



Energy Efficiency: A Resource for Meeting Air Quality Goals While Keeping the Lights On

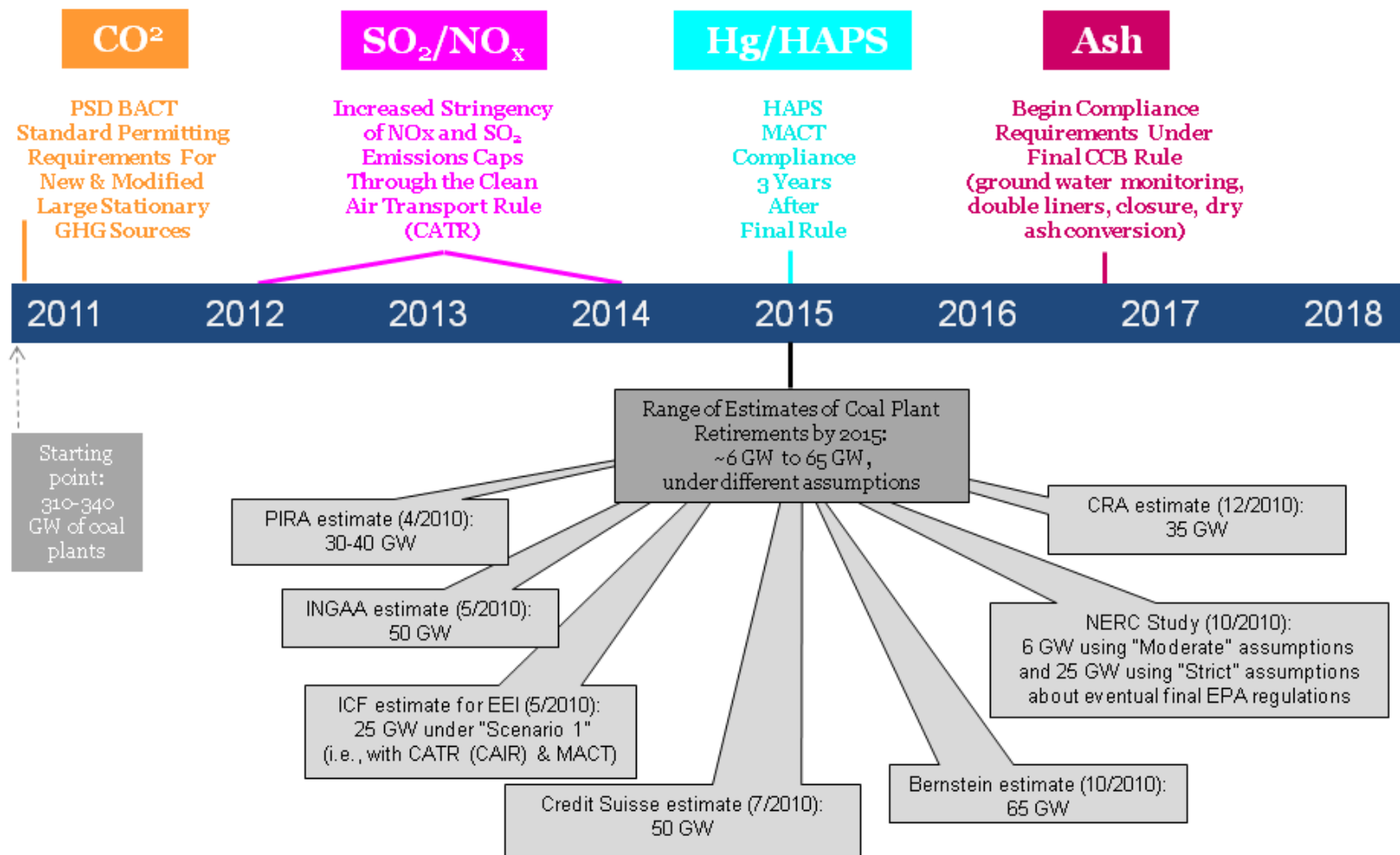
Sara Hayes, Senior Manager and Researcher at ACEEE
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EPA Air Regulations

