 6, 7, 11, 15, and 16. Report to the New Hampshire Public Utilities Commission on Ratepayer-Funded Energy Efficiency Issues in New Hampshire, Docket No. DR 96-150, page 21.
4. 65% of line 3.
8. 8% of line 5.
9. 12% of line 5.
13. 65% of line 12.
17. 8% of line 14.
18. 12% of line 14.
19. Line 8 plus line 17.

## Exhibit D - Shareholder Incentive Page 4 of 4

### National Grid Gas Energy Efficiency Target Benefit-Cost Ratio by Sector Year TWO- January 1, 2012 - December 31, 2012

#### Commercial & Industrial:

	<u>Planned</u>
1. Benefits (Value) From Eligible Programs	\$11,944,931
2. Implementation Expenses	\$3,533,796
3. Customer Contribution	\$4,077,822
4. Shareholder Incentive	\$282,704
5. Total Costs Including Shareholder Incentive	<b>\$7,894,322</b>
6. Benefit/Cost Ratio - C&I Sector	<b>1.51</b>

#### Residential:

7. Benefits (Value) From Eligible Programs	\$9,041,080
8. Implementation Expenses	\$3,323,305
9. Customer Contribution	\$1,258,134
10. Shareholder Incentive	\$265,864
11. Total Costs Including Shareholder Incentive	<b>\$4,847,303</b>
12. Benefit/Cost Ratio - Residential Sector	<b>1.87</b>

#### Line No. Notes:

1 - 4 and 7-11. See Exhibit B.

5. Sum of lines 2-4.

6. Line 1 divided by line 5. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio (BCR). However, the shareholder incentive is supposed to be included as an EE cost in determining the BCR. For the purpose of calculating the shareholder incentive, the Company has calculated the planned BCR including the shareholder incentive for one iteration and will compare the actual BCR including the shareholder incentive to the planned BCR including shareholder incentives when determining the earned incentive.

11. Sum of lines 7 - 10.

12. Line 7 divided by line 11. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio. However, the shareholder incentive is supposed to be included as an EE cost in determining the benefit/cost ratio. For the purpose of calculating the shareholder incentive, the Company has calculated the planned benefit/cost ratio including the shareholder incentive for one iteration and will compare the actual benefit/cost ratio including the shareholder incentive to the planned benefit/cost ratio including shareholder incentives when determining the earned shareholder incentive.

### Exhibit A: Projected Program Expenses & Savings

Unitil Gas Energy Efficiency Planned Budget, Participation, Savings  
 New Hampshire Program Year ONE (January 1, 2011 - December 31, 2011)

Sector	Internal Admin	External Admin	Rebates/ Services	Internal Impl	Marketing	Evaluation	Budget Total	Participant Goal	Lifetime MMBTU
<b>Residential</b>									
Low Income	\$6,237	\$1,628	\$67,837	\$21,868	\$4,400	\$8,030	\$110,000	23	15,797
Residential High-Efficiency Heating, Water-Heating, Controls Program	\$15,525	\$6,192	\$192,332	\$54,354	\$22,636	\$18,577	\$309,617	447	86,331
Home Performance with ENERGY STAR	\$7,331	\$2,531	\$78,359	\$27,905	\$7,400	\$11,475	\$135,000	26	20,896
<b>Residential Total</b>	<b>\$29,092</b>	<b>\$10,352</b>	<b>\$338,528</b>	<b>\$104,127</b>	<b>\$34,436</b>	<b>\$38,082</b>	<b>\$554,617</b>	<b>496</b>	<b>123,023</b>
<b>Commercial &amp; Industrial</b>									
Large C & I Retrofit Program	\$6,059	\$900	\$50,274	\$23,137	\$4,680	\$4,950	\$90,000	5	61,149
Small Business Energy Solutions Program	\$7,162	\$932	\$63,685	\$27,500	\$6,932	\$5,590	\$111,800	11	62,301
C&I High Efficiency Heating, Water-Heating, Controls Program	\$3,974	\$1,343	\$43,415	\$13,743	\$7,875	\$4,650	\$75,000	62	55,276
Multi-Family Program	\$11,464	\$1,538	\$84,651	\$42,664	\$4,998	\$8,457	\$153,771	5	32,197
<b>Commercial &amp; Industrial Total</b>	<b>\$28,658</b>	<b>\$4,712</b>	<b>\$242,025</b>	<b>\$107,043</b>	<b>\$24,484</b>	<b>\$23,647</b>	<b>\$430,571</b>	<b>83</b>	<b>210,922</b>
<b>Grand Total</b>	<b>\$57,751</b>	<b>\$15,063</b>	<b>\$580,553</b>	<b>\$211,170</b>	<b>\$58,921</b>	<b>\$61,729</b>	<b>\$985,188</b>	<b>579</b>	<b>333,945</b>

