
Electric & Natural Gas Efficiency Potential In New York

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Energy Efficiency Portfolio Standard Overview Forum
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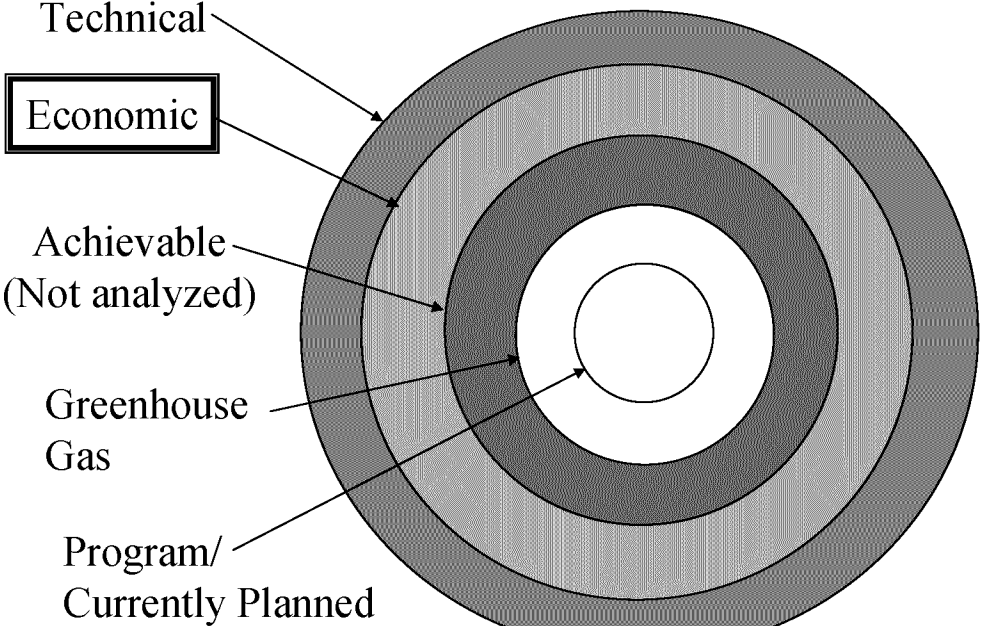
Study Background

- ❖ Optimal evaluated the cost-effective efficiency resource potential in New York for electricity and natural gas
- ❖ Electric efficiency and renewables:
 - ❖ Technical and Economic potential
 - ❖ Greenhouse Gas targets and Currently Planned Initiatives scenarios
 - ❖ Completed in 2003
- ❖ Natural gas efficiency:
 - ❖ Economic potential
 - ❖ Program scenario
 - ❖ Completed in 2006

Study Scopes

- ❖ End-use efficiency improvements in buildings, equipment and systems with no degradation in energy service level or quality
- ❖ Residential, commercial and industrial sectors
- ❖ All electric and gas building end users (regardless of contracting mechanisms and suppliers)
- ❖ No fuel switching, electric generation or CHP
- ❖ No load shifting, curtailment or interruption

Potential Scenarios



Economic Perspectives

Total Resource Cost and Benefits (TRC Test)

- ❖ Measure of economic efficiency (improvement in economic welfare)
- ❖ Not distributional equity (e.g., not the utility test, or non-participant test) — although gas and electric energy systems test were also reported
- ❖ Technology is cost-effective if and only if:
 - *Benefits – Costs = Net Benefits > 0*
 - *Benefit/Cost Ratio > 1.0*
- ❖ Consistent with NY PSC policy

