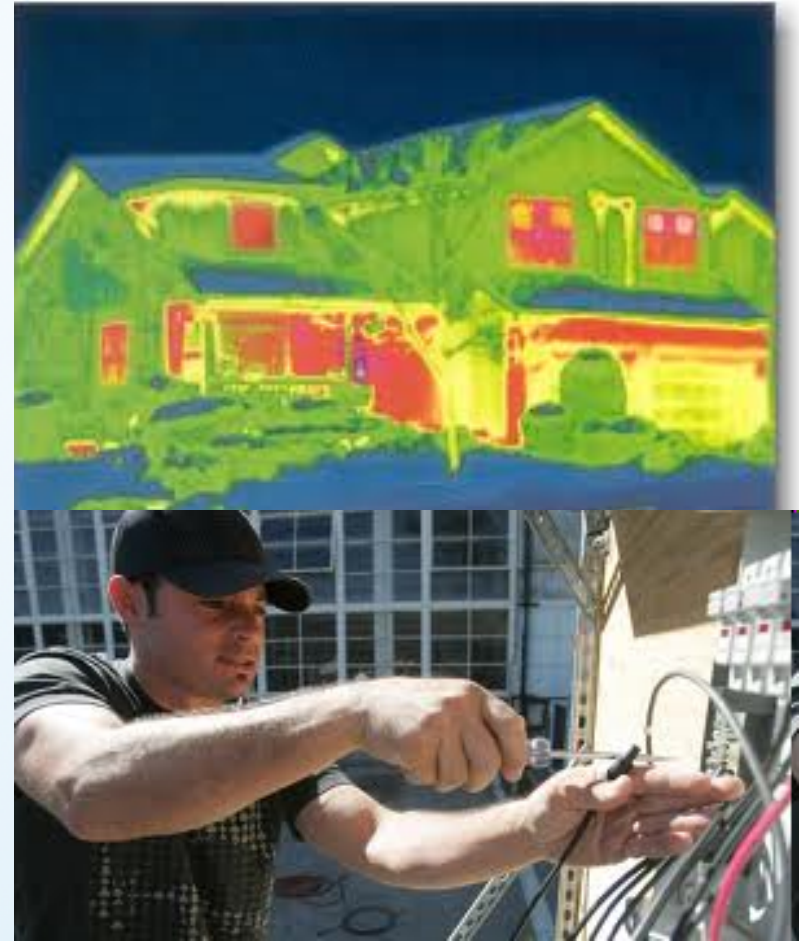
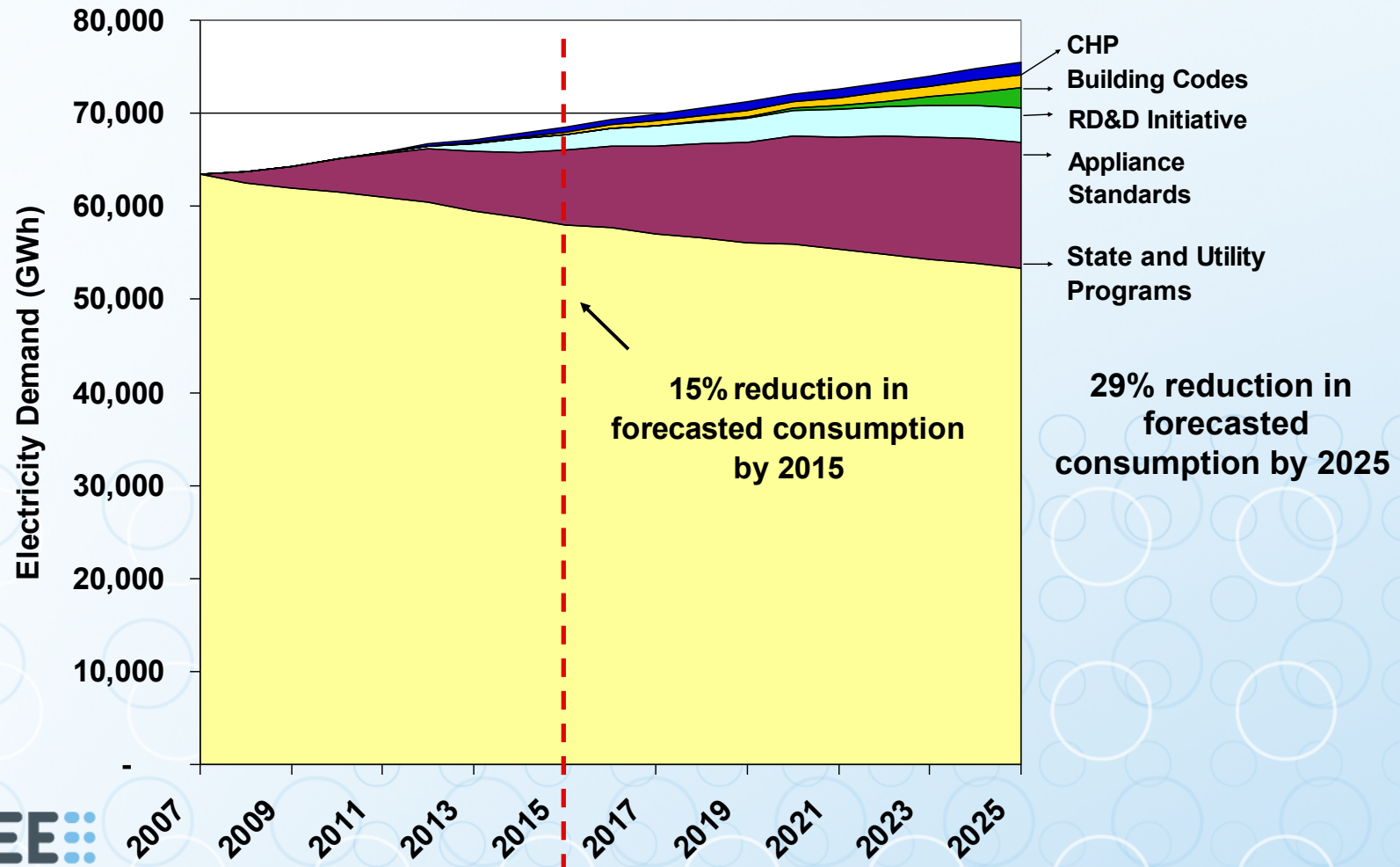


