



NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

FROM POTENTIAL TO ACTION:

HOW NEW ENGLAND CAN SAVE ENERGY, CUT COSTS, AND
CREATE A BRIGHTER FUTURE WITH ENERGY EFFICIENCY

An Analysis of the Region's Economically-Achievable Electric Efficiency Potential

EESE BOARD MEETNG - OCTOBER 8 , 2010

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

“Accelerating Energy Efficiency”



ABOUT NEEP:

VISION

Transform the way we think about and use energy in the world around us

MISSION

Accelerate the efficient use of energy in the Northeast and Mid-Atlantic regions

APPROACH

Overcome barriers to efficiency through collaboration, education and advocacy



CONTEXT OF THE POTENTIAL STUDY



- New England states have made great progress with efficiency programs in the last decade
- There's a lot more savings left on the table - until we get it we are missing many opportunities.
- Many states have legislative mandates to capture all cost-effective efficiency
- The challenge: turn policy into action
- The result: control energy costs, curb emissions, reduce costly infrastructure projects, create local "green" jobs, cut reliance on fossil fuels

FROM POTENTIAL TO ACTION



We wanted to know:

- How much efficiency is still out there?
- Where is it?
- What are the costs and benefits?
- How can we advance policies to capture it?



FROM POTENTIAL TO ACTION



- NEEP commissioned an analysis of the region's economically-achievable electric efficiency potential
- Supported by US EPA and foundation grants
- Conducted by Optimal Energy and produced by NEEP
- Study years: 2010-2018
- Looked at data from the 2009 GDS report for NH PUC
- Includes policy recommendations and best practices for states to capture the potential

FROM POTENTIAL TO ACTION



- Intended to guide policymakers, program administrators and stakeholders as they shape energy policy over the coming years.
- Shows it's plausible for the region to reduce electric consumption markedly by investing in efficiency that is cheaper than generation, without sacrificing quality, comfort or productivity.
- Informs decision makers as to the realistic possibilities and multiple benefits of capturing all cost-effective energy efficiency in New England.

FROM POTENTIAL TO ACTION



About the study:

- Recent state potential studies and extrapolation to paint a regional picture
- Includes state, market, and end-use break-downs to show where the potential lies
- NEEP supports all-fuel efficiency; gas data was not available for this study so it is focused on electricity

DEFINING COST-EFFECTIVE EFFICIENCY



- We wanted to look at economically-achievable and realistic efficiency potential.
- By cost-effective, this report means energy efficiency resources that can be captured below the cost of electricity supply.
- Efficiency costs about a third as much as generating and delivering new electric supply.
- Average regional cost to meet demand through efficiency is about 4 cents per kilowatt-hour (kWh), while the total cost of new generation and transmission is about 12 cents per kWh.

HIGHLIGHTS OF FINDINGS



- By 2018, energy efficiency could reduce New England's electricity needs by about 20 percent of forecasted load, or 31,800 gigaWatt-hours (GWh).
- It would be like taking 4 million homes off the electric grid for one year - about equal to the homes in Connecticut, Massachusetts and Vermont combined.
- A combination of programs and policies as well as cooperation among states, program administrators and other parties can reshape the region's electric load curve, bending it downward.

