Creating A Greener Energy Future For the Commonwealth

Massachusetts: Driving Utility Energy Efficiency Efforts to New Levels

It’s only a resource if you know it’s there.

EPA Webinar: Efficiency As a Resource
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Creating A Greener Energy Future For the Commonwealth

Efficiency is a significant resource

Cumulative efficiency provided 8% electric supply
Over time efficiency has provided a growing percentage of our electric need.
## Energy Efficiency Resource Standards

<table>
<thead>
<tr>
<th>State</th>
<th>Date Established</th>
<th>Goal</th>
<th>Target End Date</th>
<th>Implied Annual % Savings* (% of total forecast load)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas</td>
<td>2007</td>
<td>20% of load growth</td>
<td>2010</td>
<td>0.5%</td>
</tr>
<tr>
<td>Vermont</td>
<td>2008</td>
<td>2.0% per year (contract goals)</td>
<td>2011</td>
<td>2.0%</td>
</tr>
<tr>
<td>California</td>
<td>2004</td>
<td>EE is first resource to meet future electric needs¹</td>
<td>2013</td>
<td>2.0% +</td>
</tr>
<tr>
<td>Hawaii</td>
<td>2004</td>
<td>.4% - .6% per year²</td>
<td>2020</td>
<td>0.5%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>2008</td>
<td>3.0% of 2009-2010 load</td>
<td>2013</td>
<td>0.6%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>2007</td>
<td>All Achievable Cost Effective³</td>
<td>2018</td>
<td>2.0% +</td>
</tr>
<tr>
<td>Nevada</td>
<td>2005</td>
<td>0.6% of 2006 annually⁴</td>
<td>n/a</td>
<td>0.6%</td>
</tr>
<tr>
<td>Washington</td>
<td>2006</td>
<td>All Achievable Cost Effective</td>
<td>2025</td>
<td>2.0% +</td>
</tr>
<tr>
<td>Colorado</td>
<td>2007</td>
<td>1.0% per year</td>
<td>2020</td>
<td>1.0%</td>
</tr>
<tr>
<td>Minnesota (elec &amp; gas)</td>
<td>2007</td>
<td>1.5% per year</td>
<td>2010</td>
<td>1.5%</td>
</tr>
<tr>
<td>Virginia</td>
<td>2007</td>
<td>10% of 2006 load</td>
<td>2022</td>
<td>2.2%</td>
</tr>
<tr>
<td>Illinois</td>
<td>2007</td>
<td>2.0% per year</td>
<td>2015</td>
<td>2.0%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>2007</td>
<td>5% of load⁵</td>
<td>2018</td>
<td>0.4%</td>
</tr>
<tr>
<td>New York (electric)</td>
<td>2008</td>
<td>10.5% of 2015 load⁶</td>
<td>2015</td>
<td>1.5%</td>
</tr>
<tr>
<td>New York (gas)</td>
<td>2009</td>
<td>15% of 2020 load⁶</td>
<td>2020</td>
<td>1.5%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>2009</td>
<td>All achievable cost-effective, minimum 10% of 2005 load</td>
<td>2020</td>
<td>1.0% +</td>
</tr>
<tr>
<td>Maryland</td>
<td>2008</td>
<td>15% of 2007 per capita load⁷</td>
<td>2015</td>
<td>3.3%</td>
</tr>
<tr>
<td>Ohio</td>
<td>2008</td>
<td>2.0% per year</td>
<td>2019</td>
<td>2.0%</td>
</tr>
<tr>
<td>Michigan (electric)</td>
<td>2008</td>
<td>1.0% per year</td>
<td>2012</td>
<td>1.0%</td>
</tr>
<tr>
<td>Michigan (gas)</td>
<td>2008</td>
<td>0.75% per year</td>
<td>2012</td>
<td>0.8%</td>
</tr>
<tr>
<td>Iowa (electric)</td>
<td>2009</td>
<td>1.5% per year</td>
<td>2010</td>
<td>1.5%</td>
</tr>
<tr>
<td>Iowa (gas)</td>
<td>2009</td>
<td>0.85% per year</td>
<td>2013</td>
<td>0.3%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2008</td>
<td>All Achievable Cost Effective</td>
<td></td>
<td>2.0% +</td>
</tr>
<tr>
<td>New Jersey (electric &amp; gas)</td>
<td>2008</td>
<td>20% of 2020 load⁸</td>
<td>2020</td>
<td>≤2.0%</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>2008</td>
<td>All Achievable Cost Effective</td>
<td></td>
<td>2.0% +</td>
</tr>
</tbody>
</table>

