# Office of Air and Radiation: Update

## Ozone Transport Commission Fall Meeting 2008

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# Overview

- CAIR Update
- Ozone, PM2.5 and Regional Haze
  - SIP Status
  - Ozone Attainment demonstrations
  - PM2.5 designations
- Lead NAAQS
- Locomotive and Marine Diesel
- MARPOL Agreement Update (Ship Emissions)

# July 11, 2008 – CAIR Court Decision

- EPA was sued by a few parties on various aspects of CAIR following promulgation in 2005
- The Court issued its decision on July 11, 2008
  - Opinion was mixed: ruled for CAIR in some instances and against it in others
  - Overall the decision vacated the entire rule and the FIP
- DOJ on behalf of EPA filed a petition for rehearing September 24, 2008 and was joined by other stakeholders including NGOs and industry
- Based on appeals, the D.C. Circuit issued an order on October 20, 2008
  - Petitioners were directed to address by November 5:
    - (1) whether any party is seeking vacatur of the Clean Air Interstate Rule, and
    - (2) whether the court should stay its mandate until Respondent promulgates a revised rule
  - EPA/DOJ response brief filed on November 17

# CAIR Response Brief

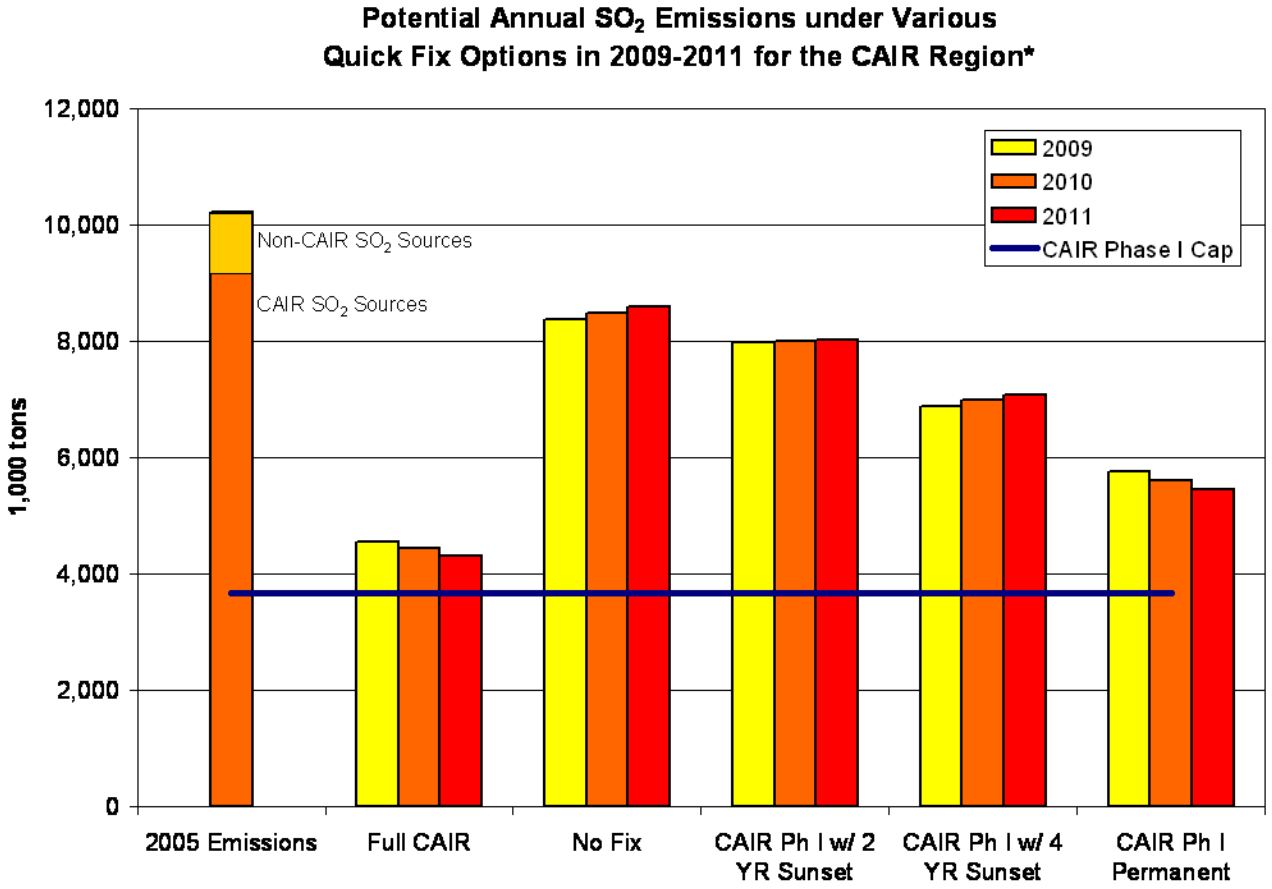
"A stay of the mandate as a bridge to a new rule is preferable to immediate vacatur, and would address some of the harms from vacatur if it provided enough time for a replacement rule to be implemented."