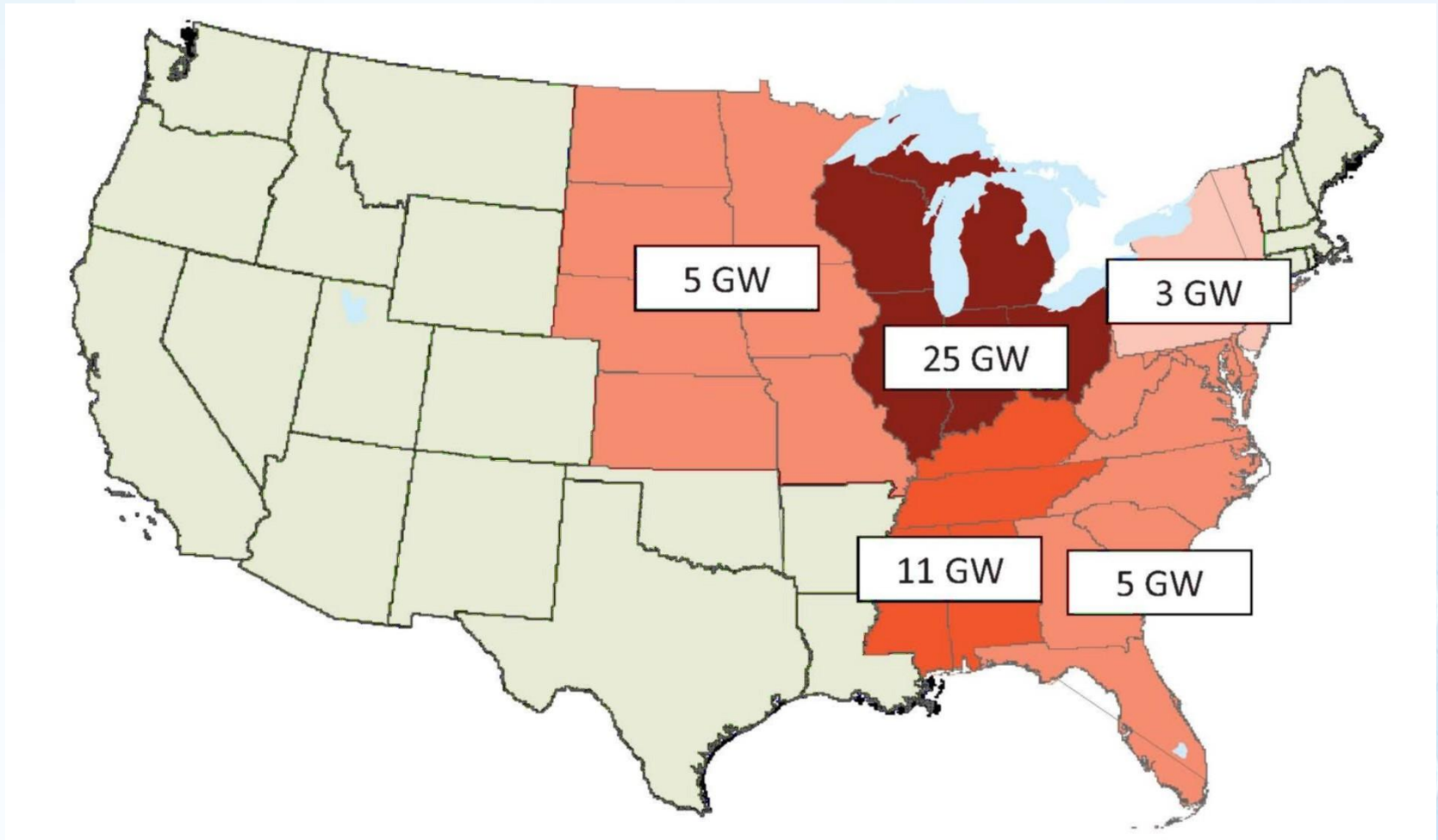
A growing number of federal air regulations restrict emissions of pollutants from power plants.

