



ACEEE ALLY WEBINAR

Change is in the Air

***How States Can Harness Energy Efficiency to Strengthen
the Economy and Reduce Pollution***

Sara Hayes

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Why is EE the preferred path?

- Low cost

- See: [The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs](#), Maggie Molina

- Lots of it

- See: [Change Is in the Air: How States Can Harness Energy Efficiency to Strengthen the Economy and Reduce Pollution](#), Hayes, et. al

- Can be deployed in the rule's timeframe

- See: [Energy Efficiency Resource Standards: A New Progress Report on State Experience](#), Annie Downs and Celia Cui

- Multiple pollutants, T&D benefits, the list goes on.

- See: [Recognizing the Full Value of Energy Efficiency](#), [Jim Lazar](#) and [Ken Colburn](#)

EE in the proposal

1.5% Energy Efficiency Resource Standard (EERS) is assumed and used to set individual state targets.

- Starts at 2012 levels and increases 0.2% per year

Status of State EERS Targets

Approximate annual savings target in 2013	Number of states	States
2% or greater	5	Massachusetts, Arizona, Rhode Island, New York, Vermont
1.5% - 1.99%	6	Illinois, Maryland, Maine, Minnesota, Colorado, Indiana*
1.0% - 1.49%	9	Connecticut, Iowa, Oregon, Washington, Hawaii, Ohio*, New Mexico, Michigan
0.5% - 0.99%	4	California, Wisconsin, Pennsylvania, North Carolina, Arkansas

Notes: Nevada has a savings target of 0.2% and Texas has a target of 0.1%.

*Indiana and Ohio have taken recent action to threaten or eliminate their EERSs

Source: <http://www.aceee.org/sites/default/files/publications/researchreports/e13k.pdf>

What about the rest?

- There are many more opportunities for EE savings
 - Combined heat and power
 - Building codes
 - State-level appliance standards
 - Private EE providers
 - The world is your oyster!



- Additional clarity needed on how these would be credited, but flexibility seems to be the intent here.

What We Did and Why

Top down policy analysis of EE potential in all 50 states

To find out:

- Electricity savings available from proven, in-practice technologies and policies
- Cost, economic impact, jobs and pollution

Approach

Evaluated biggest EE opportunities available to states

- Energy savings target of 1.5% annually
- Building codes for residential and commercial buildings
- Combined heat and power
- Appliance standards adopted by states for 5 products

Energy Savings Target

- Essentially an EERS
- Responsible for 75% of all savings
- Picked 1.5% because critical mass of states are already proving it
 - more is possible
 - did not count states achieving more
- Gradual ramp up of .25% per year – policy not fully achieved until after 2020
- Cost tiers – 17 cents/32 cents (first year)

Approximate annual savings targets for electricity and natural gas.

State	Approx. Annual Electric Savings Target	Approx. Electric Sales Covered by EERS	Approx. Annual Natural Gas Savings Target	Approx. Natural Gas Sales Covered by EERS
Massachusetts	2.6%	86%	1.1%	88%
Arizona	2.4%	56%	0.6%	85%
Maryland*	2.4%	100%	--	--
Rhode Island	2.4%	99%	0.9%	100%
New York*	2.1%	100%	0.5%	100%
Vermont	2.0%	100%	--	--
Illinois**	1.8%	89%	1.1%	88%
Maine	1.6%	100%	0.3%	100%
Colorado	1.5%	57%	0.2%	72%
Indiana	1.5%	74%	--	--
Minnesota	1.5%	100%	1.5%	74%
Connecticut	1.4%	93%	0.6%	100%
Hawaii*	1.4%	100%	--	--
Oregon	1.4%	69%	0.4%	89%
Washington	1.4%	81%	--	--
Iowa	1.3%	74%	0.2%	100%
Ohio	1.2%	89%	--	--
Michigan	1.0%	100%	0.8%	100%
New Mexico	1.0%	68%	--	--
California	0.9%	78%	0.6%	82%
Arkansas	0.8%	53%	0.7%	60%
Pennsylvania	0.8%	97%	--	--
Wisconsin	0.7%	100%	0.5%	100%
North Carolina	0.4%	99%	--	--
Nevada	0.2%	62%	--	--
Texas	0.1%	70%	--	--

Notes: *Savings originating from non-reporting entities may count toward targets. Only savings data from regulated program administrators was analyzed in this report. **Rate cap has limited available efficiency measures, resulting in approval of targets below legislative levels.