- EPA asks the Court:
  - To grant the petition for rehearing in full
  - Remand the rule to EPA for justification or modification
  - Reverse its holding on Title IV allowances in CAIR

# Possible Consequences of the July 11 Decision

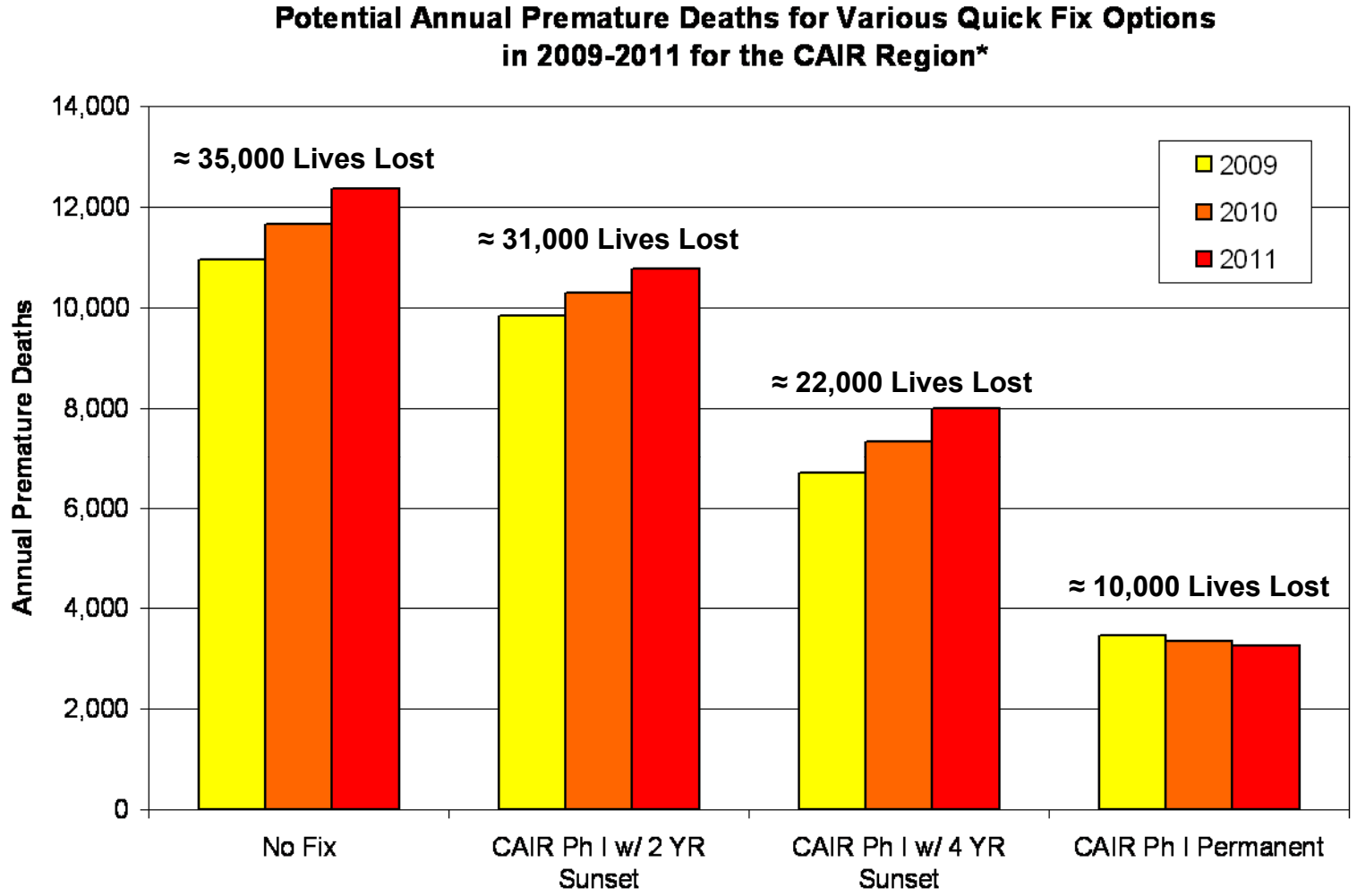
- Disruption/delay of industry plans for installation and operation of pollution abatement equipment
- Lost health and environmental benefits
- Increased administrative costs to government and industry
- Questions of future cap and trade program viability
- Continued uncertainty

