

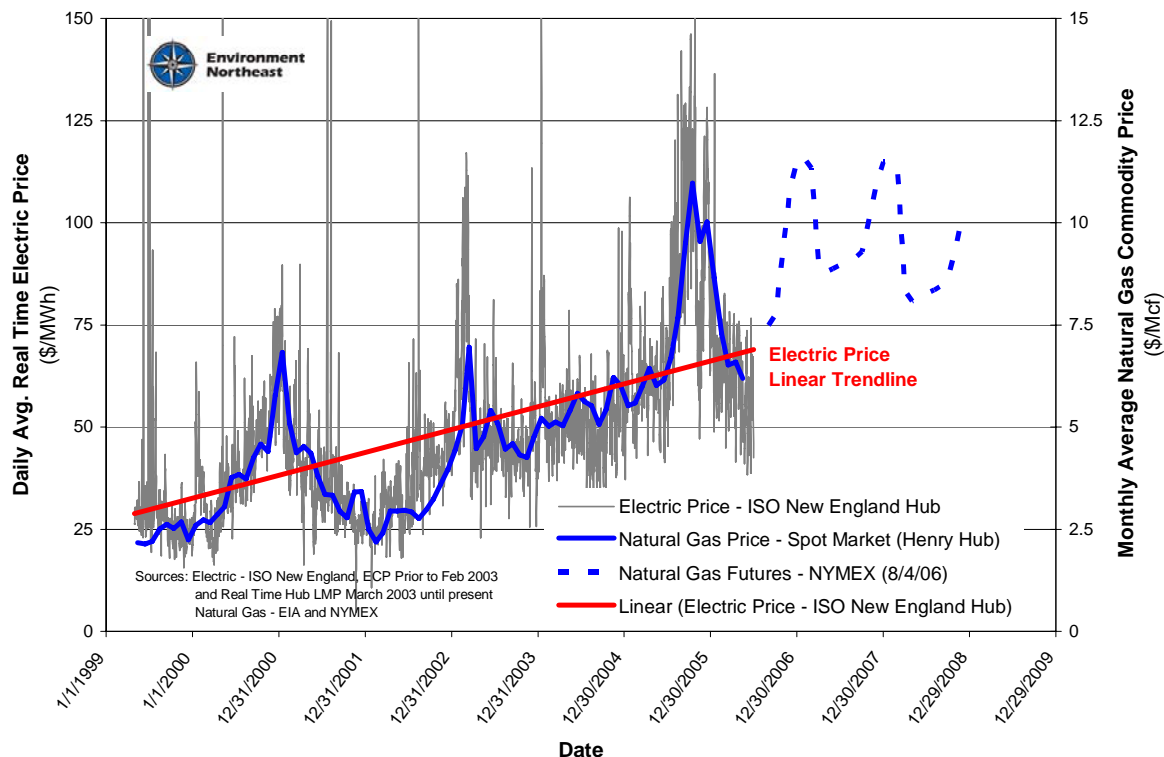
## Controlling Massachusetts' Energy Future

Escalating prices for electricity, natural gas and home heating oil are hurting consumers at every economic level and are diminishing the prospects for our state economy. Consider the following facts:

- The average household in Massachusetts has seen the commodity portion of their heating oil bill go from \$600 in 2003 to over \$1,200 this past year.
- Natural gas consumers have watched as the commodity portion of their bill has risen from around \$600 in 2003 to over \$850 last year.
- Electricity prices are up by more than 50% since 2002 and further increases on the way.
- The money that Massachusetts consumers spend on increased fuel costs flows directly toward energy producing states and foreign countries around the globe. Last year alone, this energy trade deficit for Massachusetts exceeded \$6.1 Billion.
- The following tables and graphs will help to illustrate the situation that we face as energy consumers here in Massachusetts and it will also illustrate how investments in energy efficiency are the best way to take control of Massachusetts' energy future and lower costs for consumers, create local jobs and recapture billions of dollars that we lose each year that can be reinvested in our State's economy.

