



# **Trends In Residential Gas Usage and Implications for LDCs**

**Northeast Gas Association – Executive Conference**

Presented by:  
James D. Simpson  
Vice President  
Concentric Energy Advisors, Inc.

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## Topics for Discussion

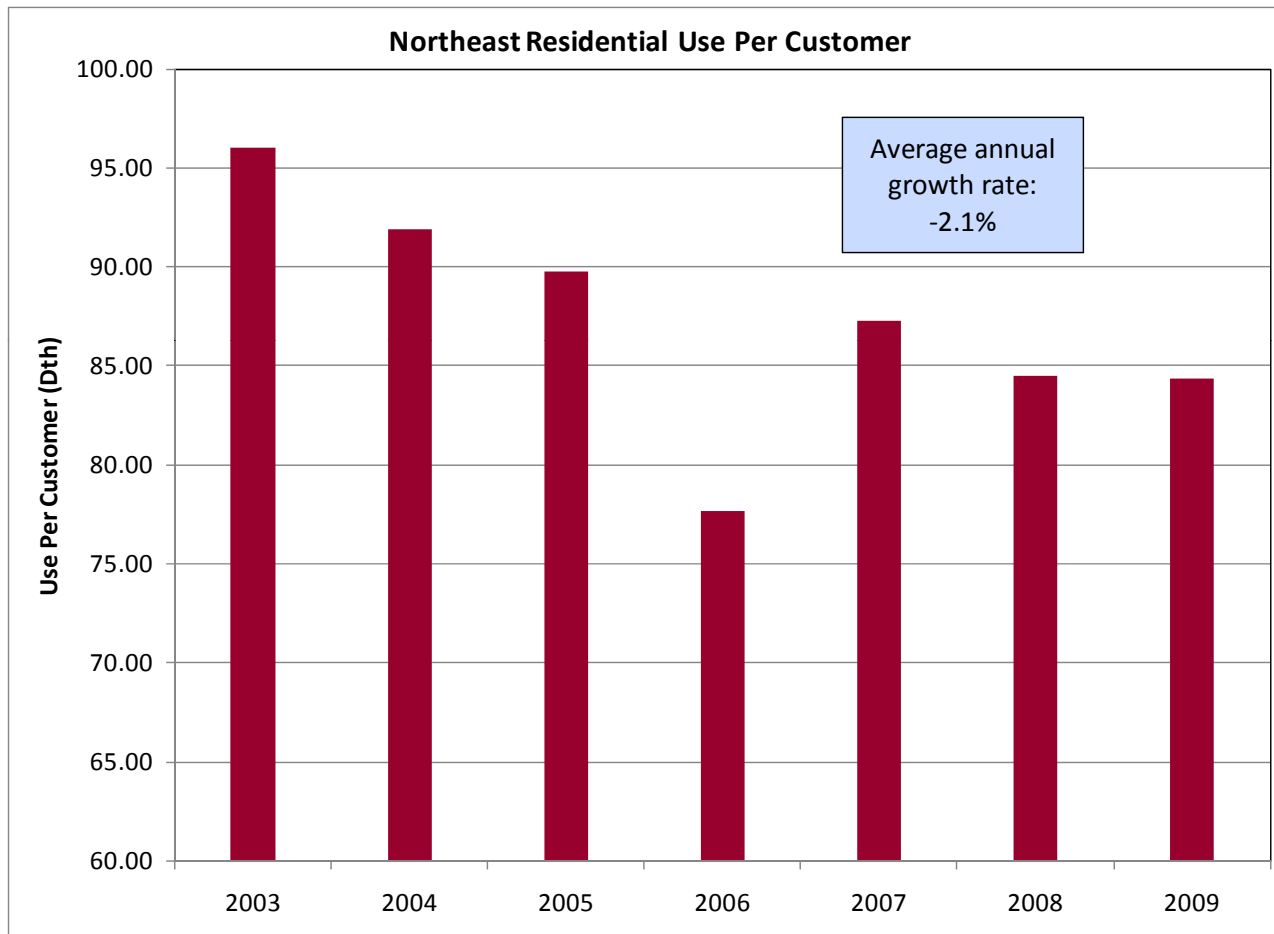
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- Trends in Average Residential Demand in the Northeast
- Reasons for Trends
- Looking Ahead - Forecasted Trends
- Implications and Responses to Declining Residential Demand



## Trends in Average Residential Demand in the Northeast

*Residential use per customer (“UPC”) has been declining across Northeast LDCs over the last 7 years.*



*Growth in number of customers has been 0.7% over the same period to partially offset decline in UPC.*



## Trends in Average Residential Demand in the Northeast

*States within the Northeast have experienced similar but not identical decreases in UPC*