Unitil Gas Energy Efficiency Planned Budget, Participation, Savings  
 New Hampshire Program Year TWO (January 1, 2012 - December 31, 2012)

Sector	Internal Admin	External Admin	Rebates/ Services	Internal Impl	Marketing	Evaluation	Budget Total	Participant Goal	Lifetime MMBTU
<b>Residential</b>									
Low Income	\$7,371	\$1,924	\$80,171	\$25,844	\$5,200	\$9,490	\$130,000	25	15,797
Residential High-Efficiency Heating, Water-Heating, Controls Program	\$15,525	\$6,192	\$192,332	\$54,354	\$22,636	\$18,577	\$309,617	447	86,331
Home Performance with ENERGY STAR	\$7,331	\$2,531	\$78,359	\$27,905	\$7,400	\$11,475	\$135,000	26	20,896
<b>Residential Total</b>	<b>\$30,226</b>	<b>\$10,648</b>	<b>\$350,862</b>	<b>\$108,103</b>	<b>\$35,236</b>	<b>\$39,542</b>	<b>\$574,617</b>	<b>498</b>	<b>123,023</b>
<b>Commercial &amp; Industrial</b>									
Large C & I Retrofit Program	\$6,059	\$900	\$50,274	\$23,137	\$4,680	\$4,950	\$90,000	5	61,149
Small Business Energy Solutions Program	\$7,162	\$932	\$63,685	\$27,500	\$6,932	\$5,590	\$111,800	11	62,301
C&I High Efficiency Heating, Water-Heating, Controls Program	\$3,974	\$1,343	\$43,415	\$13,743	\$7,875	\$4,650	\$75,000	62	55,276
Multi-Family Program	\$11,464	\$1,538	\$84,651	\$42,664	\$4,998	\$8,457	\$153,771	5	32,197
<b>Commercial &amp; Industrial Total</b>	<b>\$28,658</b>	<b>\$4,712</b>	<b>\$242,025</b>	<b>\$107,043</b>	<b>\$24,484</b>	<b>\$23,647</b>	<b>\$430,571</b>	<b>83</b>	<b>210,922</b>
<b>Grand Total</b>	<b>\$58,885</b>	<b>\$15,359</b>	<b>\$592,887</b>	<b>\$215,146</b>	<b>\$59,721</b>	<b>\$63,189</b>	<b>\$1,005,188</b>	<b>581</b>	<b>333,945</b>

**Exhibit B: Summary of Benefits**

**Unitil Gas Energy Efficiency Total Resource Cost Test**

New Hampshire Program Year ONE (January 1, 2011 - December 31, 2011)

Sector	Program	TRC Benefit / Cost	Total Benefits (\$000)	Total Costs (\$000)	Program Implementation (\$000)	Customer Contribution (\$000)	Evaluation (\$000)	Shareholder Incentive (\$000)
<b>A - Residential</b>	A02a ENERGY STAR Homes	1.7	\$1,138	\$668	\$415	\$188	\$30	\$36
	A03a Home Performance w/ES	0.0	\$0	\$0	\$0	\$0	\$0	\$0
	A04a Res GasNetworks	1.2	\$228	\$198	\$124	\$52	\$11	\$11
		1.9	\$910	\$470	\$291	\$136	\$19	\$25
<b>B - Low Income***</b>	B03a Low Income Retrofit 1-4	1.4	\$172	\$119	\$102	\$0	\$8	\$9
		1.4	\$172	\$119	\$102	\$0	\$8	\$9
<b>C - Commercial &amp; Industrial</b>	C03a Large C&I Custom	3.1	\$2,285	\$732	\$407	\$267	\$24	\$34
	C03b Small C&I Custom	4.6	\$678	\$147	\$85	\$50	\$5	\$9
	C03C Multifamily	3.7	\$691	\$184	\$106	\$64	\$6	\$12
	C04a C&I GasNetworks	2.5	\$616	\$251	\$145	\$85	\$8	\$6
		2.0	\$300	\$149	\$70	\$68	\$5	\$6
<b>Grand Total</b>		<b>2.4</b>	<b>\$3,595</b>	<b>\$1,519</b>	<b>\$923</b>	<b>\$455</b>	<b>\$62</b>	<b>\$79</b>

\*\*\* Reflects an increase of approximately \$54,000 to the low income program budget.

