ALLIANCE TO SAVE ENERGY
Creating an Energy-Efficient World

The Business Council for Sustainable Energy

Intro to the Clean Air Act

Background, Emerging Trends, and the Implications for Clean Energy




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Thank you to our hosts

McKenna Long & Aldridge LLP

Attorneys at Law

Today's Purpose

- ***To provide a basic knowledge and working familiarity of the Clean Air Act, its history, its framework, and its impacts for clean energy in 2011 and down the line***
- ***To begin a strategic discussion of how clean energy businesses can help regulated industries, EPA, and the states achieve their Clean Air Act obligations***

About the Alliance

Mission:

To promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security.

Organization:

- Staffed by 60+ professionals
- 32 years of experience
- $12 million annual budget
- Recognized as the premier energy efficiency organization in the world

About the Alliance

- ***The Alliance to Save Energy promotes energy efficiency worldwide to achieve a healthier economy, a cleaner environment and greater energy security.***
  - Non-profit organization headquartered in U.S.; operations world-wide
  - Led by **Senator Jeanne Shaheen** and **Peter Darbee, President and CEO of Pacific Gas and Electric**
  - Includes 14 Members of Congress – Bi-Cameral; Bi-Partisan
  - Also includes environmental, consumer, and trade associations heads, state and local policy makers, corporate executives

About the Alliance

- Alliance Associates Program:
  - Sponsorship and participation of more than 160 organizations
  - Involvement by businesses in all economic sectors
  - Initiatives underway in research, policy advocacy, education, technology deployment, and communications

About the BCSE

- Formed in 1992, by a broad-based coalition from the energy efficiency, natural gas and renewable energy industries
- Membership today includes about 60 companies and trade groups
  - power developers, equipment manufacturers, independent generators, green power marketers, retailers, carbon offset providers, and natural gas and electric utilities as well as several of the primary trade associations in these sectors

2010 BCSE Members

About the BCSE

- Mission statement
  - ***To advocate for energy and environmental policies that promote markets for clean, efficient and sustainable energy products and services.***
- The clean energy partnership
  - With the appropriate policies that expand the use of both renewables and natural gas and increase our nation's energy efficiency, the U.S. could reach its greenhouse gas emission reduction goals, reducing emissions by as much as 42 percent by 2030, while creating jobs and enhancing national security.

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The Business Council for Sustainable Energy

I. Welcome
Kateri Callahan, President, Alliance to Save Energy
Lisa Jacobson, President, Business Council for Sustainable Energy

II. Origins, History and Framework of the Clean Air Act (CAA)
Rodney Sobin, Senior Policy Manager, Alliance to Save Energy

III. CAA Implementation and What to Watch for in 2011
Kyle Danish, Member, Van Ness Feldman

IV. Forthcoming Regulation of Greenhouse Gases
Mark MacLeod, Director of Special Projects, Climate and Air Program, Environmental Defense Fund

— 15 Minute Coffee and Stretching Break —

V. State and Local Air Regulators' Roles and Perspectives
Bill Becker, Executive Director, National Association of Clean Air Agencies

VI. Implications for Clean Energy
Joel Bluestein, Senior Vice President, ICF International

VII. Panel Discussion of Strategic Issues
David Gardiner, Principal & President, David Gardiner and Associates
Jon Sohn, Counsel, McKenna Long & Aldridge
Alexandra Teitz, Senior Counsel, Energy & Environment Subcmte., House Energy & Commerce Cmte.

VIII. Open Discussion

— Reception and Informal Conversations —

Clean Air Act Primer

Rodney Sobin

Alliance to Save Energy

Intro to The Clean Air Act

December 15, 2010

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Overview

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- History
- Clean Air Act Amendments of 1990
- Framework of the current CAA

This presentation does not outline the entire CAA but, instead, emphasizes portions most pertinent to clean energy and energy efficiency.

History

- 1306: Edward I edict; 1661: London rules.
- 1880s-1940s: U.S. local rules—smoke & smog.
- 1952: Oregon first state air pollution agency.
- 1950s-1960s: Early federal law (including 1963 “Clean Air Act”)—research, local/state support, rudiments of national standards.
- Early-1960s: California enacts auto emissions standards.
- 1970 EPA established.
- 1970 Clean Air Act—start of modern air quality mgmt structure.
- 1977 CAA Amendments—further development.
- 1990 CAA Amendments—current CAA.

Current Clean Air Act

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- 1990 Clean Air Act Amendments http://epa.gov/oar/caa/caaa_overview.html
  - Title I: Attainment and Maintenance of National Ambient Air Quality Standards
  - Title II: Mobile sources
  - Title III: Toxics
  - Title IV: Acid deposition control
  - Title V: Permits
  - Title VI: Stratospheric ozone
  - Title VII: Enforcement
  - Other titles

Selected provisions will be described by program rather than sequentially by title and section.

Current Clean Air Act

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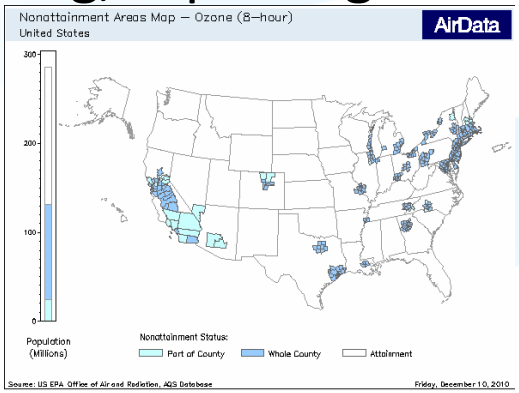
- The CAA is very complex—substance and process
  - Federal, state, and local roles and interactions.
  - Ambient air quality standards.
  - Facility standards and permits—equipment, O&M, work practices, throughput, materials, monitoring, reporting ...
  - Product and fuel regulations.
  - Stationary and mobile sources.
  - Point sources and fugitive emissions.
  - New and existing sources.
  - Multiple, overlapping standards and requirements promulgated under different CAA programs may apply to an individual facility.



National Ambient Air Quality Standards
(§§ 108-110)

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- National standards for six criteria pollutants:
  - Ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), lead (Pb), and particulate matter (PM).
- Primary standard based on health effects (economics not taken into account); secondary standard based on human welfare.
  - Except for SO_2, primary and secondary NAAQS are the same.
  - Volatile organic compounds (VOCs) regulated as precursor to O_3.
- Areas violating NAAQS are in nonattainment.
  - Area can be attainment for some pollutants & nonattainment for others.
- State Implementation Plans (SIPs) [also Tribal Implementation Plans].
  - States required to achieve/maintain NAAQS—permits, standards, gasoline, transportation plans, auto emissions inspection, tech assist,…
  - Federal Implementation Plans (FIPs)--EPA can impose if state action inadequate or certain other conditions.

National Ambient Air Quality Standards
(§§ 108-110)

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- In nonattainment areas states must impose more stringent requirements than in areas meeting the NAAQS.
  - Stringency depends on how much out of attainment.
  - Reasonably Available Control Tech (RACT) at existing industrial plants.
  - Reformulated and oxygenated gasoline, VOC limits in paints, etc.
  - Vapor recovery at gas stations.
  - Auto emissions inspection/maintenance. …

- In areas that do meet the NAAQS states must protect air from becoming dirty—Prevention of Significant Deterioration (PSD).
- Interstate air pollution transport complicates things.
- NAAQS interacts with the New Source Review (NSR) permit program.

New Source Review (§§ 160-16 9) and Title V

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- NSR is a pre-construction review program for permitting major new and modified sources.
- Many states (or local permitting bodies) also have a minor NSR program for minor sources.
- Major source NSR *construction* permitting interacts with Title V *operating* permitting.
- Major source threshold is potential to emit:
  - In nonattainment areas 25, 50, or 100 tpy or more of regulated pollutants depending on severity of nonattainment.
  - In attainment areas (PSD) 250 tpy (or 100 tpy in 28 industries) or more of regulated pollutants.
  - [Note: "tailoring rule" major source threshold for greenhouse gases (GHGs) under PSD: 75,000 or 100,000 tpy CO_2-equivalent, possible future 50,000 tpy.]

New Source Review (§§ 160-169)

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- In nonattainment areas, major source permit applicants must
  - Implement stringent lowest achievable emissions rate (LAER) controls.
  - Obtain 1:1 or greater emission offsets (depending on nonattainment severity) from existing sources.
- In attainment areas, major sources permit applicants must
  - Implement best available control technology (BACT).
  - Must perform certain impact analyses.