Economic Perspectives

Total Resource Cost

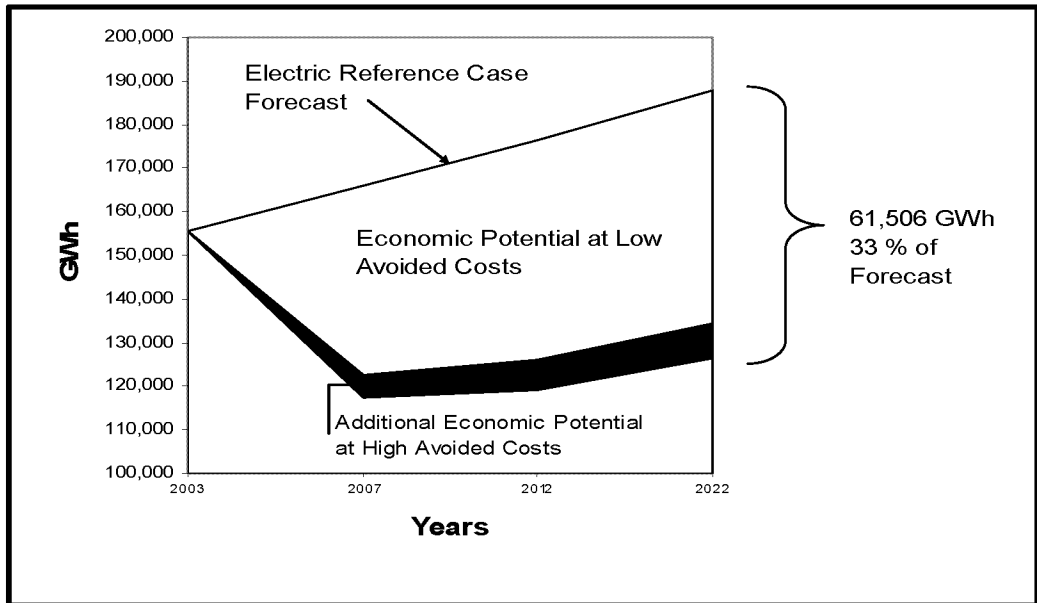
Present value of total costs of resources to society, including incremental equipment and labor costs, O&M costs, increases in energy or water costs, and program non-measure costs

Total Resource Benefits

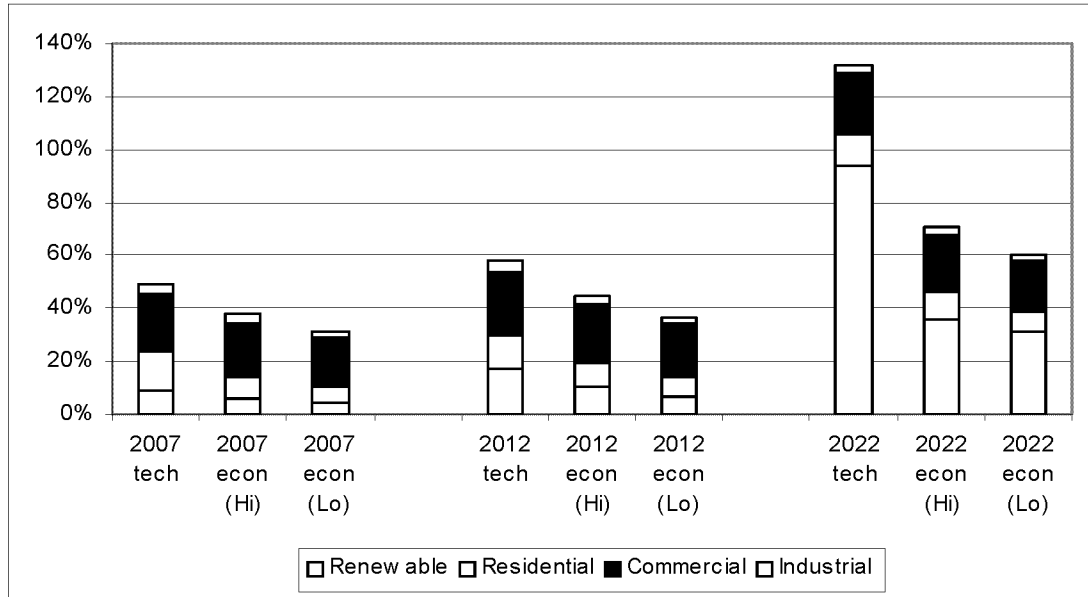
Present societal value of avoided electricity, natural gas, water and other resource costs resulting from efficiency, reductions in O&M costs

