

What More Can Maine do with Energy Efficiency?

William S. Cohen Papers Forum

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<http://www.maine.gov/mpuc/>

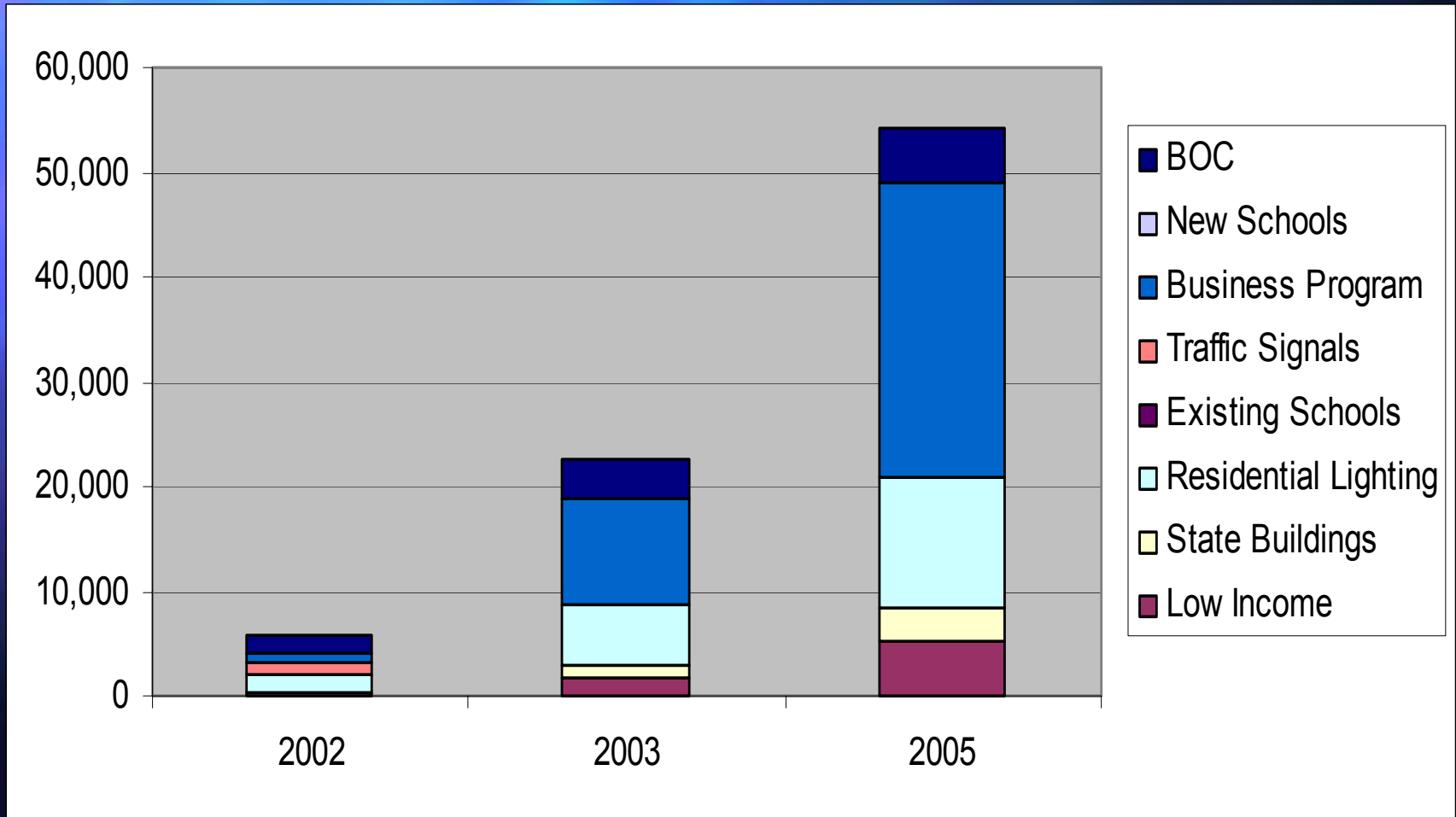
Plenty !

