

# ACEEE Market Transformation Symposium

Washington, DC

April 1<sup>st</sup>, 2008

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## *Gas Energy Efficiency Panel: Growth in Gas Energy Efficiency Programs*

**Bruce Johnson, Director,  
Energy Efficiency,  
National Grid**

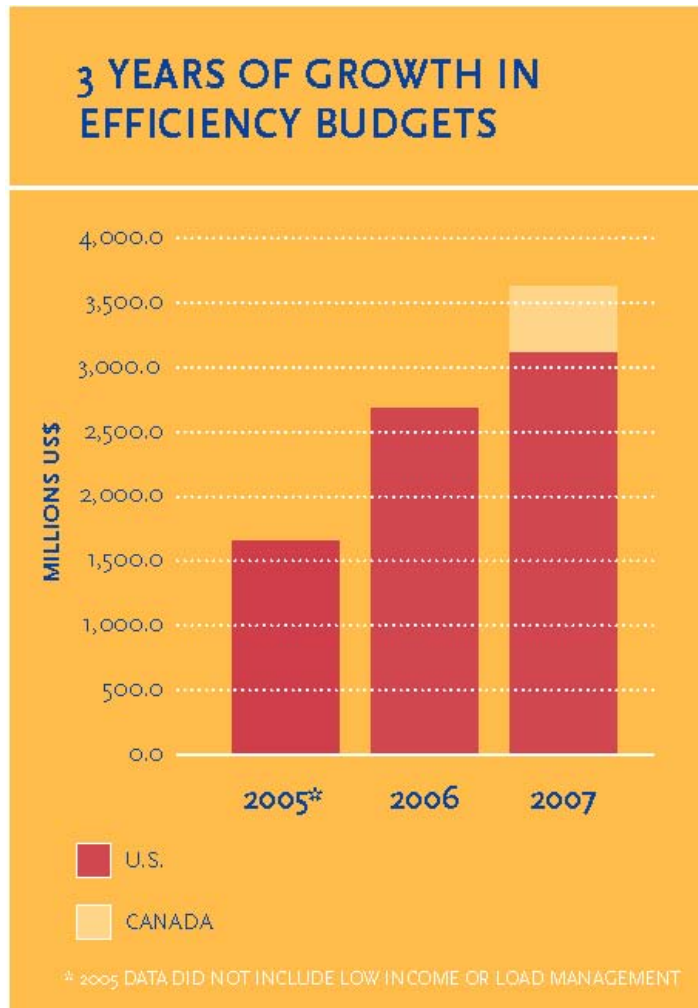
**nationalgrid**

# Overview

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- US and Regional Growth in Energy Efficiency
- Overview of National Grid and Gas Efficiency Programs
- Projected Growth of Energy Efficiency Programs
- Technology to support Energy Efficiency
- Importance of Revenue Decoupling
- Conclusion
- Q&A