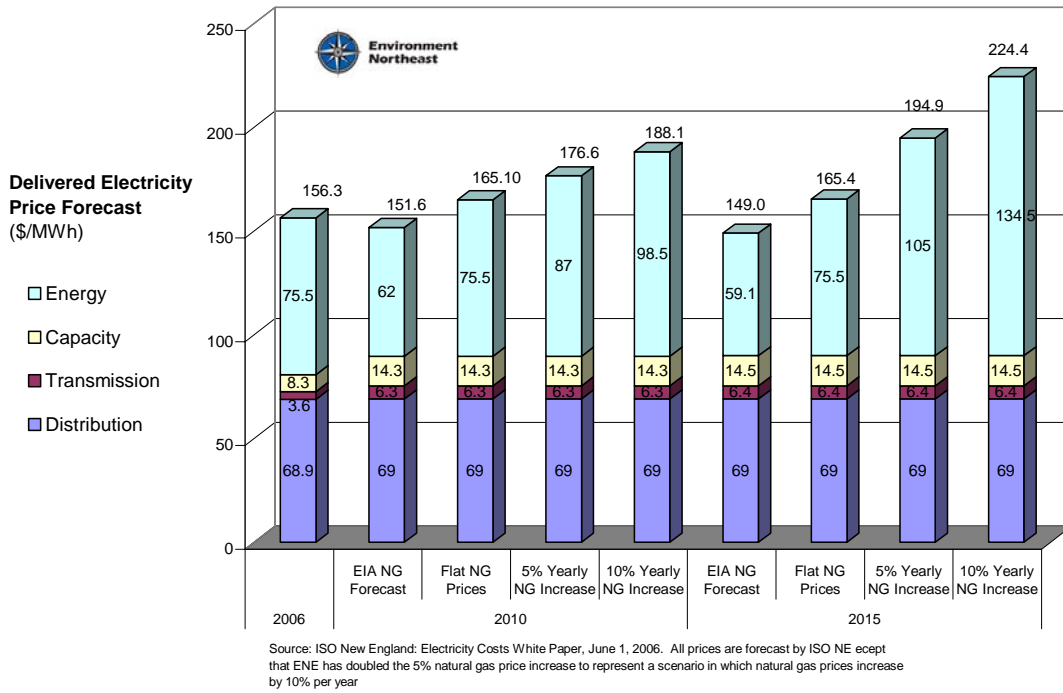
### ISO New England Historical Wholesale Electric Prices vs. Natural Gas Commodity Prices

There is a clear correlation between rising electric prices and natural gas prices (natural gas and gas/oil power plants set the price for electricity 87% of the time in New England), with the price of oil & natural gas being outside of the state's control and likely to stay high. Weather is the key driver of peak demand days and short-term expensive price spikes.