- LAER is most stringent limitation achieved in practice or in SIP for source category.
- BACT is best available control determined case-by-case, considering energy, environmental, and economic impacts.
- Can be technology, technique, work practice, fuel quality, etc.

New Source Performance Standards (§111)

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- NSPS are emissions standards applied to specific categories of stationary sources based on available technologies.
- EPA determines and implements NSPS. Usually delegated to the states but even so EPA retains authority to implement and enforce.
- Usually NSPS is less stringent than BACT and often serves as a baseline pollution control level.
- [Note for GHGs, EPA pursuing NSR PSD approach first. There are no GHG NSPSs thus far.]

Air Toxics (§112)

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- 187 listed hazardous air pollutants (HAPs).
- National Emissions Standards for Hazardous Air Pollutants (NESHAPs) applied to source categories
  - Maximum achievable control technology (MACT) standards based on best 12% existing sources in category.
  - Major sources 10 tpy or more of any single HAP or 25 tpy or more of any combination.
  - "Area sources" smaller, dispersed—e.g., dry cleaners, gas stations.

    Some discretion for less stringent generally available control technology (GACT)
- After NESHAP, EPA to evaluate if "residual risk" (i.e., risk after applying MACT) warrants more regulation.
- Accident prevention and other provisions.

- Indust./commerc. boiler MACT draft had efficiency provisions.

Mobile Sources (Title II)

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- Standards for autos, trucks, buses, other vehicles
  - Tailpipe emissions, evaporative emissions.
- Regulates fuels
  - Oxygenated and reformulated gasoline; ultra-low sulfur diesel fuel.
- Allows California to adopt its own auto standards as least as stringent as federal.
  - Subject to EPA issuing a "waiver."
  - Other states can opt for California standards.
- Promotes alternative fuels, clean engine development.
- [Greenhouse gases--
  - Massachusetts v. EPA was mobile source GHG case.
  - April 2010 GHG mobile source rule 1st substantive US GHG regulation.
  - Triggered regulation under other CAA provisions.]

Other Provisions

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- International Air Pollution (§115)
  - Vague, EPA discretion, requires reciprocity, likely highly scrutinized if used.
- Acid Deposition Control (Title IV)
  - SO_2 and NO_x reduction program for utility boilers.
  - Established SO_2 cap-and-trade market mechanism.
- Title V Operating Permit Program
  - Operating permit (contrast with NSR construction permit)
  - Required of major sources.
  - Consolidates conditions and standards from different air programs (NSR, NSPS, NESHAP/MACT, Title IV, etc.).
- Stratospheric Ozone Protection (Title VI)
  - Phase-out of certain ozone depleting substances.

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Images credits: U.S. National Archives; U.S. DOE, National Renewable Energy Lab ; California Energy Commission; U.S. EPA.

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CAA Implementation: What to Watch for in 2011

Kyle Danish
Member
Van Ness Feldman, P.C.

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Intro to the Clean Air Act
December 15, 2010

Overview

- Large number of rulemakings underway
  - Clean Air Act
  - Other statutes
- Deadlines driven by statutes, court decisions
- Game-changer for the power sector
  - Concerns about cost, reliability impacts
- Implications for efficiency, renewables
- How to participate

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Key EPA Regulatory Activity for the Electricity Sector

	EPA Action	Subject	Date of Proposal (Publication in the *Federal Register*)	Date of Final Agency Action (Publication in the *Federal Register*)	Applicable to New ("N") or Existing ("E") Facilities?
Criteria Pollutants (e.g. SO2, Ozone, PM)	Transport Rule (CAIR Replacement)	EPA proposed rule to reduce SO2 and NOx levels in the Eastern U.S. to replace Clean Air Interstate Rule (CAIR) that was remanded by D.C. Circuit in 2008.	August 2, 2010	Expected June 2011	N, E
	New PM2.5 Ambient Air Quality Standard	EPA to evaluate whether to tighten existing (2006) fine particulate standard pursuant to court remand.	Expected December 2010	Expected August 2011	N, E
	New SO2 Ambient Air Quality Standard	EPA finalized rule to replace current annual and 24-hour sulfur dioxide standards with a more stringent 1-hour standard.	December 8, 2009	June 22, 2010	N, E
	New NO2 Ambient Air Quality Standard	EPA finalized a new 1-hour NO2 standard at the level of 100 parts per billion.	July 15, 2009	February 9, 2010	N, E
	New Ozone Ambient Air Quality Standard	EPA proposed rule to enact more stringent NAAQS for 8-hour "primary" ozone standard, and establish a distinct cumulative, seasonal "secondary" standard to protect "sensitive vegetation and ecosystems."	EPA has requested delay	EPA has requested July 2011	N, E
Greenhouse Gases	GHG Reporting Rules for New Sectors	EPA proposed additions to GHG Reporting Rule (finalized October 30, 2009) for fugitive and vented emissions from oil and natural gas systems, CO2 injection and geologic sequestration, and producers and emitters of some fluorinated GHGs	April 12, 2010	Signed Nov. 2010	N,E
	"Johnson Memorandum"	EPA revised guidance to defer effective date of BACT and Title V permit requirements for GHG emissions from stationary sources until at least January 2, 2011	October 7, 2009	April 2, 2010	N/A
	"Tailoring Rule"	EPA rule raised GHG threshold for BACT and Title V for GHGs; phase-in starting in 2011 with sources already subject to PSD and Title V	October 27, 2009	June 3, 2010	N
	BACT and Title V Implementation				
	- *BACT Guidelines*	Rule to define what constitutes BACT for GHG emissions from new and modified power plants.	Nov. 10, 2010	Expected Dec. 2010	N
	- *SIP Modifications*	Modification of State Implementation Plans (SIPs) to reflect higher Tailoring Rule thresholds	Sept. 2, 2010	Dec. 3, 2010	N/A
	- *Permit Streamlining*	Simplifying Title V process and reducing permit fees	Expected 2011-2012		N/A
	New Source Performance Standards	GHG emission standards for new and modified power plants	Expected 2011 (?)	Expected 2012 (?)	N
	Performance Standards for Existing Plants	GHG emission standards for existing (unmodified) power plants	Expected 2011(?)	Expected 2012 (?)	E
	NEPA Guidance from Council on Environmental Quality (CEQ)	Draft guidance from CEQ addresses treatment of direct and indirect GHG emissions that may result from proposed federal actions, and potential impact of proposed federal actions on climate change.	February 18, 2010	Expected Fall 2010	N
Hazardous Air Pollutants (e.g. mercury, acid gases)	MACT Rulemakings for Mercury and other HAPs	EPA to set Maximum Available Control Technology (MACT) standard for all coal-fired power plant mercury emissions; and a range of other hazardous air pollutants emitted by coal and oil-fired power plants.	Expected March 2011	Expected November 2011	N, E
Waste and Water	Coal Combustion Waste	RCRA rules on disposal of coal combustion wastes – possible treatment as hazardous waste.	June 21, 2010	Expected 2011	N, E
	CWA Section 316(b)	EPA rule to replace remanded rule for regulating cooling water intake structures at existing facilities.	Expected Feb. 2011	Expected July2012	E

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CAA: Clean Air Transport Rule

- Addresses
  - NAAQS for fine particulate matter ($PM_{2.5}$) and for ozone
- Objective
  - Reduce “significant contribution” from upwind states to nonattainment problems in downwind states
- Proposed
  - July 2010
- Affects
  - Power plants in 31 Eastern states
  - Reductions in SO_2 and NO_x emissions
  - Scrubbers, SCR
- Compliance deadlines
  - 2012 and 2014

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CAA: Tightening NAAQS

- Expected:
  - Ozone (EPA has requested July 2011)
  - $PM_{2.5}$ (July 2011)
  - SO_2 (June 2, 2010)
  - NO_2 (February 9, 2010)
- Impacts
  - New transport rule
  - Other rules
    - Regional Haze
    - New state implementation plans

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CAA: Hazardous Air Pollutants