**Unitil Gas Energy Efficiency Total Resource Cost Test**

New Hampshire Program Year TWO (January 1, 2012- December 31, 2012)

Sector	Program	TRC Benefit / Cost	Total Benefits (\$000)	Total Costs (\$000)	Program Implementation (\$000)	Customer Contribution (\$000)	Evaluation (\$000)	Shareholder Incentive (\$000)
<b>A - Residential</b>	A02a ENERGY STAR Homes	1.7	\$1,155	\$668	\$415	\$188	\$30	\$36
	A03a Home Performance w/ES	0.0	\$0	\$0	\$0	\$0	\$0	\$0
	A04a Res GasNetworks	1.2	\$231	\$198	\$124	\$52	\$11	\$11
		2.0	\$924	\$470	\$291	\$136	\$19	\$25
<b>B - Low Income***</b>	B03a Low Income Retrofit 1-4	1.6	\$195	\$119	\$102	\$0	\$8	\$9
		1.6	\$195	\$119	\$102	\$0	\$8	\$9
<b>C - Commercial &amp; Industrial</b>	C03a Large C&I Custom	3.2	\$2,319	\$732	\$407	\$267	\$24	\$34
	C03b Small C&I Custom	4.7	\$688	\$147	\$85	\$50	\$5	\$9
	C03C Multifamily	3.8	\$701	\$184	\$106	\$64	\$6	\$12
	C04a C&I GasNetworks	2.5	\$625	\$251	\$145	\$85	\$8	\$6
		2.0	\$305	\$149	\$70	\$68	\$5	\$6
<b>Grand Total</b>		<b>2.4</b>	<b>\$3,669</b>	<b>\$1,519</b>	<b>\$923</b>	<b>\$455</b>	<b>\$62</b>	<b>\$79</b>

\*\*\* Reflects an increase of approximately \$54,000 to the low income program budget.

**RESIDENTIAL INPUT ASSUMPTIONS**  
**Unitil Gas Energy Efficiency Programs**

Program	Measure	Annual MMBTU Savings	Source of Savings	Incremental Cost	Cost Source	Lifetime	Lifetime Source
Home Performance with ENERGY STAR	Weatherization measures that include insulation and air sealing and DHW.	40.0 MMBTU	Based on TREAT modeling of homes that participated in the program from May 1, 2009 through June 2010.	\$3,000	Average participant rebate from May 2009 through June 2010 was \$3,000. Program pays 75% of project cost. \$3,000/0.75=\$4,000.	20	The New England State Program Working Group Residential and Commercial/Industrial Measure Life Report for the ISO forward capacity market, June 2007. Pg A-2. Measure Life for weatherization measures.
Low Income Residential High-Efficiency Water Heating	Weatherization measures that include insulation and air sealing and DHW.	35.0	Based on TREAT modeling of homes that participated in the Company's weatherization programs from January 1, 2009 through June 2010.	\$2,700	Average participant rebate from January 2009 through June 2010 was \$2,700. GDS: VT TRM - 4/9/08 (\$1350) less \$600 Standard Efficiency (DEER 2008)	20	The New England State Program Working Group Residential and Commercial/Industrial Measure Life Report for the ISO forward capacity market, June 2007. Pg A-2. Measure Life for weatherization measures.
Residential High-Efficiency Water Heating	Indirect Water Heater (attached to gas Energy Star FHW boiler)	8.0	NMR 2010 HEHE Eval DRAFT	\$750		20	GDS: 'Consumer Guide to Home Energy Savings' 8th ed. ACEEE 2003 Table 6.6
Residential High-Efficiency Water Heating	Stand Alone Storage Water Heater (EF 0.62)	1.9	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10	\$70	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10	13	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10
Residential High-Efficiency Heating	Furnace (forced hot air) 92% AFUE w/ECM	11.8	NMR 2010 HEHE Eval DRAFT	\$679	NYSERDA Deemed Savings Database	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (.xls)
Residential High-Efficiency Heating	Furnace (forced hot air) 94% AFUE w/ECM	14.2	Adjusted based on results of NMR 2010 HEHE Eval DRAFT	\$688	GDS: DEER 2008 (assumed 80 kBtu furnace)	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (.xls)
Residential High-Efficiency Heating	Boiler (forced hot water) >=85% AFUE	7.2	NMR 2010 HEHE Eval DRAFT	\$900	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Boilers (.xls)	20	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Boilers (.xls)
Residential High-Efficiency Heating	Boiler (forced hot water) >=90% AFUE	14.2	NMR 2010 HEHE Eval DRAFT	\$1,500	GDS Price comparison using RSM/Eans 2008 data and available pricing information for Weil-McLain, Buderus and Burnham boilers	20	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Boilers (.xls)
Residential High-Efficiency Heating	Integrated water heater/condensing boiler	21.1	GDS/SB Calculation: Natural Gas EE Potential Study in MA 4/2009	\$2,185	Summit Blue estimate; Natural Gas EE Potential Study in MA 4/2009	20	Assume the same as a boiler
Residential High-Efficiency Heating	Energy Star Programmable Thermostats	7.5	RLW Analytics - Validating the Impacts of Programmable Thermostats, January 2007; pg 2. Conversion factor CCF to Therms is 1.024	\$92	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Programmable Thermostat (.xls)	15	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Programmable Thermostat (.xls)
Residential High-Efficiency Heating	Boiler Reset Controls (retrofit/add on only)	7.9	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg 2	\$300	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg 3	15	ACEEE Emerging Technologies Report: Advanced Boiler Controls-September 2006 pg 2