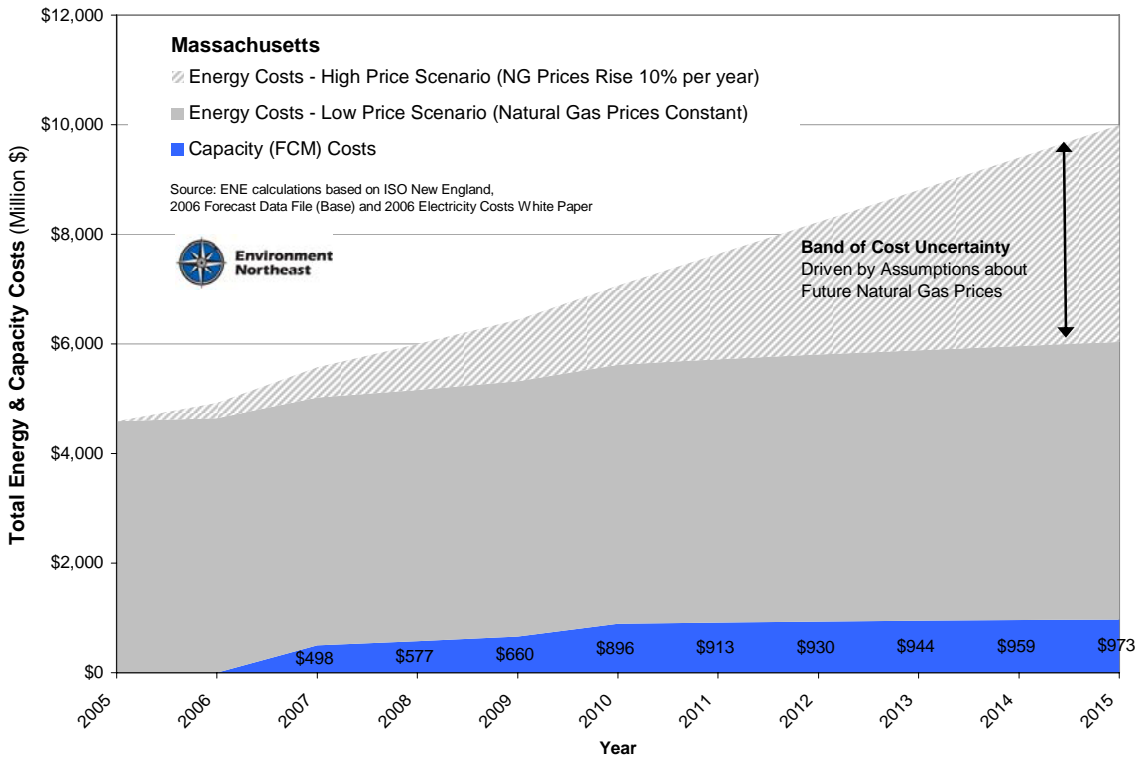
### Projections of Future Electricity Prices

ISO New England in their 2006, Electricity Costs White Paper, indicates that the primary uncertainty associated with future electric prices is the price of natural gas(NG); the following shows four electric price scenarios with natural gas prices declining, staying flat, increasing by 5% per year, and by 10% per year. The price of natural gas is likely to be as high, or higher than today for the foreseeable future (see futures prices in the previous figure). In 2003, customers were paying \$110/MWh (11 cents/kWh) for electricity – those days are over as future price estimates range from \$149 to \$224 per MWh.



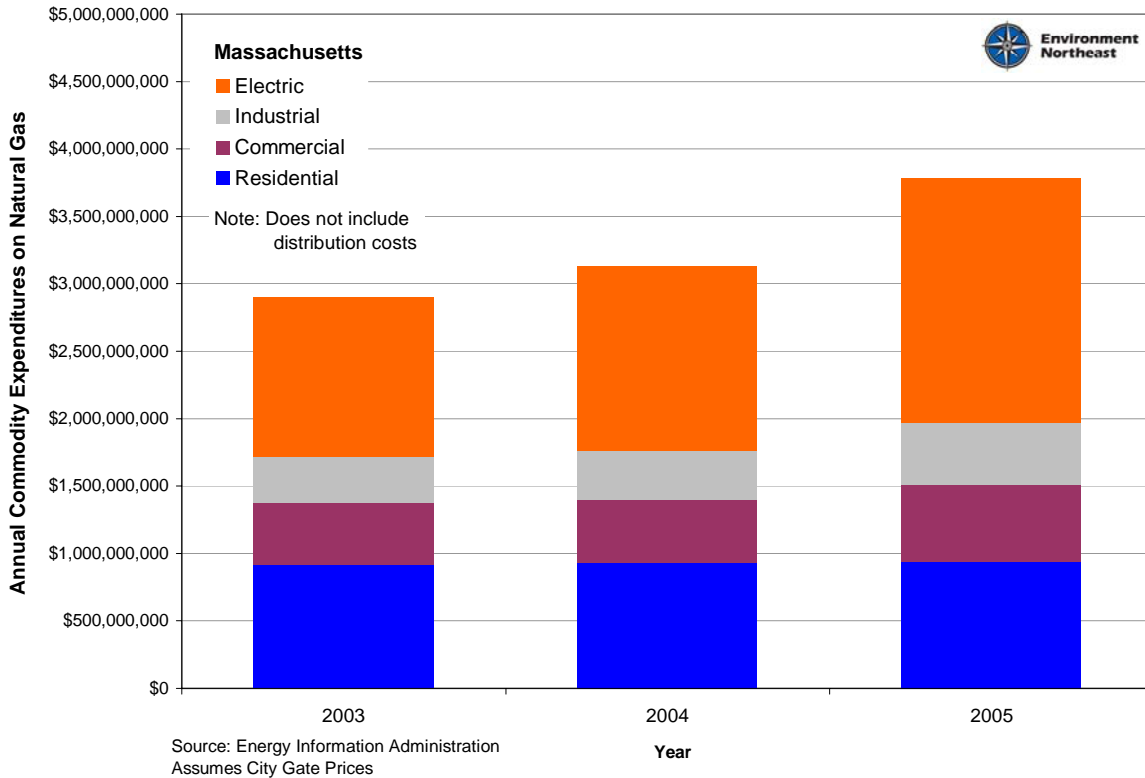
### Projections of Future Massachusetts Electric Energy & Capacity Costs