- Eliminate load growth & need for new power plants at 1/2 to 1/3 the cost of generation
- Reduce demand for natural gas
- Improve the environment
- Benefit the economy

Efficiency Maine's current Programs:

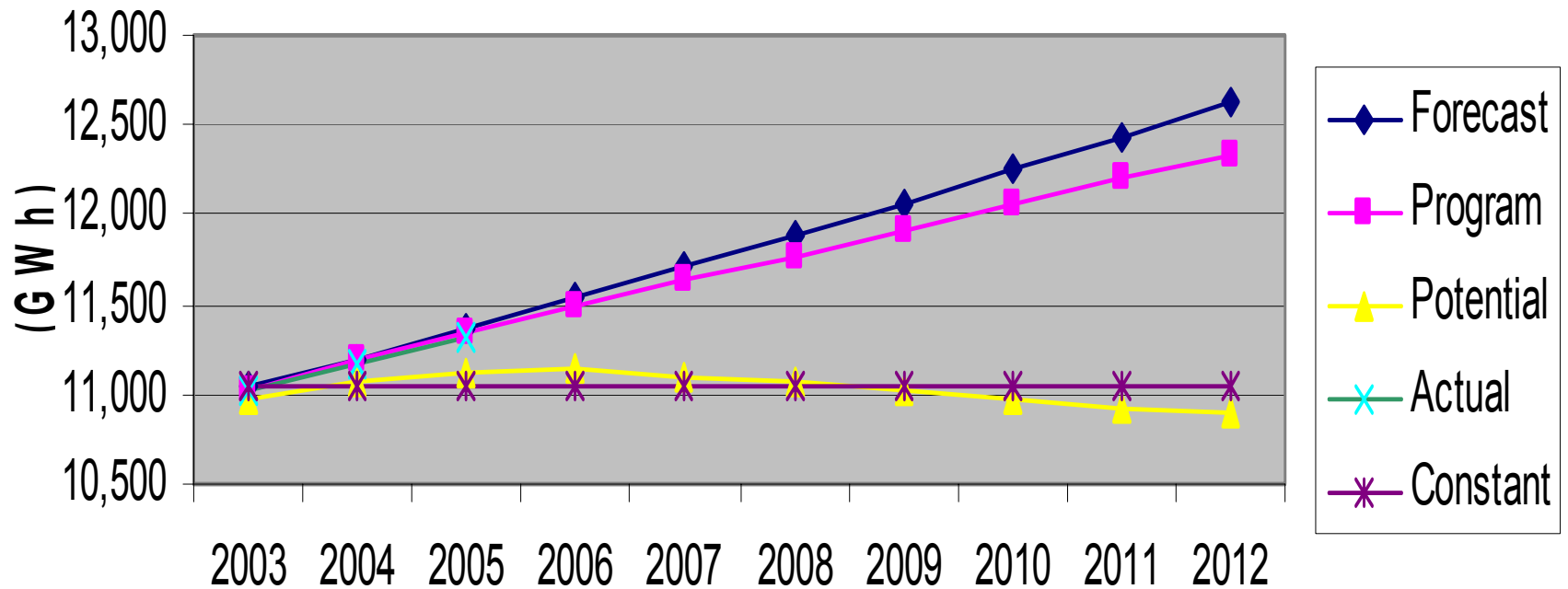
- Available to every consumer in the State
 - Residential, Low Income, Business, Schools, Municipalities, and Non-profits
 - Funded through electric bills ~ \$9/hhld
- Budget ~\$10 million in '05, expected to grow to ~\$15 million in '09
- Current funding achieves 1/6 of achievable potential available through programs

Current Programs



What more can Maine do?