- From 2003 to 2009 actual residential use per customer in the Northeast decreased by 2.1% per year
- Recent trend is different: Use per customer increased by 2.8% per year between 2006 and 2009

### Residential Use Per Customer Compound Annual Growth Rates

	2003 - 2009	2006 - 2009
Connecticut	-1.7%	2.8%
Massachusetts	-3.1%	1.4%
Maine / New Hampshire	-3.7%	1.8%
New York	-1.2%	3.6%
New Jersey	-2.5%	3.4%
<b>Total Northeast</b>	<b>-2.1%</b>	<b>2.8%</b>

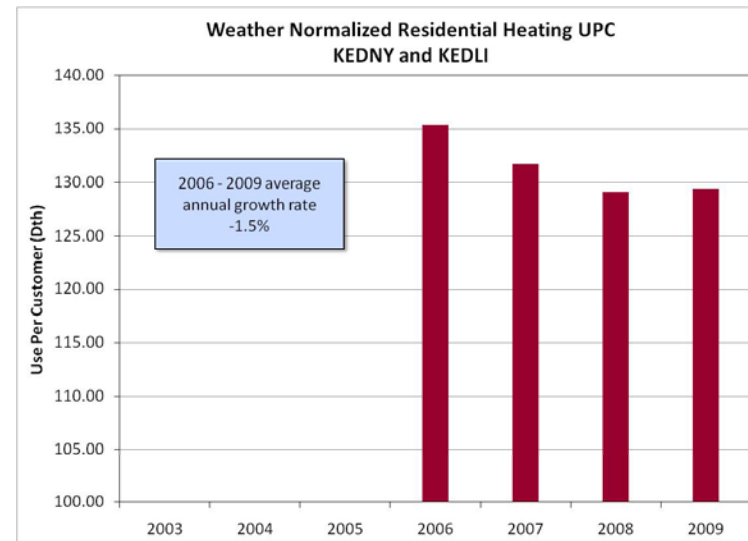
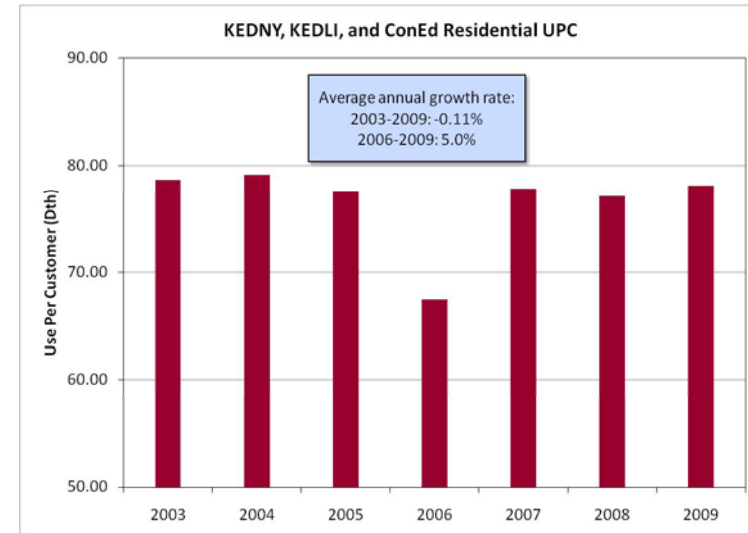
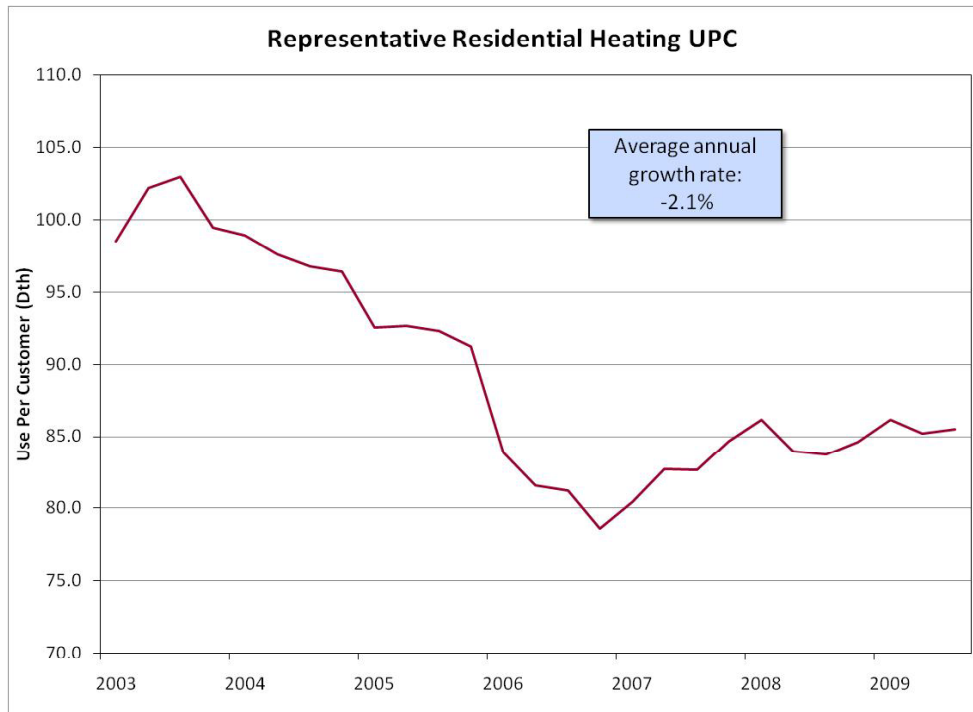
#### Disclaimers:

- Results are not weather normalized
- Results are total residential – heating and non-heating mixed
- Data reported in state regulatory annual reports is not always “rate case quality”



# Trends in Average Residential Demand in the Northeast

*This downward trend – and some of the state differences - is corroborated by other sources*



## Reasons for Historical Trends in Residential UPC

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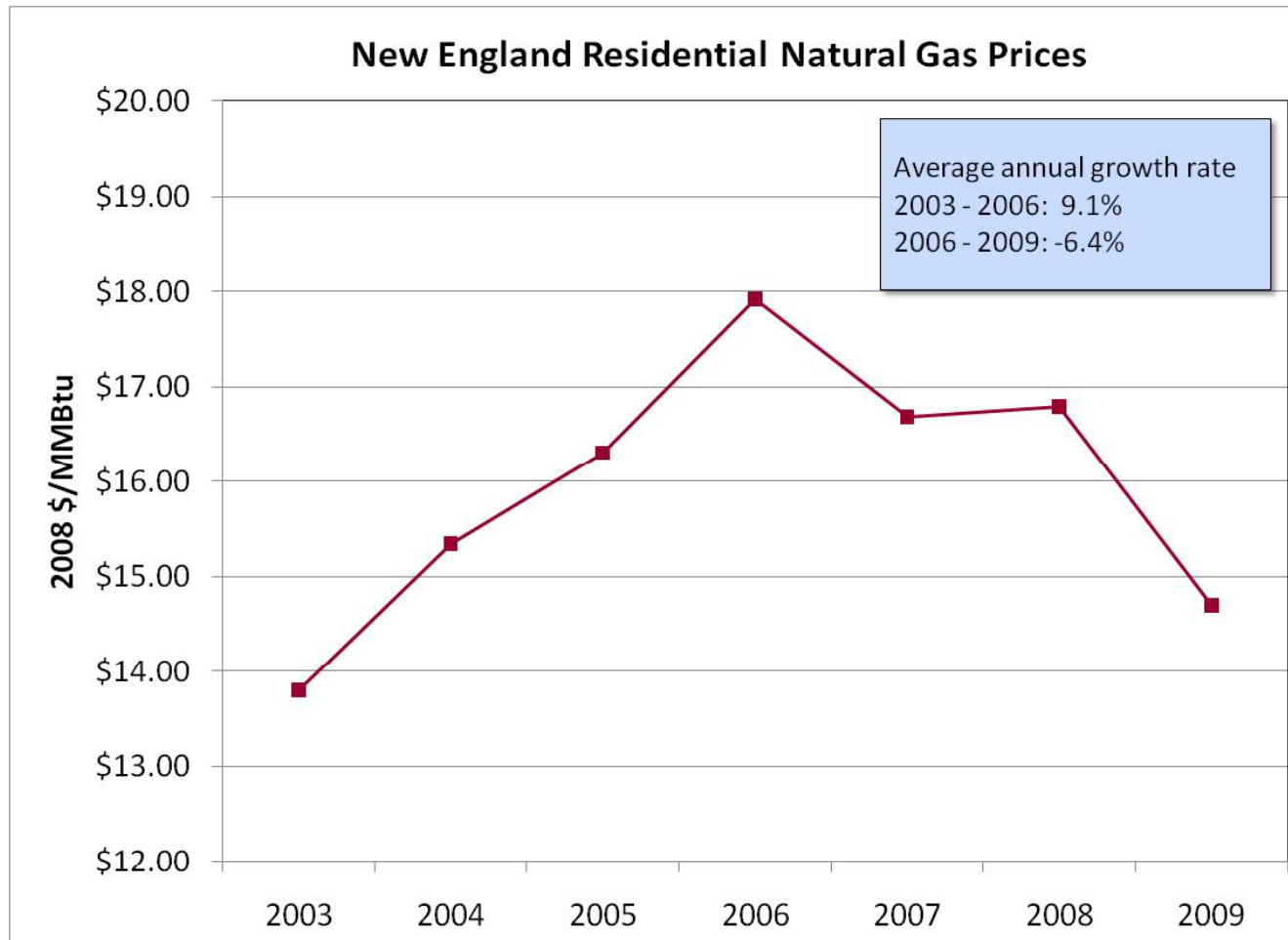
*The reasons for the recent trends are regularly discussed and common sense:*