**Summary of
Electric Efficiency
Economic Potential
Results**

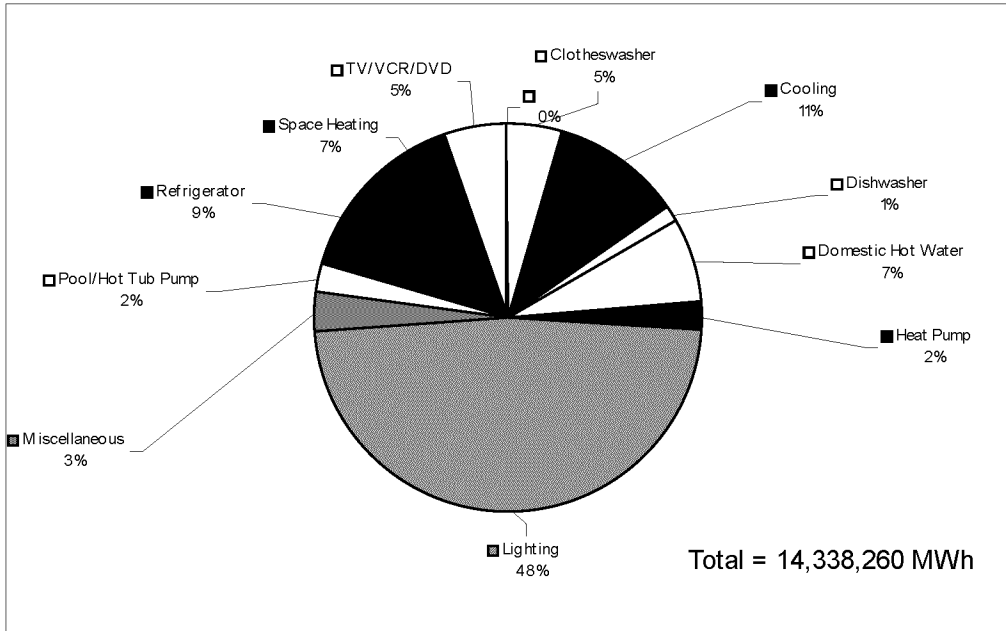
Electric Forecast with and without Economic Potential



Technical & Economic Potential by Sector as % of Forecast MWh Sales



Residential Electricity Potential (2012 Economic Potential (MWh) w/High Avoided Costs)

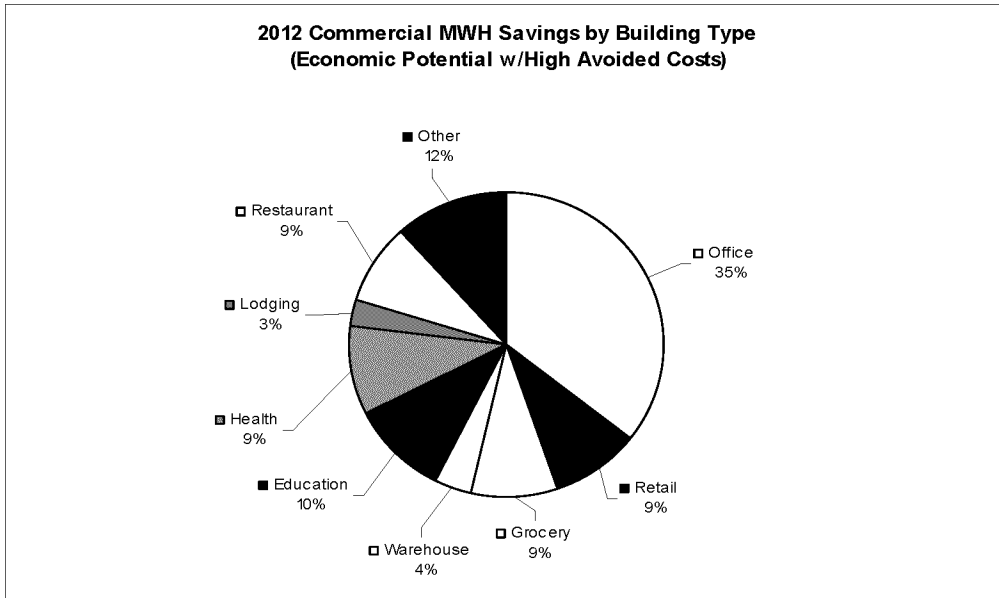


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Commercial Electricity Potential