Source: Schlegel and Associates

¹ Source: California Public Utilities Commission
² Source: Friends of the Earth
³ Source: Connecticut Office of Energy Laboratories
⁴ Source: Nevada Department of Commerce
⁵ Source: North Carolina Division of Energy Resources
⁶ Source: New York State Energy Research
⁷ Source: Maryland Energy Administration
⁸ Source: New Jersey Department of Environmental Protection
⁹ Source: Rhode Island Office of Energy & Environment
Massachusetts Standards

- The Green Communities Act requires electric and gas utilities to "first acquire all available cost-effective energy efficiency that is less than the cost of supply."

- The Global Warming Solutions Act requires reductions of **10 to 25% by 2020** and **80% by 2050.**
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More Resources Under GCA

- 2001-2008 Systems Benefits Charge at 2.5 mils/ kWh sold
  - $125 Million/yr for electric efficiency
  - average of 450 Annual GWh, 60 MW
  - Achieve approximately 0.8% of load annually
  - $25 Million for gas efficiency

- GCA keeps the SBC and adds:
  - Forward Capacity Market ~ $10 Million/yr
  - RGGI – Estimated $50M for 2009
  - Distribution Charges if needed (EERF)
  - 2009 Total $180 Million electric + $30 Million gas
  - 2010-2012 $2.1 Billion (elec. and gas combined)

- Companion 2008 Decoupling Order will remove disincentives to further expansion of utility programs- first rate cases settled in 2009
MA EE Electric Savings: What is Possible?

- About 0.8% savings per year
- 2% savings per year
- ~3% savings per year

Acquiring all available cost-effective electric energy efficiency as set forth in the GCA (EE potential to be determined in the forthcoming assessment) would likely require an annual energy savings level of around 3% per year, or slightly more than three times the savings level in the 2009 Plans.
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EE To Meet the GHG Reduction Targets

MA EE Electric Savings: Energy & Climate

The Global Warming Solutions Act, which requires GHG reductions of 10% to 25% from the 1990 level by 2020, will likely influence the highest energy savings levels in both the near and long term, parallel to the assessment of energy efficiency potential and the acquisition of all available cost-effective energy efficiency as required by the GCA.
What does all cost-effective mean?

- Not defined in law, no Integrated Resource Plan required by regulators but a regulatory finding required.
- Specific to each 3 year plan.
- In MA focused on
  - Natural Gas
  - Electric energy
  - CHP
  - Non-regulated fuels not specifically included but residential customers with oil, propane, fuels are served.
Assessment Process

Insufficient time for a typical tech potential study and reasons not to completely depend on this approach:

- Potential studies are inherently conservative, tend to miss technology changes and diffusion rates
- Focus on end-use and specific technologies (widgets), misses additional savings in whole-facility and behavioral approaches.
- “Achievable” estimates don’t account well for rampup.
- Studies frequently out-performed by reality: e.g. VT projected 2.5% load in 2008 and captured 4.5%
Assessment Process (2)

- Energy Efficiency Advisory Consultant team developed a meta-assessment for 2010-12, through a review of recent potential studies in New York, other New England states, essentially setting lower bounds.

- Assessment Findings 2010-2012:
  - At least 2.5% per year from EE programs and 0.5% per year from CHP
  - Natural gas: reasonable long-term value for all available cost-effective EE program savings is at least 2% per year.
From Assessment to Goals

Determination of goals influenced by additional factors including:

- Program Administrator estimates of ramp up capabilities and initiating new programs.
- Program cost/net benefits.
- Performance incentives.
- Rate and bill impacts on customers.
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Massachusetts Electric Load in Potential Energy Efficiency Scenario
2008-2020 (incl line losses)

Electricity Load (Millions of MWh)

Sales in BAU Scenario
Sales in Aggressive EE Scenario
Additional EE delivered relative to 2007
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