Energy Efficiency Resource Standards in the U.S.

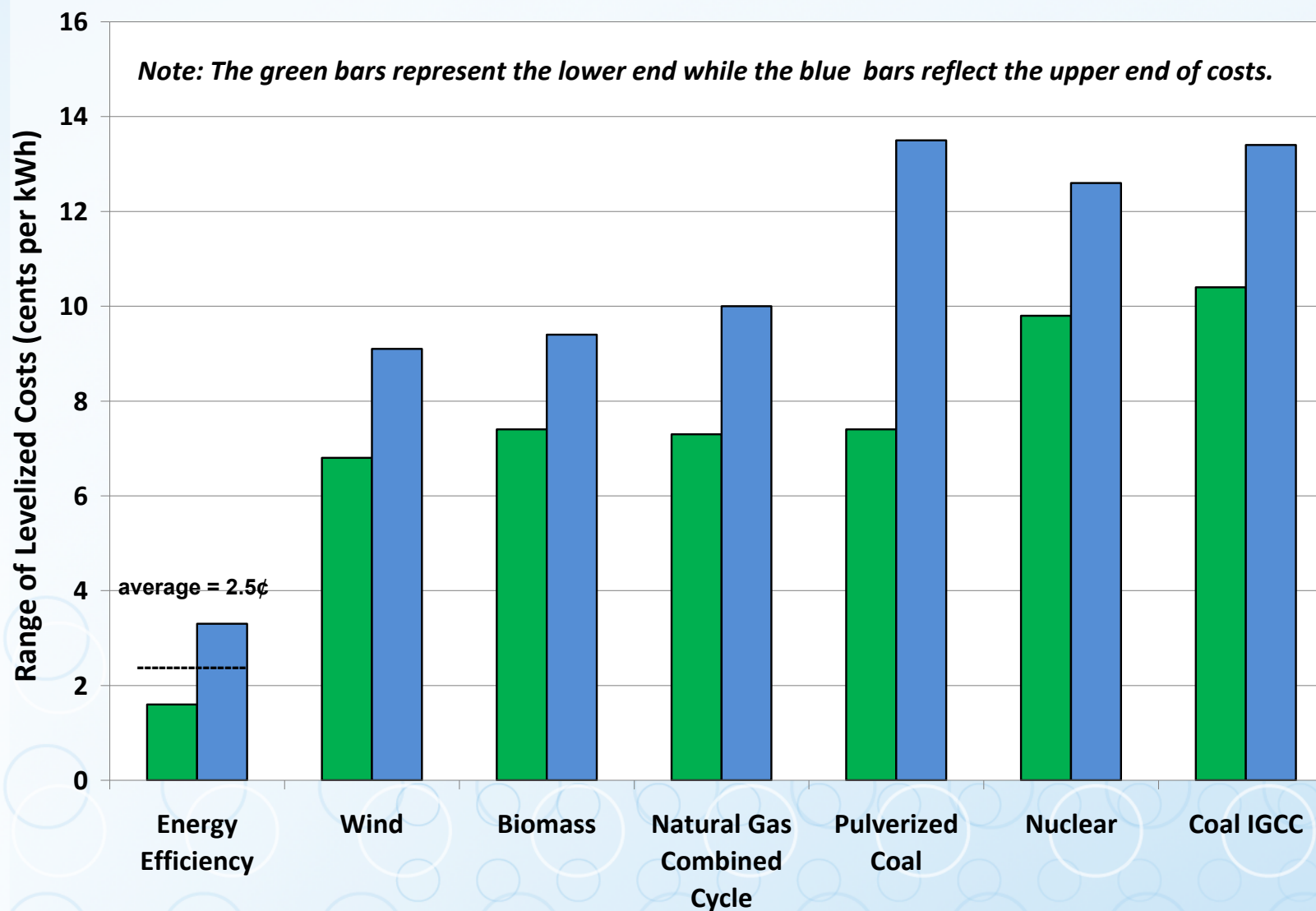
Steven Nadel
ACEEE
Presentation to IEA Workshop
April 2011