The Other Three Policies

Building Codes

- Assumes latest codes adopted in 2016 and one more upgrade before 2030
- Eventually reflects savings of 50% relative to 2006 codes

Combined Heat and Power

- Deployment of cost-effective CHP with short payback
- Results in 20 GW of new capacity by 2030

Appliance Standards

- Assumed for 5 products not otherwise regulated: certain halogen lamps, faucets, hot-food holding cabinets, portable electric spas, and certain water dispensers.
- Could be more products

Results - Electricity savings

- 925 million MWh in 2030
 - Note: this is not all EE possible, but is based on what is tested and proven in states
- Savings in 2030 are a 25% reduction relative to 2012 consumption
- 247 GW of avoided capacity
 - nearly 500 power plants

Percentage of electricity savings relative to 2012 consumption, by census region

Region	Total (all four policies)
New England	30%
Middle Atlantic	28%
South Atlantic	24%
East South Central	23%
West South Central	24%
East North Central	22%
West North Central	22%
Mountain	30%
Pacific	27%

Jobs and Economic Analysis

Dynamic Energy Efficiency Policy Evaluation Routine, or DEEPER model.

- An ACEEE input-output model
 - National and state-by-state net jobs impact
 - National and state GDP/GSP impacts
- The model has a 20-year history of use and development,
 - 15-sector input-output (I/O) model
 - Core data based on IMPLAN
 - Energy consumption and cost data from AEO
 - Labor and employment data from the Bureau of Labor Statistics

Costs, Jobs and Savings in 2030

- Costs are LESS than savings
 - \$47 billion in EE investments
 - \$95 billion in savings
- 600 million tons of CO₂ avoided
- 611,000 new jobs

A SNAPSHOT OF THE U.S. IN 2030

Following the current energy path will have devastating economic, environmental, and health impacts. Enacting energy efficiency policies would avoid 600 million tons of carbon dioxide emissions.

CURRENT ENERGY PATH



An additional 494 power plants would be maintained



527,000 tons* of additional nitrogen oxide pollution

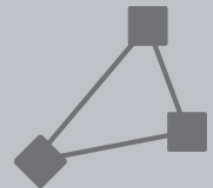


980,000 tons* of additional sulfur dioxide pollution



600 million tons* of additional carbon dioxide pollution

Transmission and distribution cost increases



Erosion of energy grid reliability

\$95 billion in electricity generation costs

*i.e., the amount of pollution that would be avoided by choosing the energy efficiency scenario

ENERGY EFFICIENCY SCENARIO



Energy efficiency policies would save 925 million MWh of electricity

Environmental impacts:

26%

reduction in carbon emissions relative to 2012

25%

reduction in power demand relative to 2012



Economic impacts:

611,000

new jobs created

\$17.2 billion

increase in GDP in 2030

\$47 billion in energy efficiency investments

Conclusions

EE policies and programs already in use could reduce 2030 electricity demand by 25% or more

- States can begin implementing immediately, and many are already doing many of these things
- Policies aren't a guarantee (Indiana, Ohio) and even states that have taken action could benefit from a "back stop"

The economic and employment impacts of this amount of EE would be positive in all states.

- Note: There are market barriers to EE and if the standard isn't aggressive enough states could fall back to more expensive compliance options (as they have done in NAAQS SIPs)

Are there winners and losers?

Nationally we clearly win, but what about individual states?

- EE is available everywhere.
- Everyone's new measures seem to be creditable.
- Some states have been implementing for decades while others are just beginning.
 - Some have administrative aspects worked out
 - Others have lots of untapped opportunities and can benefit from the lessons learned by early adopters



Next steps/Takeaways

What does this mean for businesses?

- Increased state and utility investment in EE
 - States with EERSs and other EE policies less likely to roll back
 - States that are on the fence might adopt more EE
- Possible opportunity to earn “credits”

We have some areas where we need additional clarity

- Need clear guidance on the role of a variety of EE measures (building codes, CHP, ESCOs)
- Need clear guidance on acceptable EM&V (Feb document on NAAQS indicates deference, but language alluding to more guidance in the rulemaking docs: See: <http://epa.gov/statelocalclimate/state/statepolicies.html#projecting>)

Next steps/Takeaways

Acting in spite of uncertainty

- States should look at identifying the EE potential within their borders
- Choose EE investments with long-term savings and adopt a “balanced portfolio”
- Choose EE that fits with past EPA guidance
- Develop some guidance for what you are doing and get it to EPA for “approval”

States need a way to compare the cost of different compliance options

Questions?

Sara Hayes

shayes@aceee.org

(202) 507-4747