Hogan Lovells

Clean Air Practice

Environmental Law Institute Summer School

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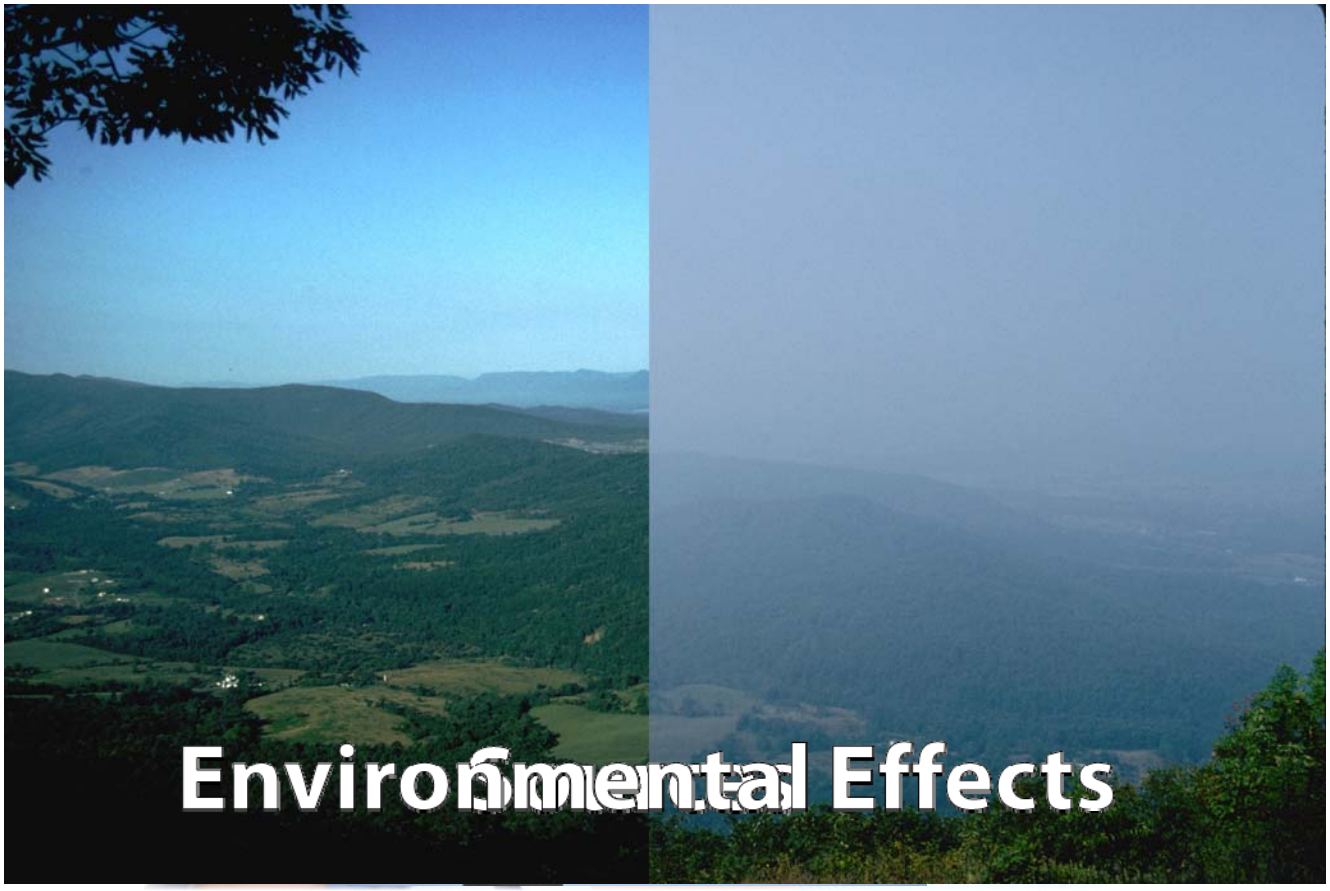
Environmental / U.S.