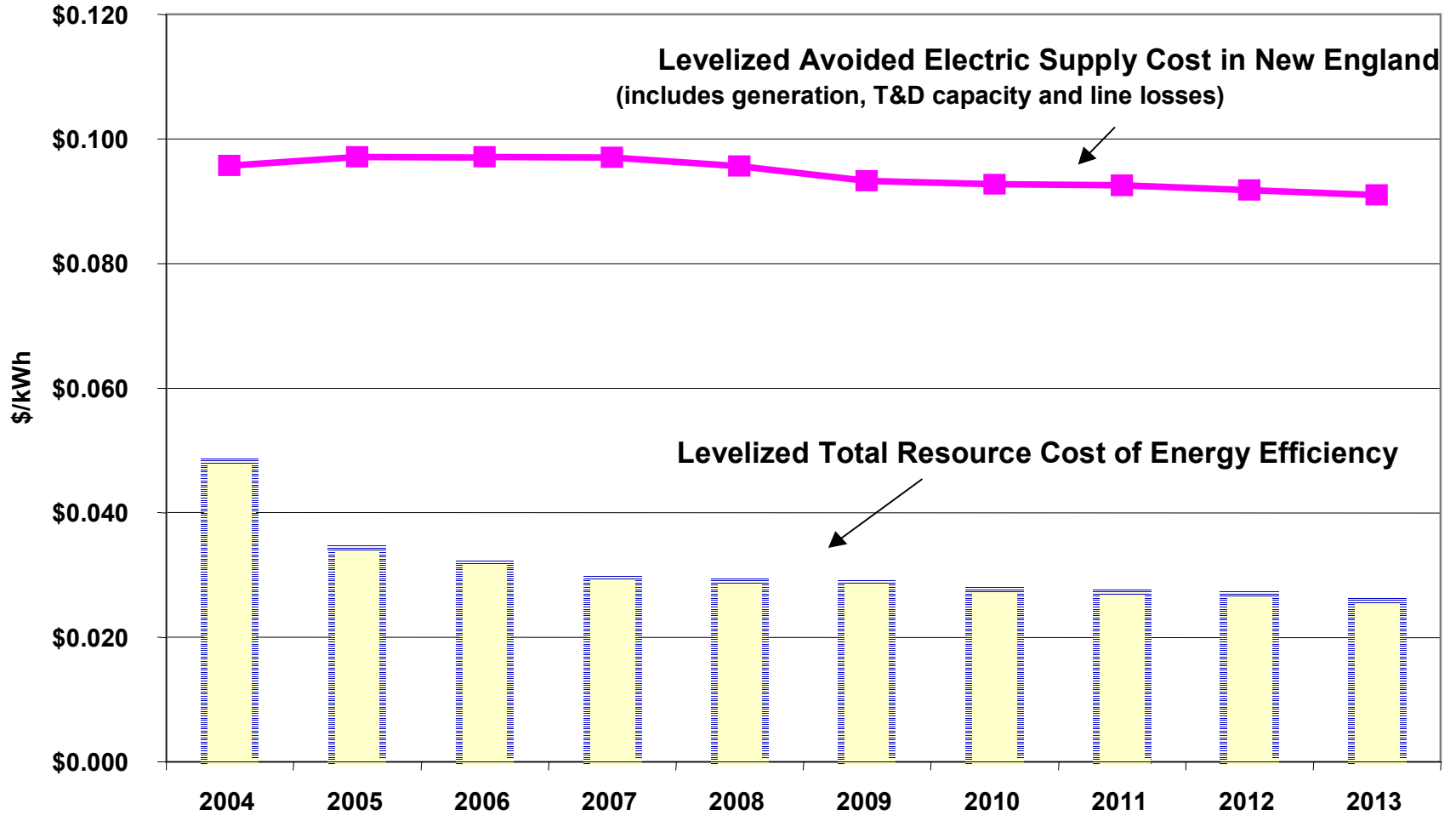
Maine's Efficiency Programs vs. Potential