- Natural Gas Prices
- Energy Efficiency Programs
- Appliance Efficiency
- The Economy
- Oil-to-Gas Conversions



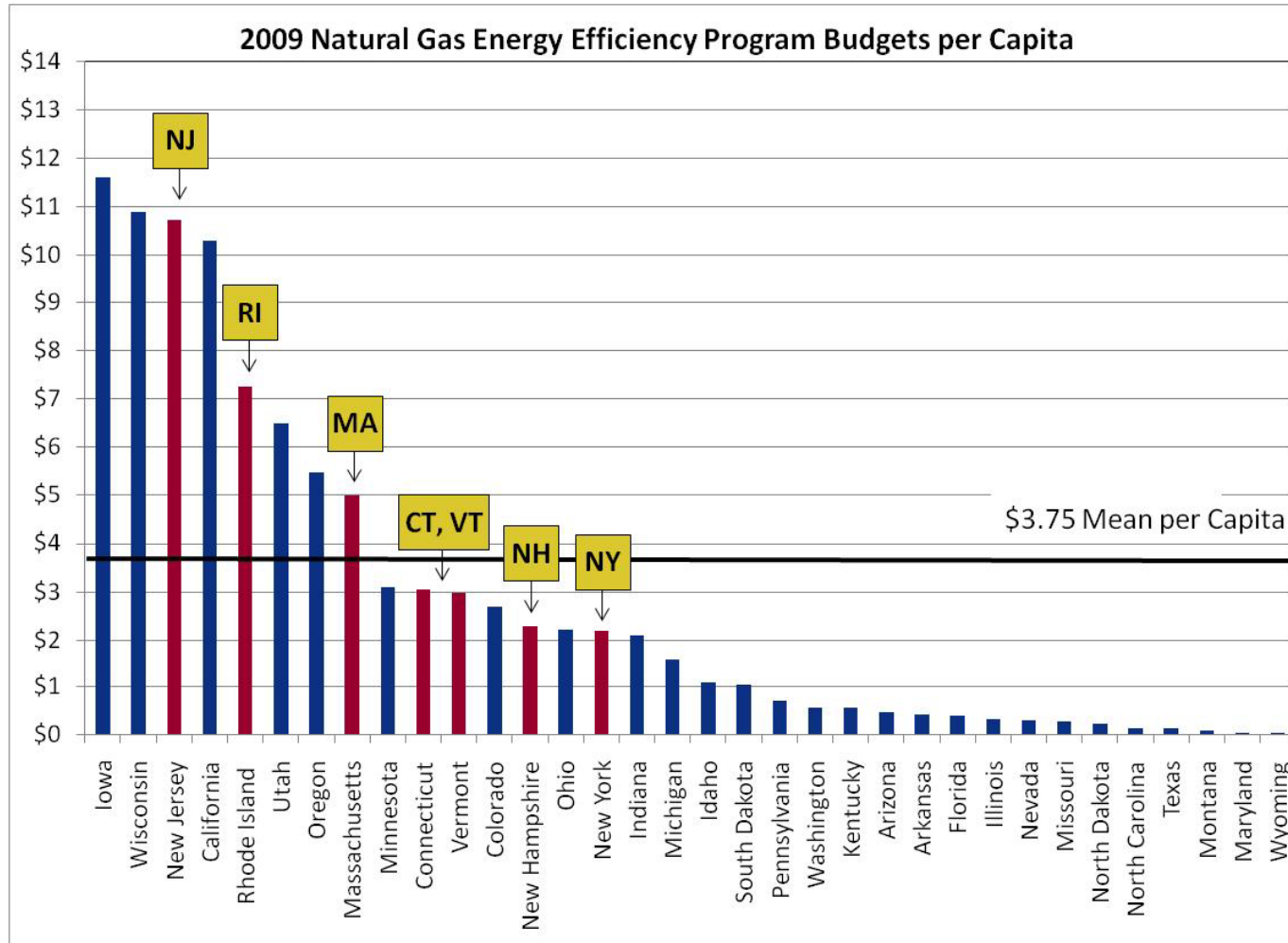
## Reasons for Historical Trends in Residential UPC – Natural Gas Prices

*The 2006 spike in natural gas prices had a big impact on the demand for natural gas; recent gas prices have contributed to the recent uptick in use per customer.*