Introduction to Air Pollution—Criteria Pollutants

Particulate matter ($PM/PM_{10}/PM_{2.5}$)



Introduction to Air Pollution—Criteria Pollutants

Carbon monoxide (CO)

Introduction to Air Pollution—Criteria Pollutants

Nitrogen dioxide (NO_2) and Ozone (O_3)

Introduction to Air Pollution—Criteria Pollutants

Sulfur dioxide (SO_2)

Introduction to Air Pollution—Criteria Pollutants

Lead

National Ambient Air Quality Standards (NAAQS)

- National numerical air quality standard for each "criteria pollutant" (designated in CAA § 107) adequate to protect public health and allowing an adequate margin of safety.
- Consideration of uncertain science is required, but costs of control may not be considered.
- CAA § 109

National Ambient Air Quality Standards (NAAQS)

- Expressed in $\mu g/m^3$
- Primary vs. Secondary NAAQS
- To have been met nationwide by 1975
- Attainment/Maintenance vs. Nonattainment
- To be reviewed every five years

Achieving NAAQS through Air Quality Planning

- The basic geographical unit of air pollution control is the Air Quality Control Region (AQCR) (CAA § 107)
- Each state is to develop a State Implementation Plan (SIP) designed so that each AQCR attains and maintains the federally-set NAAQS (CAA § 110)

Achieving NAAQS through Air Quality Planning

- The states submit their SIPs to EPA for approval.
- If the SIP meets the Section 110 requirements, EPA approves it.
- If the SIP fails to meet the Section 110 requirements, EPA may approve it in part, or reject it and create a Federal Implementation Plan (FIP)

Achieving NAAQS through Air Quality Planning: Section110

- Enforceable emission limitations or other control measures, and schedules for compliance
- Collect air quality data
- Enforcement provisions
- Prohibits sources from contributing to nonattainment or interfering with maintenance of NAAQS
- Source emission monitoring and reporting
- Periodically revise SIP