(2012 Economic Potential (MWh) w/High Avoided Costs)

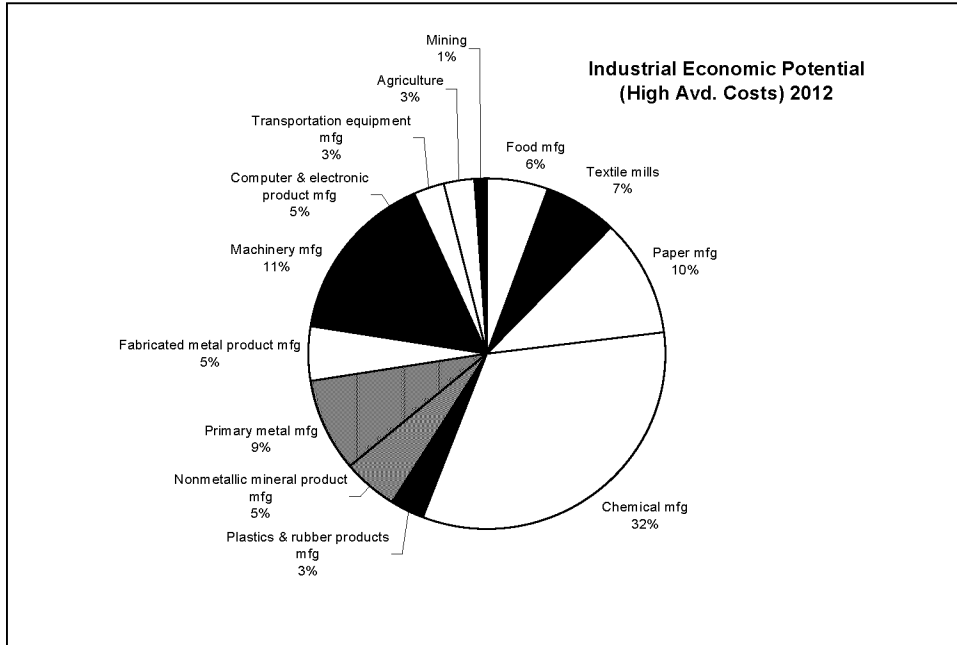


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Industrial Electricity Potential

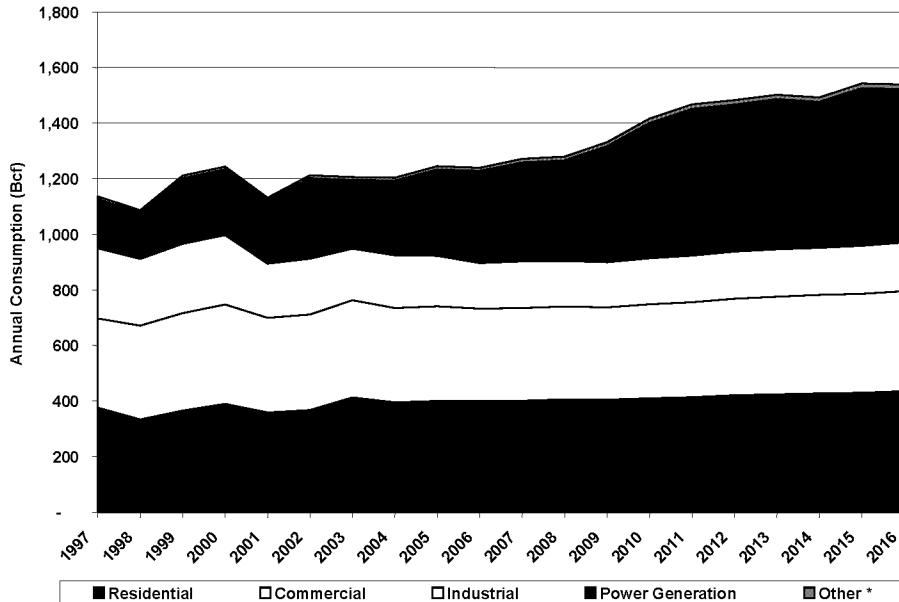
(2012 Economic Potential (MWh) w/High Avoided Costs)