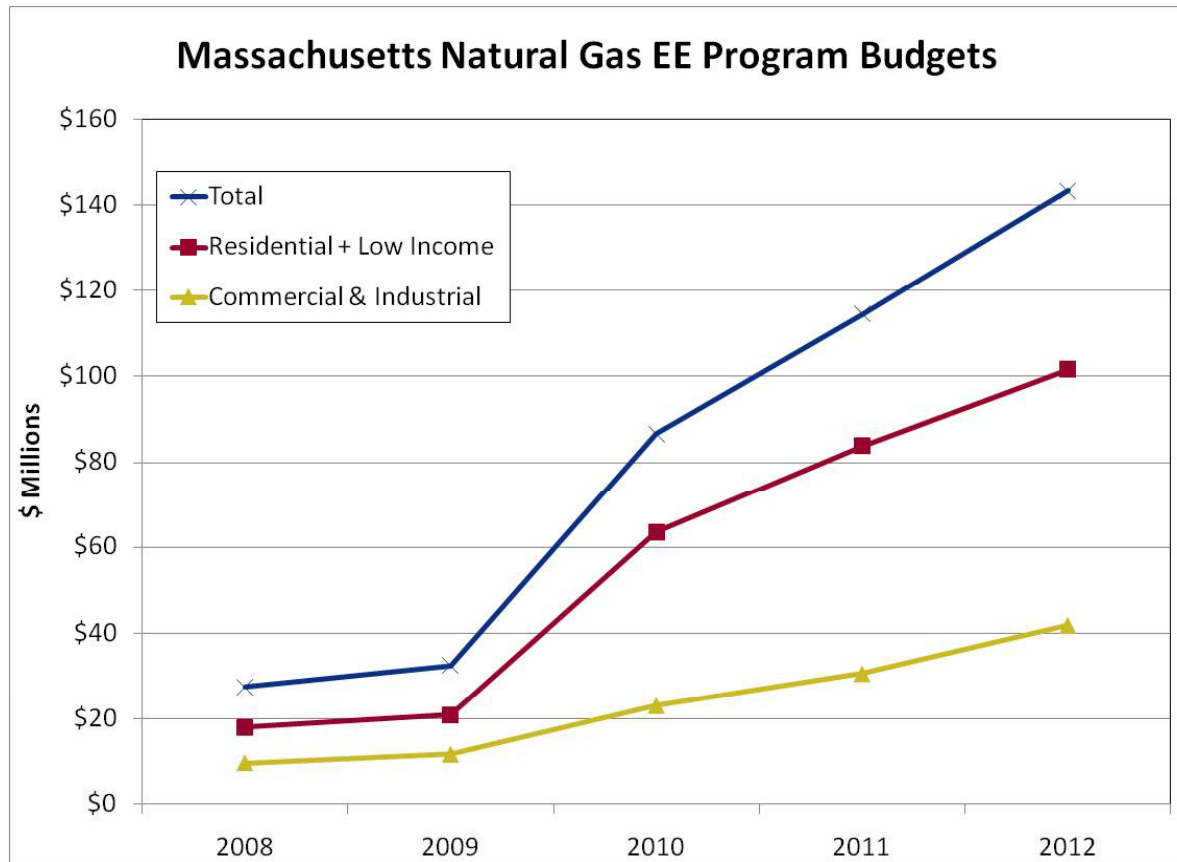
## Reasons for Historical Trends in Residential UPC – Energy Efficiency Programs

*Utility energy efficiency programs have contributed to the declining residential UPC. Northeast states were well-represented in the top half of per capita 2009 budgets for natural gas energy efficiency programs.*



## Looking Ahead at Energy Efficiency Programs - Massachusetts

*Spending on natural gas energy efficiency programs is expected to increase significantly over the next several years as many states ramp up their programs – Massachusetts is a good example*



- 2008 Green Communities Act significantly expanded energy efficiency programs in Massachusetts.
- GCA: Cost-effective energy efficiency a higher priority than other resources for electric and natural gas utilities.
- Current Massachusetts natural gas plan goals
  - **24.7 million therms** of savings in 2012
  - Equivalent to **1.15%** of retail natural gas sales in 2012.



## Reasons for Historical Trends in Residential UPC – Energy Efficiency Programs

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### *Highlights of Recent Developments in Other Natural Gas Energy Efficiency Programs:*

#### **Maine**

- As of July 2010, Efficiency Maine Trust took control of creating, coordinating and implementing all energy efficiency programs in the State of Maine (including natural gas programs). Efficiency Maine Trust's Triennial Plan was conditionally approved by the MPUC (pending additional detail), which includes natural gas savings targets of **36,000 Dth**, **44,000 Dth** and **50,000 Dth** for 2011, 2012, and 2013 respectively.
- Legislated long-term savings targets include reductions in natural gas consumption of **30% by 2020**, and **weatherization of 100% of homes** and **50% of businesses by 2030**.

