

ARE ENERGY EFFICIENCY GOALS ACHIEVABLE?

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The Regulatory Assistance Project (RAP)

We are a global, non-profit team of experts focused on the long-term economic and environmental sustainability of the power and natural gas sectors, providing assistance to government officials on a broad range of energy and environmental issues.

About RAP – US

RAP provides technical and policy support at the federal, state and regional levels, advising utility and air regulators and their staffs, legislators, governors, other officials and national organizations.

We help states achieve ambitious energy efficiency and renewable energy targets and we provide tailored analysis and recommendations on topics such as ratemaking, smart grid, decoupling and clean energy resources. RAP publishes papers on emerging regulatory issues and we conduct state-by-state research that tracks policy implementation.

Are Energy Efficiency Goals Achievable?

Assuming:

- ✓ Approximately 2% per year for electric
- ✓ Approximately 1% per year for gas

And Assuming further:

- ✓ Changes in lighting standards
- ✓ Changes in gas furnace efficiency standards
- ✓ Other future changes in codes and standards

Short Answer:

YES!

The Good News!

States are generally on track to meet or exceed Energy Efficiency Resource Standards according to the ACEEE Report, “EERS: A Progress Report on State Experience.”

ENERGY EFFICIENCY

**THE LANDSCAPE:
BACKGROUND ON WHAT IS
HAPPENING IN VARIOUS STATES**

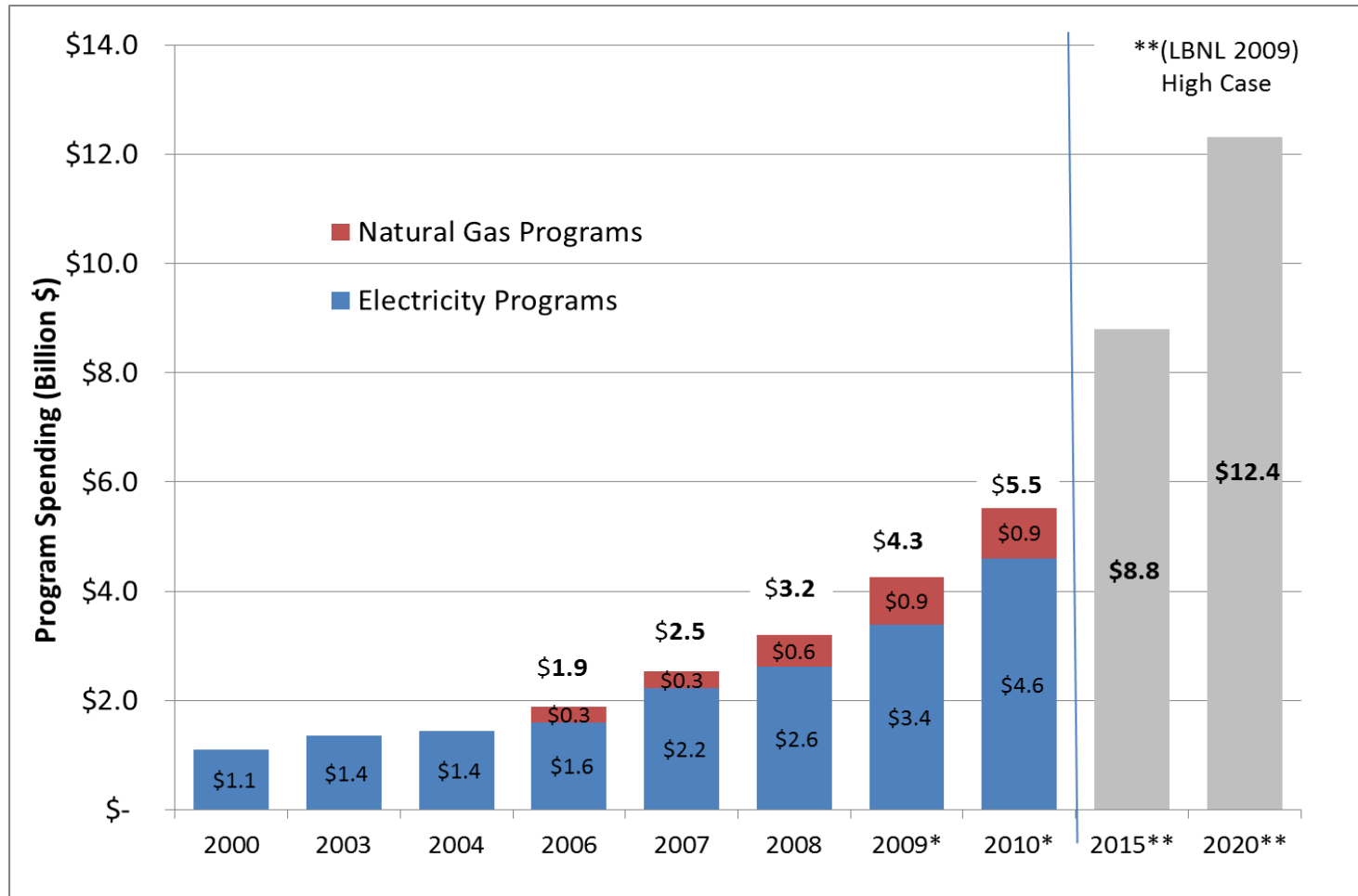
Leading States Increasing Savings

New Incremental Annual Electric Savings as % of Sales

State	2006	2009	Current Plans
Massachusetts	0.8%	0.8%	2.4%
Vermont	1.1%	1.6%	2.3%
Arizona	n.a.	0.8%	2.2%
Connecticut	1.2%	0.8%	2.1%
Rhode Island	1.2%	1.1%	2.0%
New York	0.6%	0.7%	1.9%
Maryland	n.a.	0.4%	1.7%
Minnesota	0.6%	1.0%	1.5%
Hawaii	n.a.	1.1%	1.5%
Washington	0.7%	0.7%	1.3%
Iowa	0.7%	0.9%	1.3%
California	0.7%	0.9%	1.0%
Average	0.8%	0.9%	1.8%

Sources: ACEEE 2008 State Scorecard (for 2006 savings) and 2011 State Scorecard (for 2009 savings and for current plans other than for CT). CT "current plan" data are for plan filed by utilities and supported by draft order.

U.S. Efficiency Program Spending



Sources: ACEEE State Scorecards; LBNL 2009 projections for 2015 and 2020

Projections for Midwest Energy Efficiency Spending for Gas and Electric

- 2010 - \$1.18
- 2011 - \$1.36
- 2012 - \$1.45
- 2013 - \$1.57
- 2014 - \$1.62
- 2015 - \$1.67