Future electric energy costs are uncertain with costs driven by natural gas prices and changes in energy consumption; capacity will cost MA significant amounts of money in the coming years, but energy costs in the billions of dollars will dwarf this. (Note: this chart does not include transmission & distribution costs)



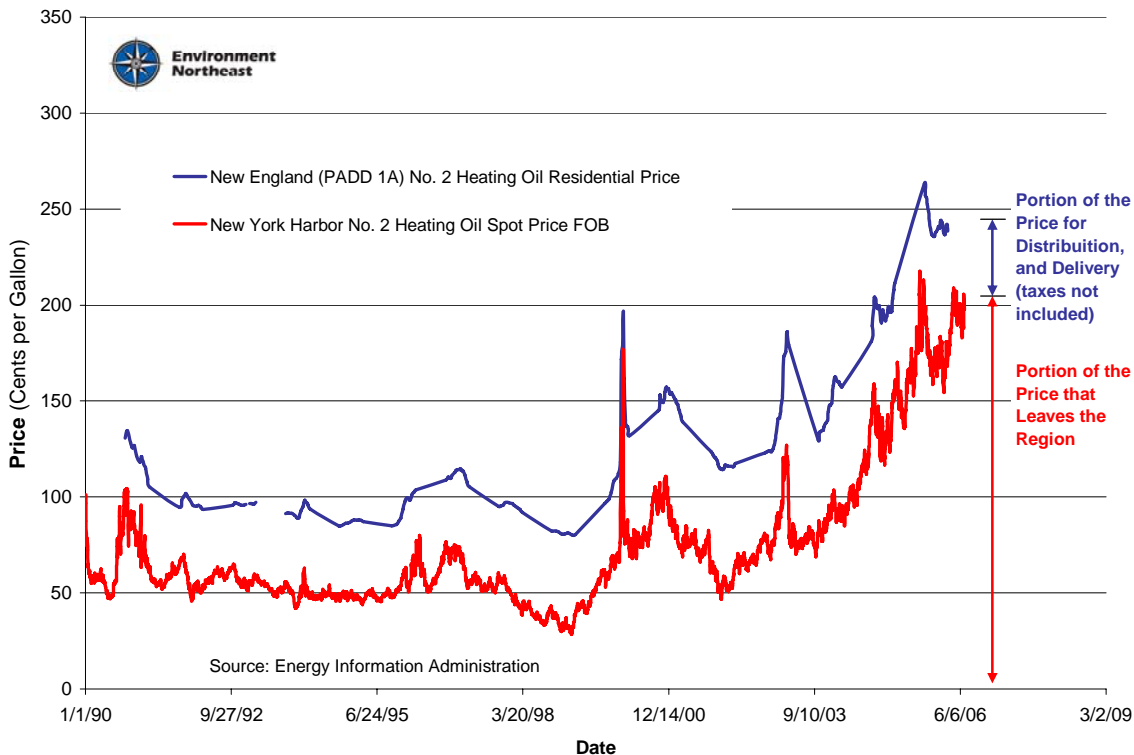
## Massachusetts Spending on the Commodity Portion of Natural Gas