# U.S. and Canadian gas and electric energy efficiency budgets totaled \$3.7 billion in 2007

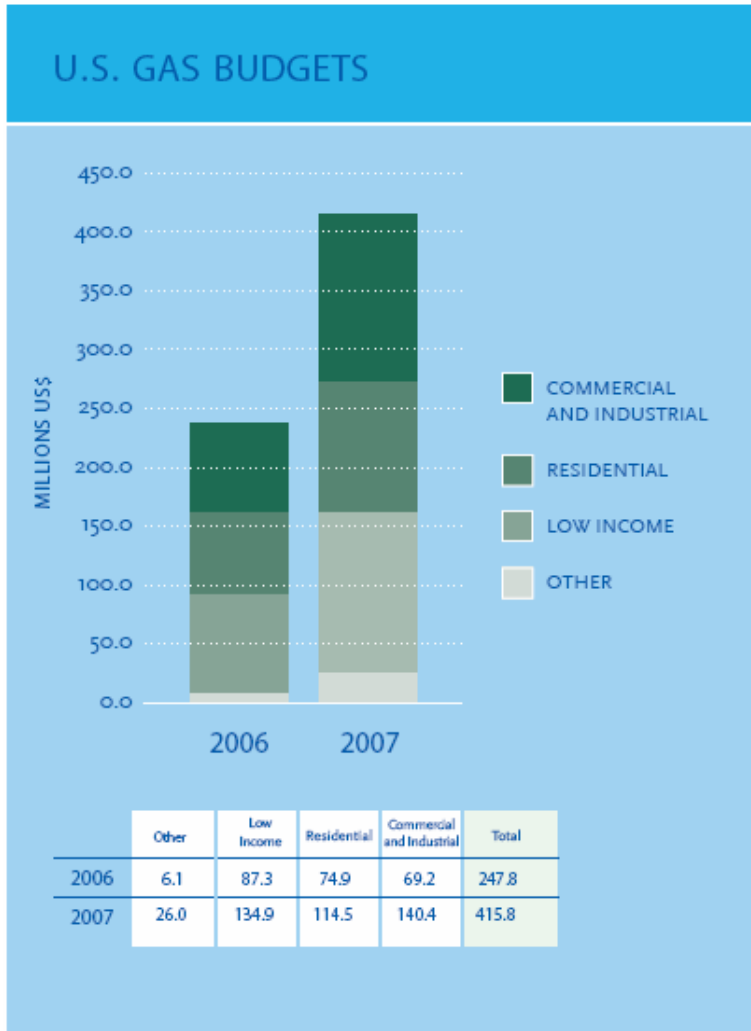


Source: Consortium for Energy Efficiency (CEE), 2007

- U.S. energy efficiency budgets totaled **\$3.1 billion**, up 18 percent from 2006
  - Electric efficiency program budgets totaled **\$2.7 billion**, up 14 percent from 2006
  - Gas program budgets totaled **\$416 million**, up 68 percent from 2006.
- Canadian energy efficiency budgets totaled **\$0.6 billion\***
  - Electric efficiency program budgets totaled **\$526 million**
  - Gas efficiency program budgets totaled **\$56 million**

\* First year of collecting Canadian data, thus there is no trend yet

# Gas programs are growing fast



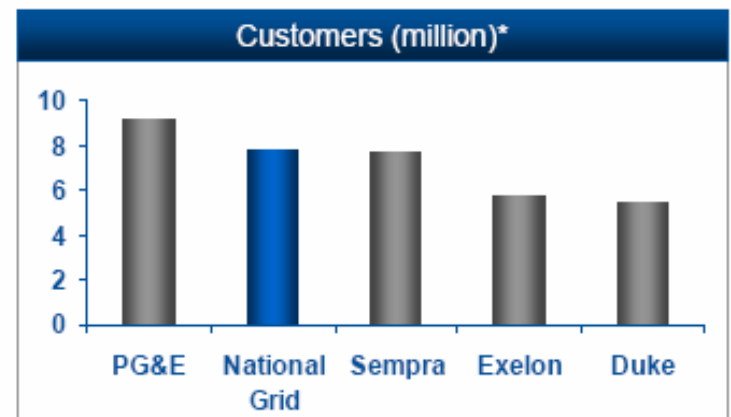
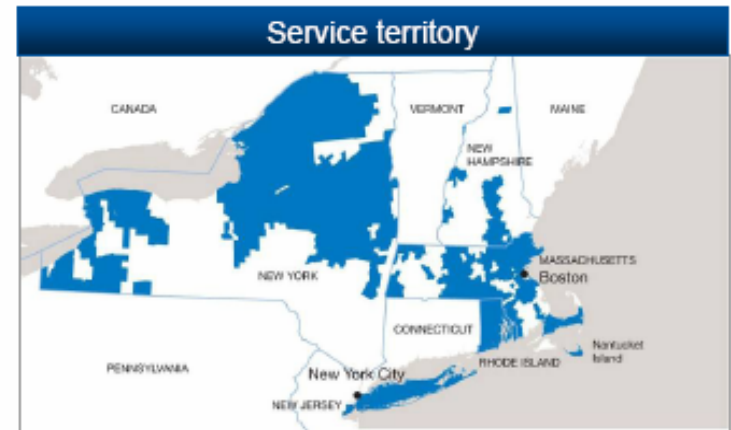
Source: Consortium for Energy Efficiency (CEE), 2007

