

Accounting for Energy Efficiency Benefits in State Implementation Plans (SIPs)

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EE/RE As a Key Strategy

Many states are aggressively pursuing EE policies

- EE/RE can deliver multiple benefits
 - Cleaner air
 - Lower costs
 - Improved reliability
 - Lower bills
- EE increasing credibility as a reliable energy resource

EPA is taking steps to:

- Encourage additional investment in EE
- Account for the emission benefits of EE



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EPA is Building Capacity to Use EE/RE for Air Quality

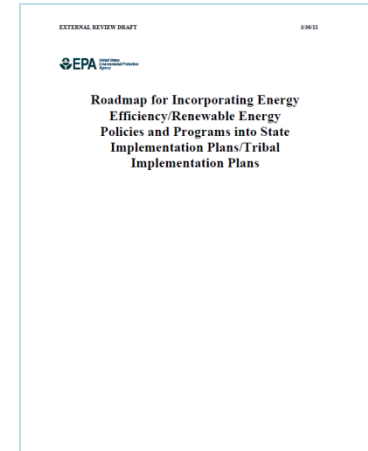
- National Ambient Air Quality Standards (NAAQS):
 - 1) Draft Roadmap for including EE/RE in State Implementation Plans (SIPs)
 - 2) Draft Baseline Analysis-projected energy and emissions impacts of EE/RE policies, state-by-state
- Cross-State Air Pollution Rule (CSAPR)
 - 3) EPA supports state emission allowance set-asides for EE
- Proposed Mercury & Air Toxics Standards
 - 4) EE benefits analysis
- Training and outreach
 - 5) Resources for getting started, emission quantification



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(1) Draft Roadmap for Incorporating EE/RE in SIPs

- Goals:
 - Clarify 2004 guidance
 - Increase opportunities for using EE/RE
 - Recognize state leadership & action
 - Provide flexibility – 4 pathways
- Process:
 - Comment period - Spring, 2011
 - Release next version as a living document – Fall 2011



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<http://www.epa.gov/airquality/eere.html>

(2) Draft Baseline Analysis

- Goal:
 - Help states incorporate on-the-books EE/RE policies into SIP baseline emissions forecasts
- Key steps:
 - Mapped baseline inputs – what's already in, discovered what's not
 - Estimated energy impacts of existing EE/RE policies not explicitly reflected in EPA's baseline
 - Using revised demand forecast (that accounts for EE/RE policies) to project electricity sector emissions in IPM

<http://www.epa.gov/statelocalclimate/state/statepolicies.html>



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Applicable EE/RE Policy Assumptions Explicitly Included and Not Included in AEO 2010

EE/RE Policies Explicitly Accounted for in AEO 2010

- American Recovery and Reinvestment Act (ARRA) funded EE programs
- Federal appliance standards
- State building codes
- Renewable portfolio standards for 30 states and DC as of Sep. 2009

Existing State EE/RE Policies NOT Explicitly Accounted for in AEO 2010

- Energy Efficiency Resource Standards (25 states)
- Public Benefit Funded EE programs (3 states*)
- RGGI Funded EE programs (3 states*)
- Newly adopted State RPS after Sep. 2009 (5 states)



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* Only includes states without EERS

States Included in EPA Draft Baseline Analysis

- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida
- Hawaii
- Illinois
- Indiana
- Iowa
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Montana
- New Hampshire
- New Jersey
- New Mexico
- New York
- Ohio
- Oregon
- Pennsylvania
- Rhode Island
- Texas
- Vermont
- Washington
- Wisconsin



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Draft Approach and Analysis for *Energy Efficiency Policies*

Steps to estimate “on the books” state EE policies not explicitly reflected in AEO 2010 reference case

- Generate a baseline (business as usual) forecast of state electricity sales consistent with AEO 2010 annual average regional growth rates.
- Estimate the impacts of state EE policies that are already accounted for (embedded) in AEO 2010 reference case forecast of electricity sales .
- Estimate projected energy savings from existing state EE policies.
- Generate state-adjusted baseline demand forecast that reflects the energy savings not accounted for in AEO 2010.

States can use this information to forecast EGU emissions that accounts for key “on the books” State EE/RE policies, or make use of EPA’s IPM runs

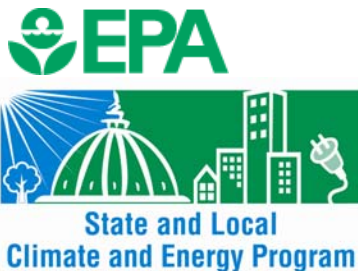


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Draft methods for estimating energy savings from state EE policies

For EERS - Estimate first year GWh savings by State for 2010-2020

- Apply annual percentage savings requirement to the appropriate base year sales for all applicable entities (e.g., investor-owned utilities).
- Generally assume full compliance with EERS targets
- Make adjustments in states with:
 - explicit limits on program funding (e.g, rate caps)
 - expansive definitions of energy savings (e.g., counting historical programs, codes & standards, and/or demand response)