- Addresses
  - Mercury, other metallic particles, hazardous organics
- Affects
  - Coal- and oil-fired industrial boilers, utility boilers
- Standard
  - Maximum Achievable Control Technology
    - New source: best source in category
    - Existing sources: avg reduction achieved by top 12%
- Proposal
  - EPA to re-propose industrial boiler rule
  - Utility proposal required in March; final rule by November
- Compliance deadline
  - 3 years (+1 year allowable extension)

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RCRA: Coal Combustion Residuals

- Addresses
  - Fly ash, bottom ash, boiler slag, and FGD byproducts
- Affects
  - Coal-fired power plants
- 3 Potential Standards
  - Regulate as a hazardous waste
  - Regulate as a non-hazardous solid waste (no grandfathering)
  - Regulate as a non-hazardous solid waste (allow at least some grandfathering)
- Compliance deadline
  - Ranging from 2015-2024 depending on form of regulation

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Clean Water Act: 316(b)

- Addresses
  - Impacts of cooling water intake structures
- Affects
  - All steam electric generation units that use cooling water (fossil and nuclear)
- Standard
  - Best Technology Available to minimize adverse aquatic impacts
  - Issues:
    - Standard - Will EPA require closed-loop systems (cooling water towers)?
    - Application - Will EPA apply requirement to all existing facilities?
- Proposal
  - February 2011 (final rule in July 2012)
- Compliance deadline
  - Ranging from 2016-2020

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“Trainwreck” Issue

- Cost concerns
- Reliability concerns
  - Plant retirements
  - Uncoordinated outages
  - Concentrated geographic effects

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Potential Impacts for EE, Renewables

- Impact of rules on power sector could increase demand for EE, renewables
  - But EPA has limited policy tools to mandate
- Availability of EE, renewables could affect terms of “trainwreck” debate

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Opportunities for Participation

- Rulemaking process
  - Review proposed rules
  - File comments
  - Meet with agency
- Legislative process
- Work with PUCs, state energy offices

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For weekly news and analysis about climate change policy and business developments, go to:

www.vnf.com/news-signup.html

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EPA's GHG Regulation *and more*

Mark MacLeod

EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

All this in fifteen minutes…

- EPA Greenhouse Gas Regulations
- A Couple of Words about Regulations and Reliability
- Two Editorials, Two Outrages, and A Moment of Advocacy
- Resources

How We Got Here

- April 2, 2007 - *Massachusetts v. EPA*
- December 7, 2009 - EPA
  - **Endangerment Finding**
  - **Cause or Contribute Finding**
- December 18, 2008, March 29, 2010 – EPA Johnson Memo “PSD Interpretive Memo”
- April 1, 2010, - EPA finalized the light-duty vehicle rule controlling GHG emissions (January 2, 2011)
- May 13, 2010, EPA issued the final GHG Tailoring Rule

Rules for Cars and Trucks

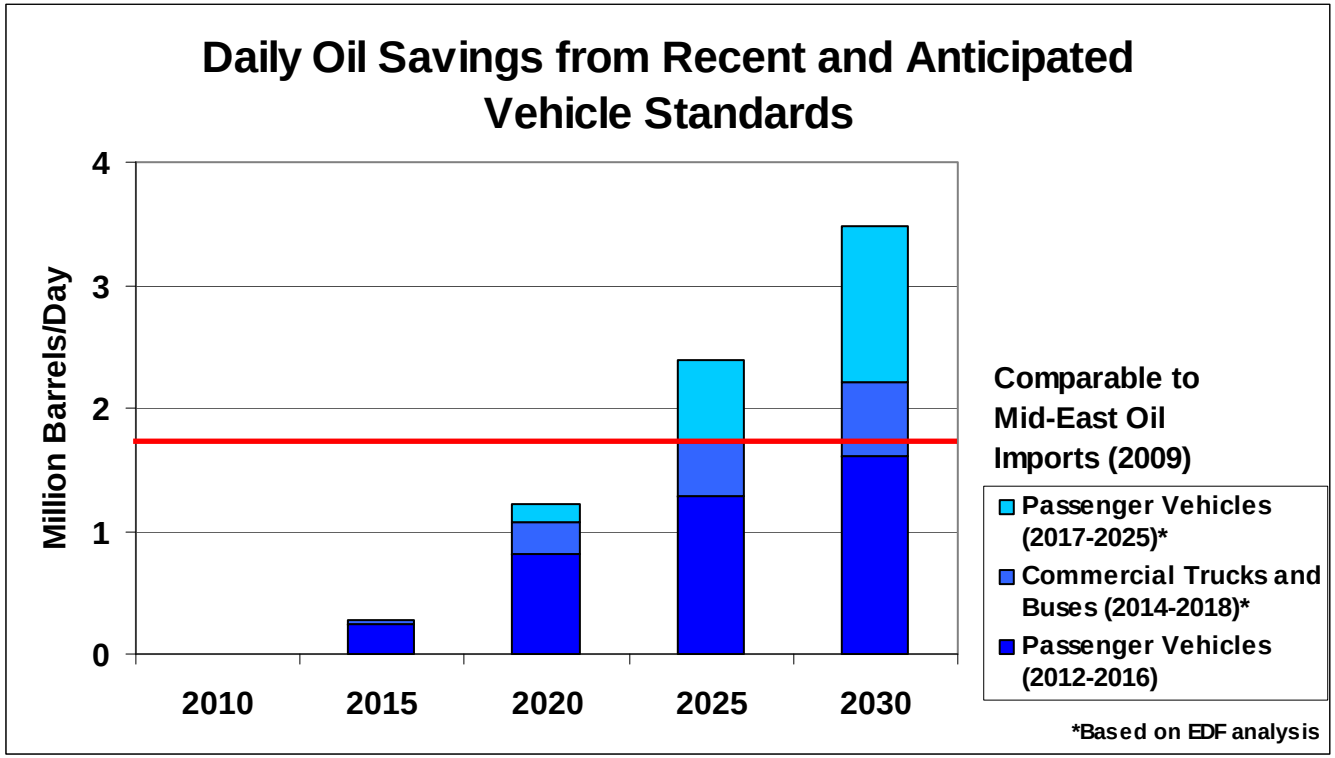
Passenger Vehicles

- 1st Phase is Final
- 2012 – 2016
- reduce oil consumption by more than 1.8 billion barrels
- cut global warming pollution by 960 million metric tons
- consumers save $3,000 over the life of a vehicle
- NOI on 2nd Phase
- 2017-2025

Medium and Heavy Duty

- apply to new trucks and buses manufactured in model years 2014-2018;
- reduce oil consumption by more than 500 million barrels;
- save more than $41 billion in fuel costs;
- cut global warming pollution by 250 million metric tons; and
- save individual truckers up to $74,000.

Daily Oil Savings



Greenhouse Gas Reporting Rules

- Applies to direct greenhouse gas emitters, fossil fuel suppliers, and industrial gas suppliers.
- In general, the threshold for reporting is 25,000 metric tons or more of carbon dioxide (CO2) equivalent per year.
- Reporting is at the facility level, except for certain suppliers of fossil fuels and industrial greenhouse gases.
- An estimated 85-90 percent of the total U.S. GHG emissions from approximately 10,000 facilities are covered by this final rule.
- Most small businesses would fall below the 25,000 metric ton threshold and are not required to report GHG emissions to EPA.
- Reports are submitted annually.

Back to Stationary Sources: What Does PSD & NSR Do?

Congress established the NSR program as part of the 1977 Clean Air Act Amendments and modified it in the 1990 Amendments. NSR is a preconstruction permitting program that serves two important purposes:

1. Ensures the maintenance of air quality standards or, where there are not air quality standards, ensures that air quality does not significantly worsen when factories, industrial boilers, or power plants are modified or added.

2. Ensures that state-of-the-art control technology is installed at new plants or at existing plants that are undergoing a major modification.

Who Has to Get a PSD Permit?

- Facilities have to meet two criteria in order to be required to obtain GHG PSD permits between January 2 and June 30, 2011.
  - The newly constructed or modified facility has to significantly increase emissions of a pollutant other than GHGs enough to trigger the PSD permitting program.
  - These facilities must also have GHG increases of 75,000 tons per year or more of total GHG.

  In other words – no facility will have to obtain a permit, based solely on its GHG emissions.

- After July 1, 2011, new projects that will emit GHG emissions of at least 100,000 tons per year, and modifications that increase GHG emissions by tons per year will have to obtain PSD permits even if they do not exceed the permitting thresholds for any other pollutant.

How Big Are They?

