Energy Efficiency in a Changing Electric Environment

Steven Nadel
American Council for an Energy-Efficient Economy (ACEEE)
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Electricity Use Declining Recently

Source: ACEEE analysis of data in EIA Monthly Energy Review
Projected Electricity Sales

Source: ACEEE Utility of the Future and the Role of EE
Contributions in Medium-High Change Case

Source: ACEEE Utility of the Future and the Role of EE
Energy Efficiency – A Low-Cost Utility Resource

Source: Energy efficiency data represent the results from Molina 2014 for utility program costs (range of four-year averages for 2009-2012); supply costs are from Lazard 2015.
Cost and Savings by Year for 14 Program Administrators with Large Savings

Not yet final

Source: Baatz 2016, Big Savers, forthcoming
Utility Energy Efficiency Spending

Source: ACEEE, 2015 State EE Scorecard
Savings from Utility EE Programs

Source: ACEEE analysis of EIA data

Total savings are 4.8% of total sales in 2014

Incremental savings are 0.7% of total sales in 2014
## Electric Savings of Leading States

<table>
<thead>
<tr>
<th>State</th>
<th>Savings as % of Sales (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhode Island</td>
<td>3.51</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2.50</td>
</tr>
<tr>
<td>Vermont</td>
<td>1.85</td>
</tr>
<tr>
<td>Arizona</td>
<td>1.74</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1.67</td>
</tr>
<tr>
<td>California</td>
<td>1.58</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1.53</td>
</tr>
<tr>
<td>Michigan</td>
<td>1.35</td>
</tr>
<tr>
<td>Connecticut</td>
<td>1.32</td>
</tr>
<tr>
<td>Maryland</td>
<td>1.29</td>
</tr>
<tr>
<td>Oregon</td>
<td>1.27</td>
</tr>
</tbody>
</table>

Source: ACEEE 2015 State Energy Efficiency Scorecard
Current EERS Policy Status

EERS policy approaches by state (as of January 2016)

*Potential EE expansions in next few years

Source: American Council for an Energy-Efficient Economy
# Impact of EERS (2013 data)

<table>
<thead>
<tr>
<th>Policy</th>
<th>No. of states</th>
<th>Average EE investments as % of revenues*</th>
<th>Average EE savings as % of sales*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No EERS</td>
<td>24</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Yes EERS</td>
<td>26</td>
<td>2.6</td>
<td>1.1</td>
</tr>
</tbody>
</table>
EE Opportunity Under CPP in Select States

For 1%/yr EERS, building code upgrades and medium level of CHP. From ACEEE SUPR2 model.
ACEEE New Horizons Study: 22% savings available by 2030

1. Appliances & standards (RF, CW, CD)
2. New construction programs & codes
3. Advanced lighting design & controls
4. Very efficient packaged AC for residential & commercial
5. Smart manufacturing and buildings
6. Strategic energy mgmnt for large C&I
7. Reduce key plug loads
8. Real-time feedback & advanced thermostats
9. Whole building retrofits
10. Combined heat & power
11. Conservation voltage reduction
12. Advanced water heaters
13. Residential LEDs
14. Industrial fans, pumps & compressors
Load Shapes are Changing
What are Utilities Doing?

- Many are looking to new ways to cover costs – solar charges, fixed costs, demand charges
- A few may be cutting back on EE
- Most are holding steady or considering how or whether to ramp up
- Many are looking at new measures and ways to manage costs
- A few recognize the need to offer new services – EE, EV, community solar, CHP, batteries
### In which technologies is your utility most invested? Choose three of the following.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>66%</td>
<td>Utility-scale renewables (solar &amp; wind)</td>
</tr>
<tr>
<td>64%</td>
<td>Demand-side management</td>
</tr>
<tr>
<td>50%</td>
<td>Distributed generation</td>
</tr>
<tr>
<td>50%</td>
<td>New natural gas-fired generation</td>
</tr>
<tr>
<td>22%</td>
<td>Energy storage</td>
</tr>
<tr>
<td>21%</td>
<td>Electric vehicle infrastructure</td>
</tr>
<tr>
<td>12%</td>
<td>Microgrids</td>
</tr>
<tr>
<td>9%</td>
<td>New nuclear generation</td>
</tr>
<tr>
<td>6%</td>
<td>Carbon capture and storage and/or coal gasification</td>
</tr>
</tbody>
</table>

### Which new and emerging revenue streams is your regulated utility pursuing? Choose all that apply.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Revenue Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>66%</td>
<td>Offering energy management and efficiency services to customers</td>
</tr>
<tr>
<td>56%</td>
<td>Offering community solar to customers</td>
</tr>
<tr>
<td>52%</td>
<td>Deploying electric vehicle charging infrastructure</td>
</tr>
<tr>
<td>47%</td>
<td>Offering green pricing programs to key accounts</td>
</tr>
<tr>
<td>40%</td>
<td>Deploying distributed energy storage</td>
</tr>
<tr>
<td>36%</td>
<td>Offering rooftop solar to customers</td>
</tr>
<tr>
<td>31%</td>
<td>Developing distributed system platform</td>
</tr>
<tr>
<td>19%</td>
<td>Offering microgrids-as-a-service to customers</td>
</tr>
<tr>
<td>10%</td>
<td>Selling system usage data to third parties</td>
</tr>
<tr>
<td>9%</td>
<td>My utility is not pursuing any of these new revenue opportunities</td>
</tr>
</tbody>
</table>

Implications for ESCo’s

- Peak moving toward evening in many places
- Expect more time-of-use rates, demand charges
- Peak (often evening power) will be more valuable
- Utility incentives may become more targeted – maximize net savings per $
- In some cases utilities will provide energy services, competing with ESCo’s
Conclusions

- Utility industry changing and now in a time of transition
- Different utilities will pursue different strategies
- While a few may be pulling back from EE, probably more will expand
- Some will ally with ESCo’s, some compete with ESCo’s
National Symposium on Market Transformation
“20th Anniversary!”

March 20 – 22, 2016 • Hyatt Regency Baltimore • Baltimore, MD

Who Should Attend:
- Policymakers
- Energy Efficiency Program Implementers
- Utility Staff
- Local, State, and Federal Agency Personnel
- Researchers
- Efficiency Advocates and Energy Professionals
- Consultants
- Students
- Behavioral Scientists

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Energy Efficiency Finance Forum

May 22 – 24, 2016 • Newport Marriott • Newport, RI

Who Should Attend:
- Clean Tech and Energy Efficiency Investors
- Financiers & Bankers
- Energy Service Companies
- Real Estate Professionals
- CDFIs
- Entrepreneurs
- Utility Staff
- Local, State, and Federal Agency Personnel
- Policymakers & NGOs
- Marketing Experts

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http://aceee.org/conferences
Contact Information

Steven Nadel
snadel@aceee.org
202-507-4011