**COMMERCIAL INPUT ASSUMPTIONS**

**Unitil Gas Energy Efficiency Programs**

Program	Measure	Annual MMBTU Savings	Source of Savings	Incremental Cost	Cost Source	Lifetime	Lifetime Source
C&I GasNetworks	Furnace (forced hot air) 92% AFUE	21.1	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009 (baseline AFUE 78%)	\$520	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (xls)	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (xls)
C&I GasNetworks	Furnace (forced hot air) 92% AFUE w/ECM	19.6	NYSERDA Deemed Savings Database	\$679	NYSERDA Deemed Savings Database	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (xls)
C&I GasNetworks	Furnace (forced hot air) 94% AFUE w/ECM	23.6	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009 (baseline AFUE 78%)	\$688	GDS: DEER 2008 (assumed 80 kBtu furnace)	18	Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Furnace (xls)
C&I GasNetworks	Steam Boiler <=300 mbh	36.5	Annual full load equivalent hours, 2470, estimated by Nexant, based on monthly heating degree hours for all the counties in NY weighted by populations. 75% AFUE to 80%; NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: H.STEAM-BOILER-GAS.<300000.CL...N	\$3,552	DEER; NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: H.STEAM-BOILER-GAS.<300000.CL...N	25	NH Potential Study; VT TRM
C&I GasNetworks	Condensing boiler (>90% AFUE) <= 300 mbh	32.3	Evaluation Study of Keyspan's Commercial and Industrial High Efficiency Heating Equipment Program - ODC Pg 40 Oct 2007; Gas savings = ((AFUEEq-AFUEb)/AFUEq) x CAPY in therms/hour x EFLH; Assumed capacity of 165 MBH, 1500 EFLH, baseline of 80% going to 92% AFUE	\$2,675	Based on 'Burnham Hydronics Trade Price Book #186', Dunkirk 2008 Price Book, Lochinvar trade price 2008 and Onyx - 'Metro NY All Equip' database	25	Efficiency Vermont Technical Reference Manual User ;TRM User Manual No. 2005-37 pg 161
C&I GasNetworks	Hydronic boiler (>85% AFUE <90% AFUE) <= 300 mbh	16.8	Evaluation Study of Keyspan's Commercial and Industrial High Efficiency Heating Equipment Program - ODC Pg 40 Oct 2007; Gas savings = ((AFUEEq-AFUEb)/AFUEq) x CAPY in therms/hour x EFLH; Assumed capacity of 190 MBH, 1500 EFLH, baseline of 80% going to 85% AFUE	\$1,590	Based on 'Burnham Hydronics Trade Price Book #186', Dunkirk 2008 Price Book, Lochinvar trade price 2008 and Onyx - 'Metro NY All Equip' database	25	Efficiency Vermont Technical Reference Manual User ;TRM User Manual No. 2005-37 pg 161
C&I GasNetworks	Infrared (low intensity)	74.4	Based on modeled data from infrared heaters installed through Bay State Gas custom C&I energy efficiency program	\$2,982	Based on equipment installed through Bay State Gas custom C&I energy efficiency program	17	Measure life based on GDS Gas Potential Study for Utah (2004); NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: A.INFR-UNIT HEATER...CL...N
C&I GasNetworks	Condensing Unit Heaters	40.92	Assuming input of 200,000 Btu/h; Nexant's "Gas Energy Efficiency Measure Analysis to Support NYSERDA's Con Edison Gas Efficiency Program" reported in August 2005; Savings of 204.6 Mmbtu/s per million Btu/hr of heater input capacity. Savings based on efficiency improvement of the retrofit equipment compared to the baseline equipment. Baseline efficiency from ASHRAE 90.1-2001. (Assumes power vent and IID). Replacement efficiency based on PG&E Unit Heater Study. 80% comb. eff to 90%.; NYSERDA Deemed Savings Database; Program Name: Keep Cool; Measure Name: A.UNIT-HEATER-COND.<300000.CL...N	\$2,400	Assuming 200,000 Btu/h; \$12,000 per million Btu/h; Baseline (\$13,000 per million Btu/h) and retrofit (\$25,000 per million Btu/h) unit costs from "Analysis of Standard Options for Unit Heaters and Duct Furnaces" (PG&E, 2004); NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: A.UNIT-HEATER-COND.<300000.CL...N	18	Natural Gas Efficiency and Conservation Measure Resource Assessment (ETO, 2003); NYSERDA Deemed Savings Database; Program Name: Smart Equipment Choices; Measure Name: A.UNIT-HEATER-COND.<300000.CL...N