Energy efficiency costs less than energy supply

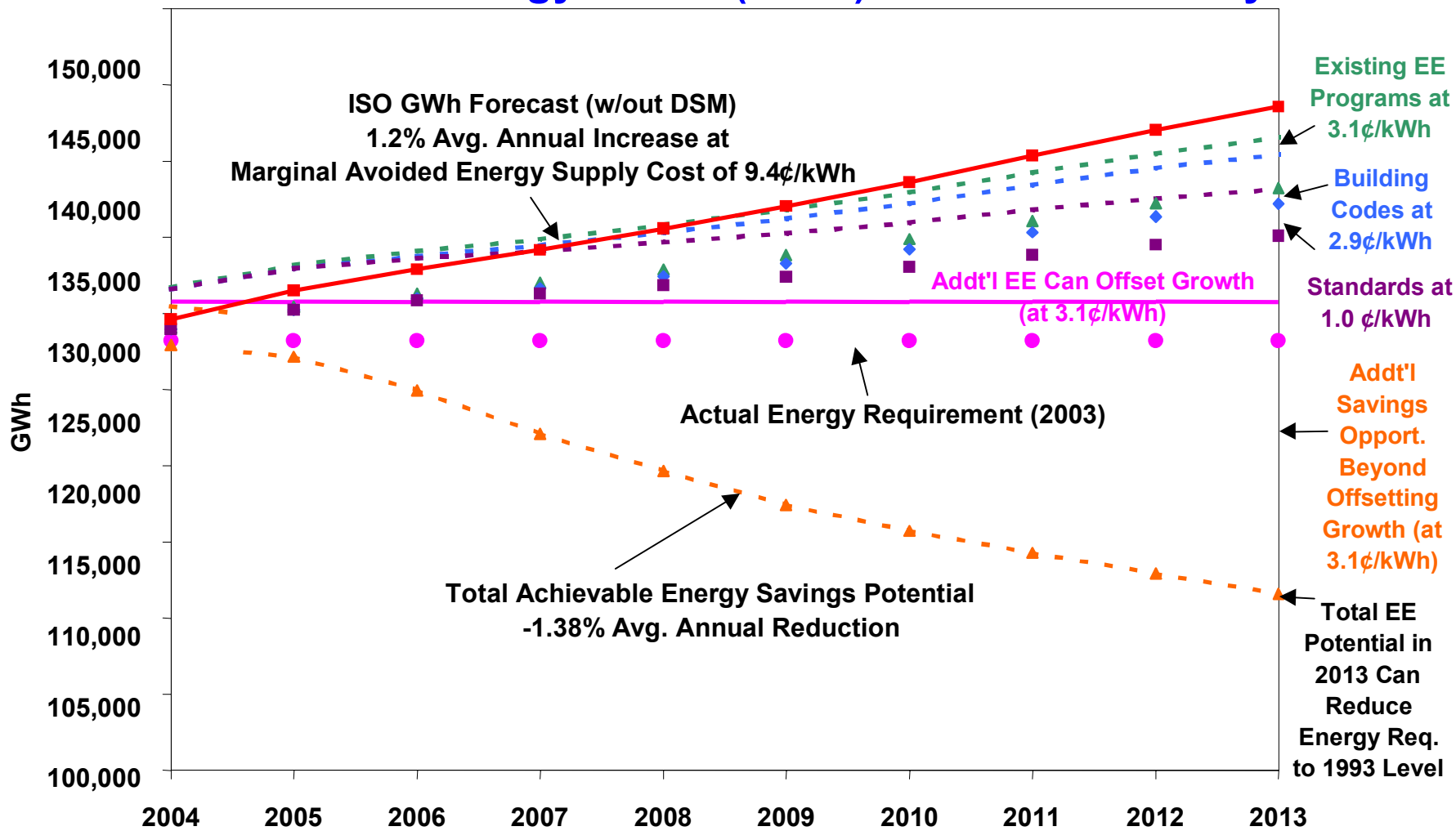
- Cost and savings data from actual efficiency programs are 1/2 to 1/3 the cost of the alternatives:
 - Avoided power plants
 - Avoided investments in transmission and distribution
 - Reduced line losses (I^2R)

Energy Efficiency is Cheaper Than Supply



**New England can do better
working as a region**

Efficiency Programs Could Offset New England's Forecasted Energy Needs (GWh) Until 2013 and Beyond