- U.S. gas budgets increased 68% between 2006 & 2007
- Northeast increased from \$49.3 M to \$97.1 M, an increase of 97%
- California increased from \$94.1 M to \$182.5 M, an increase of 94%
- Pacific Northwest increased from \$21.2 M to \$21.5 M, remaining flat
- Southwest increased from \$5.5 M to \$11.9 M, an increase of 116%
- Midwest increased from \$77.6 M to \$103 M, an increase of 33%
- Texas & Southeast – data was not available

## National Grid has been and will continue to focus on **Energy Efficiency**

**“We are committed to cut our own emissions by 60% by 2050 – a target beyond what is required by the Kyoto protocol and we call on other companies to do the same.” – Steve Holliday, CEO of National Grid**

- The largest distributor of Natural Gas in the northeast U.S. serving approximately 3.4 million customers in New York, Massachusetts, New Hampshire and Rhode Island
- Delivers electricity to approximately 3.3 million customers in Massachusetts, New Hampshire, New York and Rhode Island
- Manages the electricity network on Long Island under an agreement with the Long Island Power Authority serving 1.1 million LIPA customers

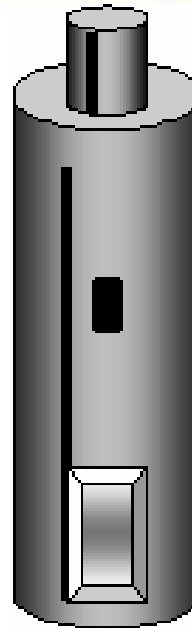
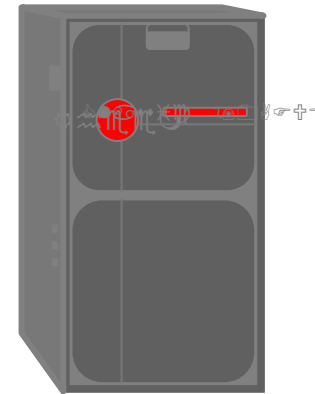


\*National Grid customer numbers include LIPA customers

# National Grid Gas Programs – Offered in MA, NH, NY/LI and RI

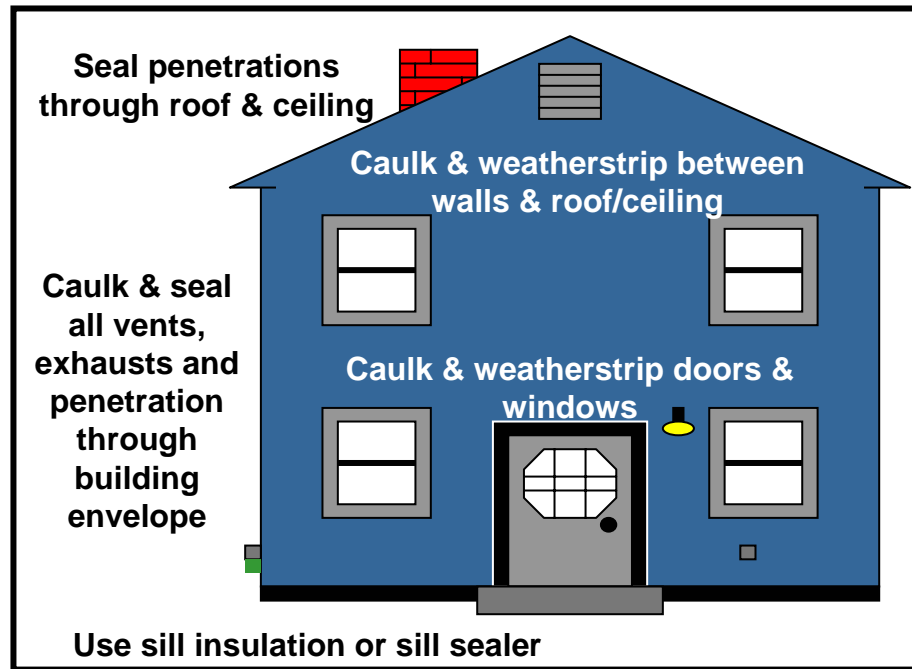
Program List
<b>Residential Programs</b>
Low Income (NY, LI, MA, NH) / EnergyWise – RI
Weatherization
High Efficiency Heating / Water Heating
Energy Audit / Home Performance
Energy Star Products
Energy Star Homes
Online Home Analyzer
Building Practices / Demonstration