Natural Gas prices are up significantly over the past few years and every dollar the state spends on fuel (not distribution costs) leaves the region and is no longer available to invest in the state economy. As a result, the natural gas trade imbalance has gone from \$2.9 billion in 2003 to \$3.8 billion in 2005; the average annual residential natural gas cost, for the commodity only, in Massachusetts has gone from approximately \$600 in 2003 to \$850 in 2005 (commodity only).



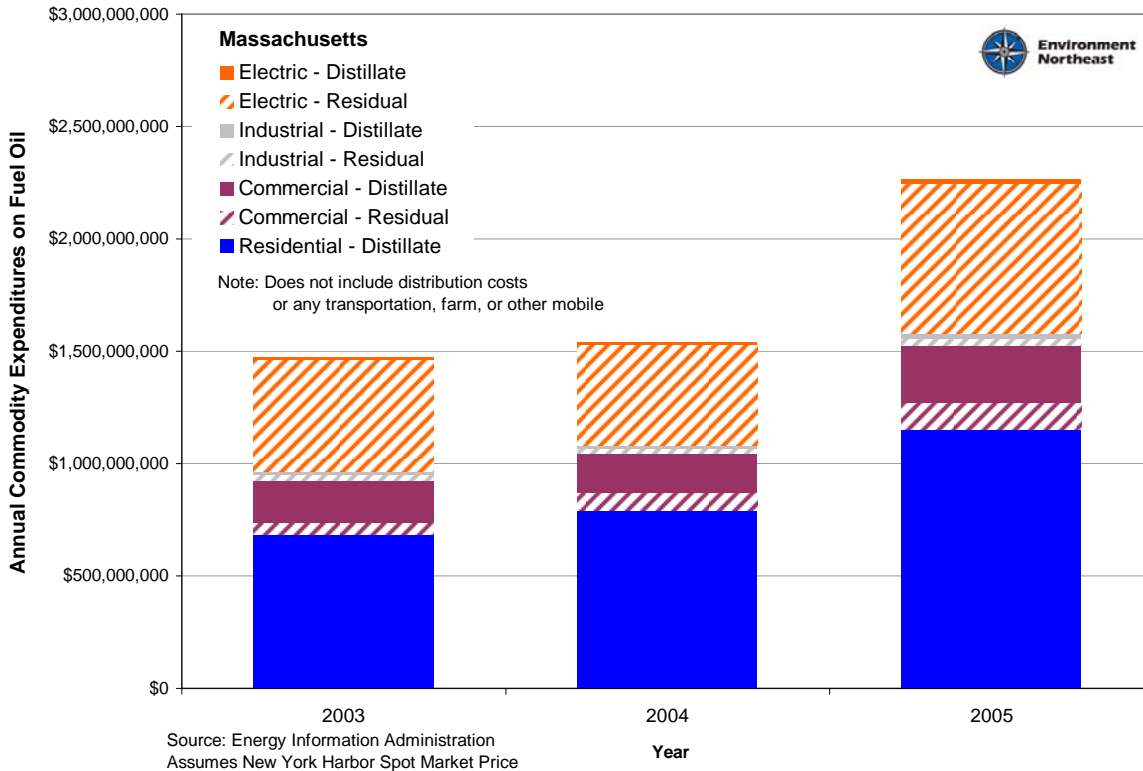
## New England Fuel Oil Price Trends

As the price of fuel oil also rises, the majority of these dollars are also leaving the region. While commodity costs have skyrocketed, the cost of distribution and delivery has remained relatively constant.