Share of Maryland Electricity Sales That Can Be Met by Efficiency Policies



Levelized Utility Cost of Electricity Resources



Energy Efficiency Resource Standards

Analogous to a Renewable Portfolio Standard

Electric and/or gas savings targets for utilities

- Includes end-use efficiency and sometimes combined heat & power (CHP) and codes/standards
- Targets generally start low and increase over time

Savings must be documented in accordance with evaluation rules established by regulators

Why an EERS?



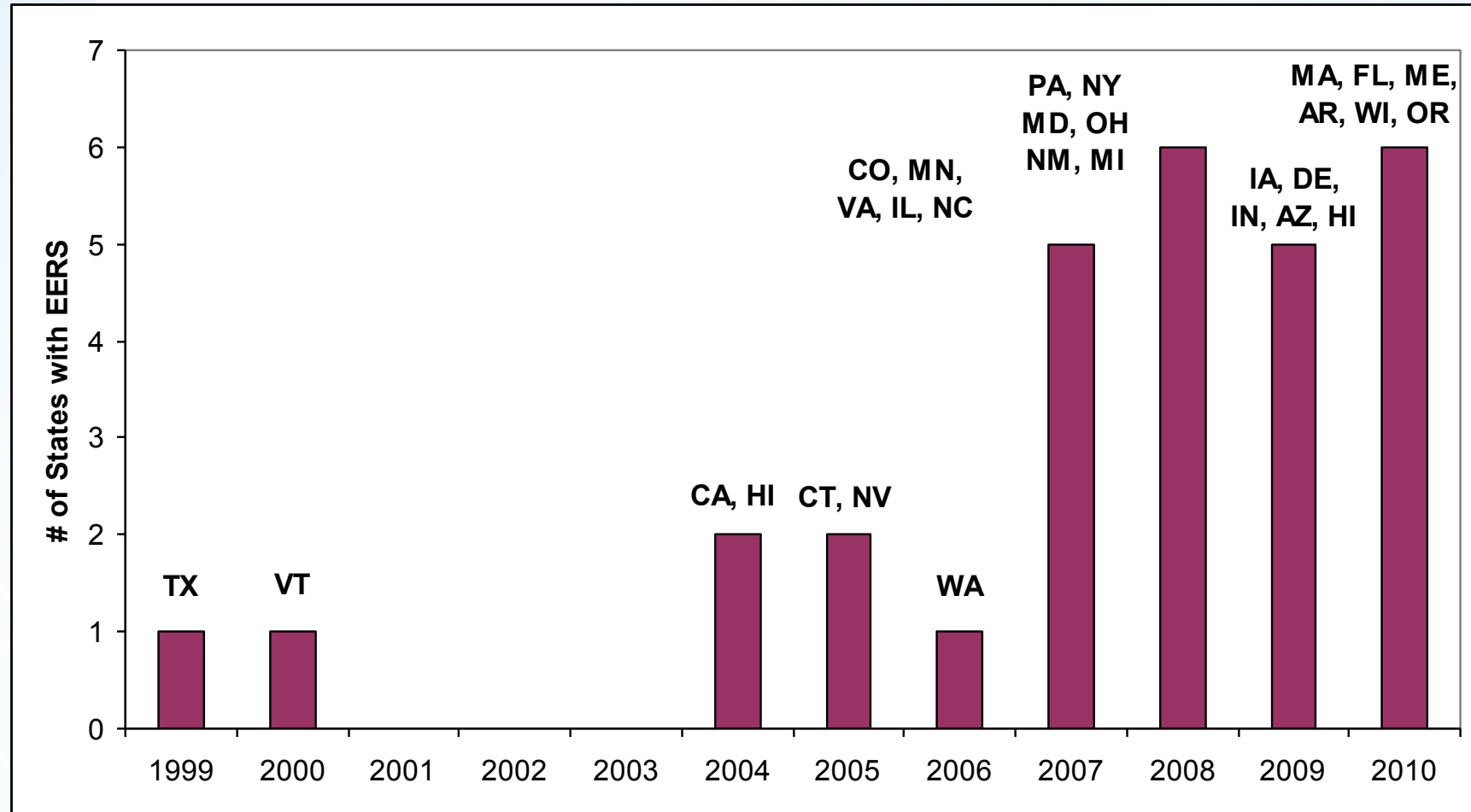
Achieve substantial energy and emissions savings