Draft methods for estimating energy savings from state EE policies

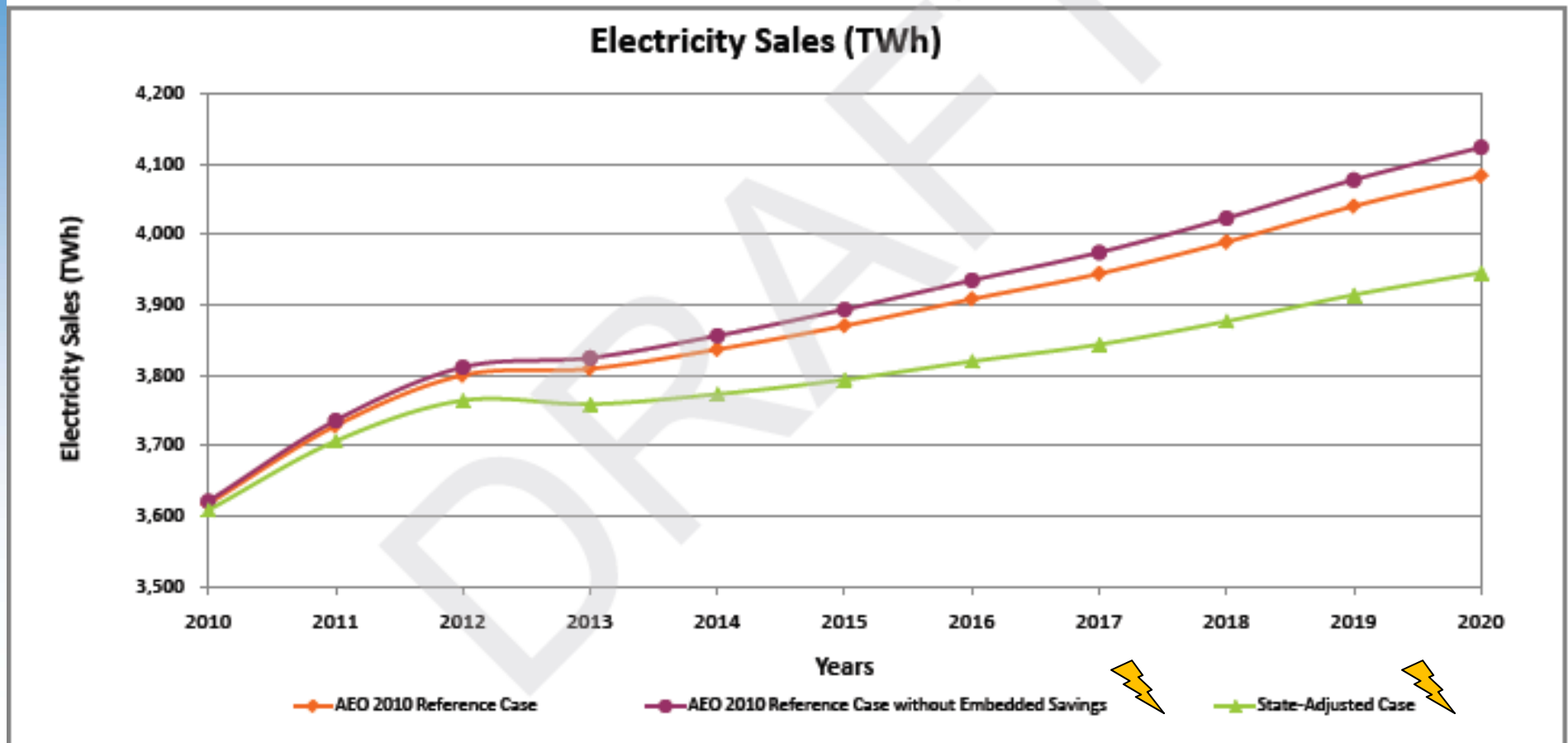
- For funding commitments to EE Programs - Estimate first year GWh savings by State* for 2010-2020
 - Estimate annual EE program spending by State*
 - For RGGI \$, assume 25% of allowance value from relevant States is dedicated to EE programs
 - Convert spending to savings using a State-specific (if available), or national average, levelized cost of saved energy (LCOSE) consistent with past EE program results (\$0.016-\$0.033/kWh**, depending on the State)
- Assume average measure life (i.e., how long program impacts persist) consistent with past EE program results



*Only for States without an EERS

**Using Program Administrator Costs

Draft National Results: Revised Demand Forecast Accounting for EE Policies



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These forecasts are derived from EPA's draft state-level analysis

Uncertainty in estimates of energy savings

Key sources of uncertainty:

- the impacts of state EE policy embedded in the AEO reference case
 - Sensitivity: alternative assumptions yield national energy savings estimates +/- 1% (2.4% - 4.4% in 2020)
- PUC approval of EE program budgets necessary to meet the adopted EERS targets



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Draft Documents Available & Next Steps

- 1) Background and EPA's draft methodology for estimating energy impacts
- 2) State policy characterizations and annual energy savings and generation estimates
- 3) Peak energy savings summaries
- 4) State-by-state summary pages

<http://epa.gov/statelocalclimate/state/statepolicies.html>

Next Steps:

- EPA will deliver a set of IPM base case runs (with and without revised baseline demand) this fall
 - States can make use of these projections for their SIP emission baseline forecasts if they choose to do so

Continue to improve methods for estimating energy savings from state EE policies



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(3) Emission Allowance Set-Asides for EE

- States have established emission allowance set-asides, which utilize allowance value to expand funding for EE programs and/or incentivize EE projects
 - E.g., NO_x Budget Trading Program, RGGI
- Cross-State Air Pollution Rule (CSAPR) finalized July 2011
 - Authorized under the “good neighbor” provision of the Clean Air Act to reduce emissions of SO₂ and NO_x from power plants in the eastern U.S.
 - Sets emissions budgets that cap emissions in covered states
 - Supports States’ inclusion of EE allowance set-asides in SIPs (starting in 2014).



■ <http://www.epa.gov/airtransport/>



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For More Information

- U.S. EPA State and Local Climate and Energy Program Website:
<http://www.epa.gov/statelocalclimate/index.html>
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