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**Summary of
Gas Efficiency
Economic Potential
Results**

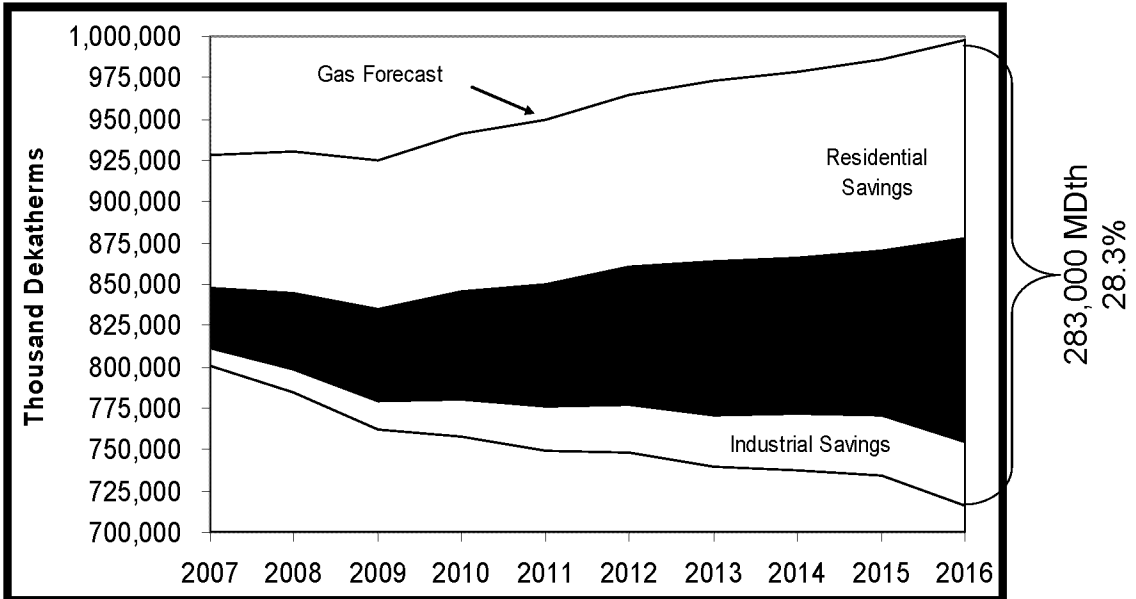
New York Natural Gas Demand Forecast



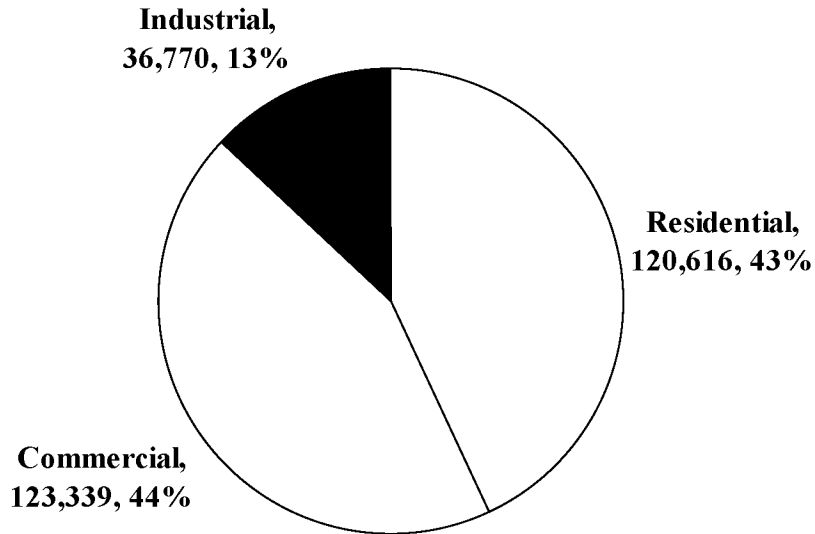
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Natural Gas Forecast With and Without Economic Potential Savings