*High-Efficiency furnaces and boilers can save 25 to 40% on annual fuel bills in addition to reducing air pollution.*



Water Heater

Weatherize homes



# National Grid Gas Programs – Offered in MA, NH, NY/LI and RI

Program List
<b>C&amp;I and Multifamily Programs</b>
C&I / Multifamily Energy Efficiency
Economic Redevelopment
C&I High-Efficiency Heating
Building Practices and Demonstration
Online Business Analyzer

*C&I High Efficiency Heating Program*



**Waltham High School**  
Five Aerco condensing boilers @ 2 mmbtu each replaced three oil fired boilers @ 10 mmbtu each

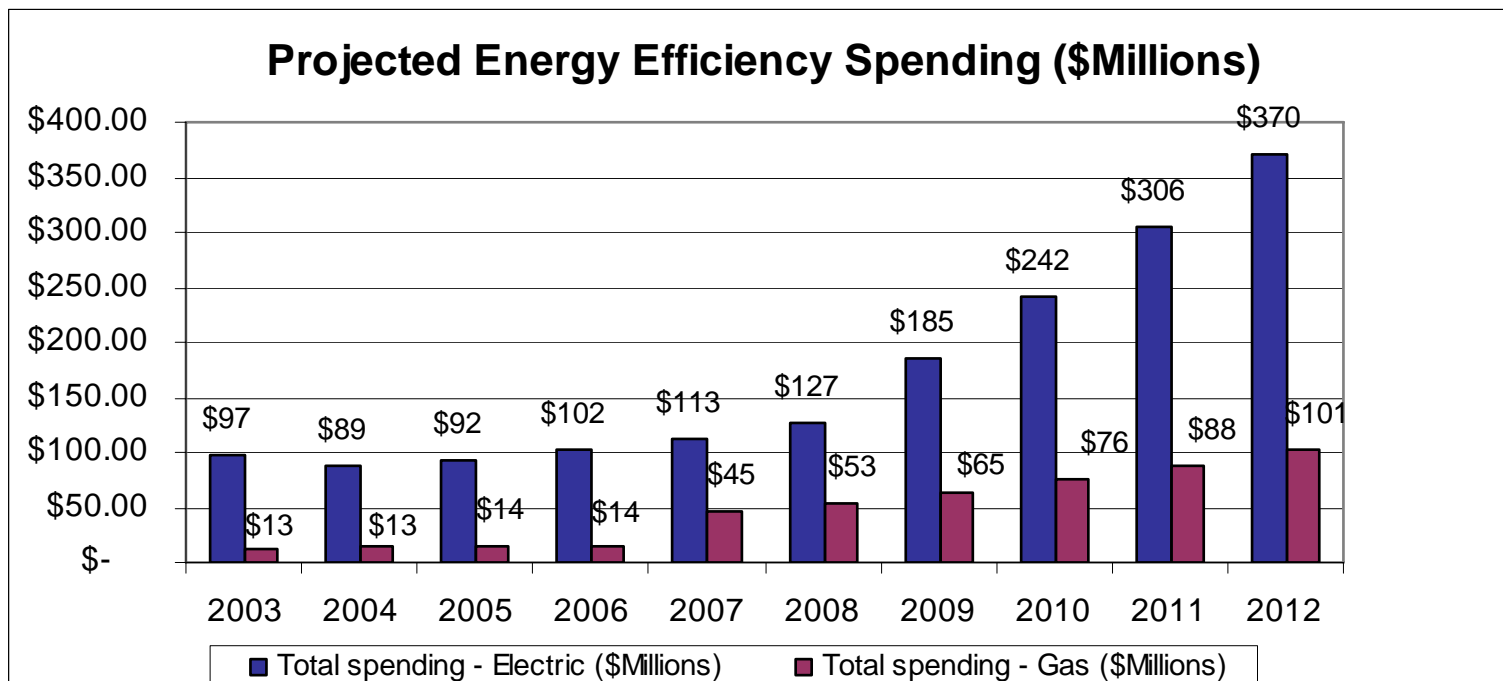
*Custom Audit*



**Standard Thompson, Inc. - Waltham, MA**

Heat recovery from Two150 HP natural gas engine driven air compressor

National Grid's Gas Energy Efficiency spending is expected to **double** from 2007-2012. Electric spending will **almost triple**.



The Company is dedicated to helping our customers explore ***energy technologies*** to encourage ***efficient energy*** use and benefit the environment

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**Gas Technologies:**

- *Combined Heat and Power (CHP)*
- *Fuel Cells*
- *Solar Thermal*
- *High Efficiency Heating Equipment / Water heaters*
- *Thermal envelope improvements / measures*
- *Energy Star thermostats and boiler resets*