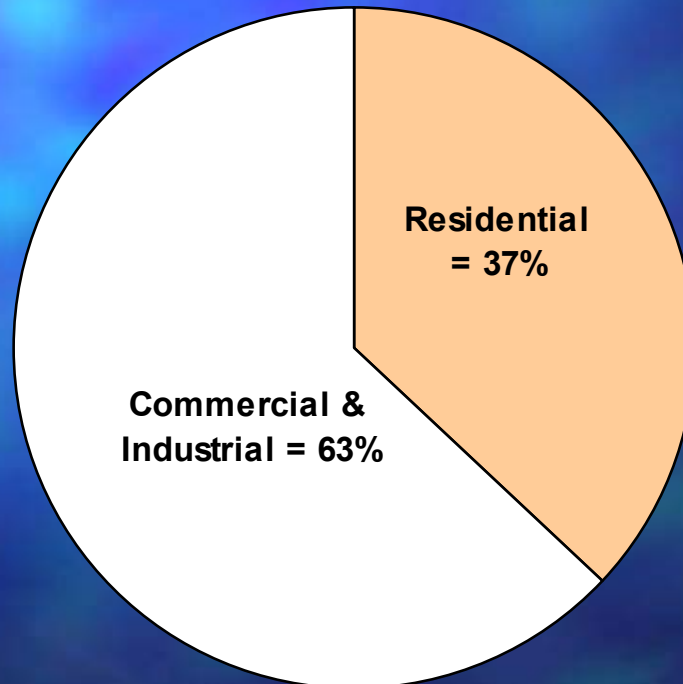
Estimates are conservative

- They don't include advances in technology
- They don't assume we get better at running programs (use data from existing programs)
- They don't include the effect of better practices such as:
 - Designing facilities as if energy really mattered
 - Operating facilities to maintain optimal system performance