# $SO_2$ Emissions from the Power Sector in the Short-term (2009-2011)*




* This chart considers forecasted emissions from full CAIR and various quick fix alternatives. It does not factor in independent actions from States or industry to provide added controls without other direct federal requirements. For subsequent years, Clean Air Act requirements could be expected to result in new control measures needed to attain the current NAAQS and implement the more stringent 2006 NAAQS for PM2.5 and ozone.

# Benefits Relative to CAIR in the Short-term (2009-2011)*

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# Impacts on State Planning

- Attaining and maintaining National Ambient Air Quality Standards (NAAQS) for ozone and fine particles
  - State attainment demonstrations relied on CAIR
  - 1997 Ozone NAAQS
    - CAIR tightened controls and expanded geographically the NOx Budget Program
  - 1997 PM2.5 NAAQS and Regional Haze/Visibility program
    - CAIR Phase I reductions would deliver significant reductions in PM2.5 concentrations and visibility Regional Haze
      - Best Available Retrofit Technology (BART) determinations and reasonable progress plans relied on CAIR
      - Regional Haze SIPs
  - Section 110(a)(2)(D)(i) FIPs
    - Federal implementation plans to address interstate transport for ozone and fine particle pollution in the CAIR region
- The Court decision vacated the CAIR FIPs but did not consider or affect states' obligations to eliminate significant contribution to downwind states' ozone and fine particle pollution or EPA's statutory duties with regard to findings of failure to submit

# Summary

- If the Court issues the mandate to vacate:
  - We face a serious situation with consequences across the board: decreased human health and environmental benefits, increased burdens on states, costs to business and industry
  - All three branches of government – legislative, executive, judicial – have a role to play
  - Goal is reducing health and environmental impacts
  - Absent a legislative “fix”, restoration of benefits will take years and require significant new efforts by states, EPA, and industry

# Status of Ozone, PM2.5 and Regional Haze SIPs (CAIR Region)

- Ozone
  - 26 SIPs with attainment demonstrations due in June 2007 – 22 SIPs submitted (All 16 SIPs due from OTC nonattainment areas have been submitted)
- PM2.5
  - 53 SIPs with attainment demonstrations due in April 2008 – 20 SIPs have been submitted (For 17 nonattainment areas in the OTC States, 24 plans were due and 6 plans have been submitted)
- Regional Haze
  - 53 SIPs due December 2007 – 14 final SIPs submitted to date
  - 11 SIPs have been submitted from the CAIR states (1 from OTC state - Delaware)
  - EPA was sued in Oct. 2008 compelling us to make findings of failure to submit for the late SIPs
    - We have until Dec. 19 to answer the complaint

# Ozone Attainment Demonstrations

- EPA is coming to closure on ozone attainment demonstrations which have been submitted.
- Will give notice to those states where it is believed the demonstrations are not approvable.
  - State can request a bump-up or
  - EPA will take action on proposing a disapproval
- In OTC Region, action could affect
  - NYC (NJ and CT portion)
  - Baltimore
  - Philadelphia

# 24-Hour PM2.5 Designations Timeline

| Milestone | Approximate Date |
|---|---|
| Close of public comment period | October 2, 2008 |
| Requested date for State & Tribal comments | October 20, 2008 |
| Administrator Signature | on/before Dec. 18, 2008 |
| Final Designations FR notice published | January 2009 |
| States can submit complete, quality assured, certified 2008 data | By February 20, 2009 |
| Supplemental Amendments FR Notice | April 2009 (no later than |
| effective date) | |
| Effective Date of Final Designations | April 2009 (90 days after FR publication) |