# Micro Combined Heat and Power

## 1st grid connected space heating appliance in U.S.

Control  
Panel



Heat  
Exchanger and  
95% AFUE  
Furnace

Generator

### BENEFITS:

Efficient use of fuel

Avoidance of Transmission Losses

Emission reductions

Provide backup power

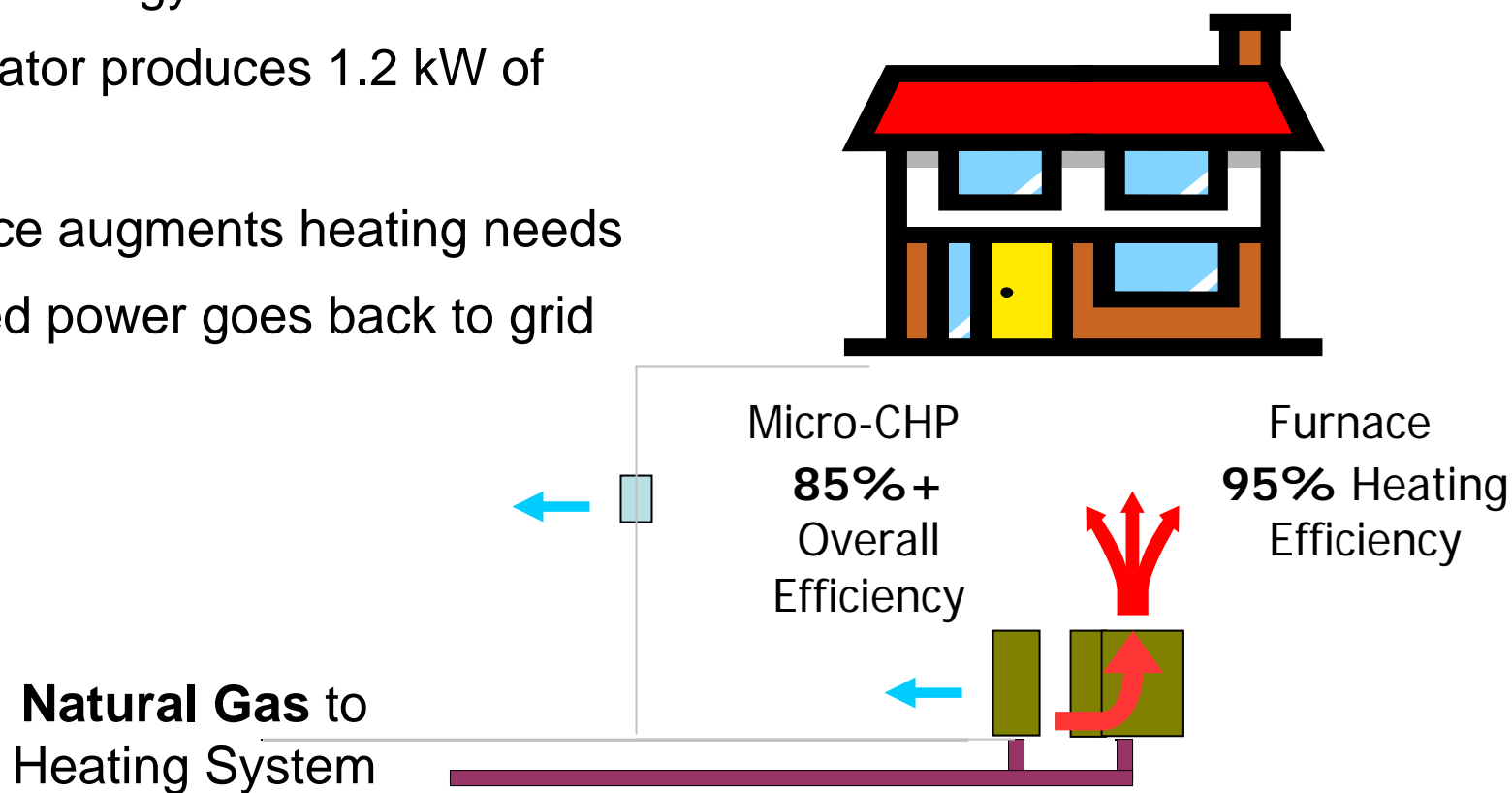
Internet connectivity

Fits with HVAC infrastructure

Fills market gap in alternative energy options

# freewatt™ Functionality

- Engine provides 11,000 BTUs thermal energy to furnace
- Generator produces 1.2 kW of power
- Furnace augments heating needs
- Unused power goes back to grid



# Commercial and Industrial Solar Thermal

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## Domestic Hot Water

- Multi Family, condos, hotels

## Pool Heating

- Schools, Community Centers

## Space Heating

(radiant, pre heat, integrated CHP)

- Facilities, Labs
- Office Space

## Process Hot Water

- Industrial
- Food Processing

## Solar assisted Cooling

- Absorption Cooling

***Engineering Grants available***

# National Grid's Efficiency Programs Benefit Customers and the Company

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- *Customers who participate:*
  - Lower total bills
  - Reduced operating costs
  - Access to trusted technical expertise and financial assistance
  - Assistance in meeting environmental objectives
- *National Grid:*
  - Stronger long-term relationship with customers
  - Shareholder incentives
  - Improved reliability of distribution system
  - Supports our environmental commitments and commitment to minimize Climate Change impacts by reducing GHG emissions