We know the major "Reservoirs" of Achievable EE Potential

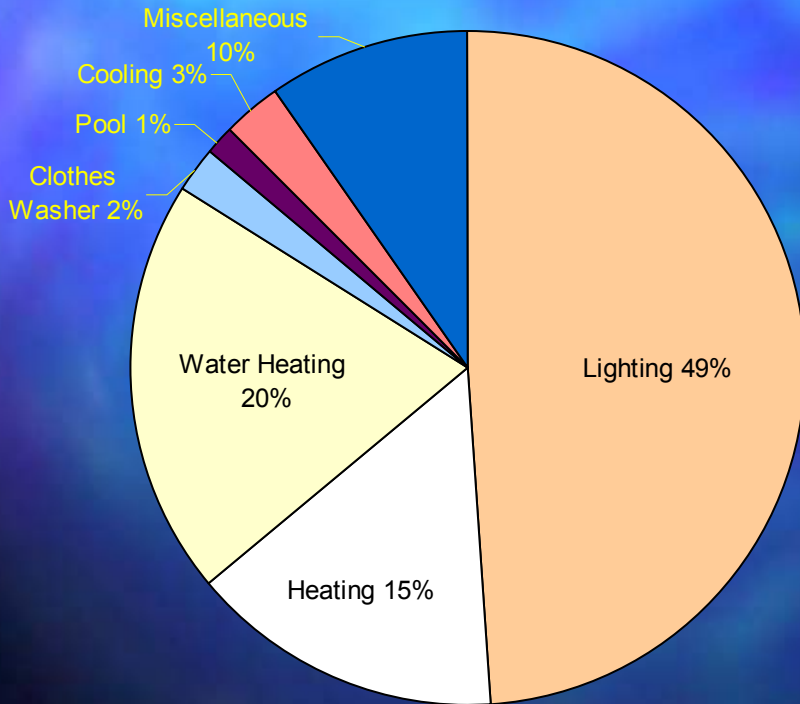
Residential Savings = 12,745 GWH

C&I Savings = 21,630 GWH

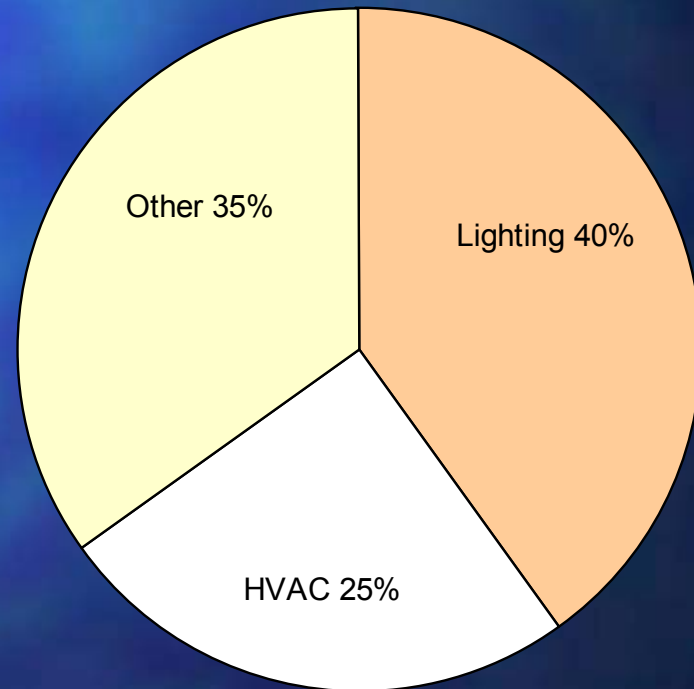


We know the Major Opportunities in Each Reservoir

Residential Savings



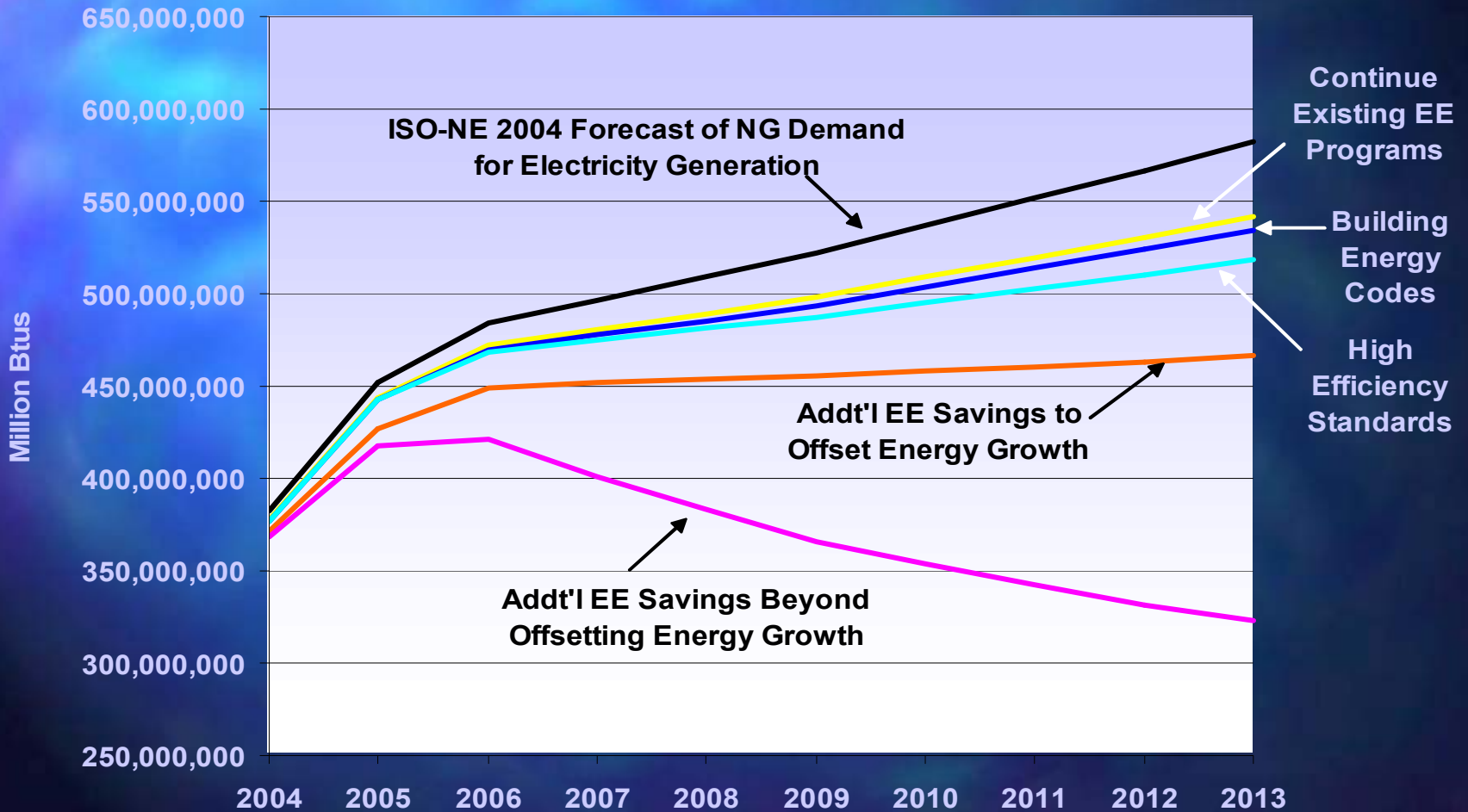
C&I Savings



Energy savings multiply at the generator

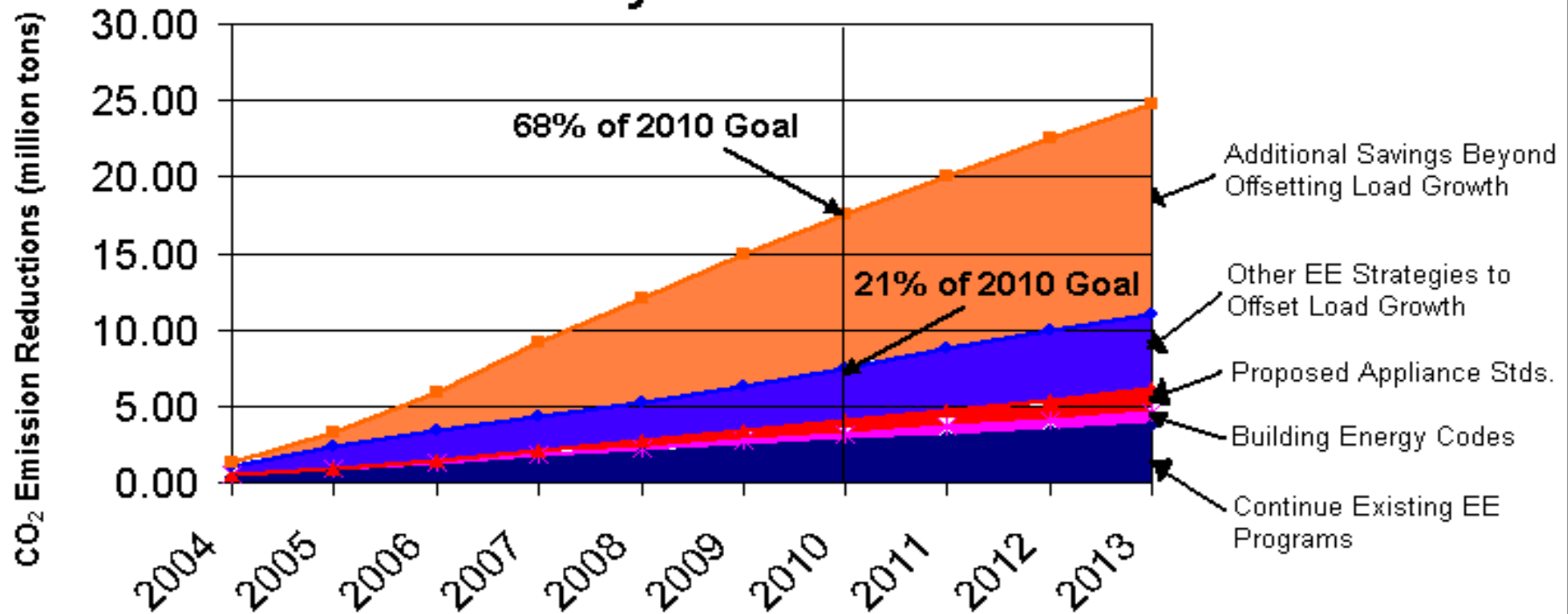
- A light that saves 45 watts in a house avoids
 - 8% distribution loss $1.08 * 45 = 48.6$ watts
 - 4% transmission loss $1.04 * 48.6 = 50.5$ watts
 - 50% generation losses $1.5 * 50.5 = 76$ watts
- 1.7 times the energy use at the generator
- **Through this effect efficiency programs could reduce our demand for natural gas beyond what it is today.**

Electric Efficiency can reduce gas demand for electric generation by 44%



Environmental Benefits:

Cumulative Impact of Achievable EE Savings to Reduce CO₂ Emissions in New England's Stationary Combustion Sector