THE NEW HAMPSHIRE POTENTIAL



Found a cost-effective potential of 20.5% by 2018

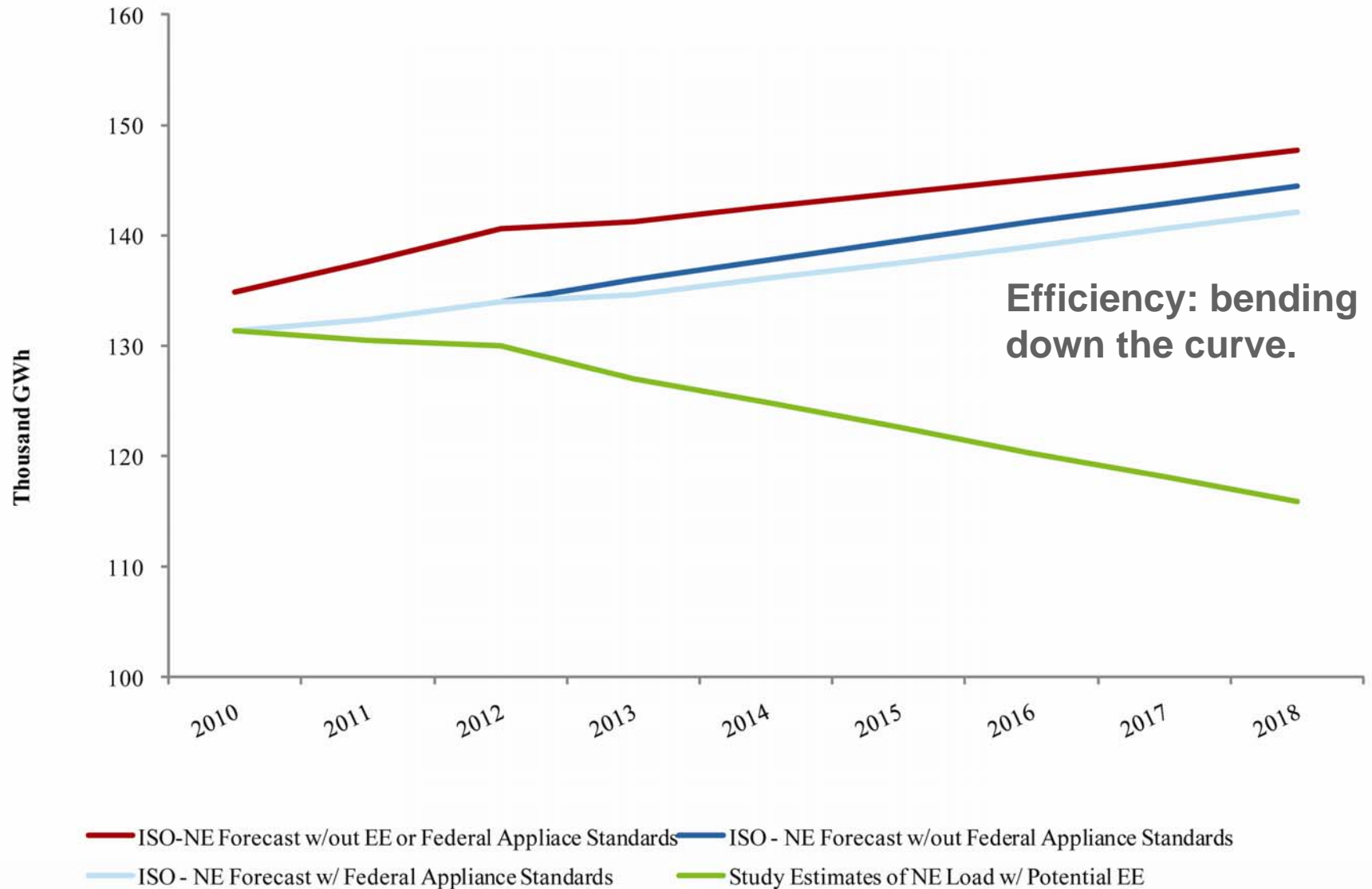
Total Achievable by Sector:

- Residential: 20.9%
 - Commercial: 19.9%
 - Industrial: 21.1%
-
- In line with other New England states
 - Based on 2009 GDS potential study for New Hampshire
 - Cumulative savings potential of 2,965 GWh by 2018

REDEFINING THE ELECTRIC LOAD



ISO NE Energy Forecast



POSITIVE ECONOMIC IMPACTS - REGION



Investing in efficiency to achieve the level of potential estimated would, over the life of the measures:

- Increase gross state product by \$54.6 billion
- Increase employment by about 422,000 job years throughout the region.
- Result in positive net societal benefits of \$19.6 billion.
- NH is roughly 10% of the region's total potential