- **A 75,000 ton annual carbon dioxide threshold** is comparable to the emissions from:

  (1) 393 rail cars of coal consumed,
  (2) 174,000 barrels of oil consumed, or
  (3) The emissions from the annual energy use of about 6,600 homes

What Is BACT?

- BACT is an emissions limitation that is based on the maximum degree of control that can be achieved by a particular facility.
- It is a case-by-case decision that takes into account technical feasibility, cost, and other energy, environmental, and economic impacts.
- BACT can be add-on control equipment or modification of the production processes or methods.
- BACT may be a design, equipment, work practice, or operational standard if imposition of a numeric emissions standard is infeasible.

How Do You Determine BACT?

- The process starts by looking at all available emission reduction options and narrows the options by taking into account technical feasibility, cost, and other economic, environmental and technical considerations. The five-steps include:
  - Step 1: Identify all available control technologies.
  - Step 2: Eliminate technically infeasible options.
  - Step 3: Evaluate and rank remaining control technologies based on environmental effectiveness.
  - Step 4: Evaluate cost effectiveness of controls and energy and other environmental impacts
  - Step 5: Select the BACT.

✓State, Local and Tribal permitting authorities determine BACT

Key Points in the Guidance

- Uses same BACT process fro 30 years
- Does not determine what GHG BACT is for any source.
- Emphasizes the role of Energy Efficiency.
- Does not require fuel-switching.
- Does not require CCS.
- Allows State permitting agencies to be more aggressive.
- Does not limit any party’s legal rights.

Outrageous Fear-mongering

Part I

Cooler Heads

Efforts to block EPA's programs could delay investments in small businesses that would be important sources of innovation.

The Small Business Majority

[E]very state but one is poised to ensure that sources can obtain preconstruction permits under the Clean Air Act come January 2, 2011.

National Association of Clean Air Agencies

[Delaying] implementation of the Tailpipe Rule would result in significant harm to the auto industry. [M]ovants. statement that no one will be harmed by the stay is simply and patently incorrect and betrays movants ignorance of the Tailpipe Rule's importance to the automobile industry. Declarants from six manufacturers have attested to the fact that staying the implementation of the rule would result in tremendous hardship to their companies.

Alliance of Automobile Manufacturers and Association of International Automobile Manufacturers,Inc.

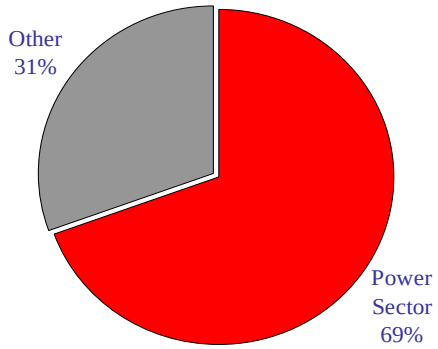
Editorial 1

A Word About Reliability

- There are reasons we regulate powerplants.

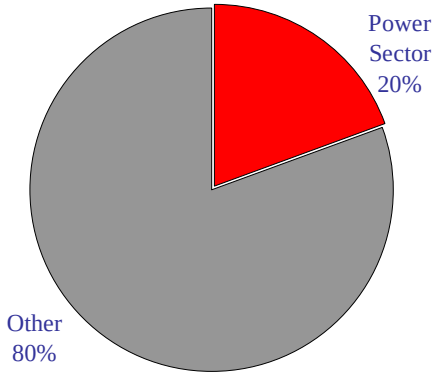
Power Sector Provides a Major Share of Our Air Emissions

SO_2 Emissions, 2007



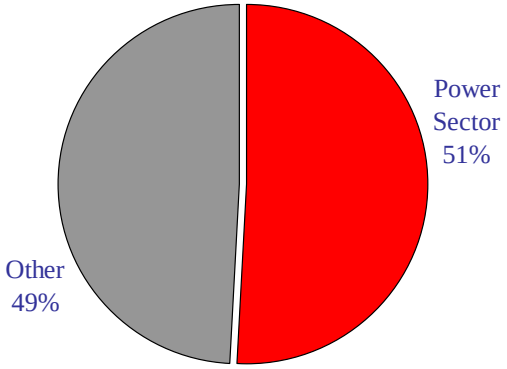
Total: 12.9 Million Tons

NO_x Emissions, 2007



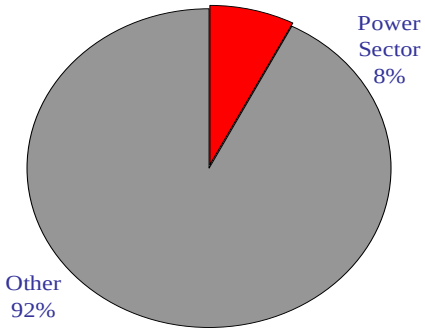
Total: 17.0 Million Tons

Hg Emissions, 2005



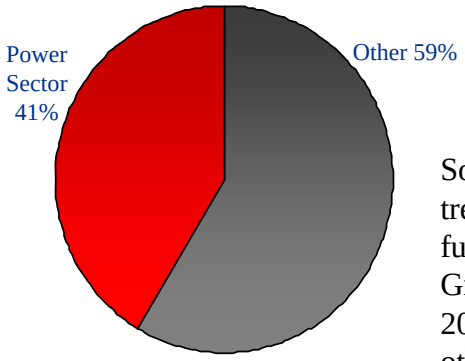
Total: 102.7 Tons

PM_{10} Emissions, 2007



Total: 2.2 Million Tons

Carbon Dioxide, 2005

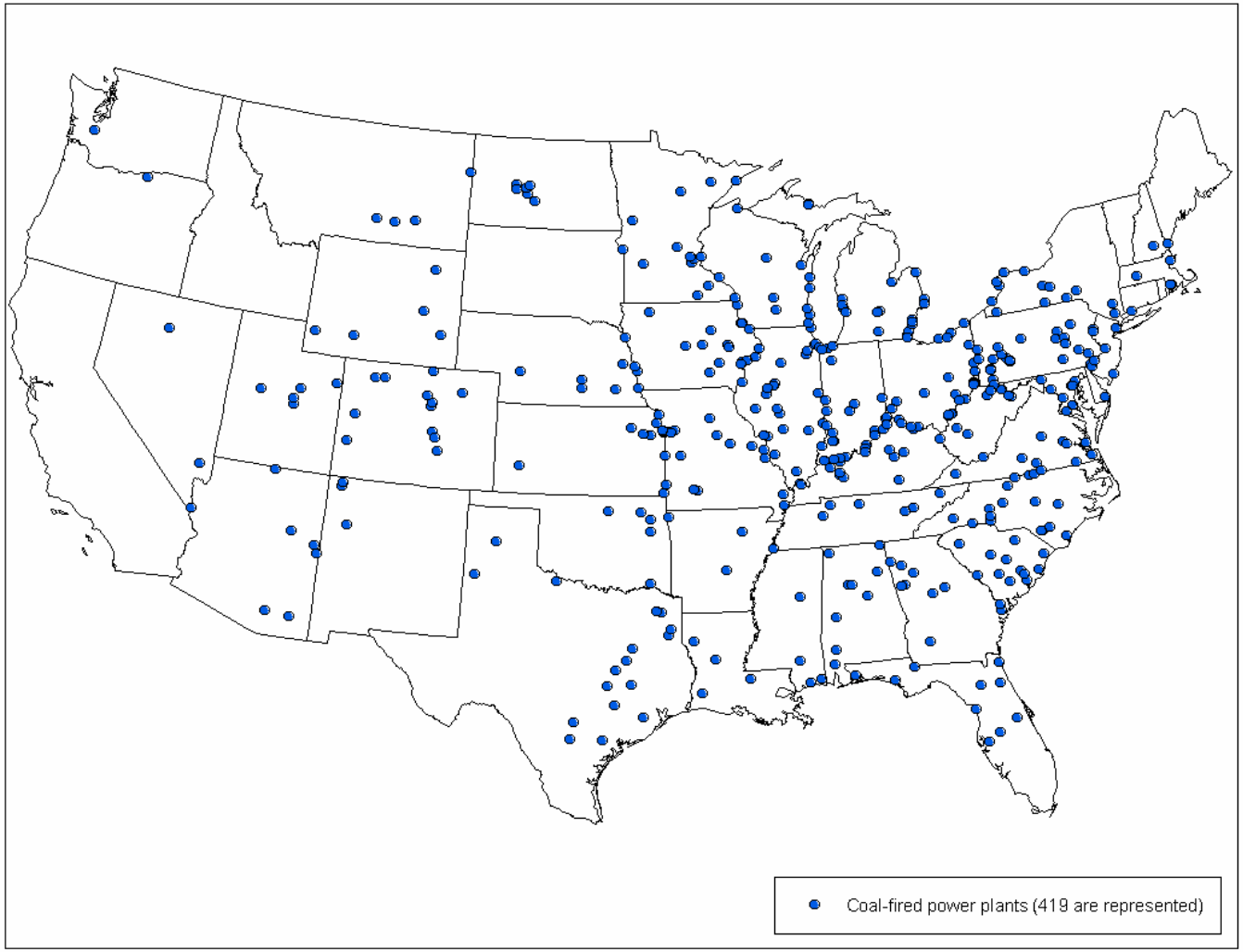


Total: 5.8 Billion Tons

Other Emissions include:
Trace metals (arsenic, nickel and others) Trace organics
Acid gases