Economic Potential by 2016 by Sector



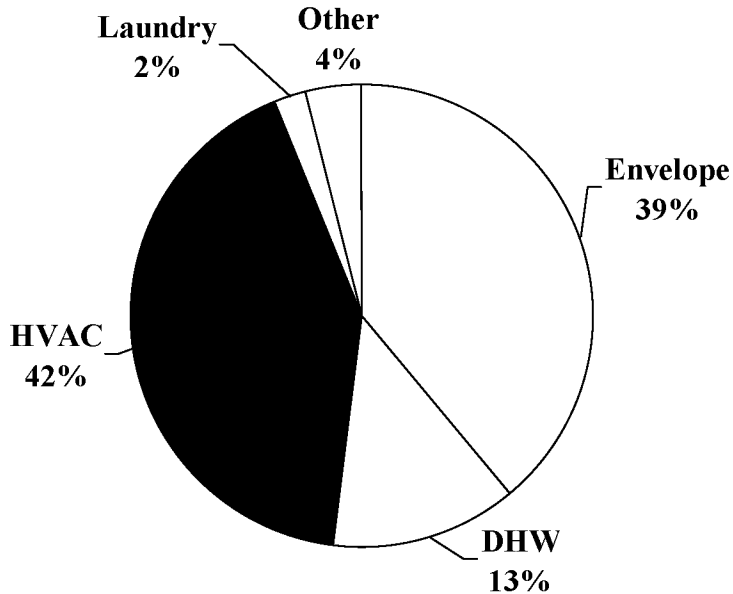
Total: 283,000 MDth, 28.3% of forecast

2016 (10 year) Gas Economic Potential Total Resource Economics

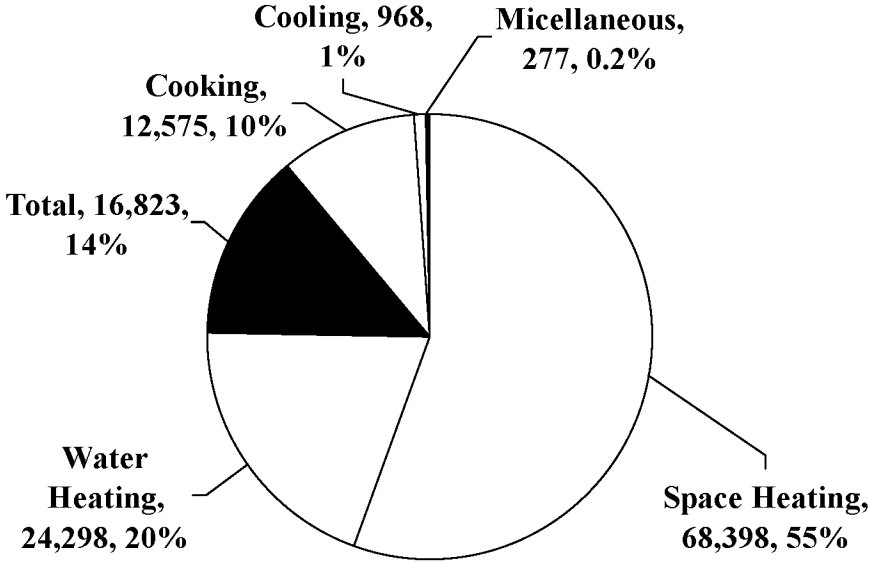
Avoided Cost Scenario	Gross Benefits	Costs	Net Benefits	B/C Ratio
	(\$Billion)	(\$Billion)	(\$Billion)	
Reference Avoided Costs	\$40.3	\$13.9	\$26.4	\$2.9
Low Avoided Costs	\$30.5	\$11.9	\$18.6	\$2.6
High Avoided Costs	\$49.5	\$14.8	\$34.7	\$3.4

(PV, 2005\$ - Not Including Price Effects)