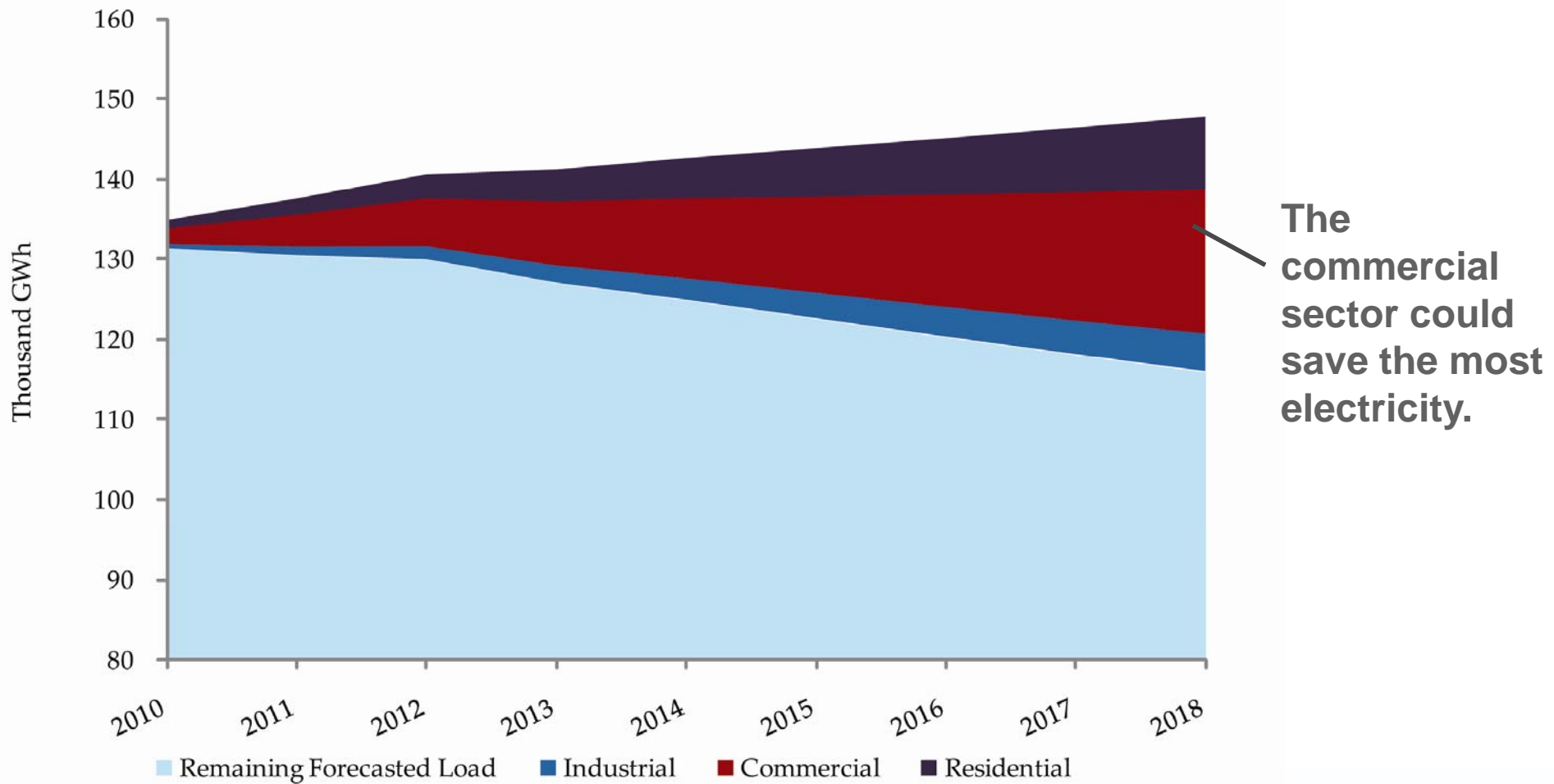
POSITIVE ENVIRONMENTAL IMPACTS



Reducing NE's power generation by 31,800 GWh would:

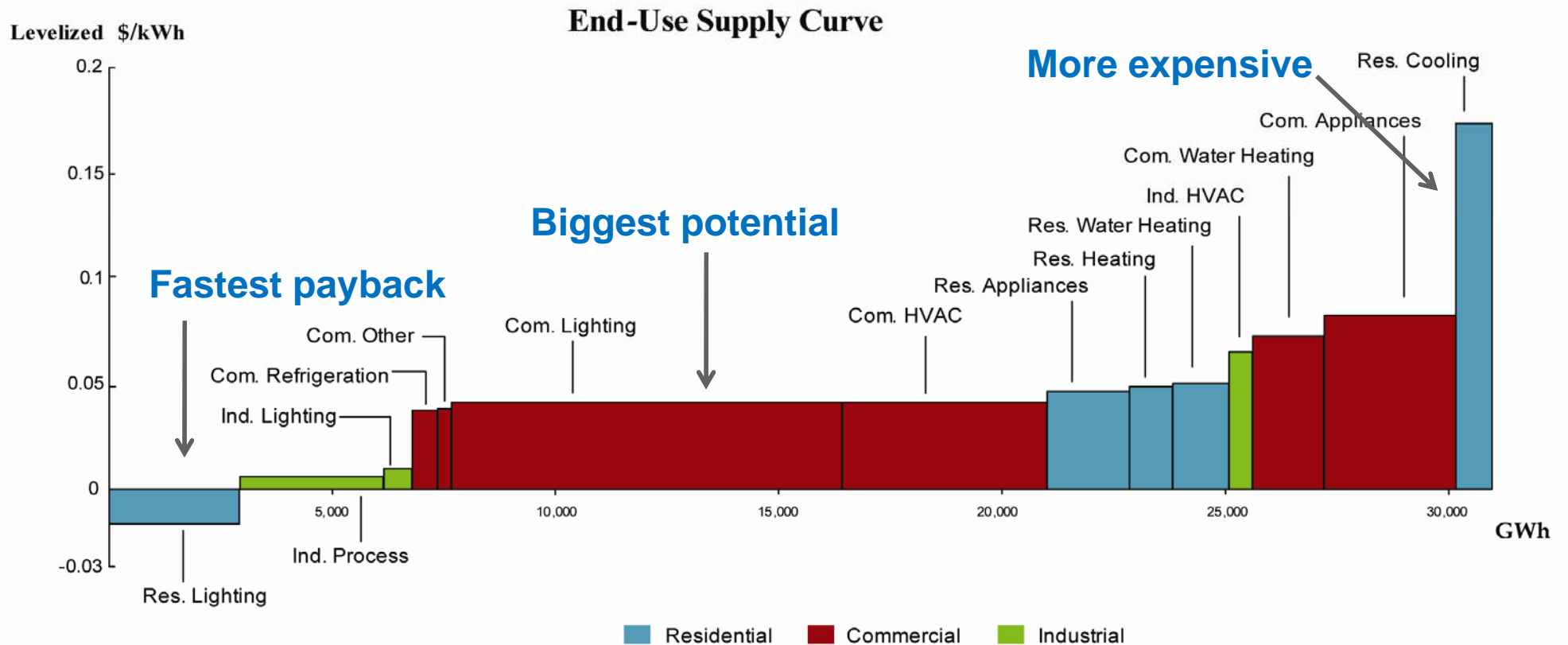
- Cut CO₂ emissions by nearly 80 million metric tons, equal to the annual emissions of 3 million passenger vehicles.
- Cut annual emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) by 8,500 and 5,000 metric tons in 2018, respectively.
- The energy saved is equivalent to the energy output of about four large coal-fired power plants.