Performance based – emphasizes savings, not spending

Can be easier to legislate savings targets than spending amounts

Can start programs quickly, without many years of study (but targets should be based on cost-effective opportunities)

State EERS Adoption

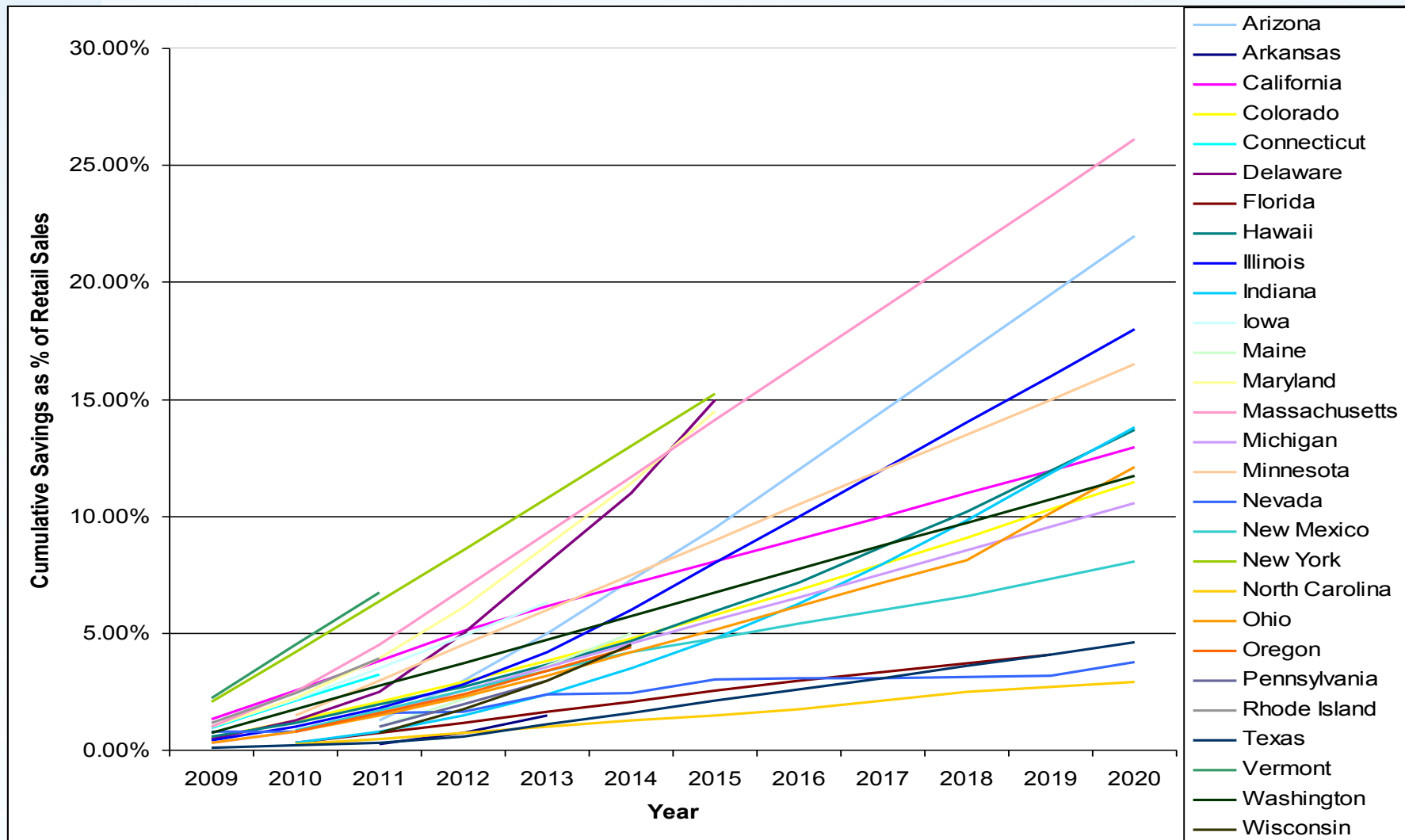


2020 Cumulative Electricity Savings Targets by State

| | |
|----------------------|------------|
| Vermont | 27% |
| New York | 26% |
| Massachusetts | 26% |
| Maryland | 25% |
| Delaware | 25% |
| Arizona | 22% |
| Connecticut | 18% |
| Illinois | 18% |
| Minnesota | 17% |
| Iowa | 16% |
| Indiana | 14% |

| | |
|---------------------|--------------|
| Rhode Island | 14% |
| Hawaii | 14% |
| Wisconsin | 13.5% |
| Maine | 13.5% |
| California | 13% |
| Ohio | 12% |
| Colorado | 12% |
| Washington | 12% |
| Michigan | 11% |
| Oregon | 10% |
| Pennsylvania | 10% |