Sources: SO_2, NO_X, PM_{10}, and Hg are from NEI trends data; PM_{10} excludes condensibles and fugitive dust; CO2 is from EPA's U.S. Greenhouse Gas Emissions and Sinks: 1990-2005 "Other" sources include transportation, other mobile sources, and industrial sources

U.S. Coal-Fired Power Plants Produce Most Air Emissions



- Coal-fired power plants generate the vast majority of power sector air emissions. About:
  - 92% Hg
  - 98% SO_2
  - 93% of NO_x
  - 83% of CO_2

Source: EPA's Data and Maps, Acid Rain Program 2008

A Word About Reliability

- There are reasons we regulate powerplants.
- According to recent reports:
  - There is excess capacity
  - We can build new facilities quickly (and have)
  - We can retrofit facilities (and have)
  - There will be a market response
  - There is a great opportunity for demand response and cleaner resources
  - There is a great opportunity for job creation
  - There are many safeguards to keep the lights on

Industry Actions: Tools and Solutions for Mitigating Resource Adequacy Issue

In addition to the potential for waivers or extensions, a variety of tools and solutions can help mitigate significant reliability impacts resulting from resource adequacy concerns created by this scenario assessment. They include, but are not limited to:

Advancing In-service Dates of Future or Conceptual Resources

- Generation resources may be able to advance their in-service dates where sufficient lead time is given.
- Accelerated construction may be possible.
- Existing market tools, such as forward capacity markets and reserve sharing mechanisms, can assist in signaling resource needs. Price signalling will be important in developing new resources.

Addition of New Resources Not yet Proposed

- Smaller, combustion turbines or mobile generation units can be added to maintain local reliability where additional capacity is needed.
- Additional distributed generation may also mitigate local reliability issues.

Increased Demand-Side Management and Conservation

- Increased Energy Efficiency may offset future demand growth.
- Increasing available Demand Response resources can provide planning and operating flexibility by reducing peak demand.

Early Action to Mitigate Severe Losses

- Planning and constructing retrofits immediately will aid in preventing the potential for construction delays and overflows, mitigating the risk of additional unit loss.
- Managing retrofit timing on a unit basis will keep capacity supply by region stable..

Increase in Transfers

- Regions\subregions that have access to a larger pool of generation may be able to increase the amount of import capacity from areas with available capacity, transfer capability is sufficient. and deliverability is confirmed.
- Additional transmission or upgrades may enable additional transactions to provide additional resources across operating boundaries.

Developing or Exploring Newer Technologies

- Other technologies exist, such as trona injection, that will allow companies to comply with EPA air regulations without installing more scrubbers.

Use of More Gas-Fired Generation

- Existing gas units may have additional power production potential, which can be expanded during off peak periods. This capacity can assist in managing plant outages during the installation of emission control systems.

Repowering of Coal-Fired Generation

- Some coal-fired generation have the potential to repower their units with combined-cycle gas turbines and reducing emmisions.

The enhancements listed are all options for consideration to offset potential reliability concerns identified in this scenario assessment. The industry should closely monitor the EPA regulation process as well as continued generator participation/early-retirement announcements.

NERC REPORT

This assessment is designed to evaluate the potential impacts on Planning Reserve Margins, assuming that there would be no industry actions in the near term to address compliance issues or market response

Regulators, system operators, and industry participants should employ available tools to ensure Planning Reserve Margins are maintained while forthcoming EPA regulations are implemented.

Providing Backstop Relief: Statutory, Regulatory, and Market Safeguards

Assorted risk management procedures under the Clean Air Act (CAA), Federal Power Act (FPA), and other statutes provide the EPA, DOE, FERC, and the U.S. President an array of tools to moderate, when and where necessary, potential impacts on electric system reliability.

Agency	Source of Authority / Instrument of Implementation	Measure – Examples
Regional Wholesale Electricity Markets (e.g: PJM, ISO-NE, etc.)	Enforcement of Market Rules, Reliability-Must-Run (RMR) agreements, Forward Capacity Markets, etc.	RMR agreements allow units to operate only to ensure reliability while minimizing adverse environmental impacts. Forward capacity markets provide a mechanism to signal the need for new capacity additions Rapid-response planning initiatives to address any apparent reliability issues.
State Public Utility Commissions	Regulatory oversight of utilities	Adopt ratemaking policies that encourage system reliability and environmental goals including ones that address utilities' financial disincentives where EE and DR programs lower utility revenues. Supervision to assure prudent response to environmental requirements – looking at various options (retirements, equipment additions, off-system purchases, reserve sharing, etc.)
U.S. Department of Energy	Section 202(c) of the Federal Power Act	Override CAA-derived control requirements in limited emergency circumstances
U.S. Environmental Protection Agency	Cap-and-trade based regulations Section 112(i)(3)(B) of the CAA	Emissions trading mechanisms enable greater compliance flexibility to manage potential reliability concerns Extend deadlines for utility MACT rule where necessary to maintain electric system reliability
U.S. President	Section 112(i)(4) of the CAA	Extend deadlines for utility MACT rule where necessary to maintain electric system reliability

Outrageous Fear-mongering

Part II

Editorial 2

What would cause a reliability crisis?

What would cause a reliability crisis would be the realization of a self-fulfilling prophecy.

We will encounter a reliability crisis if utilities:

- Fail to order equipment on a timely basis,
- Fail to work with planning councils to coordinate outage schedules to install retrofits,
- Continue to spend their time seeking wholesale regulatory relief rather than identifying that small set of plants in specific geographic locations that may need special treatment.

A Moment of Advocacy

- If you or your organization think that it is a good idea to replace aging fleets of small, unscrubbed powerplants with newer, cleaner more efficient alternatives…
- If you think that investment is frozen now, and that perpetuating regulatory uncertainty for years to come perpetuates that frozen investment and its impact on jobs…

SPEAK NOW

Resources

Greenhouse Gas - Permitting

- Fact sheet with nice timeline of GHG actions:

http://www.epa.gov/nsr/ghgdocs/ghgpermittingtoolsfs.pdf

- Other information on GHG Permitting

http://www.epa.gov/nsr/ghgpermitting.html

- Tailoring Rule and FIP

http://www.epa.gov/NSR/actions.html

Greenhouse Gas – Mobile Sources

- Endangerment (see especially Denial of Petitions for Reconsideration)

http://www.epa.gov/climatechange/endangerment.html

- Vehicle Regulations

http://www.epa.gov/otaq/climate/regulations.htm#1-1

Reliability

- If you only read one thing, read: Ensuring a Clean, Modern Electric Generating Fleet while Maintaining Electric System Reliability

http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/MJBA_Analysis_Group_Reliability_Report_August_2010.pdf

- See page 40 of NERC report

http://www.nerc.com/files/EPA_Scenario_Final.pdf

- For Scott Segal/Sue Tierney debate, see Panel One at 31:20

http://www.bipartisanpolicy.org/events/2010/10/environmental-regulation-and-electric-system-reliability

ALLIANCE TO SAVE ENERGY
Creating an Energy-Efficient World

The Business Council for Sustainable Energy

15 Minute Coffee and Stretching Break

McKenna Long & Aldridge LLP
Attorneys at Law

NACAA
national association of clean air agencies

Clean Air 101:
State and Local Air Regulators' Roles and Perspectives

ASE/BCSE Meeting
December 15, 2010

Bill Becker
NACAA

What I Will Cover

- Federal/State/Local Roles Under the CAA—State Implementation Plans
- State/Local Regulation of Greenhouse Gas Emissions Under the CAA