Efficiency's economic benefits

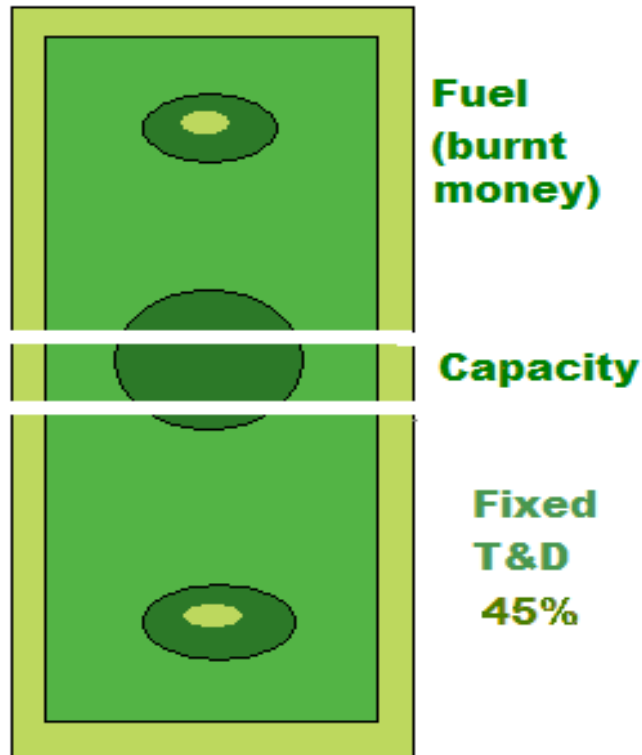
- Based on current New England programs:
 - \$1.2 billion in investment over the next 5 years
 - Creation of 10,000 jobs
 - \$450 million in wages
- Why is efficiency a good investment? – our money stays at home

Where does the money go?

Electricity vs. Efficiency

Electricity Purchase

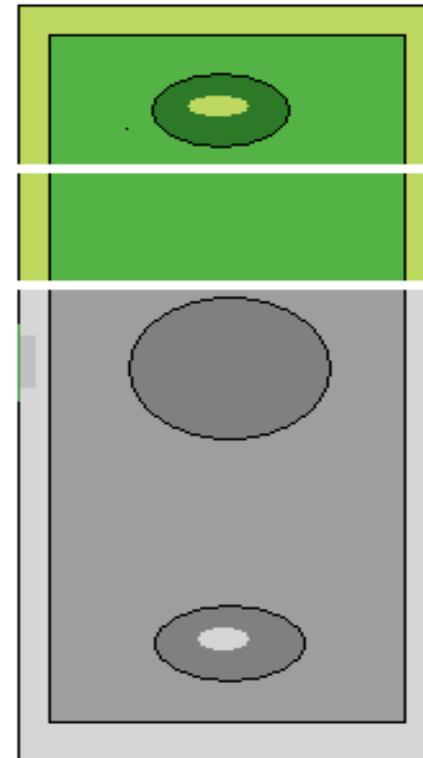
Efficiency Purchase



Goods & Services

Marketing & Admin

S
A
V
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N
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Conclusions

- Current programs achieve less than 20% of achievable EE potential.
- Efficiency is cheaper **than** power supply.
- EE can offset system energy and demand growth, deferring need for 28 300 MW combined-cycle gas units.
- EE is available in all sectors, end uses, and markets.
- EE can reduce gas demand for electric generation in New England by 4-25% in 2008 or 7-45% by 2013.
- EE can help New England meet climate change goals by 21-68% for the Stationary Combustion sector by 2010.

How can we get there?

- Integrate EE into regional (ISO) system and local planning and resource procurement.
- Give high priority to building energy code updates and high levels of compliance.
- Continue to adopt state product efficiency standards.
- Support adoption of federal product efficiency standards.
- Increase funding for EE investments as a clean and economic energy resource.
 - Through Standard Offer Procurement
 - Auction revenues for clean air credits
 - SBC

How can we get there?

Continued

- Adopt or expand EE procurement rules for state and municipal buildings (and UMS?).
- Work as a region, establish common, regional methods and assumptions for measuring EE savings in New England.
- Change the way we think about energy:
 - Education:
 - CEUs for professionals, curriculum development for students
 - Marketing
 - Incorporate efficiency into business plans & practice
 - Improved O&M practices

Key Sources Used in Analysis

- 2004 Connecticut ECMB Final Report
(GDS Associates/Quantum Consulting)
- 2003 Vermont Dept. Public Service Study
(Optimal Energy/Vermont Energy Investment Corp.)
- 2002 Maine Public Advocate Study
(Optimal Energy/Exeter/Vermont Investment Corp)
- 2001 Massachusetts Utilities and DOER Study
(RLW Analytics and Shel Feldman Associates)
- 2001 NEEP Codes & Standards Analysis (NEEP/ACEEE)
- 2004 ACEEE Standards Analysis
- 2003 NYSERDA Energy Efficiency and Renewable Resource Development
Potential in New York State
(Optimal Energy/American Council for an Energy Efficiency Economy/Vermont
Energy Investment Corporation/Christine T. Donovan Associates)