State EERS Policies

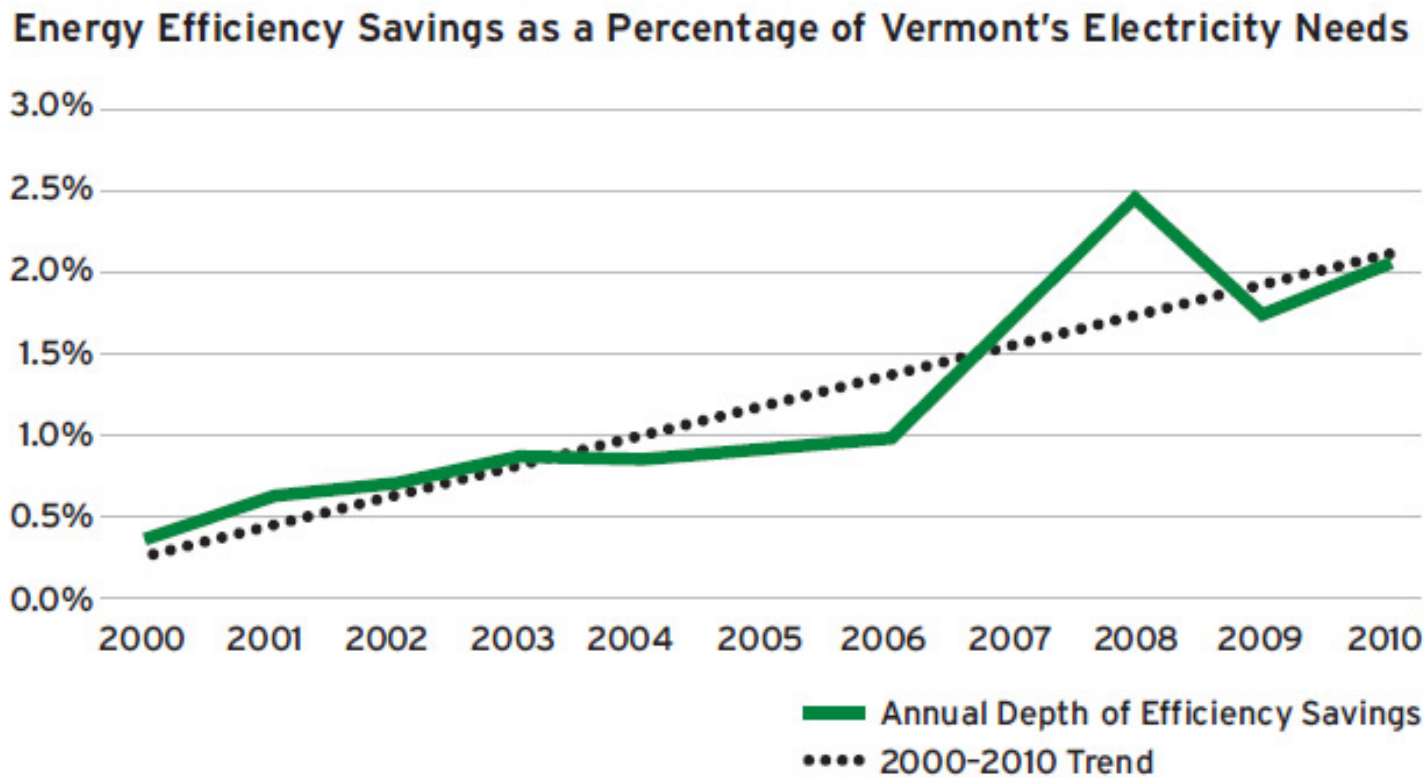


Texas

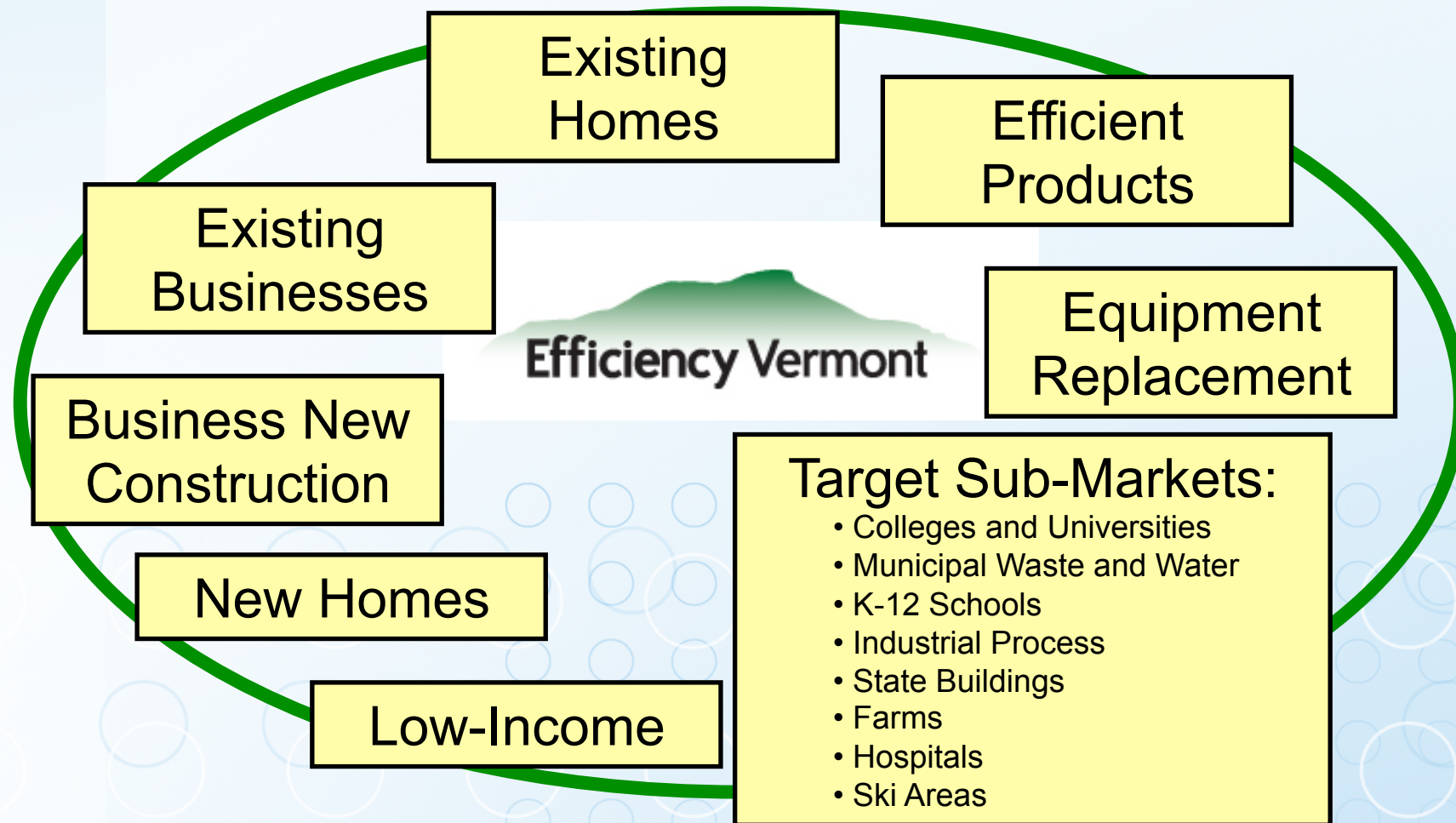


- First state to establish an EERS
- Initially 10% of load growth but increased by legislature to 20% and by commission to 30% of load growth
- Utilities have not had difficulty meeting and exceeding targets