## Existing rate design does not encourage energy efficiency

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- Traditional utility ratemaking requires that rates be designed to capture fixed costs through volumetric sales
- A utility can fully recover these costs only if its customers consume a certain level of energy
- With energy efficiency, actual usage declines below the level inherent in the rates approved by the regulator
- Basing the utility's rates on a benchmark level creates a financial disincentive for it to promote energy efficiency
- When customers use less energy, the utility's revenues drop and financial performance suffers
- Utility must be able to recover cost of programs and lost revenue due to energy efficiency

## National Grid will continue its focus on...

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- Helping **all customers** embrace energy efficiency ... it's a **win/win** value proposition – **leading to a healthier environment for all communities**
- Promoting the benefits of high efficiency natural gas as a means for customers to take **personal action to reduce their own GHG emissions in their homes and at business**
- Actively seeking Regulatory solutions to **increase funding for these programs**
  - “We absolutely totally support it [a decoupling proposal]... We've decoupled all of our rate plans in the UK. It's wrong implicitly when we earn more when people consume more.” - *Steve Holliday, CEO of National Grid*
- Focusing on extensive **workforce development (Northeast) and training our own employees** on gas & electric energy efficiency programs while we expand
- Working with **equipment manufacturers to encourage research and development** of promising high-efficiency technologies and stimulating market transformation