C&I GasNetworks	Fryers	58.6	Energy Star Calculator: Assumed 100 lbs food/day and 16 hours/day (FSTC). Cooking efficiency 55% (average efficiency of all fryers that are above 50% as of 4/1/09). Idle energy 8,500 btu/hour (based on ASTM testing on PITCO and ALTO SHAAAM) and pre-heat energy 15,500 (Energy Star). Baseline unit 35% cooking efficiency, 14,000 btu/hour idle energy, 16,000 pre-heat energy	\$3,400	CEE; Program Design Guidance Fryers April 2009	12	Food Service Technology Center http://www.fishnick.com/saveenergy/tools/calculators/gfryercalc.php
C&I GasNetworks	High Efficiency Gas Steamer (Energy Star >=38% efficiency)	153.6	Food Service Technology Center: Gas Steamer Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gsteamercalc.php	\$2,000	NYSERDA Deemed Savings Database	10	Food Service Technology Center: Gas Steamer Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gsteamercalc.php
C&I GasNetworks	High Efficiency Gas Convection Oven (>=40% efficiency)	24.8	CEE Tier 1, Technology Opportunity Assessment: Convection Ovens Pg 5	\$1,886	Workpaper PGECOFST101 Commercial Convection Oven; PG&E Dec 2007	12	Workpaper PGECOFST101 Commercial Convection Oven; PG&E Dec 2007
C&I GasNetworks	High Efficiency Gas Combination Oven (>=40% efficiency)	40.3	Food Service Technology Center: Gas Combination Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gcombcalc.php	\$1,300	NYSERDA Deemed Savings Database	12	Food Service Technology Center: Gas Combination Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gcombcalc.php
C&I GasNetworks	High Efficiency Gas Conveyor Oven (>=40% efficiency)	84.5	Food Service Technology Center: Gas Conveyor Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gconvoencalc.php	\$2,100	GDS Natural Gas EE Potential Study in MA 4/2009; Questar 2006 DSM Market Characterization Report Appendix E - Nexant	12	Food Service Technology Center: Gas Conveyor Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/gconvoencalc.php
C&I GasNetworks	High Efficiency Gas Rack Oven (>=50% efficiency)	211.3	Food Service Technology Center: Gas Rack Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/grackovencalc.php	\$4,000	GDS Natural Gas EE Potential Study in MA 4/2009	12	Food Service Technology Center: Gas Rack Oven Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/grackovencalc.php
C&I GasNetworks	High Efficiency Gas Griddle	18.5	Food Service Technology Center: Gas Griddle Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/ggridcalc.php	\$1,165	GDS Natural Gas EE Potential Study in MA 4/2010	12	Food Service Technology Center: Gas Griddle Life-Cycle Cost Calculator http://www.fishnick.com/saveenergy/tools/calculators/ggridcalc.php
C&I GasNetworks	Spray Valve	33.6	Savings of 0.92 therms per day * 365 days per year = 335.8 therms (EM&V Report for the CA Urban Water Conservation Council Pre-Rinse Spray Head Distribution Program; SBW 2004) pg 20. Water savings of 170.7 gal/day (2.24 gallons/minute, avg daily use is 1.27 therms/day, same study pg 18) *365 days = 62,305 gal/year	\$121	Program info: Cost for Fisher Ultra Spary 2949 is \$41 for the spray valve and \$80 for installation	5	Region of Waterloo Pre-Rinse Spray Valve Pilot Study; Veritec Consulting Jan 2005; pg 8
C&I GasNetworks	On demand, Tankless Water Heater >=82,	7.1	FEMP Calculator for Electric & Gas Water Heater; Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 15	\$1,198	Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 15	20	ENERGY STAR® Residential Water Heaters: Final Criteria Analysis 4/1/08 pg 10; average of range