SOURCE: Midwest Energy Efficiency Alliance

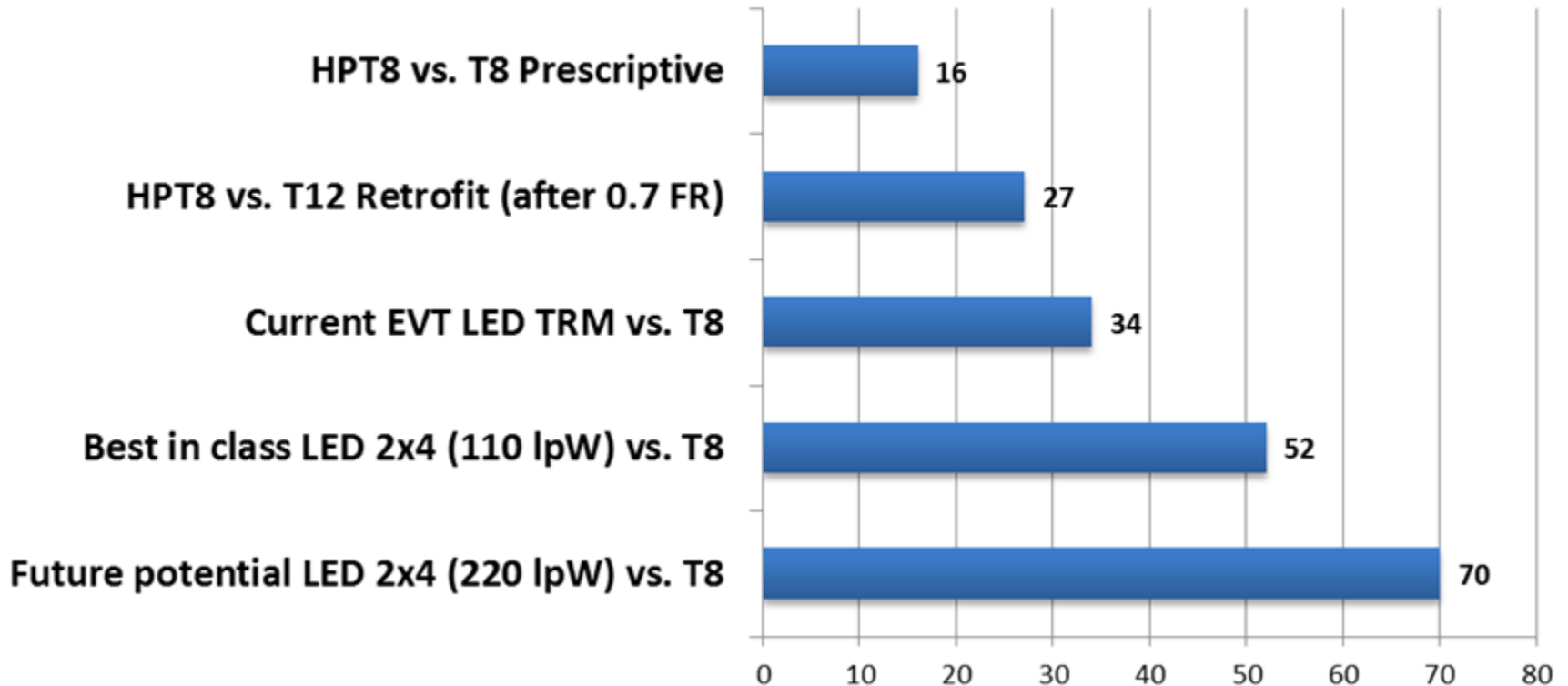
ADDRESSING THE CHALLENGES

Key Challenges

- Increasing baselines
 - Federal/state efficiency standards
 - Residential lighting standards
 - Linear fluorescent standards
 - Others
 - More stringent building codes
 - Increasing “natural” market uptake of some EE measures
- Much “low hanging fruit” already harvested
- Net-to-gross/attribution issues
- Growing importance of small/miscellaneous loads
- Short-term focus of savings goals