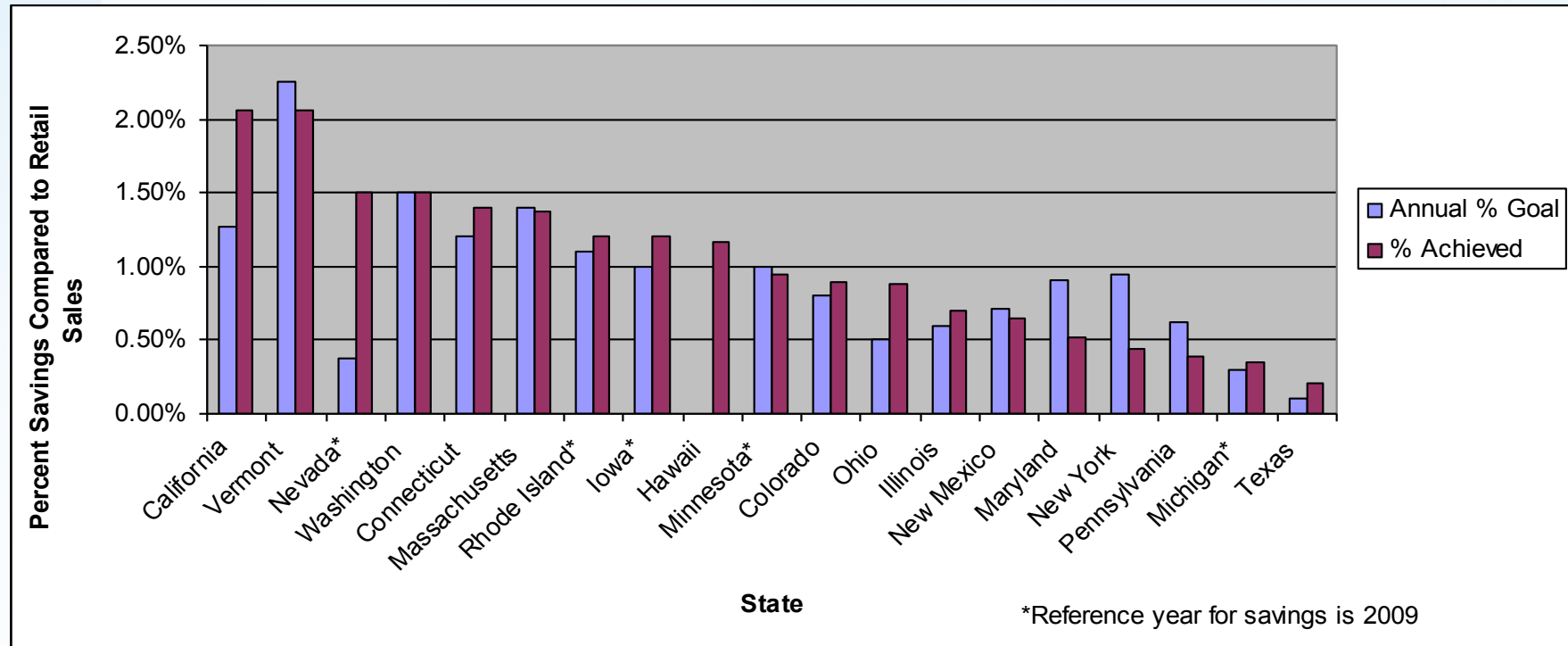
Vermont – Raising Efficiency to a New Level



What Markets Do We Work In?



Implementation of EERS Policies in 2010



- Thirteen of the twenty states with EERS policies in place for over two years are achieving 100% or more of their goals as of 2010
- Only three states are realizing savings below 70% of their goals but all 3 are still ramping up

EERS Implementation: Observations



- Utilities generally meeting targets for increased energy efficiency savings, regardless of prior experience with energy efficiency programs.
- Available data indicates benefits outweigh costs
- Ramping-up savings requires programmatic excellence
 - Tried & true programs work initially, but innovative programs reaching all sectors necessary to reach deeper savings

EERS Implementation: Observations



- Regulation must be clear and fair
 - Gradual target ramp-ups
 - Clarity on evaluation methods
- All parties must be committed to meeting targets
 - Utilities devote resources needed to meet goals
 - Commissions approving sufficient levels of funding and complementary policies such as performance incentives/decoupling

States with Combined EERS & RES

Pennsylvania: EE in RPS tier 2, but target too low to get any savings; in 2008 established separate EERS

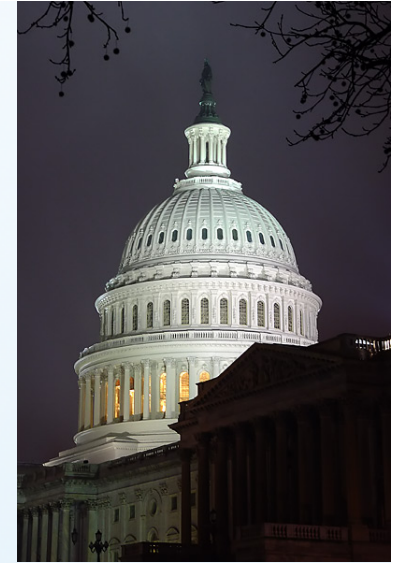
Nevada: EE can be 25% of total and utilities now exceeding this level