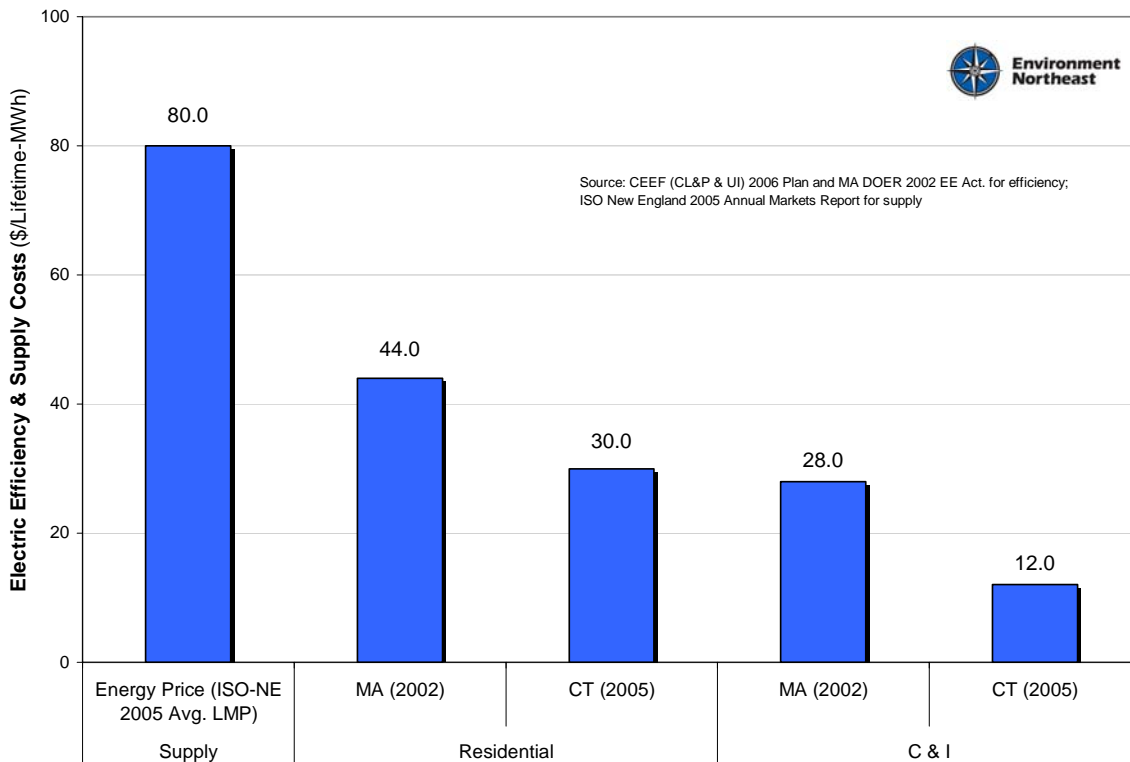
### Massachusetts Spending on the Commodity Portion of Fuel Oil (Stationary Uses)

Fuel Oil prices have also skyrocketed in the past few years with every dollar the states spends on fuel (not distribution costs) also leaving the region and no longer available to invest in the state's economy; the fuel oil trade imbalance has gone from \$1.5 billion in 2003 to \$2.3 billion in 2005; the average annual residential heating oil bill in Massachusetts, for the commodity only, has gone from approximately \$600 in 2003 to \$1,200 in 2005 (commodity only).



### Energy Efficiency is the Answer - Electric Generation vs. Energy Efficiency Costs

The figure below compares the cost to save consumers a unit of energy versus to cost to supply an additional unit of energy; Massachusetts spends over \$4.6 Billion dollars on supply of electric energy while investing only \$120 Million in energy efficiency; we are not investing in the cheapest resource.