Program	Measure	Annual MMBTU Savings	Source of Savings	Incremental Cost	Cost Source	Lifetime	Lifetime Source
C&I GasNetworks	Indirect Water Heaters (Combined appliance efficiency rating $\geq 85\%$ (EF=.82))	30.4	Natural Gas EE Potential Study in MA 4/2009; Gas Fired Water Heater Screening Tool Esource	\$1,175	Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 16	15	Efficiency VT Reference Manual, p 409. April 2008 Edition
C&I GasNetworks	Condensing Stand Alone $>95\%$ TE, $>75000$ btu	25.0	Natural Gas EE Potential Study in MA 4/2009 GDS; Gas Fired Water Heater Screening Tool Esource	\$2,340	Natural Gas EE Potential in MA; GDS 2009; Appendix B-2 page 15	15	Natural Gas EE Potential Study in MA 4/2009 GDS; ACEEE Emerging technologies and practices, 2004: W1-pg46
C&I GasNetworks	Intergrated water heater/condensing boiler (0.9 EF, 0.9 AFUE)	24.6	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009	\$2,185	Natural Gas EE Potential Study in MA 4/2009	20	Assume the same as a boiler
C&I GasNetworks	Intergrated water heater/condensing boiler (0.86 EF, 0.85 AFUE)	20.0	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2009	\$1,300	Natural Gas EE Potential Study in MA 4/2009	20	Assume the same as a boiler
C&I GasNetworks	Boiler Reset Controls (retrofit/add on only)	35.5	GDS/SB Calculation; Natural Gas EE Potential Study in MA 4/2010	\$993	Natural Gas EE Potential Study in MA 4/2009 GDS; DEER Measure Cost Summary (05_30_2008) Revised (06_02_2008)	20	Natural Gas EE Potential Study in MA 4/2009 GDS; CA Statewide Commercial Sector NG EE Potential Study, Study ID #SW061, Prepared for PG&E by KEMA; May 2003 Appendix D
Large C&I Custom	Eligible high efficiency gas measures.	3,397.1	Estimated total savings for projects completed during 2011. Number of participants = 5. Based on 2-yr average of projects completed from 2008-2010.	\$2.96/therm based on 50% of project cost. \$1.48/therm/0.50	Two year average of projects completed from 2008-2010	18	Average measure life of equipment installed.
Small C&I Custom	Eligible high efficiency gas measures.	3,461.2	Estimated total savings for projects completed during 2011. Number of participants = 11. Based on 2-yr average of projects completed from 2008-2010.	\$3.68/therm based on 50% of project cost. \$1.84/therm/0.50 \$5.36/therm based on 50% of project cost.	Two year average of projects completed from 2008-2010	18	Average measure life of equipment installed.
Multi-Family	Eligible high efficiency gas measures.	3,158.6	Estimated savings for MF building based on 2-yr average of projects completed from 2008-2010	\$2.68/therm/0.50	Two year average of projects completed from 2008-2010	18	Average measure life of equipment installed.