EFFICIENCY POTENTIAL BY SECTOR



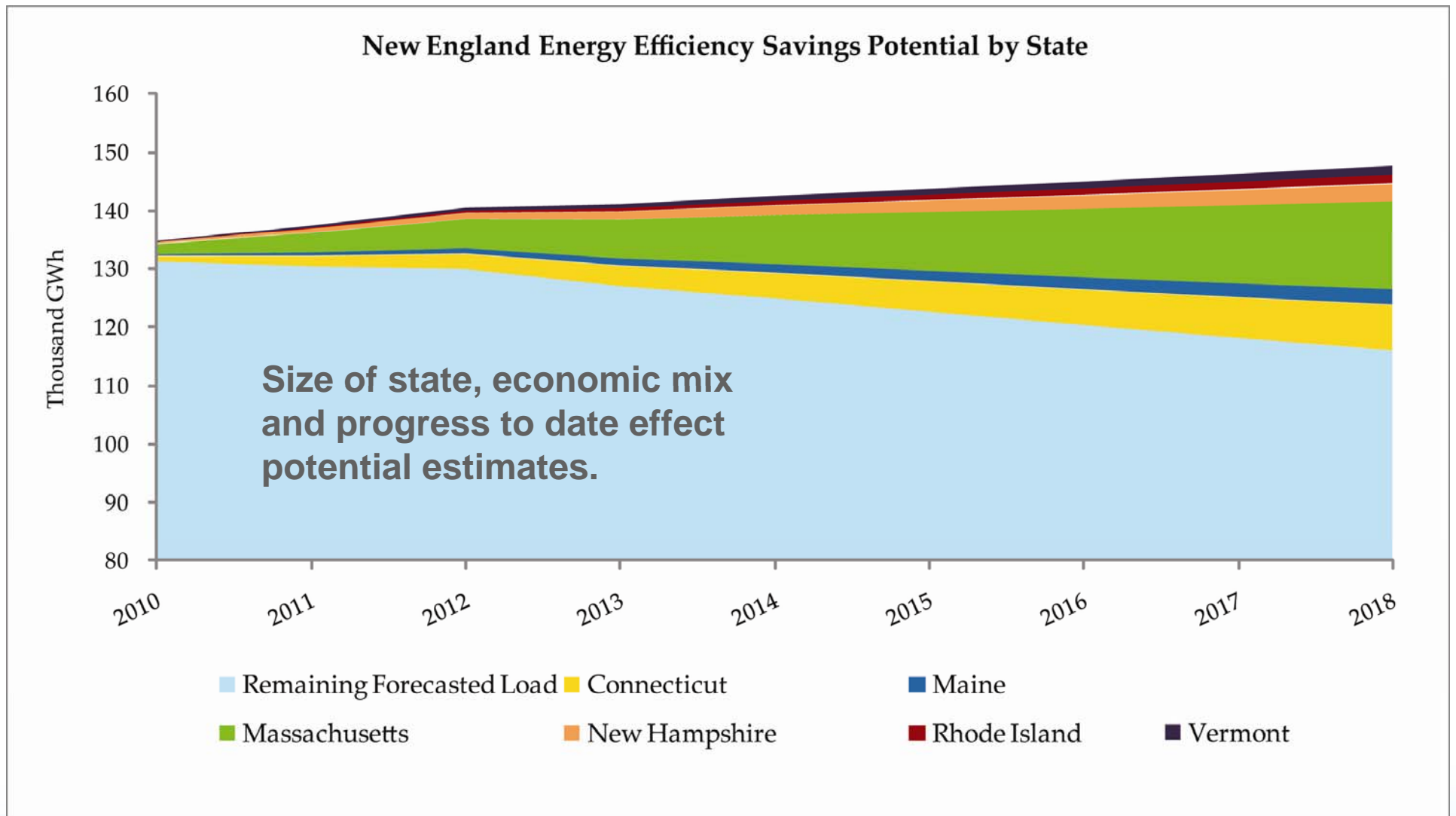
This graph demonstrates the potential to meet customer needs through efficiency without growing electric load.