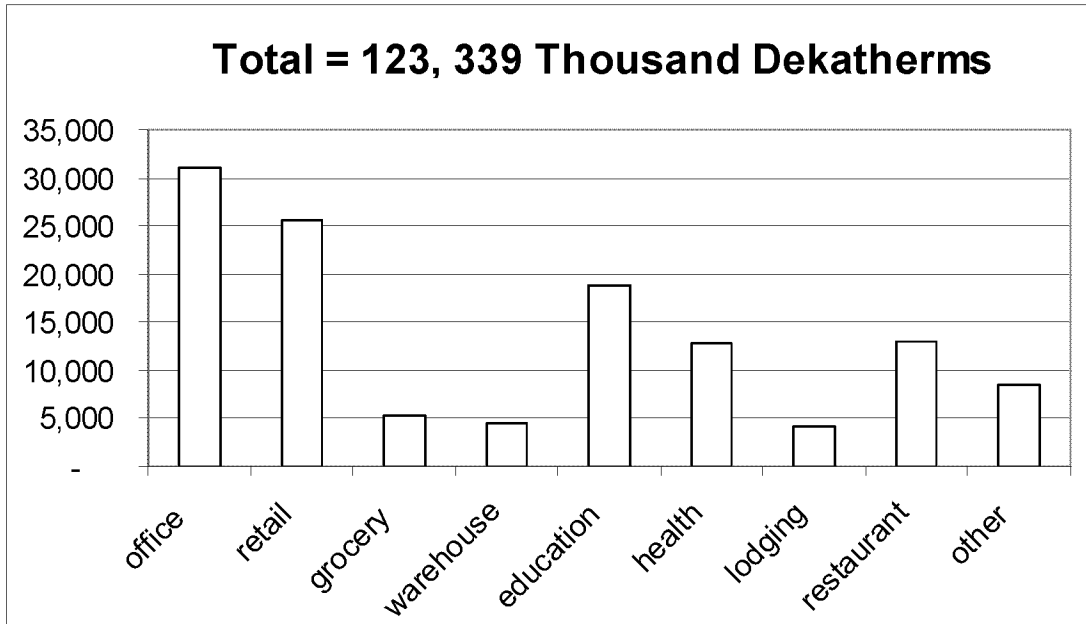
Residential Economic Potential by End Use



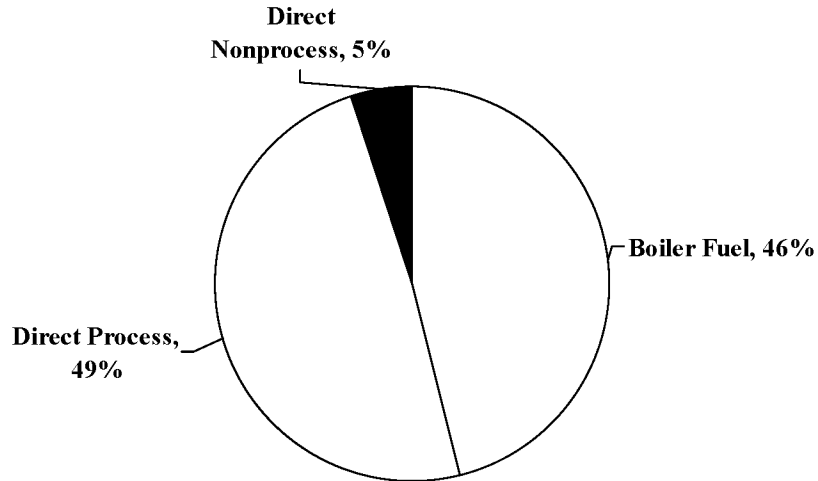
Commercial Economic Potential by End Use



Commercial Economic Potential by Building Type



Industrial Economic Potential by End Use



Study Conclusions

- ❖ Large economic efficiency savings are available at costs less than traditional supply.
 - ❖ Electric \cong 28% (low AC) - 33% (hi AC)
 - ❖ Natural gas \cong 28%
- ❖ Capturing the majority of economic savings can be done at costs substantially lower than current and forecast supply costs.
- ❖ Large consumer benefits from reduced consumption and potentially reduced supply costs.

Capturing Achievable Efficiency

- ❖ A large portion of the economic potential can be captured very cost-effectively
- ❖ No single bullet — will require numerous strategies and services
 - ❖ Avoid “siloiing”
 - ❖ Develop comprehensive portfolios addressing all important markets
 - ❖ Ensure coordination and integration — between administrators and fuels
 - ❖ Focus on customer service, don't establish barriers to simple, comprehensive, one-stop shopping services