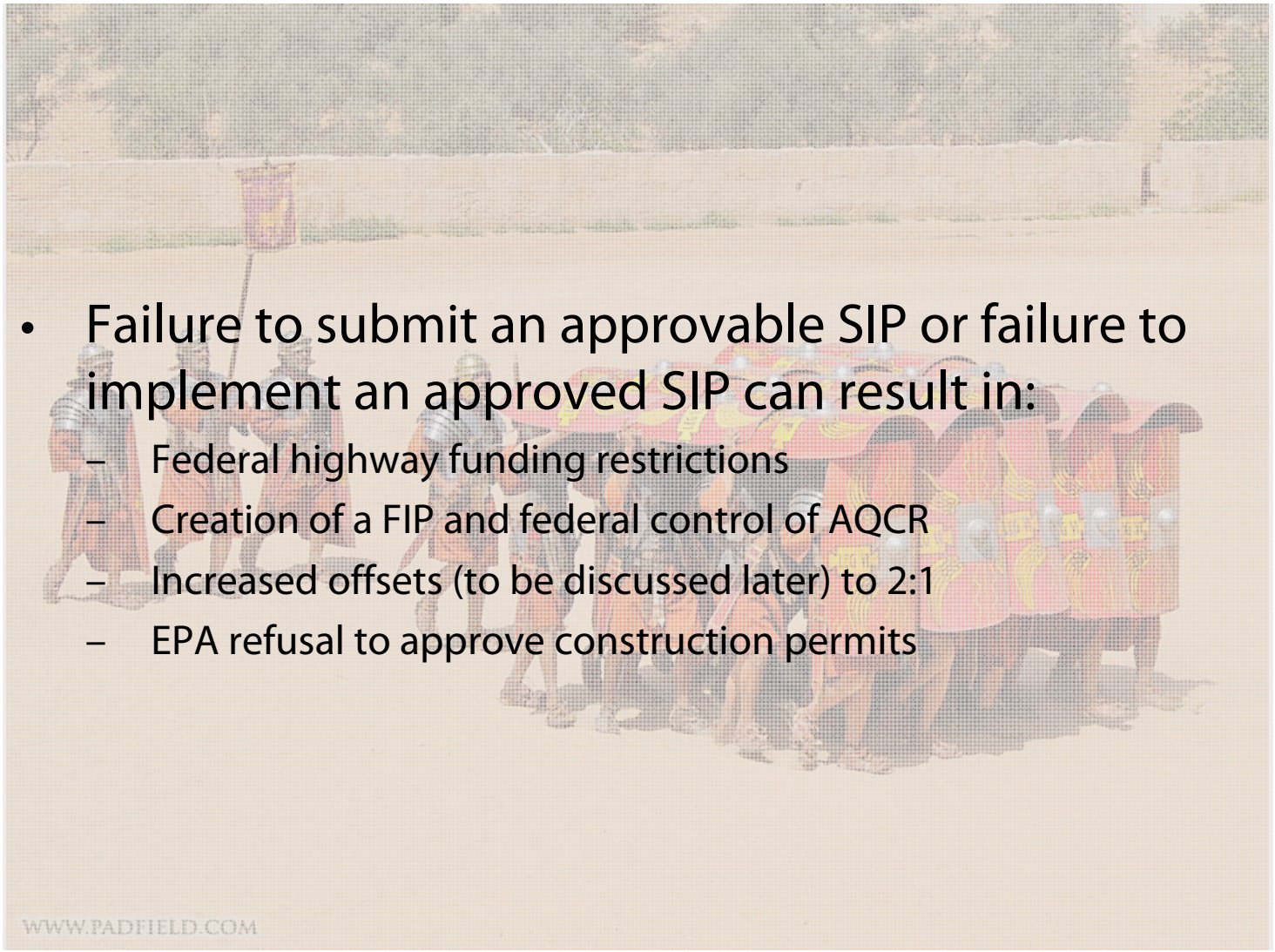
Nonattainment Example: Ozone

- Marginal nonattainment (§ 182(a)): Emission inventory; RACT; new source review; reformulated gasoline opt-in
- Moderate nonattainment (§ 182(b)): 15% reduction in emissions; Stage II vapor recovery; basic I&M; NSR offset ratio
- Serious nonattainment (§ 182(c)): Enhanced I&M; clean-fuel vehicle program; vapor recovery; transportation controls; reformulated gasoline
- Severe/Extreme (§ 182(d-e)): Enhanced offsets; reduced vehicle miles traveled; new technologies

Prevention of Significant Deterioration (PSD)

- Applies to attainment areas
- AQCR designated as Class I, Class II, or Class III
- Designed to maintain attainment status by setting an "increment" above the current ambient concentrations of criteria pollutants that can be "consumed" by new emissions
- Requires preconstruction review of new/modified sources

NAAQS: You and what army?



- Failure to submit an approvable SIP or failure to implement an approved SIP can result in:
  - Federal highway funding restrictions
  - Creation of a FIP and federal control of AQCR
  - Increased offsets (to be discussed later) to 2:1
  - EPA refusal to approve construction permits

Review of Air Quality Planning

- Section 108: List criteria pollutants
- Section 109: Set NAAQS for criteria pollutants
- Section 107: Designate AQCRs
- Section 110: Creation and adoption of SIPs
- Sections 160-169: Attainment area requirements
- Sections 171-193: Nonattainment area requirements

The Big Picture

Title I	Air Quality Planning; Air Toxics; New Source Performance Standards; Enforcement; Nonattainment; PSD
Title II	Mobile Sources
Title III	General Provisions
Title IV	Noise Pollution
Title IV-A	Acid Rain Program
Title V	Operating Permits
Title VI	Stratospheric Ozone Protection

Stationary Source Case Study—Coal-fired Power Plant

Programmatic Overview

- New Source Performance Standards
- New Source Review (PSD/NAA NSR)
- Hazardous Air Pollutants
- Title V Permitting
- Acid Rain Program

New Source Performance Standards ("NSPS")

- New, reconstructed, or modified stationary sources must install "best adequately demonstrated technology" (BADT) (CAA § 111)
- The best time for installation of controls is at a new or modified unit
- Control technology is defined on a **categorical** basis
- The categorical requirements for new pulverized coal-fired power plants are set forth in 40 C.F.R. Part 60, Subpart Da:
  - SO_2: 90% removal efficiency and 1.2 #/MMBtu (flue gas desulfurization, or "scrubber")
  - NO_x: 0.70 #/MMBtu (low-NO_x burners/combustion management)
  - PM: 0.051 #/MMBtu (electrostatic precipitator)

New Source Review—PSD

- New or modified sources must obtain a **preconstruction** permit
- Best Available Control Technology ("BACT"), selected on a top-down case-by-case basis, must be installed
  - SO_2: 0.08 #/MMBtu
  - NO_x: 0.067 #/MMBtu
  - PM: 0.012 #/MMBtu
- Ambient air quality impact analysis (Class I, Class II, visibility)
- Netting

Expert Tip:

1990 PSD Draft Workshop Manual

New Source Review—NAA NSR

- New or modified sources must obtain a **preconstruction** permit
- Lowest Achievable Control Technology ("LAER"), selected on a top-down case-by-case basis, must be installed:
  - SO_2: 0.08 #/MMBtu or lower
  - NO_x: 0.067 #/MMBtu or lower
  - PM: 0.012 #/MMBtu or lower
- Ambient air quality impact analysis (Class I, Class II, visibility)
- Offsets

Expert Tip:

RACT/BACT/LAER Clearinghouse

http://cfpub.epa.gov/RBLC

MACT Program

- Section 112 added in 1990 Amendments
- Separate from air quality planning
- New and existing major sources for hazardous air pollutants (10/25 tpy) must install Maximum Achievable Control Technology ("MACT")
- Control technology is defined on a **categorical** basis