#### **Vermont**

- Natural gas efficiency programs are administered and implemented by Vermont Gas and began in 1993.

#### **New Hampshire**

- New Hampshire natural gas utilities administer energy efficiency programs that are approved by the New Hampshire PUC. Current programs are largely a continuation of programs that have been in effect for a number of years.
- Natural gas efficiency programs are funded through an energy efficiency surcharge; budgets for 20-month period May 2009-Dec 2010 were **\$9 million**; 2011 proposed budget is **\$7.25 million** and 2012 is **\$7.86 million**.
- In July 2010, New Hampshire's Energy Efficiency and Sustainable Energy (EESE) Board formed a working group to prepare comprehensive study of NH energy efficiency programs.



## Reasons for Historical Trends in Residential UPC – Energy Efficiency Programs

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*Highlights of Recent Developments in Natural Gas Energy Efficiency Programs by State:*

### **Connecticut**

- As a result of the 2007 Act Concerning Electricity and Energy Efficiency, utility program budgets for energy efficiency are likely to increase significantly to meet the requirements of this bill.
- The DPUC approved the 2010 joint Conservation and Load Management plan, which includes a budget of \$11.5 million for the natural gas distribution companies (\$5.6 million spent in 2008).
- State budget deficits threaten established energy efficiency program funding; in May 2010, Connecticut enacted a budget that takes \$28.5 million annually (35%) from the Connecticut Energy Efficiency Fund from FY 2011 to FY 2019 in order to pay back its state budget deficit.

### **Rhode Island**

- Rhode Island has a legislative requirement for electric and gas utilities to acquire all cost-effective energy efficiency that costs less than new energy supply as the first priority resource, placing it first in a utility's resource "loading order" and greatly increasing the role of energy efficiency in utility long-term planning.
- The budget for natural gas energy efficiency programs in Rhode Island decreased from \$6.4M in 2009 to \$4.8M in 2010 (with associated expected savings decreases from 140,500 Dth in 2009 to 110,500 Dth in 2010).



## Reasons for Historical Trends in Residential UPC – Energy Efficiency Programs

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*Highlights of Recent Developments in Natural Gas Energy Efficiency Programs by State:*

### ***New York***

- NY PSC approved natural gas efficiency targets in May 2009.
  - 2010, 2011 EE Savings: 4.34 Bcf annually.
  - Beyond 2011: 3.45 Bcf annually beyond 2011.
  - 14.7% reduction in estimated gas usage by 2020.

### ***New Jersey***

- Natural gas efficiency programs spending:
  - 2007: \$90.1 million.
  - 2008: \$82.4 million.
- Clean Energy fund may be used for other purposes:
  - Governor announced intention to use over \$150 million from the Clean Energy Fund to help balance the state budget.