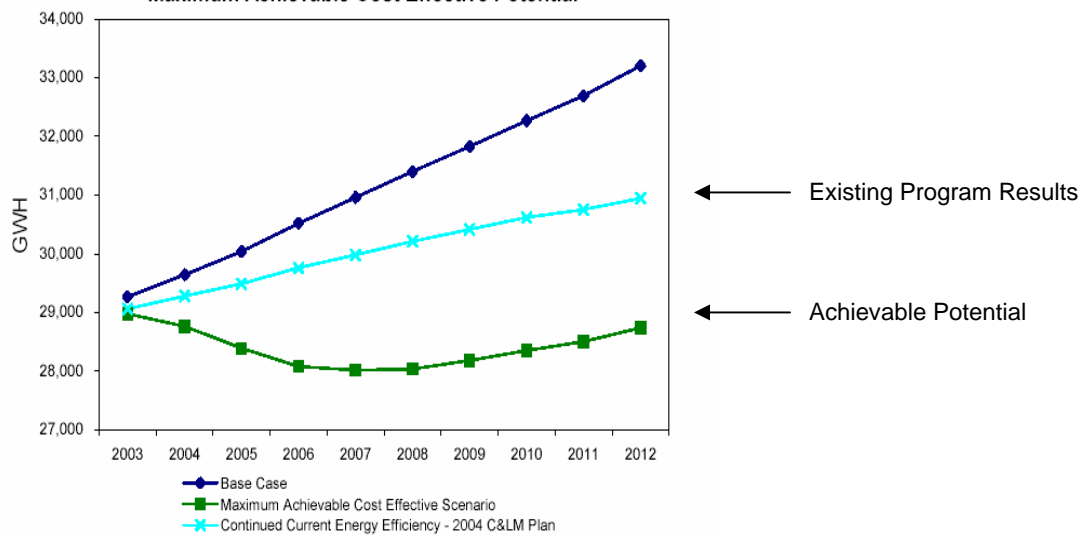
## 2002 Results – Massachusetts Electric Efficiency Programs<sup>1</sup>

<b>Annual Investment:</b>	\$113 million		
<b>Energy Savings:</b>	3,427,000 MWh (Lifetime) ; 241,000 MWh (Year 1)		
<b>Demand Reduction:</b>	48,000 kW		
<b>Economic Benefits:</b>	\$250 million in avoided energy bills (Lifetime); \$18 million in avoided energy bills (Year 1) Generated \$3 in lifetime savings (today's dollars) for every \$1 spent (C&I) Created approximately 1,778 non-utility jobs \$139 million increase in Gross State Product (2002 alone) \$62 million increase to disposable income (2002 alone)		
<b>Customer Assistance to:</b>	219,333 residential customers 2,897 small business customers 2,955 commercial & industrial customers		
<b>Emissions Reductions:</b>	Pollutant	2002	Lifetime
	CO2	161,205 tons	2,256,870 tons
	NOx	135 tons	1,890 tons
	SOx	394 tons	5,516 tons
<b>Programs Include:</b>	Retrofit programs/home services, new construction, market products and services, educational programs, and load management programs.		

### Energy Efficiency is the Answer – There is a Large Untapped and Low-cost Resource

The maximum achievable electric efficiency potential report for Connecticut, commissioned by the CT Energy Conservation Management Board, indicates that they can reduce load growth in the state to zero and save consumers \$1.8 billion; all of this efficiency resource is available at lower cost than supply and only becoming more cost-effective as energy prices rise.<sup>2</sup> All states in New England have a similar untapped efficiency resource.

Figure 1-2 - Connecticut Energy Forecast (GWh):  
Base Case, Continued Current Energy Efficiency, and  
Maximum Achievable Cost Effective Potential



<sup>1</sup> MA DOER, "2002 Energy Efficiency Activities," Summer 2004.

