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Further Preparing for EPA Regulations: A Status Update

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Webinar Outline

I. Introduction

II. Clean Water Act

- Cooling Water Intake Structures—316(b)
- Effluent Limitations Guidelines

III. Resource Conservation and Recovery Act

- Coal Combustion Residuals

IV. Clean Air Act

- Cross-State Air Pollution Rule (CSAPR),
- Mercury Air Toxics Rule (MATS), and
- New Source Performance Standards for GHGs - 111(d)

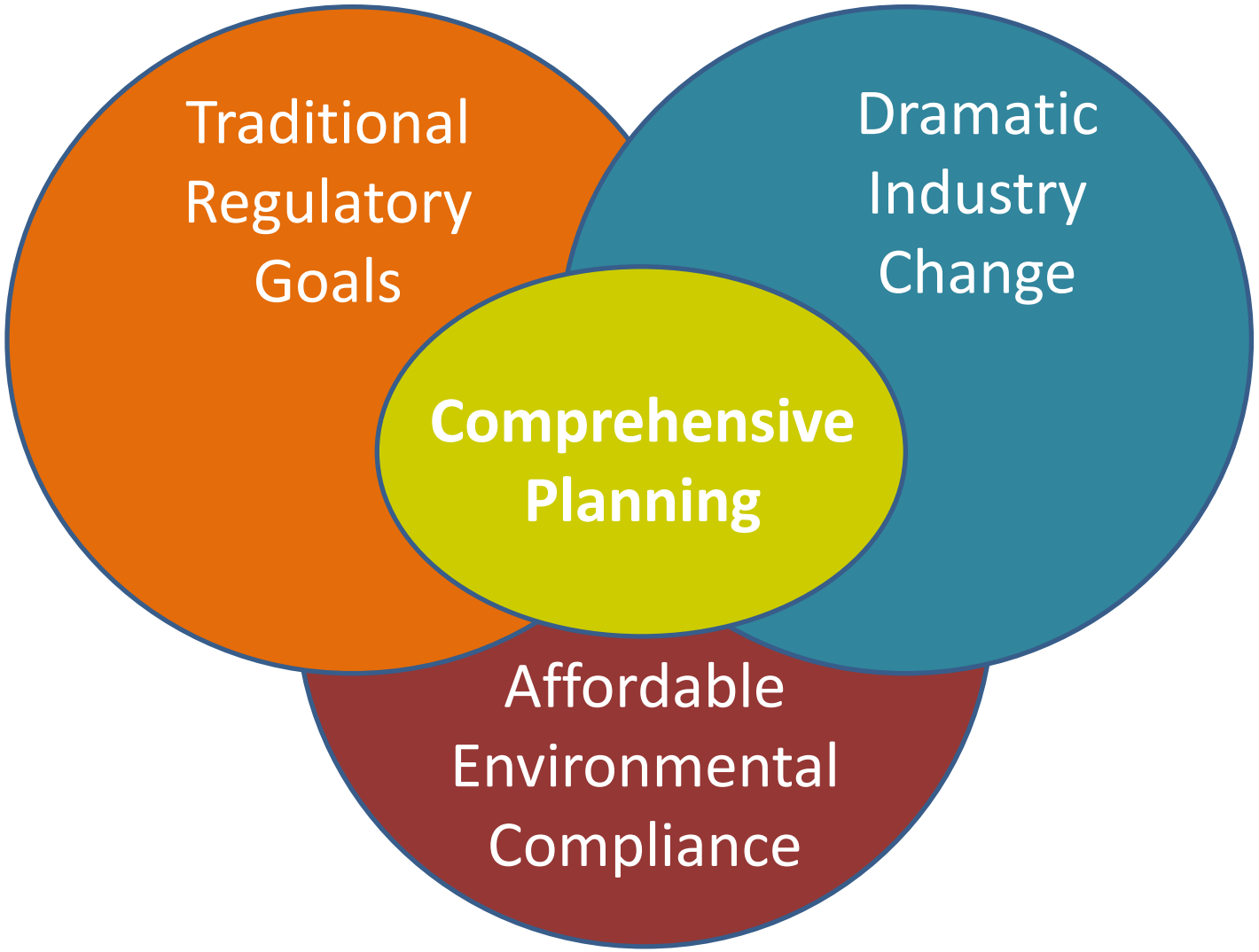
V. Recommendations; Q&A

I. Background

New paper *Further Preparing for EPA Regulations* provides an update on:

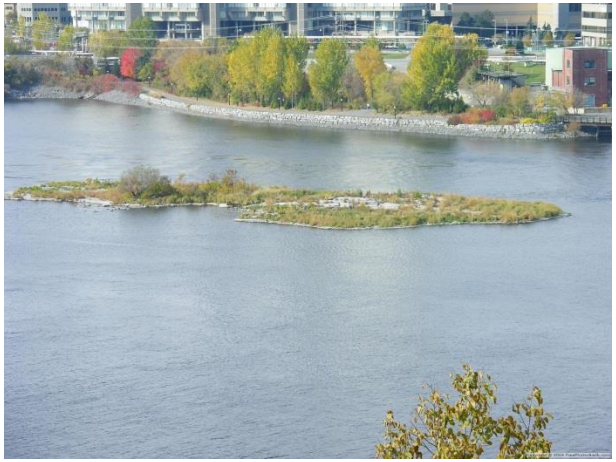
- Regulatory proposals and newly implemented programs
- Significant trends
- Considerations and questions that regulators should touch upon as they evaluate these issues

I. The Challenge for Regulators



II. Cooling Water Intake Structures—316(b)

- Problem: “Impingement” and “entrainment” of fish and other organisms
- Existing Sources
  - Existing Sources withdrawing ≥ 2 million gals/day, and
  - Using ≥ 25% exclusively for cooling



- Final Rule, Nov 2013 (pre-govt. shutdown)
- Impingement standards:
  - Monthly/annual average mortality or
  - Adjustment of intake velocity
- Entrainment standards: permit writers consider site-specific factors, e.g., potentially affected species, mix of species, biology of the water, and operational aspects of the facility