WHERE THE SAVINGS LIE

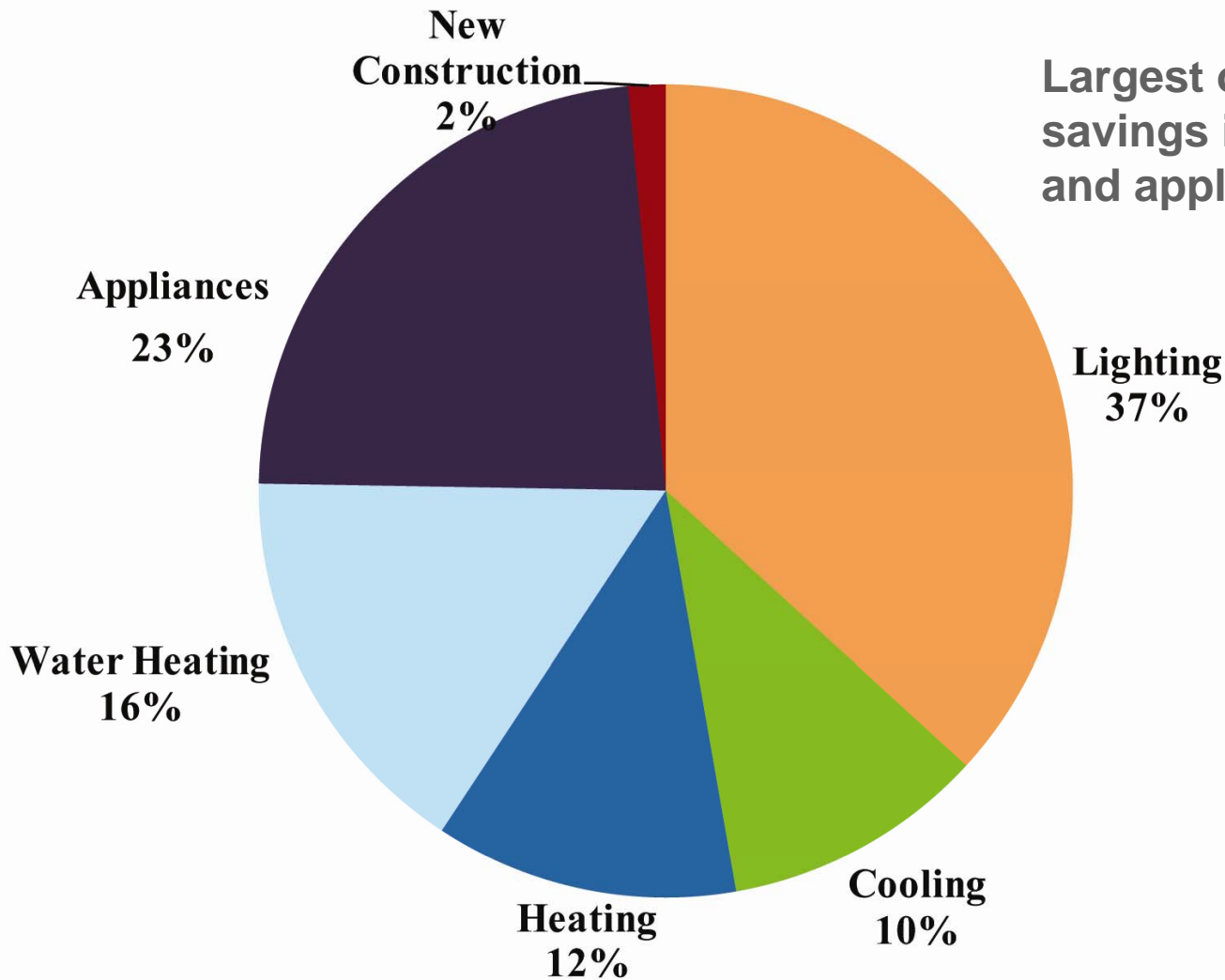


This supply-curve graph depicts the current average levelized cost per kWh saved for each major end-use, as well as the absolute amount of energy saved. The wider the bar, the more savings attributed to that end use measure; the taller the bar, the more expensive the savings. The relative area of each box represents the total investment needed to capture the potential savings in each end-use. There is always a lack of certainty in predicting future costs, and baselines may change.