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Roles of Government Under the CAA

- EPA
  - Sets National Standards (e.g., Health-Based Standards) and Guidance
  - Oversees and Approves State, Tribal and Local Actions
  - Conducts Research
  - Provides Funding
- State and Local Air Pollution Control Agencies
  - Have “Primary” Responsibility for Implementation
  - Monitor Air Quality, Develop Emissions Inventories, Inspect Facilities and Enforce Regulations
  - Develop State Implementation Plans (SIPs) That Include All Measures Necessary to Achieve Clean Air

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National Ambient Air Quality Standards

- EPA is Required to Establish NAAQS to Protect Public Health (Primary Standard) and Welfare (Secondary Standard)
- The Primary Standard is the Foundation of the CAA and Identifies the Concentration of Ambient Air Above Which It is Unhealthy to Breathe
- An Area's "Design Value" Determines What Actions Need to be Taken
- EPA Has Established Seven NAAQS
  - Lead
  - Nitrogen Dioxide
  - Sulfur Dioxide
  - Ozone
  - Carbon Monoxide
  - Particle Pollution (PM_{10} and $PM_{2.5}$)

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State Implementation Plan Process

- Once a NAAQS is Set or Revised, States and EPA Must Undertake Several Obligations to Ensure the NAAQS Are Met
  - Within Two years After a New NAAQS, EPA (With State Input) Must "Designate" Whether Areas Are Meeting the NAAQS
  - Within Three Years After a New NAAQS, States Must Submit SIPs ("Infrastructure") to Show They Have Basic Air Quality Components
  - Within 18-36 Months After "Designations," States Must Submit "Nonattainment SIPs," (Attainment Demonstrations) Outlining the Strategies and Measures Necessary to Meet the NAAQS by the Mandated Deadlines
- SIPs Must Be Developed With Public Input, Formally Adopted By the State and Ultimately Approved By EPA. If/When Approved, Control Measures Are Enforceable in Federal Court

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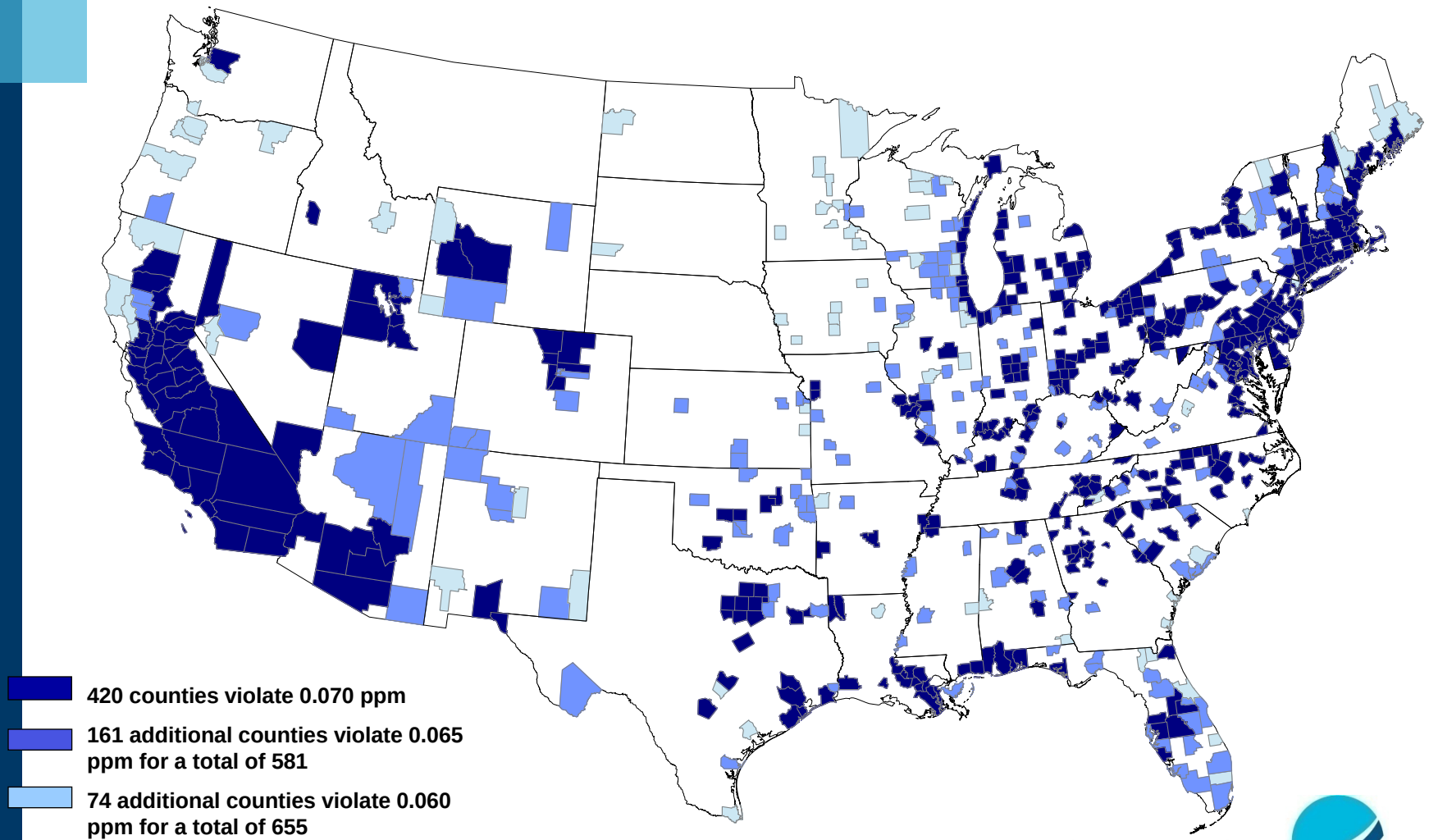
Anticipated NAAQS Implementation Milestones

Pollutant	NAAQS Promulgation	Designations Effective (approximate date)	110(a) SIPs Due (3 yrs after NAAQS promulgation)	Attainment Demonstration Due	Attainment Date
$PM_{2.5}$ (2006)	Sept 2006	Dec 2009	Sept 2009	Dec 2012	Dec 2014/2019
Pb	Oct 2008	Nov 2010/2011 (extra time for new monitors)	Oct 2011	June 2012/2013	Nov 2015/2016
NO_2 (primary)	Jan 2010	Feb 2012	Jan 2013	Aug 2013	Feb 2017
SO_2 (primary)	June 2010	July 2012	June 2013	Jan 2014	July 2017
Ozone (all dates tentative)	July 2011	2012?	2014?	2014?	Late 2017? (Moderate)
CO	Aug 2011	Sept 2013	Aug 2014	Mar 2015	Sept 2018
$PM_{2.5}$ (2011)	Oct 2011	Dec 2013	Oct 2014	Dec 2016	Dec 2018/2023
NO_2/SO_2 Secondary	Mar 2012	Apr 2014	Mar 2015	Oct 2015	N/A

Counties With Monitors Violating Proposed Primary 8-hour Ground-level Ozone Standards
0.060 - 0.070 parts per million (Based on 2007 – 2009 Air Quality Data)



420 counties violate 0.070 ppm

161 additional counties violate 0.065 ppm for a total of 581

74 additional counties violate 0.060 ppm for a total of 655

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Permitting of Greenhouse Gases

- Per Supreme Court, GHGs Are Air Pollutants Under the CAA
- CAA Requires Major New Sources or Existing Ones Making Major Modifications to Install BACT
- BACT is Determined on a Case-by-Case Basis, and Takes into Account Technical Feasibility, Cost, and Other Environmental and Energy Considerations
- BACT Likely To Be Defined as Improved Energy Efficiency

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Permitting of Greenhouse Gases (con't)