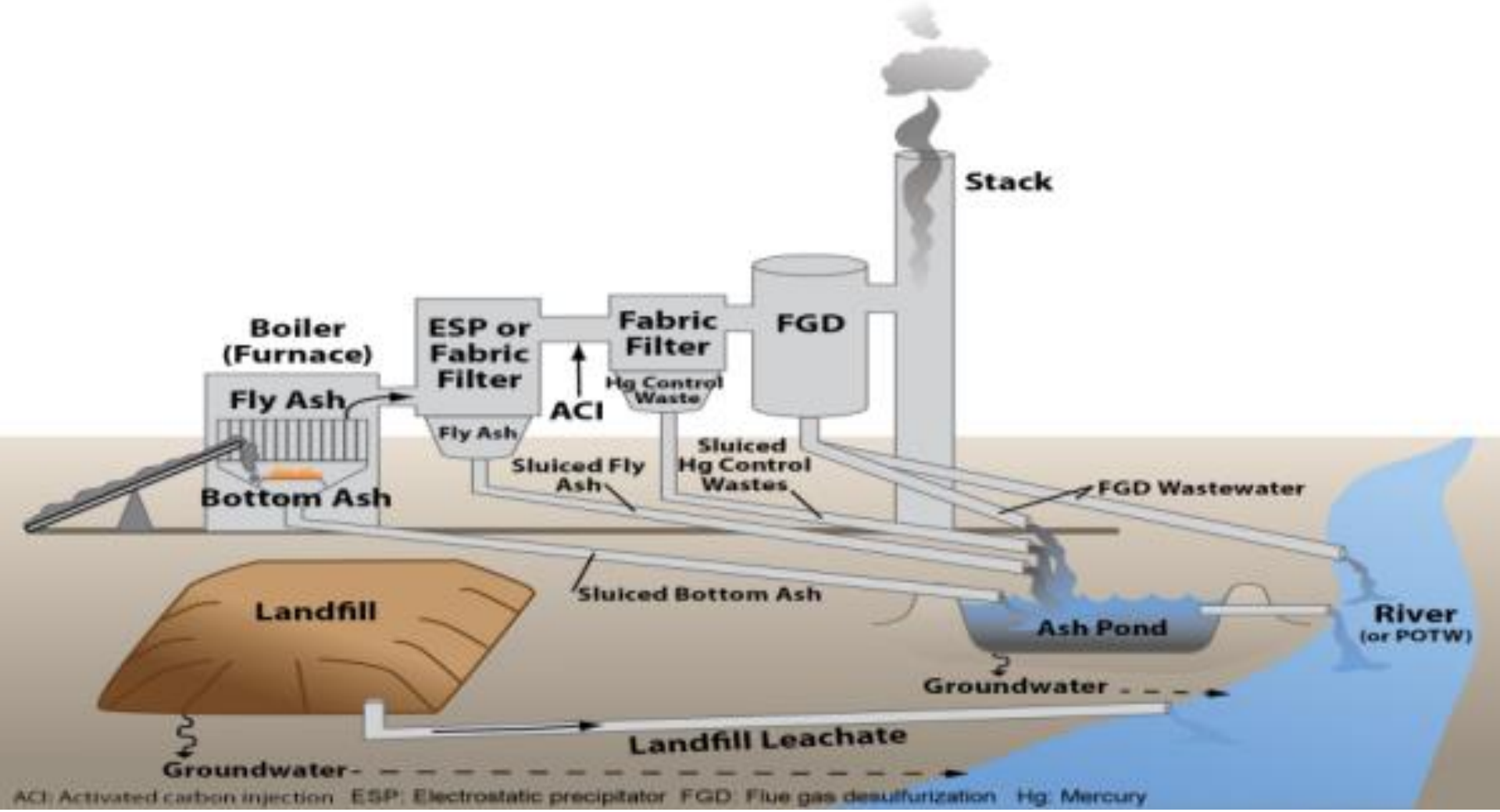
II. 316(b)—Compliance Considerations

- Impingement compliance:
  - Either
    - Annual average mortality ≤ 12%
    - Maximum monthly average mortality ≤ 31%
  - Or
    - Intake velocity≤ 0.5 feet per second or less
- Entrainment compliance: site-specific information, permit writer's best professional judgment
- Uncertainties/Risks
  - Permit writer's approach
  - Water-dependent cooling subject to drought and other water quality issues

II. Effluent Limitations Guidelines (ELG)

- Problem: steam electric power plants are 50–60 percent of all toxic pollutants discharged to US surface waters
- Final Rule May 2014
- Technology-based effluent limitations guidelines and standards that apply to:
  - Direct discharges of wastewater
  - Indirect discharges to publicly-owned treatment works

II. Key Waste Streams



II. Regulatory Options Being Considered

Option	Best Available Technology (BAT) Alternatives
3a	• For fly ash transport water and wastewater from flue gas mercury control system discharges - zero discharge effluent limit. • For gasification process discharges – numeric effluent limits for mercury, arsenic, selenium, and total dissolved solids. • For nonchemical metal cleaning waste discharges – numeric effluent limits for cooper and iron. • For bottom ash transport water and CCR residual leachate from landfills/surface impoundments – numeric effluent limits for total suspended solids, oil and grease that are equal to the current BPT effluent limits for these discharges. • Flue gas desulfurization (FGD) wastewater – determine on a site specific basis.
3b	• FGD wastewater for plants with a total wet scrubbed capacity of 2,000 MW or greater – numeric effluent limits for mercury, arsenic, selenium, and nitrate-nitrite. • All other proposed Option 3b requirements are identical to the proposed Option 3a requirements described above.
3	• FGD wastewater (exception for plants that are 50 MW or smaller or oil fired) – numeric effluent limits for mercury, arsenic, selenium, and nitrate-nitrite. • All other proposed Option 3 requirements are identical to the proposed Option 3a requirements described above.
4a	• Bottom ash transport water from units that are greater than 400 MW – zero discharge for all pollutants. • All other proposed Option 4 requirements are identical to the proposed Option 3 requirements described above.