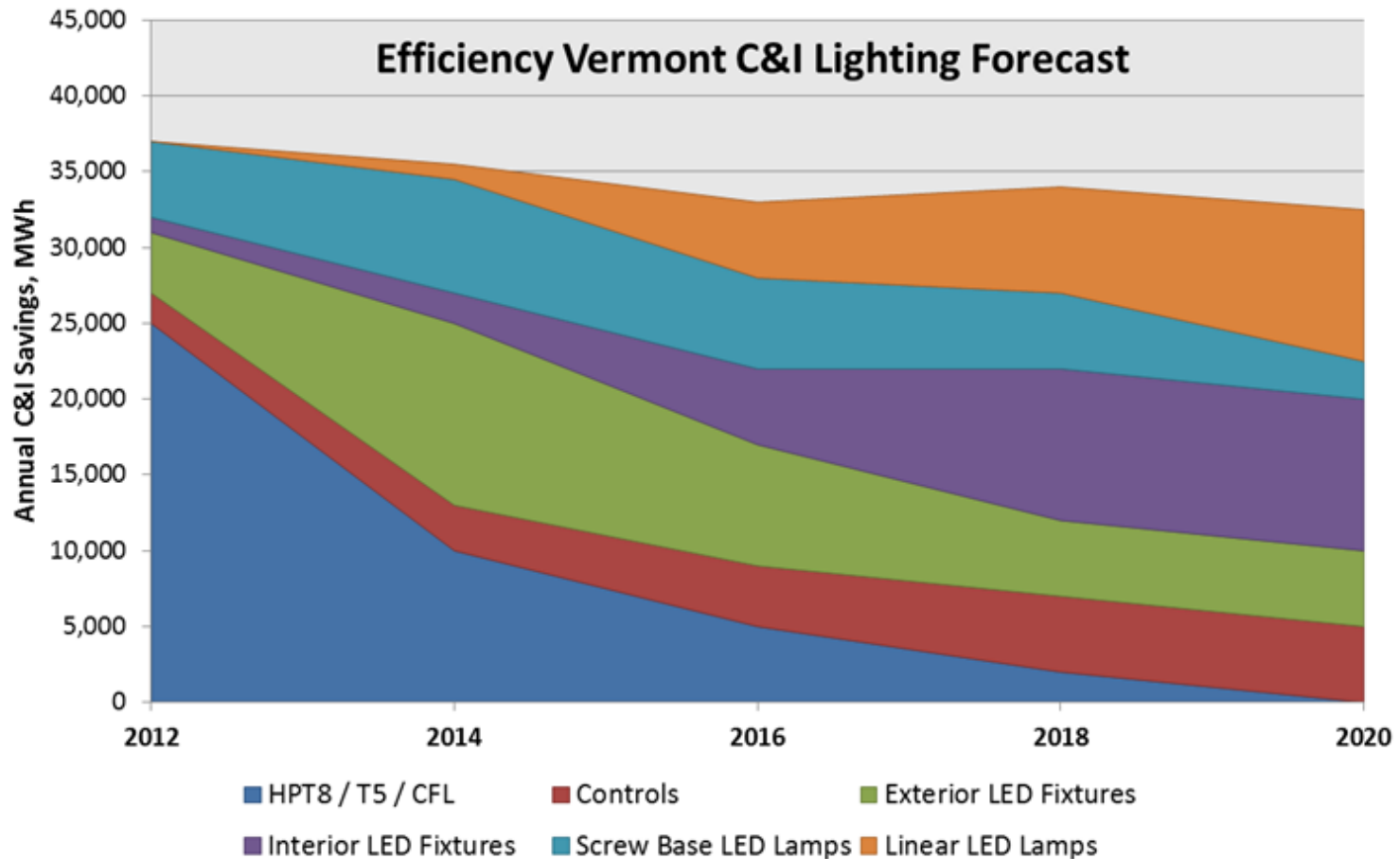
LEDs Offer Greater Savings than HPT8s

Delta Watts, Assuming Typical 3-Lamp Fixture



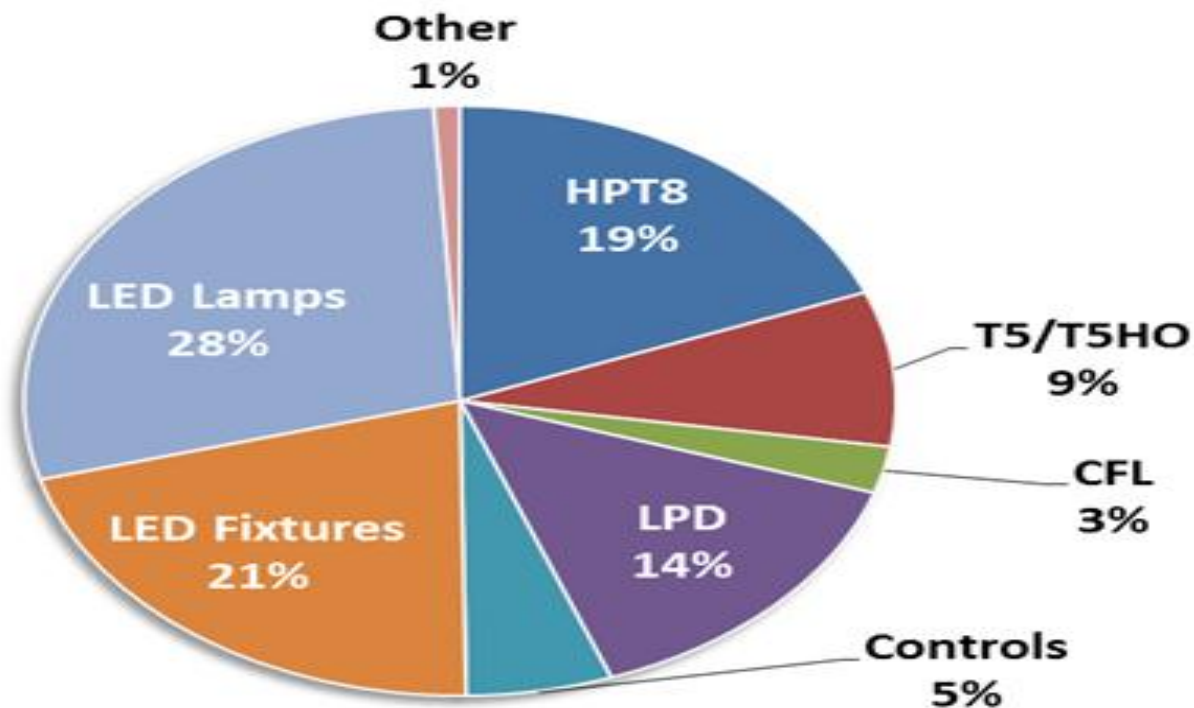
Graphic courtesy of Dan Mellinger, Efficiency Vermont

C&I Lighting Savings Transition



Graphic courtesy of Dan Mellinger, Efficiency Vermont

Data on lighting savings from Efficiency Vermont



2012 Efficiency Vermont C&I Lighting Savings

Addressing the Challenges: Regulatory Policies

- Shareholder Incentives for good efficiency program performance
- Decoupling
- Aligning performance indicators with long-term goals
- Redesign rates to incentivize customers to use less and participate in programs
- Increase program funding

Addressing the Challenge: New Avenues for Energy Efficiency Savings

- ✓ Reducing new growth in demand
- ✓ Look to Utility T&D efficiency upgrades
- ✓ Utility Program Partnerships that increase building code standards
- ✓ Providing Energy Efficiency to the customers of Cooperatives and Municipal Systems to whom they sell wholesale power
- ✓ Integrating clean air policy with efficiency
- ✓ Other innovations