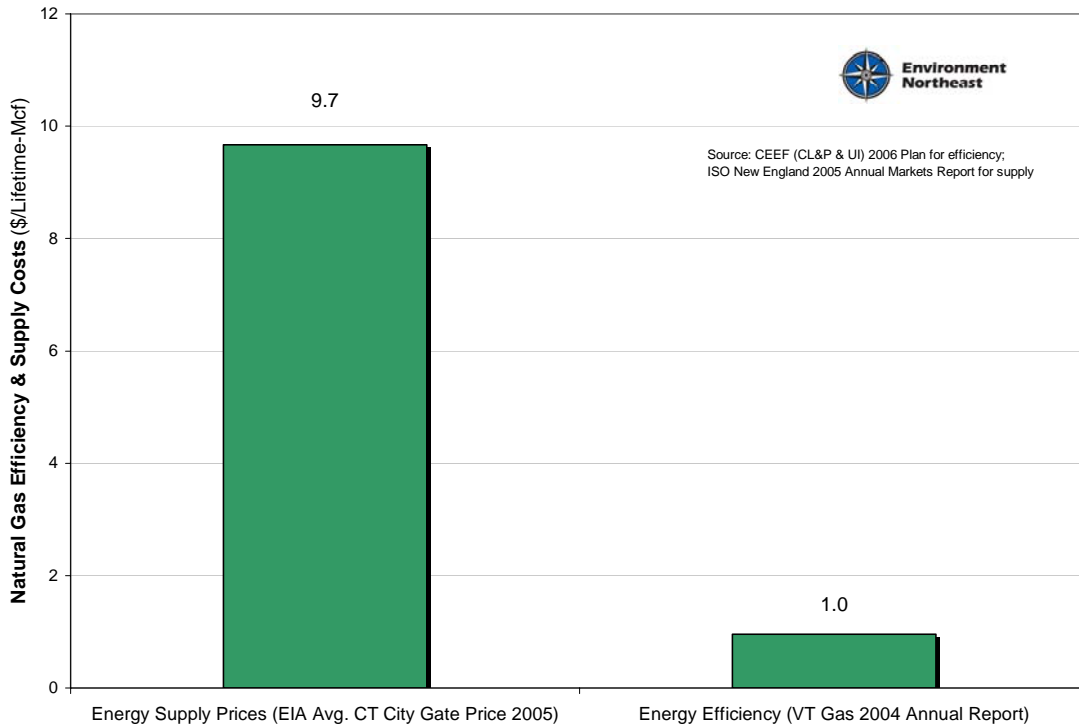
<sup>2</sup> Source: GDS Associates/Quantum Consulting, 2004, Maximum Achievable Potential Report, available at the ECMB web site :

<http://www.state.ct.us/dpuc/ecmb/>

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## Energy Efficiency is the Answer – Natural Gas Supply vs. Energy Efficiency Costs

The figure below compares the cost to save consumers a unit of energy versus to cost to supply an additional unit of energy; with the increases in natural gas supply costs, energy savings can now be delivered for a fraction of the cost of additional energy supply, keeping energy dollars at home. Massachusetts existing natural gas efficiency programs should deliver energy savings at a similar cost.



## Energy Efficiency is the Answer – Natural Gas Efficiency Programs Deliver

Massachusetts' natural gas efficiency programs should deliver benefits similar to those seen in Vermont.

2004 Program Results – Vermont Gas Systems, Inc Demand Side Management Program <sup>3</sup>		
Annual Investment:	\$1.1 million 1.8% of Total Revenue (2003)	
Energy Savings:	57,000 Mcf (Annual) 1,168,000 Mcf (20 Year Lifetime)	
Demand Reduction:	480 Mcf Peak Day Savings	
Economic Benefits:	\$ 390,000 Saved (Annual) \$ 8 million Saved (Lifetime, not discounted)	
Customer Assistance:	Programs open to all customer classes on system 1,640 homes and businesses installed energy efficiency measures	
Emissions reductions (Tons):	<u>Pollutant</u>	<u>2004</u>
	CO2	3,300 tons
	NOx	2.6 tons
	SOx	1.1 tons
Awards:	VGS received the EPA/DOE Energy Star <i>Leadership in Energy Efficiency</i> in 2004. In recent years, more than 50% of residential new construction in the utility's service territory has met ENERGY STAR Qualified Home standards.	

<sup>3</sup> Source: Vermont Gas Systems, Inc., "2004 Annual Report: Demand Side Management Programs," 2005, p. EXE-1. August 22, 2006