III. Coal Combustion Residuals

- Problem: byproducts of power plant coal combustion including ash and flue-gas desulfurization waste
- *Appalachian Voices*
  - Court orders EPA plan/schedule for finalizing CCR rules by end of December 2013
- RCRA

  Subtitle C — CCRs = hazardous waste

  Subtitle D — CCRs = "non-hazardous" waste

III. Key Differences Between Subtitles C and D

	SUBTITLE C	SUBTITLE D
Effective Date	Timing will vary from state to state, as each state must adopt the rule individually-can take 1 – 2 years or more	Six months after final rule is promulgated for most provisions.
Enforcement	State and Federal enforcement	Enforcement through citizen suits; States can act as citizens.
Corrective Action	Monitored by authorized States and EPA	Self-implementing
Financial Assurance	Yes	Considering subsequent rule using CERCLA 108 (b) Authority
Permit Issuance	Federal requirement for permit issuance by States (or EPA)	No
Requirements for Storage, Including Containers, Tanks, and Containment Buildings	Yes	No
Surface Impoundments Built Before Rule is Finalized	Remove solids and meet land disposal restrictions; retrofit with a liner within five years of effective date. Would effectively phase out use of existing surface impoundments	Must remove solids and retrofit with a composite liner or cease receiving CCRs within 5 years of effective date and close the unit
Surface Impoundments Built After Rule is Finalized	Must meet Land Disposal Restrictions and liner requirements. Would effectively phase out use of new surface impoundments.	Must install composite liners. No Land Disposal Restrictions
Landfills Built Before Rule is Finalized	No liner requirements, but require groundwater monitoring	No liner requirements, but require groundwater monitoring
Landfills Built After Rule is Finalized	Liner requirements and groundwater monitoring	Liner requirements and groundwater monitoring
Requirements for Closure and Post-Closure Care	Yes; monitored by States and EPA	Yes; self-implementing

III. Potential Coordination Between Effluent Guidelines and CCR Rule

- Design, Timing, and Implementation of both rules
- Both affect disposal of CCRs going to and discharged from surface impoundments at power plants
  - e.g., ELG rule could reduce or entirely eliminate discharges

IV. Cross-State Air Pollution Rule (CSAPR)

- Problem: Interstate transport of pollutants (SO_2 and Nox) emitted by electric generators located in the eastern two-thirds of the country
- Rule (under Section 110 … SIPs)
- Vacated in *EME Homer City Generation v. EPA*; now before Supreme Court
- CAIR in the meantime

IV. Cross-State Air Pollution Rule (CSAPR)

- *GenOn REMA LLC v. EPA*
  - Petition under Section 126
  - Holds Clean Air Act does not foreclose the EPA from forcing upwind states to address air pollution that significantly contributes to a downwind state's nonattainment
- Meanwhile, EPA still required to address interstate transport of pollutants

IV. Mercury & Air Toxics Rule (MATS)

- Problem: Power plants emit mercury and other toxic heavy metals, acid gases, and certain toxic organic compounds
- Rule sets standards for new and existing sources of hazardous air pollutants
- 3-year compliance period
- *White Stallion Energy Center, LLC v. EPA*

IV. Mercury & Air Toxics Rule (MATS)

- Flexibility:
  - Facility-wide emissions averaging
  - Use of surrogates
  - Compliance timelines


Image courtesy of Dan/FreeDigitalPhotos.net.

GHG Rules (§111)

- Framing
- "What" Shape It May Take
- "How" It May Be Implemented
- What Should States Do Now?

Framing

- Essentially new terrain for EPA …
- On a very tight schedule…
- With some legal tension…
- Recent SIP-related court decisions reinforce states' role…
  - (Corn Growers, CSAPR remand)

"What" (1)

- New Sources - §111(b):
  - "Source-based" standards of performance
  - Marginally bifurcated coal vs. gas (1100 vs. 1000 #/MWh)
- Existing Sources - §111(d):
  - "System-based" best system of emission reduction (BSER)
  - Adequately demonstrated; consider cost; timeframe
  - Emission "Guideline" (but enforceable)
- Modified or Reconstructed Sources: (Not clear)

"What" (2)

- Existing Sources - §111(d) (*continued*):
  - Anticipate BSER will be some combination of supply-side and demand-side measures
  - Supply-side:
    - Heat rate improvements? Fuel-switching? Co-firing biomass? Retirement/replacement? Plant dispatch? Renewables/RPS? Fleet averages?
  - Demand-side:
    - Energy Efficiency – EERS? 1%/year? Utility DSM?
    - Combined Heat & Power (CHP)?