Title V Permitting

- A comprehensive operating permitting program for significant stationary sources
- Old program included multiple (possibly inconsistent) permits
- Goals
  - Easier enforcement
  - Consistency with other media programs
  - "One-stop" source of requirements

Acid Rain Program

- Innovative Market-Based Regulatory Program
  - Caps nationwide emissions of SO_2 and NO_x at ten million and two million tons, respectively, below 1980 levels.
  - Sources are distributed a limited number of "allowances" that authorize the emission of one ton of SO_2
  - NO_x is controlled through required technology
- Cross-state Air Pollution Rule (2011)

Regulation of Greenhouse Gases

Mandatory Reporting of GHGs Rule

- FY2008 Consolidated Appropriations Act
- 40 C.F.R. Part 98
- Applies to:
  - Suppliers of fossil fuels or industrial GHGs
  - Manufacturers of vehicles and engines
  - Oil and natural gas systems
  - Fluorinated GHG emitters
  - CO_2 sequestration facilities
  - Facilities emitting 25,000 Mtpy or more CO_2e in 38 categories
- Submit annual emission reports beginning 2011

Massachusetts v. EPA, 549 U.S. 497 (2007)

- Background
  - 1998 Cannon memorandum: "CO_2 emissions are within the scope of EPA's authority to regulate"
  - 1999 Int'l Center for Tech. Assessment CO_2 petition
  - 2003 EPA denial of ICTA petition (and reversing the 1998 Cannon memorandum)
  - 2007 Supreme Court opinion remanding EPA's denial decision
- Essential elements of the decision
  - GHGs are an "air pollutant" under Section 302(g)
  - EPA lacks the discretion to decide whether to exercise its judgment under Section 202(a)(1) to determine whether GHGs "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare."
  - Ordered EPA to express its judgment on the endangerment question

Endangerment Finding (2009)

- Summarizes scientific evidence to date in support of anthropogenic climate change
  - Human activity has increased GHGs in the atmosphere
  - The climate is warming
  - Anthropogenic GHG emissions are causing climate change
  - Climate change is projected to continue during this century
- Describes human health effects of climate change
  - Temperature
  - Air quality (particularly ground-level ozone concentrations)
  - Climate-sensitive diseases and aeroallergens
  - Environmental justice
  - Extreme events

Endangerment Finding (2009)

- Welfare effects of climate change
  - Sea level rise
  - Implications for water use
  - Agriculture and forestry impacts
  - Energy and infrastructure impacts
  - Ecosystem impacts
- Under review in the D.C. Circuit

Light-duty Vehicle GHG Emission Standards (2010)

- Establishes carbon dioxide emission standards for light duty trucks and cars, commencing MY2012 (October 1, 2011)
- Result of a deal struck between the automobile industry and the White House coordinating CAFE, EPA, and state GHG standards into a single, federal GHG standard for light duty trucks and cars
- Essentially a fuel efficiency standard, which will increase from 30.1 to 35.5 MPG in 2012-2016
- Expected to reduce CO_2 emissions by 950 million metric tons over the lifetime of the MY2012-2016 vehicles and save 1.8 billion barrels of oil
- Cost of $60 billion (or $1,100 per vehicle), with benefits of $250 billion (including $130-160 per year fuel savings per vehicle)
- Under review in the D.C. Circuit

Subject-to-regulation Rule (2010)

- Finds that GHGs are not currently "subject to regulation"
- GHGs will be "subject to regulation" on January 2, 2011
- As of January 2, 2011, pending PSD permits will be subject to GHG BACT
- States must implement a PSD program for GHGs by January 2, 2011
- PSD is triggered based on GHG emissions alone (that is, GHG emissions can cause a source to be a major source)
- Under review in the D.C. Circuit

Tailoring Rule (2010)

- The Problem
  - The Tailpipe Rule impact on PSD and Title V permitting (100/250 tpy thresholds)
  - "Absurd results" and "administrative necessity"
    - Would increase Title V sources from 15,000 to six million
    - Would increase PSD permits from 300 per year to 40,000 per year
- The Solution
  - Lower regulatory threshold levels in phases:
    - Phase I (January 2011-June 2011): 75,000 tpy CO_2e and otherwise subject to PSD
    - Phase II (July 2011-June 30, 2013): Phase I sources plus 100,000 tpy CO_2e new sources or 75,000 tpy CO_2 net emission increase sources
    - Phase III (July 1, 2012): Consider permanent exclusion of small sources
    - Phase IV (April 30, 2016): Final implementation rule

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