## Reasons for Historical Trends in Residential UPC – Appliance Efficiency

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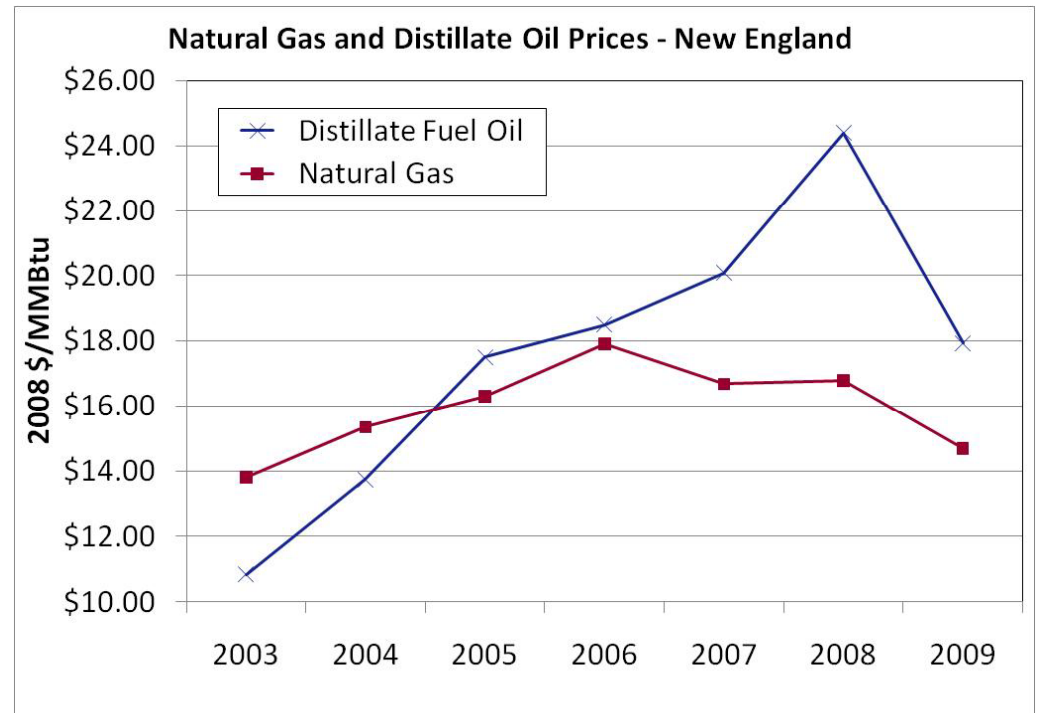
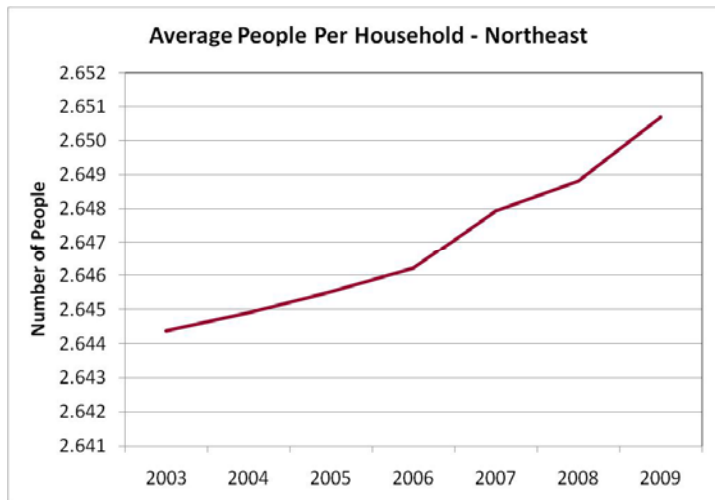
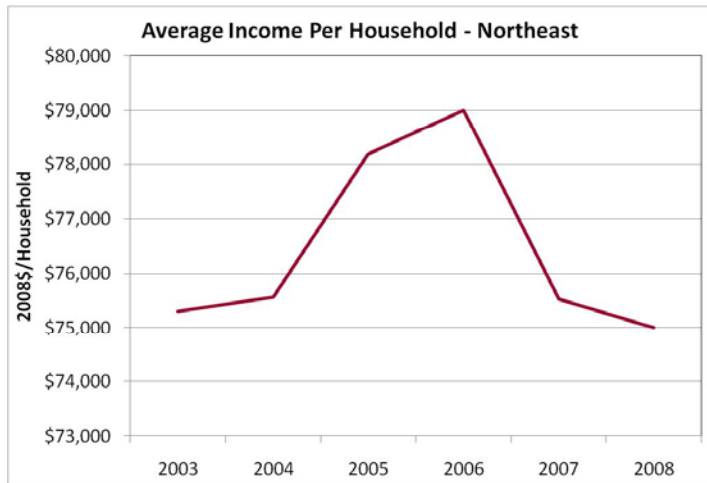
*Appliance efficiency gains and improved housing construction are examples of non-price reasons for declining residential use per customer over the long term.*

- AGA: “The consumption of natural gas per household has been declining, on a weather-normalized basis, since about 1980. Over time, natural gas consumers have been tightening their homes, purchasing more efficient appliances and turning down their thermostats.”
- Appliance efficiency gains
  - Efficiency gains in space-heating equipment and other natural gas appliances accounted for more than half of the reduction in per-customer consumption since 1990.
    - Standard natural gas furnace:
      - 1980: 65% AFUE
      - Today: 80% AFUE (1/3 of furnaces currently sold with AFUE 90%)
    - In 2007 the DOE increased the energy efficiency standards for residential furnaces and boilers: new standards to become effective in 2015.
      - Will save the equivalent of the total amount of energy consumed by 2.5 million American households in one year, or approximately 0.25 quadrillion (10<sup>15</sup>) Btus of energy, over a period of 24 years [from 2015-2038].
- Improved housing construction
  - ENERGY STAR® houses are at least 15% more efficient than houses built to 2004 standards.
  - In 2009, approximately 14% of homes built were ENERGY STAR®, while in 2000, approximately 1% of homes built were ENERGY STAR®.



