The Future of Ratepayer-Funded Energy Efficiency in the U.S.

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Presentation Outline

- Overview of recent national and state trends affecting ratepayer-funded energy efficiency (EE) programs
- Berkeley Lab’s projection of spending and savings from U.S. electric ratepayer-funded EE programs through 2025 (preliminary results)
- Regional projections and policy drivers
- Key challenges to dramatically scaling-up ratepayer-funded EE program activity and issues on the horizon
Total EE Spending is at an All-Time High but is Concentrated in a Small Number of States

- **2010 U.S. electric EE budget = $4.4B**
  (1.2% of 2010 revenue, double the EE share of revenues in 2008)

- **70% of total funding is concentrated in 10 states** (down from 80% in 2008)

- CA represents roughly one-quarter of U.S. total

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>2010 Electric EE Budgets</th>
<th>$M</th>
<th>% U.S. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CA</td>
<td>1158</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>NY</td>
<td>584</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MA</td>
<td>281</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>NJ</td>
<td>216</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>OH</td>
<td>187</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>WA</td>
<td>153</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>FL</td>
<td>123</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>CT</td>
<td>122</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>TX</td>
<td>115</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>PA</td>
<td>113</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top 10</td>
<td>3051</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Other States</td>
<td>1325</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.S. Total</td>
<td>4376</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CEE, State of the Efficiency Program Industry 2010 (electric EE only; load management not included)
State-level projections are based on current policies in place and the broader policy environment within each state
- Generic assumptions are used for a small number of “uncommitted” states that currently lack defined EE policies

Low, medium, and high scenarios for each state reflect uncertainties in how effectively and aggressively current EE policies are implemented
- Scenarios do not necessarily reflect the full range of uncertainties (e.g., broader macroeconomic conditions or wholesale shifts in a given state’s EE policy orientation)

Results presented here are preliminary; gas EE in progress!
Traditionally leading states are maintaining and, in some cases, accelerating their efforts
- Statutory requirements to acquire all cost-effective EE (CA, CT, MA, RI, WA)
- Adopted significant EERS policies (CA, MN, NY)
- Aggressive EE program portfolios driven by IRP processes (Pacific NW)

Funding levels and program infrastructure are ramping up in a large number of other states
- New EERS policies and shorter-term target setting (AR, CO, IL, MD, MI, NC, OH, PA, HI)
- Relatively aggressive or increasing EE program portfolios in IRPs and DSM plans (Southwest)

In South, key utilities and TVA are moving forward on EE, though long-term commitments are uncertain (TVA, FL, SC, GA, KY)
LBNL Projects Substantial Increases in Ratepayer-Funding in Medium & High Scenarios

- Electric EE funding in 2020 projected to be $8.8B (Medium), (Low = $5.7, High = $12.7B)
- Represents a doubling (Medium) over current spending in 10 years (a tripling in the High Case)
- Spending rises from 1.2% of electric revenues in 2010 to 2.0% in 2020 in the Medium Case, (Low = 1.3%, High = 2.9%)
Electricity Savings Projected to Grow in Tandem with Spending

- Estimated 2010 U.S. annual electricity savings = 0.5% of retail sales
  - Some leading states achieved >1.0% savings
- Annual electricity savings projected to rise to 0.7% (Medium) by 2020 (High Case = 1.0%)
- Cumulative savings from 2011-2020 equal 6.5% of EIA’s reference case retail sales forecast for 2020 in the Medium Case (High Case = 8.3%)
Funding Levels Are Projected to Rise in All Regions under Most Scenarios

- EE spending as percent of revenues remains highest in Northeast and West (3.5% and 3.1% in 2020 Medium Case)
- EE funding in the South and Midwest is expected to triple by 2020 under the Medium Case
- Funding trajectory in West is highly uncertain; depends on role of ratepayer EE in CA
- Also uncertainty in the Northeast (a little bump or a big one?); longevity and success of “all cost-effective EE” depends on continued political support
EE Funding is Projected to Become Substantially More Evenly Distributed Across Regions

- Northeast and West historically have dominated the ratepayer EE funding landscape
- Other states with historically large budgets are closing in on CA (e.g., MA, NY)
- Populous Midwestern states with historically low EE funding but aggressive new EEPS are emerging as major new markets (IL, IN, MI, OH)
- Increased spending by several larger southern states (FL, NC, MD, TX)
Ratepayer Funding Projections: West

- Relatively modest aggregate growth in Medium Case (from 2.5% of revenues to ~3.0%)
- In CA, all cost-effective EE required, but increasing emphasis on other EE strategies (e.g. codes, standards, more financing)
- Strong support for EE in the Pacific Northwest, but relatively low load growth and avoided costs limits upside
- Rapid expansion in EE portfolios by many utilities in the Southwest, driven partly by EERS requirements and utility business models

![Ratepayer-funded Electric EE Programs](Projected Spending as Percent of Revenues)
Several states pursuing all cost-effective EE, with huge ramp-up underway in MA

Aggressive EEPS targets in NY may require significant funding increases through 2015

Sensitivity to rate impacts could constrain savings goals

Some states exploring revolving loan funds & other financing tools to leverage outside capital and decrease ratepayer expenses (NJ, CT)
EERS targets increase substantially over the next decade in OH, IN, MI, IL

By 2025, if states succeed in achieving targets, EE spending levels are comparable to West and Northeast

Some states are overachieving in early years; relying heavily on CFLs → Will these performance levels be sustained?

Some retrenchment (WI)
Ratepayer Funding Projections: South

- TVA policy goal of being the South’s leader in EE
- Coal retirements driven by low-cost shale gas and EPA/state emission regulations
  - South has largest share of projected coal retirements: 10-40 GW
- Spillover from one state to others via multi-state utilities (NC-SC)
- Start-up states (AR) serving as templates for currently uncommitted states
- RIM test and spending caps in some states (VA, FL, TX)

Ratepayer-funded Electric EE Programs
(Projected Spending as Percent of Revenues)

<table>
<thead>
<tr>
<th>Year</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tbody>
<tr>
<td>2010 (CEE)</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>2015</td>
<td>0.6%</td>
<td>1.0%</td>
<td>1.2%</td>
</tr>
<tr>
<td>2020</td>
<td>0.6%</td>
<td>1.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>2025</td>
<td>0.6%</td>
<td>1.0%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>
Which Scenario Will Transpire: EE Programmatic and Institutional Challenges

- The institutional framework and capacity for effective regulatory oversight of ratepayer-funded EE programs in start-up or uncommitted states
- Sustainable EE business models to motivate program administrators
- Innovative program designs to reach deeper and broader savings in order to achieve goals significantly beyond what is currently being achieved
- Short-term rate impacts associated with large-scale energy efficiency implementation
- The opportunity to leverage financing and program infrastructure built with Recovery Act funds
Which Scenario Will Transpire: External Factors

- A persistent economic downturn may impact the ability of EE administrators to meet savings targets as well as the political feasibility of increasing ratepayer funding for EE programs.

- The effect of new state and/or Federal appliance and lighting efficiency standards on the remaining market potential that can be captured by voluntary energy efficiency programs.

- Impact of low natural gas prices may reduce avoided energy cost forecast and reduce the headroom for cost-effective EE.

- Cost of proposed new nuclear units in the South may diminish interest in EE by regulators.
For More Information...

Stay Tuned for the Report:
Projected U.S. and regional spending and savings for Electric and Gas EE
Expected publication in late 2011
http://eetd.lbl.gov/ea/emp/ee-pubs.html

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