- CAIR/CSAPR (?)
 - Nitrogen oxides (NO_x); Sulfur dioxide (SO₂).
- NAAQS
 - Nitrogen oxides (NO_x); Sulfur dioxide (SO₂); Particulate matter.
- MATS
 - Mercury
- NSPS/111(d)
 - Greenhouse gas emissions
- Cooling water intake, toxics discharge (water), ash...

Timeline of Compliance Dates for EPA Regulations and Estimated Coal Plant Retirements: Results of Studies Examining Impacts of Air Regulations



“At Risk” Coal Generation by Region: Greats Potential Problems in Midwest & South Central



Energy Efficiency is a Solution

1. Air regulations require low-cost and rapidly deployable emissions reduction measures.
 - Efficiency costs less than building new generation and often less than installing pollution controls
2. Many of EPA's rules allow EE to function as a compliance mechanism.
 - NAAQS
 - Trading programs
 - NSPS for greenhouse gases
 - 111(d)?
3. Even if EE isn't a compliance tool, it often reduces the cost of complying.

Energy Efficiency is Deployable

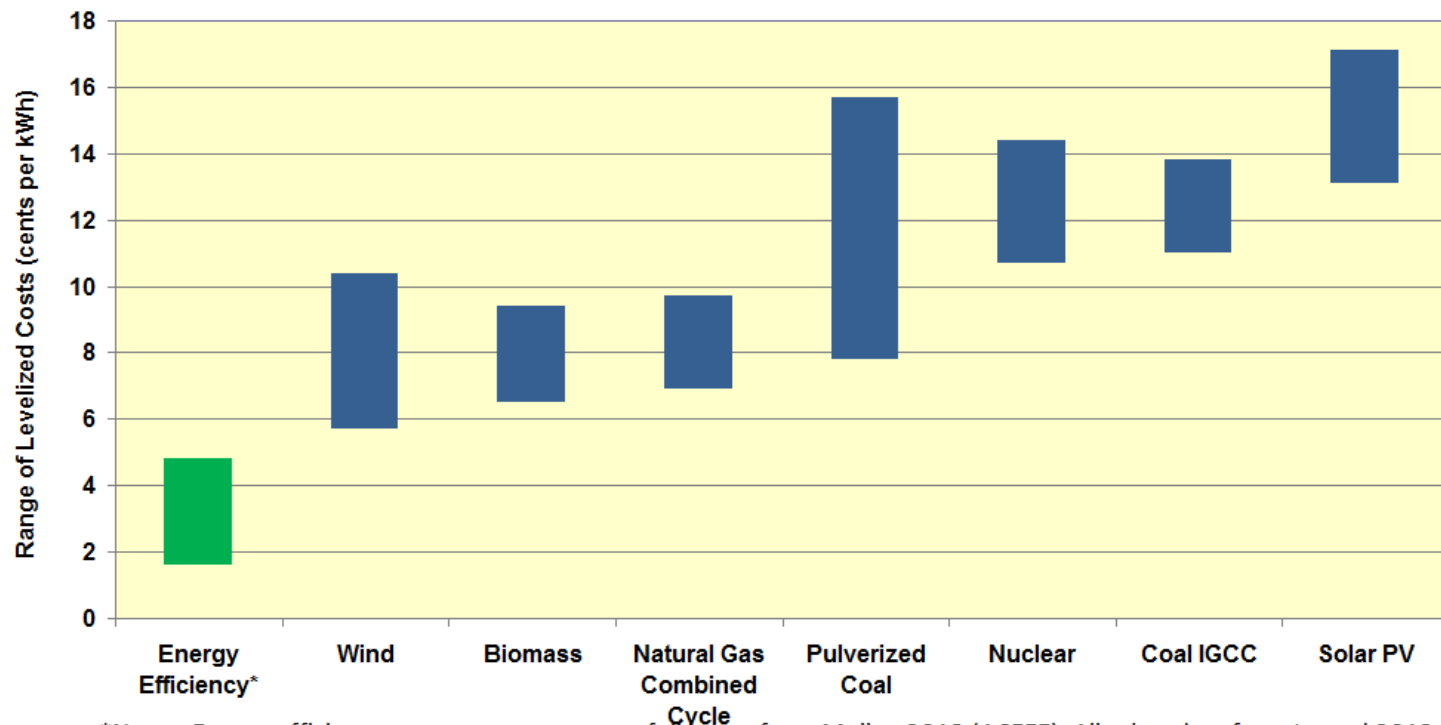
- Energy efficiency is not a new technology
- Can be implemented quickly
- Results are immediate