# Final Lead NAAQS

- On October 15, 2008, EPA strengthened the national ambient air quality standards (NAAQS) for lead (Pb) to increase protection of public health and the environment.
  - Since 1978, ambient air lead standards have been set at 1.5 µg/m3 (micrograms per cubic meter of air).
  - **Now, EPA is strengthening the lead standards by 90 percent to a level of 0.15 µg/m3.**
  - The level is based on the concentration of lead in total suspended particles (TSP)
  - EPA is also making changes to the lead monitoring network to ensure monitors are assessing air quality in areas that might violate the new standard.
- EPA followed the advice of the Clean Air Scientific Advisory Committee (CASAC) to set the standard no higher than 0.20 µg/m3

EPA United States Environmental Protection Agency

# Clean Fuel/Engine Standards will Lead to Substantial Air Quality/Health Benefits in 2030

| 2030 | Light-duty Tier 2 | Heavy-duty 2007 | Nonroad Diesel Tier 4 | Locomotive & Marine Diesel | 2030 Total |
|---|---|---|---|---|---|
| **NOx** (short tons) | 2,800,000 | 2,600,000 | 738,000 | 795,000 | 6,933,000 |
| **$PM_{2.5}$** (short tons) | 36,000 | 109,000 | 129,000 | 27,000 | 301,000 |
| **VOC** (short tons) | 401,000 | 115,000 | 34,000 | 43,000 | 593,000 |
| **SOx** (short tons) | 281,000 | 142,000 | 376,000 | 0 | 799,000 |
| **Cost** | $5 billion | $4 billion | $2 billion | $740 million | $11.74 billion |
| **Net Benefits** | $25 billion | $70 billion | $80 billion | $11 billion | $186 billion |
| **Avoided Premature Mortality** | 4,300 | 8,300 | 12,000 | 1,400 | 26,000 |
| **Avoided Hospital Admission** | 3,000 | 7,100 | 8,900 | 870 | 19,870 |
| **Avoided Lost Work Days** | 700,000 | 1.5 million | 1.0 million | 120,000 | 3,320,000 |

# MARPOL Annex VI Amendments: International Standards for the Prevention of Air Pollution from Ships

- New engines
  - Tier 2: 20% reduction from Tier 1 NOx standard in 2011
- Fuel Quality Standards
  - 2012: Sulfur limit of 3.5%
  - 2020: Sulfur limit of 0.5%
    - subject to a review in 2018; if review indicates fuel will not be available, the date defaults to 2025
- Existing engines
  - Tier 1 applies to large engines installed on ships constructed on or after 1/1/90 through 12/31/99, if a certified system is available
- Program allows alternative measures to be used (e.g. scrubbers) for all of the emission limits

# MARPOL Annex VI Amendments: Emission Control Area Standards

- Applicable only in designated Emission Control Areas
- New engines
  - Tier 3: 80% NOx reduction from Tier 1 in 2016
    - Premised on the use of Urea SCR catalyst technology
- Fuel Quality Standards
  - March 2010: 1.0% Sulfur
  - 2015: 0.1% Sulfur
    - 96% SOx reduction
    - 85% PM reduction from today's levels

# Protecting North American Waters

- MARPOL Annex VI has provisions for designation of Emissions Control Areas (ECAs) in coastal zones to air pollutants (sulfur oxides and nitrogen oxides)
- U.S. and Canada agreed to work together toward an ECA designation for North America:

  ***"To reduce marine air pollution …. Our two countries are preparing to approach the International Maritime Organization to designate special areas for controlling sulfur emissions from marine vessels."***
- A joint US –Canada ECA is important for both trade and environmental reasons
  - Harmonized program will provide greater benefits and avoid competitive advantages

# North America ECA Process

- Environment Canada and US EPA currently working toward a March/April 2009 submission of a joint ECA application to International Maritime Organization
  - Required for presentation at IMO meeting in July 2009, for approval in March 2010 and implementation July 2012
- ECA studies now being completed include:
  - Air quality impacts of ship emissions and benefits of ECA controls
  - Environmental / human health impacts
  - Economic impacts / global fuels market analysis