Hawaii: Can do unlimited EE; EE been ~40% of total; EE will be separate as of 2015 with ~32% savings by 2030 target

North Carolina: EE can be 25% of total to start, 40% as of 2021; just getting started



Federal EERS Bills in Last Congress



- Waxman-Markey as passed House
 - Includes 20% RES with 5-8% EE
- Senate Energy Committee bill
 - 15% RES with efficiency up to 4% EE
- Bills with 15% electric savings and 10% gas savings by 2020 introduced by Schumer and Markey

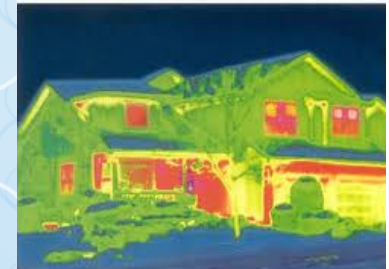
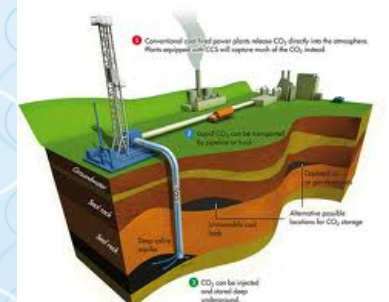
White Certificates and Trading



- Most states do not have trading
 - Enough EE that each utility can meet on own
- CT had white certificates thru 2010, have not set new goals
- Trading allowed in old PA program but didn't need any new resources
- NV also allows 3rd party participation

Clean Energy Standard (CES)

- Includes renewables, efficiency, nuclear, carbon capture and storage
- Examples – Lugar and Graham bills, Obama included in State of the Union
- Issues:
 - Include efficiency, no cap
 - Numbers – Obama proposed 80% by 2035
 - Include natural gas for partial credit?



Savings Grow Over Time Under Markey and Schumer Bills

| | <u>Electric</u> | | <u>Natural Gas</u> | |
|------|-----------------|------------|--------------------|------------|
| | Annual | Cumulative | Annual | Cumulative |
| 2011 | 0.33% | 0.3% | 0.25% | 0.3% |
| 2012 | 0.67% | 1.0% | 0.50% | 0.8% |
| 2013 | 1.00% | 2.0% | 0.75% | 1.5% |
| 2014 | 1.25% | 3.3% | 1.00% | 2.5% |
| 2015 | 1.25% | 4.5% | 1.00% | 3.5% |
| 2016 | 1.50% | 6.0% | 1.25% | 4.8% |
| 2017 | 1.50% | 7.5% | 1.25% | 6.0% |
| 2018 | 2.50% | 10.0% | 1.25% | 7.3% |
| 2019 | 2.50% | 12.5% | 1.25% | 8.5% |
| 2020 | 2.50% | 15.0% | 1.50% | 10.0% |

Note: Savings count from date of passage

Impacts of a Federal EERS

(10% electric; savings over and above existing state EERS' s)

- Peak demand savings of ~33,000 MW (110 power plants, 300 MW each)
- CO2 emissions down 74 MMT in 2020 (equivalent to taking 14 million vehicles off the road for a year)
- 76,000 net jobs created
- Cumulative net savings of \$66 billion (B/C ~3:1)

Source: ACEEE analysis using the methodology from Furrey, Laura. 2009. *Laying the Foundation for Implementing a Federal Energy Efficiency Resource Standard*. Washington, DC: ACEEE.

How Does a Federal EERS Affect States that Already Have a State EERS?

States can implement federal and state EERS simultaneously – same/similar utility filings, meet higher targets

States can set higher targets to gain additional savings

States with targets greater than the federal targets also benefit from savings in nearby states

- Emission reductions
- Impacts on energy prices



Issues for an EERS or CES

Which providers covered? (LSE's vs. Disco's?
Size cap? Public utilities? Gas utilities?)

Which measures eligible? (CHP? T&D?)

Appropriate targets

Any caps on EE?

Trading for EE? (in PA and CT)

Cost caps? (in IL and NC)

Industrial self-direct option? (as in OH & MI)

Monitoring and verification rules?

Relationship to other policies? (PBFs, stimulus funds, regulatory incentives)

For More Information



State utility policies:

<http://www.aceee.org/topics/utility-regulation-and-policy>

EERS:

<http://www.aceee.org/topics/eers>

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