## Exhibit D - Shareholder Incentive Page 1 of 4

### Unitil Gas Energy Efficiency

Target Shareholder Incentive Year ONE- January 1, 2011 - December 31, 2011

#### Commercial/Industrial Incentive

1. Target Benefit/Cost Ratio	3.12
2. Threshold Benefit/Cost Ratio	1.00
3. Target lifetime MMBTU	210,922
4. Threshold MMBTU	137,099
5. Budget	\$430,571
6. CE Percentage	4.00%
7. Lifetime MMBTU Percentage	4.00%
<b>8. Target C/I Incentive</b>	<b>\$34,446</b>
<b>9. Cap</b>	<b>\$51,668</b>

#### Residential Incentive

10. Target Benefit/Cost Ratio	1.66
11. Threshold Benefit/Cost Ratio	1.00
12. Target lifetime MMBTU	123,023
13. Threshold MMBTU	79,965
14. Budget	\$554,617
15. CE Percentage	4.00%
16. Lifetime MMBTU Percentage	4.00%
<b>17. Target Residential Incentive</b>	<b>\$44,369</b>
<b>18. Cap</b>	<b>\$66,554</b>
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$78,815</b>

#### Line No. Notes:

- 1, 3, 5, 10, 12, and 14. See Exhibit B
- 2, 6, 7, 11, 15, and 16. Report to the New Hampshire Public Utilities Commission on Ratepayer-Funded Energy Efficiency Issues in New Hampshire, Docket No. DR 96-150, page 21.
4. 65% of line 3.
8. 8% of line 5.
9. 12% of line 5.
13. 65% of line 12.
17. 8% of line 14.
18. 12% of line 14.
19. Line 8 plus line 17.

## Exhibit D - Shareholder Incentive Page 2 of 4

### Unitil Gas Energy Efficiency Target Benefit-Cost Ratio by Sector Year ONE- January 1, 2011 - December 31, 2011

<b>Commercial &amp; Industrial:</b>	<b><u>Planned</u></b>
1. Benefits (Value) From Eligible Programs	\$2,284,880
2. Implementation Expenses	\$406,923
3. Customer Contribution	\$267,047
4. Evaluation Expense	\$23,647
5. Shareholder Incentive	\$34,446
6. Total Costs Including Shareholder Incentive	<b>\$732,064</b>
7. Benefit/Cost Ratio - C&I Sector	<b>3.12</b>
8. Implementation Plus Evaluation Expense - C&I Sector	<b>\$430,571</b>
<b>Residential:</b>	
9. Benefits (Value) From Eligible Programs	\$1,309,997
10. Implementation Expenses	\$516,536
11. Customer Contribution	\$188,275
12. Evaluation Expense	\$38,082
13. Shareholder Incentive	\$44,369
14. Total Costs Including Shareholder Incentive	<b>\$787,262</b>
15. Benefit/Cost Ratio - Residential Sector	<b>1.66</b>
16. Implementation Plus Evaluation Expense - Residential Sector	<b>\$554,618</b>

#### Line No. Notes:

1 - 5 and 9-13. See Exhibit B.

5. Sum of lines 2-5.

6. Line 1 divided by line 6. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio (BCR). However, the shareholder incentive is supposed to be included as an EE cost in determining the BCR. For the purpose of calculating the shareholder incentive, the Company has calculated the planned BCR including the shareholder incentive for one iteration and will compare the actual BCR including the shareholder incentive to the planned BCR including shareholder incentives when determining the earned incentive.

7. Sum of lines 2 and 5. These are the C&I sector funds on which the Company may calculate its earned shareholder incentive.

14. Sum of lines 10 - 13.

15. Line 9 divided by line 14. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio. However, the shareholder incentive is supposed to be included as an EE cost in determining the benefit/cost ratio. For the purpose of calculating the shareholder incentive, the Company has calculated the planned benefit/cost ratio including the shareholder incentive for one iteration and will compare the actual benefit/cost ratio including the shareholder incentive to the planned benefit/cost ratio including shareholder incentives when determining the earned shareholder incentive.

16. Sum of lines 10 and 13. These are the Residential sector funds on which the Company may calculate its earned shareholder incentive.