Projections in Growth in Energy Demand

- U.S. Electricity Demand is forecasted to increase by 20% by 2035 according to EIA
- New Energy Efficiency Programs can help offset that growth in demand

Addressing the Challenge: Enhancing Existing Programs

- Measuring Cost-Effectiveness based on the portfolio as opposed to individual measures
- Reach out to new customers with existing programs
- Combine measures for more comprehensive suite to attract customers
- Better customer outreach

Addressing the Challenge: Enhancing Existing Programs

- Rebate add-ons for additional savings on measures
- Collaboration with stakeholders to help target program effectiveness
- Extend portfolio to under-served customers
- Train utility account managers to understand energy efficiency in working with industrial customers

Addressing the Challenge: Enhancing Existing Programs

- Work with local and state governments and schools on energy efficient buildings
- As street lighting contracts expire, engage municipalities in LED lighting contracts
- Provide incentives for contractors to get deeper savings

WHY ENERGY EFFICIENCY MATTERS

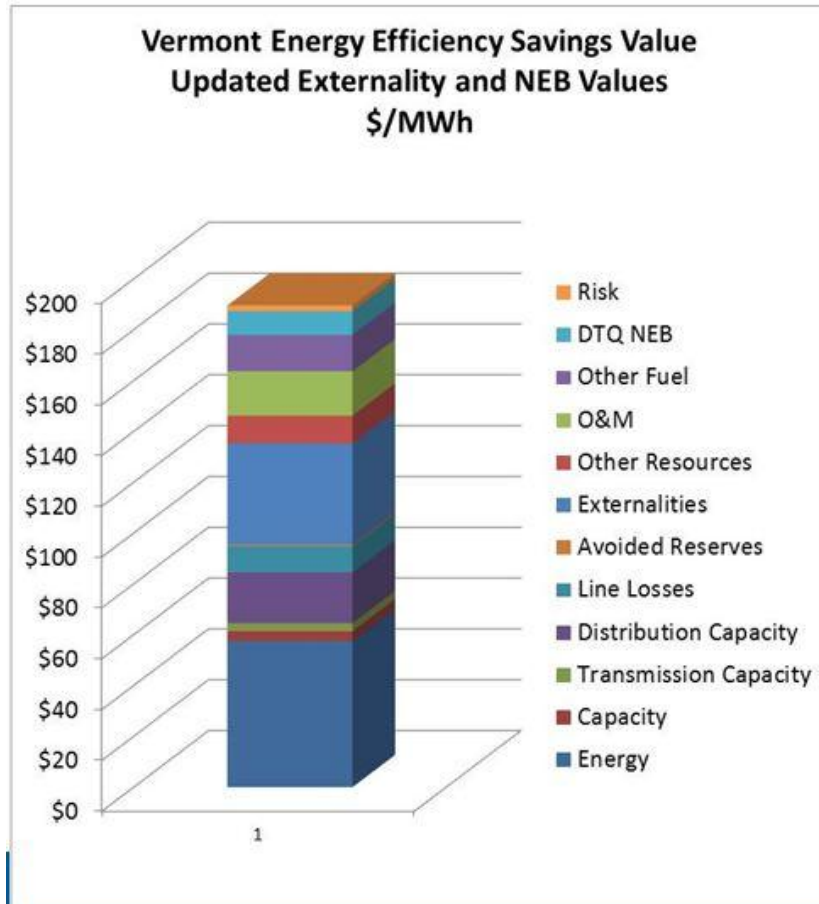
Energy Efficiency Remains the least-cost option:

- **Energy Efficiency - \$.03 - \$.05/kwh**
- Wind - \$.078 - \$.09/kwh
- Biomass - \$.064 - \$.095/kwh
- Natural Gas Combined Cycle - \$.072 - \$.10/kwh
- Pulverized Coal - \$.072 - \$.135
- Nuclear - \$.098 - \$.125
- Coal IGCC - \$.102 - \$.135

NOTE – Energy efficiency number includes utility and customer costs.

SOURCE - Approximations from Bar Chart – Lazard Brothers (2009); Friedrich et al (2009) – From ACEEE’S, “The Long-Term Energy Efficiency Potential”

THE VALUE OF ENERGY EFFICIENCY SPENDING ILLUSTRATED



CONCLUSION

- Energy Efficiency remains an important and growing means to achieve this nations electricity demand
- While meeting energy efficiency goals may become more challenging with time, past experience has demonstrated that new technologies will create new opportunities for savings
- Energy efficiency targets are being exceeded by many utilities today
- The 2% goals are clearly attainable.