- Beginning January 2, 2011, Large Facilities That Must A*lready O*btain PSD Pre-construction Permits for Conventional Pollutants are Required to Include GHGs in These permits If They Emit More Than 75,000 tons of GHGs
- Starting July, 2011, All New Facilities That Emit More Than 100,000 tpy of GHGs, or Existing Facilities Emitting More Than 100,000 tpy and Making Modifications Resulting in GHG Increases of 75,000 tpy, Must Obtain a Pre-construction Permit (Independent of Their Other Emissions)
- Title V Operating Permits Will Be Required for Existing Sources Emitting More Than 100,000 tpy of GHGs
- Sources Emitting Less Than 50,000 tpy of GHGs Will Not Be Required to Obtain a Pre-construction Permit before 2016

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Permitting of Greenhouse Gases (con't)

- 49 States will Have Authority, Either Directly or Through EPA, to Issue GHG Permits Come January 2, 2011
- Unless Congress Or Courts Rescind GHG Permitting Program, States Will Move Forward Issuing Permits As Quickly As Possible
- Like Any New Program, There May Be "Bumps In The Road," But Agencies Are Working Cooperatively With EPA to Meet Their Statutory Requirements

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For Further Information

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Efficiency, Renewables and the Clean Air Act

Joel Bluestein
ICF International

December 15, 2010

Agenda

- Context for EE and Renewables and the CAA
- Regulatory Drivers
- Barriers and Opportunities

Context

- Efficiency and/or renewables could apply:
  - At the regulated unit - increase efficiency of regulated unit.
  - At the regulated facility - increase efficiency of regulated plant/facility (reduced demand for regulated unit).
  - Outside the regulated facility - increase efficiency at downstream customer site ("Demand Side Management").
  - Use of renewables to displace regulated unit (on-site or off-site).
- All are environmentally beneficial.
- How can these benefits be recognized by environmental regulations?
- How environmental regulations encourage these actions?

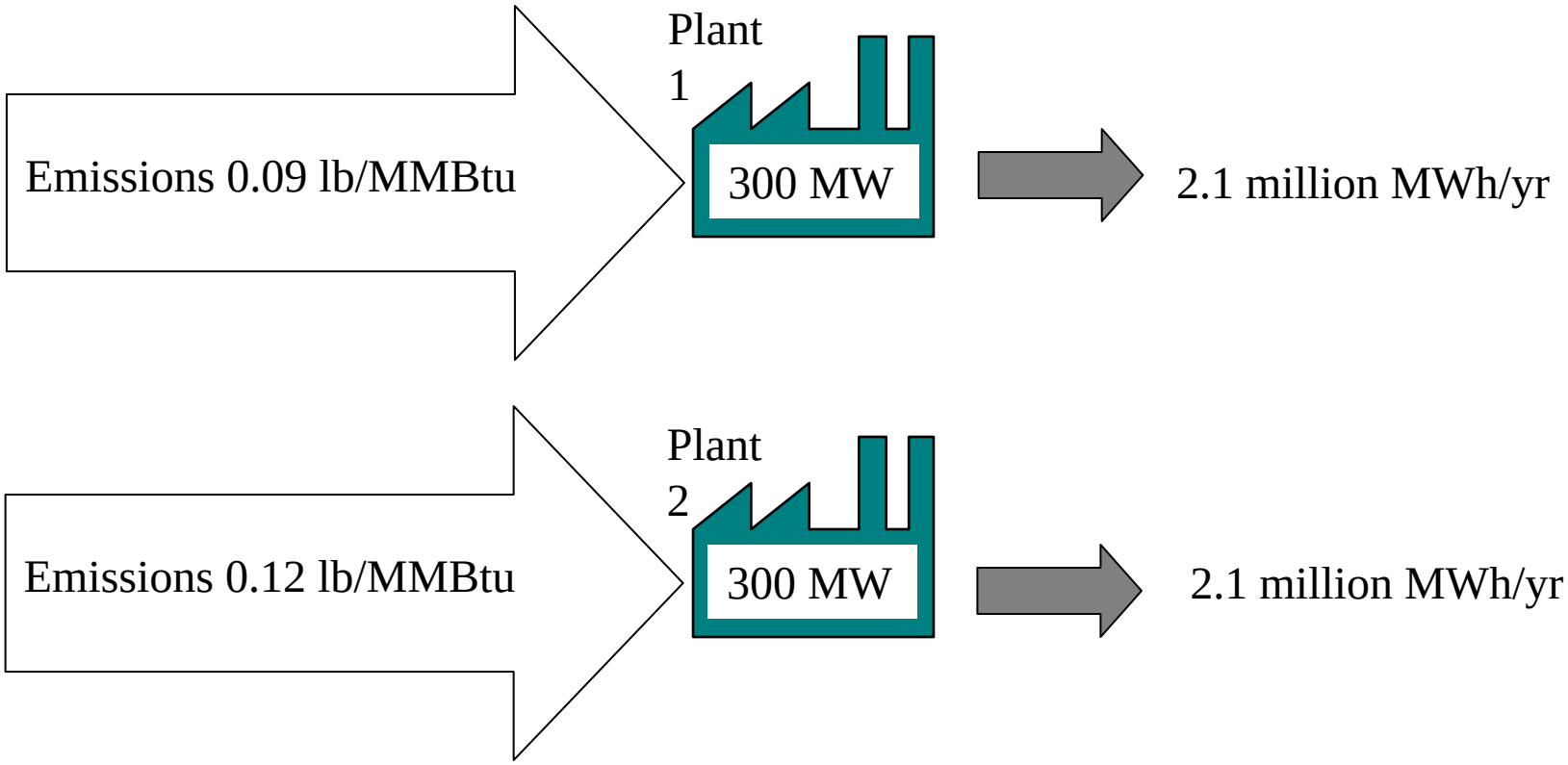
Relevant Regulatory Structures

- Conventional statutory limits (NSPS, MACT) – typically defined for a specific emission unit type, often with unit-specific emission limits.
- NSR/BACT – Case-by-case evaluation of requirements. Requires on-site emission reduction but broader than individual units.
- Cap and trade programs – most flexible option, can recognize on-site and off-site effects.
- Addressing EE and renewables within these structures has been discussed in the past but the GHG issue presents new opportunities.