"What" (3)

- Cornerstone questions remain:
  - What level(s) of reduction will be required?
  - Against what baseline?
  - Within what compliance timeframe?
  - One possibility: Copenhagen commitment – 17% below 2005 by 2020; *economy-wide*

"How" (1)

- Equally uncharted territory…
- But states will definitely get "first crack" on existing sources:
  - "Each state shall submit a plan" under a procedure EPA establishes "similar to … section 7410" (i.e., like §110 SIPs)
  - aka, "State Equivalency Plan"
  - Due June 30, 2016

"How" (2)

- Cornerstone questions on "how" as well…
- Implementation issues are critical; approval of "state equivalency plans" will hinge on:
  - How will emission reductions be measured?
    - Rate-based (#/MWh)? Mass-based (tons CO_2e)? Carbon intensity? Carbon pricing?
  - What GHG accounting, tracking, reporting?
  - Will EPA provide a Model Rule?

"How" (3)

- Implementation issues (*continued*):
  - What flexibility mechanisms (if any)?
    - Off-site energy efficiency?
    - Any kind of trading (and allowance issues)?
    - Alternative compliance payments? Other?
  - How to quantify emissions benefits of EE?*
    - EMV? "Deemed savings?" Location/grid issues? "RSVPE?" … (if EPA does this at all – vs. states…)
  - How will "first-mover" states be recognized?
    - RGGI, AB-32, WCI, RPS, EERS, IRP, etc.

** A recent RAP paper by John Shenot specifically addresses this issue*

"How" (4)

- ***Bottom Line: The burden will fall on EPA to clearly define in rule, or on states to clearly demonstrate in plans***
  - "Clear definition" has lacked in the past (e.g., iterative process of nonattainment SIPs)
  - EPA doesn't have all the answers – or time; framing suggests greater deference to states
  - States may need to "cowboy up"; establish credible, defensible reductions

EE and Clean Air Act §111(d)

CAA §111(d) = GHG reductions from existing power plants

EE = Key to 111(d) envir, economic, political effectiveness

EE hinges on "State Equivalency Plans"

State Equivalency Plans hinge on quantifying EE

Quantifying EE hinges on *EE/RE Roadmap*

EE/RE Roadmap hinges on:

- EMV & Data
- Measures ➔ Emissions
- EPA Regional Offices
- Success Stories

What Should States Do Now? (1)

- Get your "ducks in a row"
- Get a handle on your state's:
  - Current situation
  - Preferred direction
- ***Develop credible, transparent processes – with broad stakeholder participation and solid evidence – that can form your foundation for defensible GHG reduction claims***

What Should States Do Now? (2)

- What EE, RE, CHP, EGU or other supply-side reductions are in place? What review processes?
  - Have measured energy savings (and how – SEEAction? DOE Uniform Methods?)
  - How EMV'd, reviewed, and translated into emission reductions?
  - Determined where located?
  - What does EPA/DOE-EIA have in their baseline projections?

What Should States Do Now? (3)

- Are PUC, DEP, and SEO talking with each other? Planning together?
- Dialogue with EPA Regional Office?
- Pursuing "SIP-quality" credit using EPA's *EE/RE Roadmap*?
- Joined EPA's "Ozone Advance" and/or "PM Advance" program(s)?
  - Inventory, identify EE/RE measures, etc.

§111 Conclusion

- *In Short*: Get ready, get going, talk to EPA…
  - 111(d) is likely to fall largely to the states
  - Getting ahead of the curve => better understand §111(d) problems & challenges
  - Earnest first-movers likely to be rewarded
  - Make your wishes known to EPA
    - EPA seeking input; tell them what you want/need

Overarching Recommendations to Regulators (1)

- Avoid an outcome where you see no choice but to approve proposals to recover costs associated with compliance technology without appreciating alternatives that a utility might have considered in making its compliance decisions originally.