## Exhibit D - Shareholder Incentive Page 3 of 4

### Unitil Gas Energy Efficiency

Target Shareholder Incentive Year TWO- January 1, 2012 - December 31, 2012

#### Commercial/Industrial Incentive

1. Target Benefit/Cost Ratio	3.17
2. Threshold Benefit/Cost Ratio	1.00
3. Target lifetime MMBTU	210,922
4. Threshold MMBTU	137,099
5. Budget	\$430,571
6. CE Percentage	4.00%
7. Lifetime MMBTU Percentage	4.00%
<b>8. Target C/I Incentive</b>	<b>\$34,446</b>
<b>9. Cap</b>	<b>\$51,668</b>

#### Residential Incentive

10. Target Benefit/Cost Ratio	1.71
11. Threshold Benefit/Cost Ratio	1.00
12. Target lifetime MMBTU	123,023
13. Threshold MMBTU	79,965
14. Budget	\$574,617
15. CE Percentage	4.00%
16. Lifetime MMBTU Percentage	4.00%
<b>17. Target Residential Incentive</b>	<b>\$45,969</b>
<b>18. Cap</b>	<b>\$68,954</b>
<b>19. TOTAL TARGET INCENTIVE</b>	<b>\$80,415</b>

#### Line No. Notes:

- 1, 3, 5, 10, 12, and 14. See Exhibit B
- 2, 6, 7, 11, 15, and 16. Report to the New Hampshire Public Utilities Commission on Ratepayer-Funded Energy Efficiency Issues in New Hampshire, Docket No. DR 96-150, page 21.
4. 65% of line 3.
8. 8% of line 5.
9. 12% of line 5.
13. 65% of line 12.
17. 8% of line 14.
18. 12% of line 14.
19. Line 8 plus line 17.

## Exhibit D - Shareholder Incentive Page 4 of 4

### Unitil Gas Energy Efficiency Target Benefit-Cost Ratio by Sector Year TWO- January 1, 2012 - December 31, 2012

<b>Commercial &amp; Industrial:</b>	<b><u>Planned</u></b>
1. Benefits (Value) From Eligible Programs	\$2,319,045
2. Implementation Expenses	\$406,923
3. Customer Contribution	\$267,047
4. Evaluation Expense	\$23,647
5. Shareholder Incentive	\$34,446
6. Total Costs Including Shareholder Incentive	<b>\$732,064</b>
7. Benefit/Cost Ratio - C&I Sector	<b>3.17</b>
8. Implementation Plus Evaluation Expense - C&I Sector	<b>\$430,571</b>
<b>Residential:</b>	
9. Benefits (Value) From Eligible Programs	\$1,349,469
10. Implementation Expenses	\$516,536
11. Customer Contribution	\$188,275
12. Evaluation Expense	\$38,082
13. Shareholder Incentive	\$45,969
14. Total Costs Including Shareholder Incentive	<b>\$788,862</b>
15. Benefit/Cost Ratio - Residential Sector	<b>1.71</b>
16. Implementation Plus Evaluation Expense - Residential Sector	<b>\$554,618</b>

#### Line No. Notes:

1 - 5 and 9-13. See Exhibit B.

5. Sum of lines 2-5.

6. Line 1 divided by line 6. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio (BCR). However, the shareholder incentive is supposed to be included as an EE cost in determining the BCR. For the purpose of calculating the shareholder incentive, the Company has calculated the planned BCR including the shareholder incentive for one iteration and will compare the actual BCR including the shareholder incentive to the planned BCR including shareholder incentives when determining the earned incentive.

7. Sum of lines 2 and 5. These are the C&I sector funds on which the Company may calculate its earned shareholder incentive.

14. Sum of lines 10 - 13.

15. Line 9 divided by line 14. The shareholder incentive mechanism described by the New Hampshire Energy Efficiency Working Group and approved by the Commission in Order No. 23,574 includes a circular calculation. A portion of the earned shareholder incentive is related to the benefit/cost ratio. However, the shareholder incentive is supposed to be included as an EE cost in determining the benefit/cost ratio. For the purpose of calculating the shareholder incentive, the Company has calculated the planned benefit/cost ratio including the shareholder incentive for one iteration and will compare the actual benefit/cost ratio including the shareholder incentive to the planned benefit/cost ratio including shareholder incentives when determining the earned shareholder incentive.

16. Sum of lines 10 and 13. These are the Residential sector funds on which the Company may calculate its earned shareholder incentive.