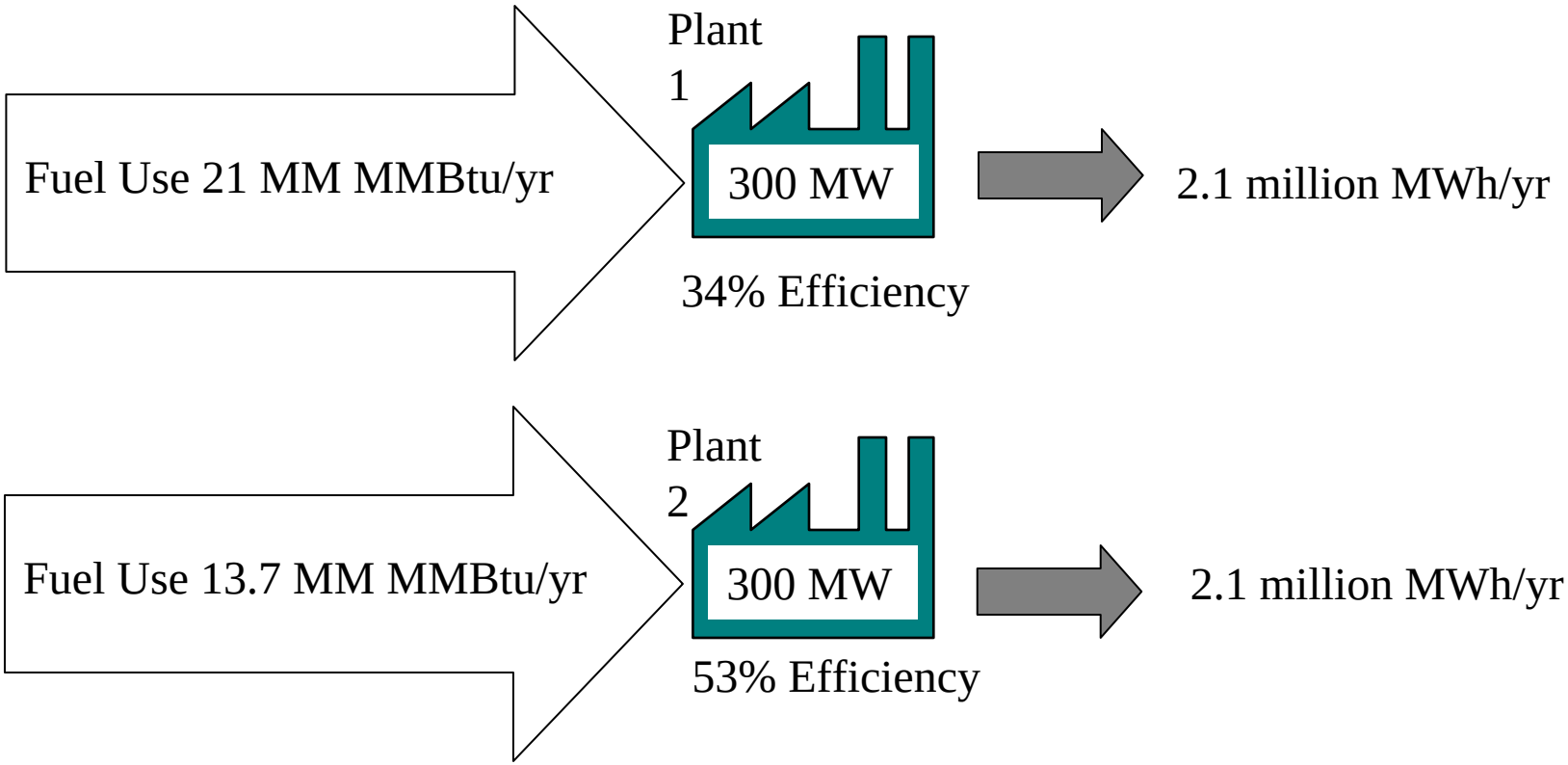
Role of Output-Based Standards

- Output-based standards relate the emissions to the useful output (lb/MWh) rather than the fuel input (lb/MMBtu) or pollutant concentration (ppm).
- Directly account for unit or site efficiency in the compliance measurement.
- For CHP, need to include both thermal and electric output.
- Usually necessary but not sufficient to include efficiency in regulation.

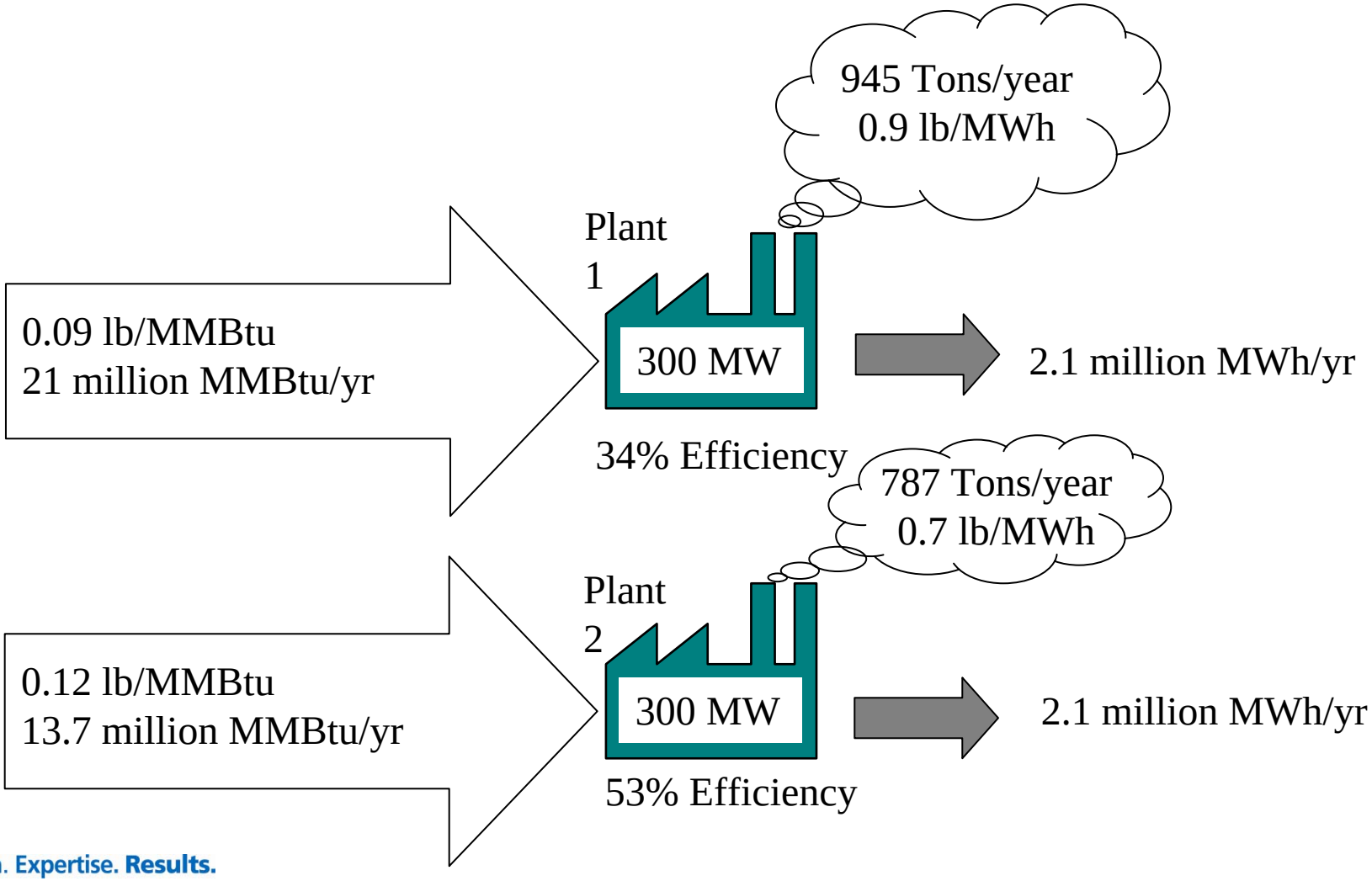
Example of Output-Based Regulation



Example of Output-Based Regulation



Example of Output-Based Regulation



Conventional Emission Limits (NSPS/MACT)

- Standardized limits are set for specific emission unit types.
- Output-based NSPS have existed for many years (engines – g/bhp-hr, cement kilns – lbs/ton of clinker) and some are more recent (electric utility boilers - lb/MWh).
  - Again, CHP must include both electric and thermal.
- Easily and directly account for efficiency at the unit.
- More difficult to incorporate broader efficiency at the facility since the limits are generic and fixed, except as a separate practice requirement.
- Very limited role for renewables.
- Must be addressed during rulemaking.

NSR/PSD/BACT

- Case-by-case nature provides more flexibility, especially for plant-wide efficiency.
  - Output reference can be complicated for complex facilities.
- Still must create on-site reductions.
  - Likely problem for CHP and possibly other technologies.
- Can on-site renewables count?
  - As part of regulated unit?
  - Separate from regulated unit?
- Defining enforceable emission limit can be complicated, especially for off-design conditions.

Emission Trading Programs

- Compliance requirement is to hold allowances equal to actual emissions.
  - Efficiency and renewables either off-site or on-site can create creditable reductions in actual emissions.
  - There may be issues over who gets credit for off-site reductions.
- There may be opportunities to promote renewables and efficiency through allowance allocation systems.

Conclusions

- Efficiency and renewables are nearly always environmentally beneficial.
- The opportunity to recognize and/or encourage them through environmental regulation varies by program and application.
- The barriers can be statutory and regulatory or just procedural and mechanical.
- Output-based measurement is a necessary but not sufficient tool.
- Maximizing the support for efficiency and renewables within the CAA will require additional training and support for regulators.

ICF Webinars

- Free monthly webinar the second Tuesday of every month.
  http://www.icfi.com/markets/energy/webinar/
  - Focus on energy and environment.
  - Presentations are archived.
- Next webinar on January 11:
  U.S. Regulatory Outlook for 2011

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ALLIANCE TO SAVE ENERGY
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The Business Council for Sustainable Energy

Moderated Panel Discussion

- **David Gardiner,** Principal & President, David Gardiner and Associates
- **Jon Sohn,** Counsel, McKenna Long & Aldridge
- **Alexandra Teitz,** Senior Counsel, Energy & Environment Subcmte., House Energy & Commerce Cmte.

ALLIANCE TO SAVE ENERGY

Creating an Energy-Efficient World

The Business Council for Sustainable Energy

Thank you again to our hosts

McKenna Long & Aldridge LLP

Attorneys at Law

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Thank you for attending.

Please direct follow-up questions to:

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