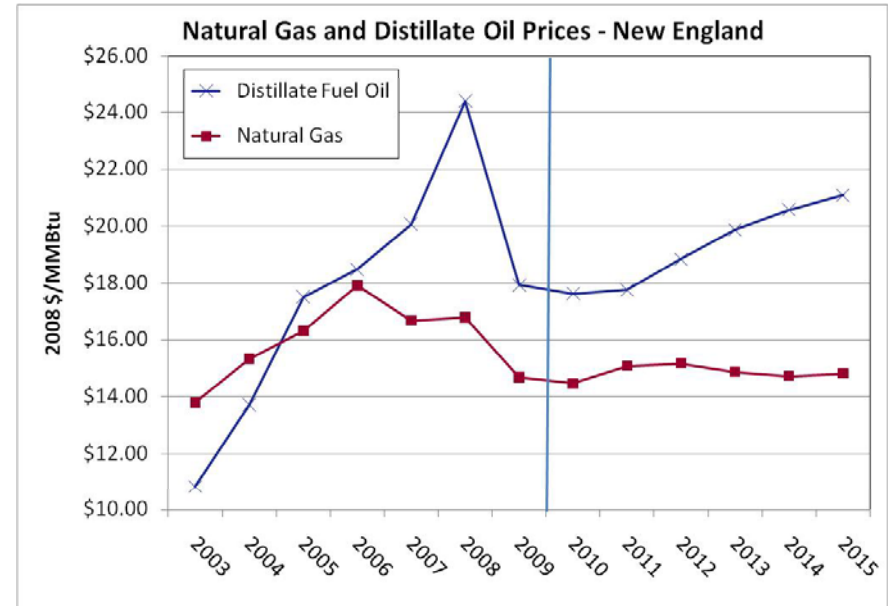
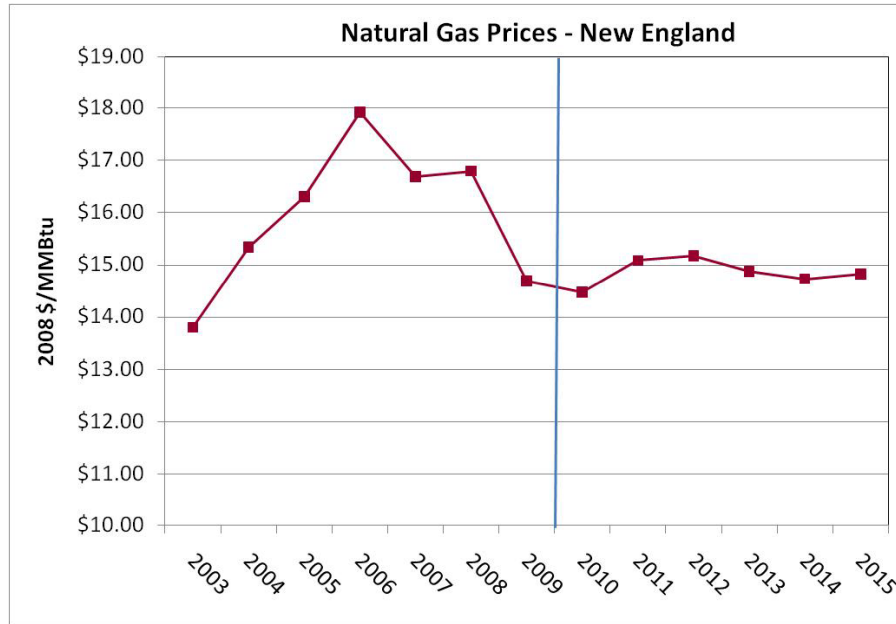
# Reasons for Historical Trends in Residential UPC – Economic / Demographic

*There are economic and demographic reasons for changes in residential UPC*



## Forecasted Trends in Residential UPC

*Forecasted natural gas prices and natural gas prices relative to oil prices suggest that the historical declines in use per customer may moderate in the future.*



## Implications of Declining Residential UPC

*To address the impact of declining use per customer on revenues, many states have implemented decoupling mechanisms.*

State	Natural Gas Decoupling	Cost Trackers
Maine	No	
Vermont	Yes: All rate classes	ARP includes several cost trackers
New Hampshire	No	EnergyNorth has limited cast iron and bare steel replacement capital cost tracker
Massachusetts	Yes: All rate classes	Targeted capital cost trackers; no approved Inflation / Expense cost tracker
Connecticut	Partial – SFV rates	
Rhode Island	By legislation: All rate classes	Targeted pipeline replacement capital cost tracker
New York	Yes (KEDNY and KEDLI for Res heat; NIMO for Res, small and medium C&I)	Targeted capital cost tracker for replacement of mains due to city/state construction requirements
New Jersey	Yes: All rate classes	Targeted capital cost tracker for accelerated replacement of high pressure cast iron mains



## Wrap up

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*Declining Average Demand seems to be here to stay*

- Either as a result of decoupling mechanisms or more frequent base rate cases, base rates will be increasing as a result of declining average use.
- Apparently, prices of supply cannot decrease enough to get us back to 2003 levels of demand
- Gas Equipment standards and Energy Efficiency programs will have ongoing impact on demand

*Questions?*

*Thank you for your time*

- If you would like a copy of this presentation or the supporting data, give me your business card and I will send you an email