The US could cost-effectively reduce energy consumption over the next 20 years by 20%-30% or more.

If we got these savings from coal-fired power plants we are looking at 2.5 – 3.7 billion tons of CO₂.

Source: Sara Hayes ballpark estimates based on past ACEEE analysis

Efficiency is the Least-Cost Resource: Levelized Utility Cost of New Electricity Resources



*Notes: Energy efficiency average program portfolio data from Molina 2013 (ACEEE); All other data from Lazard 2012. High-end range of advanced pulverized coal includes 90% carbon capture and compression.

Example: EE Lowers the Cost of MATS

- EPA developed a scenario showing EE as part of a compliance strategy including ratepayer-funded EE programs and federal appliance standards
 - Modeled power sector impacts using IPM

RESULTS

- EE Reduces costs of rule, reduces electricity and natural gas prices, provides reliability benefits , reduces required new generation, reduces required new emissions controls and reduces air emissions of NOx, SO2, Hg, and CO2
- By 2030 the cost of the MATS rule is reduced by \$11 billion!

See: http://aceee.org/files/pdf/conferences/eer/2011/BS3D_Bryson.pdf

Southeastern Example

- If all 12 southeastern US states adopted a 1% annual energy savings goal through 2025:
 - The emission of over 52,000 tons of nitrogen oxide would be avoided, as well as;
 - 160,000 tons of sulfur dioxide, and;
 - 4,500 pounds of mercury
- Similar emissions control measures would cost over **\$12 billion**.

Source: ACEEE EEPC; <http://aceee.org/research-report/e134>

ACEEE Efforts and Resources to Help Leverage this Opportunity

1. Convening of Advisory Group

- NACAA, NASEO, NARUC, EPA, Alliance to Save Energy, NRDC, Environmental Defense, Sierra Club, UCS, WRI, RAP, Climate Policy Institute, Nicholas Institute, Alliance for Industrial Efficiency...

2. Report on Opportunities

- *Energy Efficiency: The Slip Switch to a New Track Toward Compliance with Federal Air Regulations*. January 31, 2012 <http://aceee.org/research-report/e122>

3. Tool for Evaluating Opportunity

- *Energy Efficiency and Pollution Control Calculator*. February 13, 2013 <http://aceee.org/research-report/e134>

4. Outreach and Technical Assistance

- Fact sheets, outreach/educational packages, webinars, partners, technical assistance, resources. See: <http://aceee.org/123-solutions>

ACEEE Efforts and Resources to Help Leverage this Opportunity (cont.)

5. Joint paper on EE Opportunities in 111(d) with Nicholas Institute (Duke)

- Energy Efficiency and Greenhouse Gas Limits for Existing Power Plants: Learning from EPA Precedent. June 11, 2013. <http://aceee.org/research-report/e13c>

6. SIP Template (this fall)

7. Recommendations for EE in 111(d) (upcoming next month)

8. 50 State EE policy analysis (this winter) for 111(d)

Questions?

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