Overarching Recommendations to Regulators (2)

- Coordinate with air, water and solid waste offices in your states.
- Explore the issues with utility companies, and, where relevant, generators and RTOs.
- Ask:
  - What choices are out there?
  - Are utility companies considering them?

For More Information

The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States Review of the Use of RGGI Auction Proceeds from the First Three-Year Compliance Period, November 5, 2011,Hibbard et al. http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Economic_Impact_RGGI_Report.pdf

Climate Issue Brief #4, State Clean Energy Policies: The Foundation for an Electric Sector Cap-and-Trade Program, National Association of Regulatory Utility Commissioners, http://www.naruc.org/Publications/ClimateIssueBrief4_Jul2009.pdf

Preparing for EPA Regulations: Working to Ensure Reliable and Affordable Environmental Compliance, Farnsworth, RAP (2011)

Incorporating Environmental Costs in Electric Rates: Working to Ensure Affordable Compliance with Public Health and Environmental Regulations, Lazar, Farnsworth, RAP *(2011).*

***Images and How We Remember* History**, Farnsworth http*://www.huffingtonpost.com/david-farnsworth/images-and-how-we-remembe_b_604784.html*

RGGI Auction Tracker: State Allocations and Spending Plans, June 7, 2013 http://www.env-ne.org/public/resources/ENE_RGGIAuctionTracker_130607R.pdf

For More Information

Quantifying the Air Quality Impacts of Energy Efficiency Policies and Programs, RAP, Shenot, August 2013, www.raponline.org/document/download/id/6680

Considerations in the Design of a Program to Reduce Carbon Pollution from Existing Power Plants, USEPA, September 23, 2013http://www2.epa.gov/sites/production/files/2013-09/documents/20130923statequestions.pdf

Greenhouse Gas Policy Implications for Kentucky under Section 111(d) of the Clean Air Act, Kentucky Energy and Environment Cabinet, October 2013, http://eec.ky.gov/Documents/GHG%20Policy%20Report%20with%20Gina%20McCarthy%20letter.pdf

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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Additional Slides

Measuring EE Emissions Reductions: RAP's "Mobile Source Analogy"

“Scale-It-Up” Libraries of EE/AQ Data

Units Needed to Avoid 1 Ton-per-Year Emissions			
Measure	NOx	SO2	CO2
LED Light – New Construction	3,734	2,555	5.4
Mobile Home Duct Sealing	712	475	1.0
SEER 16 Air Conditioner with Electronically Commutated Motor	5,216	3,130	8.6
EnergyStar Clothes Washer with electrically heated water	29,333	11,000	22

Sources: Northwest Regional Technical Forum; Wisconsin Focus on Energy

What Should States Do Now? (6)

- Don't stop there: Make your wishes known!
  - EPA seeking input; tell them what you need
  - What outcomes? What tools? What help?
- Some detailed "asks" of EPA:
  - Line up Regional Offices
  - Anticipate and address foreseeable circumstances (e.g., regional compliance pools)
  - Release an hourly emission calculator (AVERT)
  - Approve *EE/RE Roadmap* submittals
  - "Mobile source analogy" for EE
  - "Scale-it-up" tools

Concluding Thoughts

- Encouraging EPA to include EE in 111(d) emissions guideline process will help:
  - Ensure a broadly inclusive review of emissions reduction systems as required by EPA's own regulations
  - Avoid producing guidelines based on its review of a limited number of more expensive on-site technologies that come with their own environmental impacts and energy requirements

What Should States Do Now? (4)

- Some good examples:
  - **Colorado** - PUC, DPHE, and Xcel planning for *Clean Air-Clean Jobs* requirements
  - **Maryland** - Estimating EE/RE impacts on:
    - Ambient air quality / nonattainment
    - State economy / jobs
  - **Kentucky** - White paper
  - Many other states doing similar work

§111 Conclusion

- ***111(d) is likely to fall largely on the states***
- Get ready, get going, talk to EPA
- But given prevailing uncertainties, stay "light on your feet"
  - Peter Drucker: *The quality of a decision is how quickly and easily it can be reversed*
  - Only three things in life are certain: *Death, Taxes, and Litigation over EPA regulations!*