POTENTIAL BY STATE

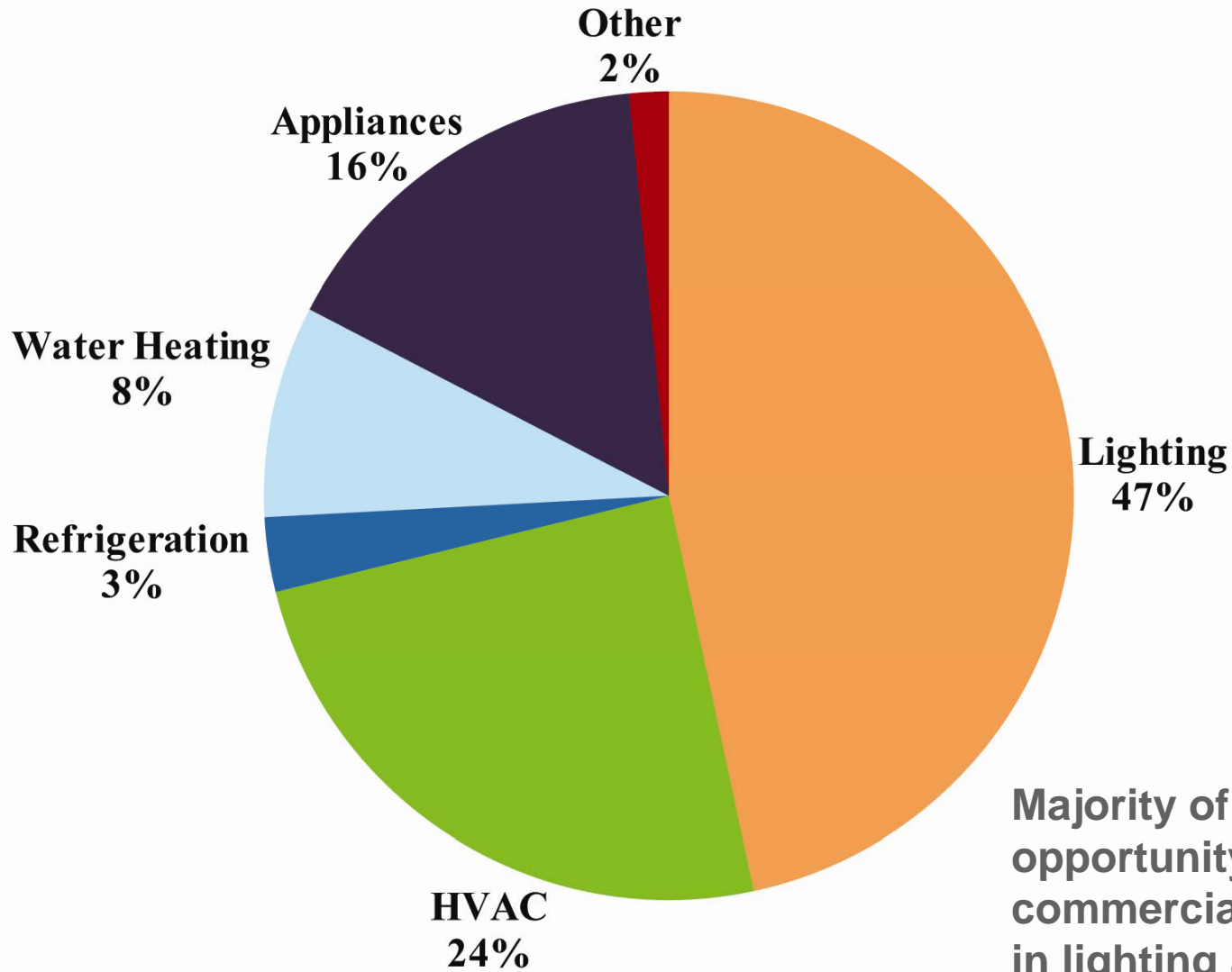


SAVINGS BY END-USE: RESIDENTIAL



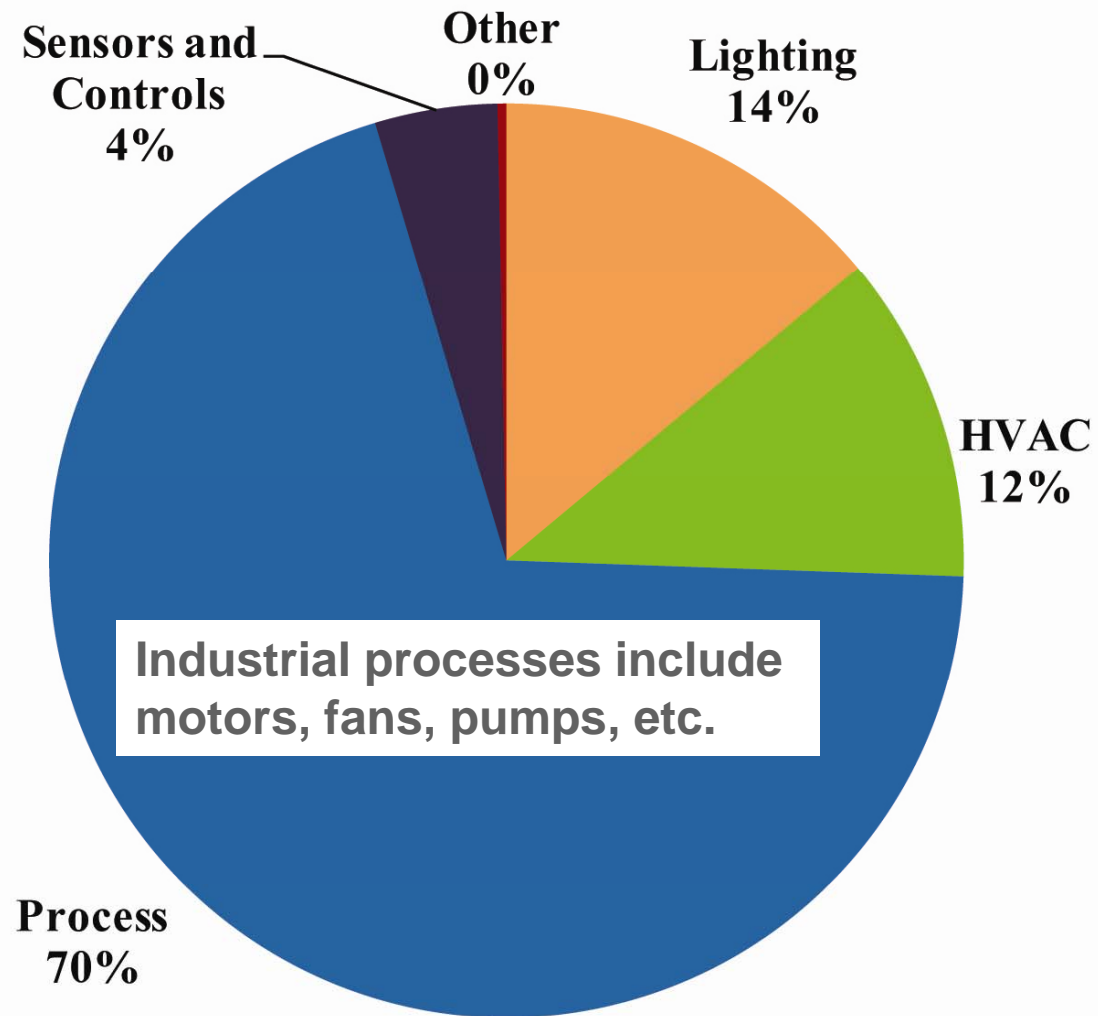
Largest opportunity for savings in homes are lighting and appliances.

SAVINGS BY END-USE: COMMERCIAL



Majority of savings opportunity in commercial facilities are in lighting and HVAC.

SAVINGS BY END-USE: INDUSTRIAL



THE NEW ENGLAND ELECTRIC EFFICIENCY POTENTIAL



- New England can cost-effectively acquire the achievable efficiency potential described in this report through a variety of program strategies and adoption of new technologies.
- Significant energy efficiency reservoirs are located in each state and in all sectors of the region's economy.
- By relying on best practices and moderately aggressive but sustained efforts, growth in electricity sales can not only be reduced, but could actually be reversed.

CHALLENGES TO IMPLEMENTATION



- Moving from ambitious legislative targets to real-world implementation
- Need champions in state regulators and program administrators
- Need governors and legislators who understand the value proposition of efficiency
- Find and secure EE funding, plus financing assistance

RECOMMENDATIONS FOR POLICYMAKERS



Strategies to move from potential to action:

1. Enact policies to capture all cost-effective efficiency
2. Establish funding for all-fuel programs
3. Demonstrate strong executive leadership
4. Link to energy, economic, environmental & policy goals
5. Support common evaluation protocols
6. Integrate efficiency into energy and air quality planning
7. Ensure adequate, stable, long-term funding
8. Foster a supportive regulatory framework
9. Advance complementary public policies
10. Develop and support outside financing mechanisms

STATES MOVING TOWARDS POTENTIAL



Most NE states have policies to capture all cost-effective efficiency. Potential studies have influenced policies and funding levels - "from potential to action."

- Massachusetts has ambitious 3-yr plan, ramping up to goal of 2.4% electric savings in 2012 (1.15% of natural gas)
- Rhode Island is finalizing goals - will be about 2.5% of electric consumption by 2014 - also very ambitious
- Vermont has succeeded in bending their load curve down with cost-effective efficiency - among highest per capita investments in EE
- Maine has a new administration model, ambitious savings goals as well as all-fuel efficiency program
- New Hampshire has the SB 323 study process - moving towards greater efficiency targets?
- Connecticut has policy for all cost-effective; regulators have blocked full implementation against advice of state energy boards



THANK YOU!

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Full report and supporting materials
are available on our [website](#)

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