Hogan Lovells

Basics of the Clean Air Act

Environmental Law Institute Summer School

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July 13, 2017

Part I

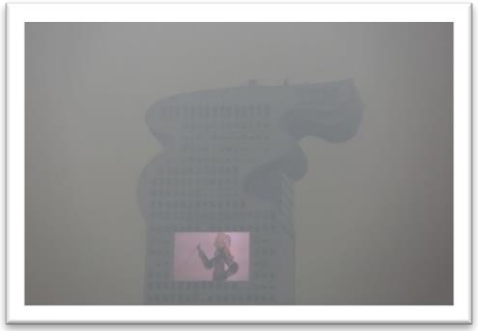
Overview and Stationary Sources

Overview

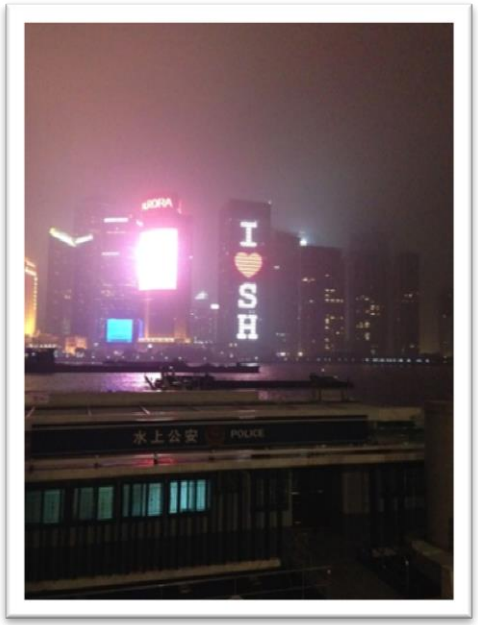
- Basic Structure of the Clean Air Act
- History of the Clean Air Act
- Federal Statutory Requirements
  - Criteria Pollutants
  - NAAQS
  - SIPs
  - NSPS
  - NESHAPs

History of Today's Clean Air Act

- The Air Pollution Control Act of 1955
  - Research-focused: provided federal funding to research air pollution
- Mounting concern over air pollution health hazards
  - Lots of air pollution related deaths in the 1950s: London (4,000 died in 1952); NYC (250 died in 1953)
  - Raised awareness of air pollution-related health issues.
- Clean Air Act of 1963
  - Added additional research and grant programs
  - Directed the Department of Health, Education, and Welfare to address interstate air pollution
- Air Quality Act of 1967



Source: New York Times



Clean Air Act Amendments of 1970

- Charged EPA with Establishing NAAQS
  - National Ambient Air Quality Standards (Nail)
- Directed EPA with promulgating guidance to assist states in developing State Implementation Plans (SIPs)
  - SIPs are the mechanism to meet NAAQS (Hammer)

Basic Structure

Title I	Air Quality Planning; PSD; Nonattainment; New Source Performance Standards; Air Toxics; Enforcement
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

Basic Structure: Title I

- Air Quality Planning
- Prevention of Significant Deterioration
- Nonattainment
- New Source Performance Standards
- Air Toxics
- Enforcement

Basic Structure: Title I

- New Source Performance Standards
  - Implement nationwide technology-based standards that establish the minimum floor of emission limitations applicable to certain categories of sources
  - Can regulate smaller sources not subject to PSD/NNSR review
  - Important in the context of GHG regulation
- Air Toxics
  - Establishes technology-based MACT standards
  - Followed by residual risk standards

Basic Structure: Title II, Mobile Sources

- Authorizes EPA to set emissions standards for certain types of mobile sources
  - Cars, trucks, buses, motorcycles, airplanes, ships, and other non-road mobile sources
  - EPA can recall vehicles that do not comply with emissions standards
- Mandates regulation of fuels and fuel additives
  - Includes reformulated gasoline program and renewable fuels mandate
- Greenhouse gas ("GHG") standards for MY 2012 and beyond vehicles
  - Essentially fuel efficiency standards

Other Programs/Provisions

Title III General Provisions

- Includes definitions and enforcement provisions

Title IV Noise Pollution

Title IV-A Acid Rain Program

- Creates cap-and-trade system for regulation of SO_2 and NO_2 from power plants

Title V Operating Permits

- Intended to bring together all applicable federally required air pollution control requirements into a single permit

Title VI Stratospheric Ozone Protection

- Regulates CFCs, HCFCs, and other ozone-depleting substances

Stationary Source

- 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
  - Standards are expressed as maximum acceptable mass (micrograms per cubic meter) for a period of time (e.g., 1 hour; 24 hours) or a concentration based limit (parts per million)
  - Costs of control may not be considered when setting the NAAQS
  - Can consider uncertain science and provide for margin of safety

Criteria Pollutants

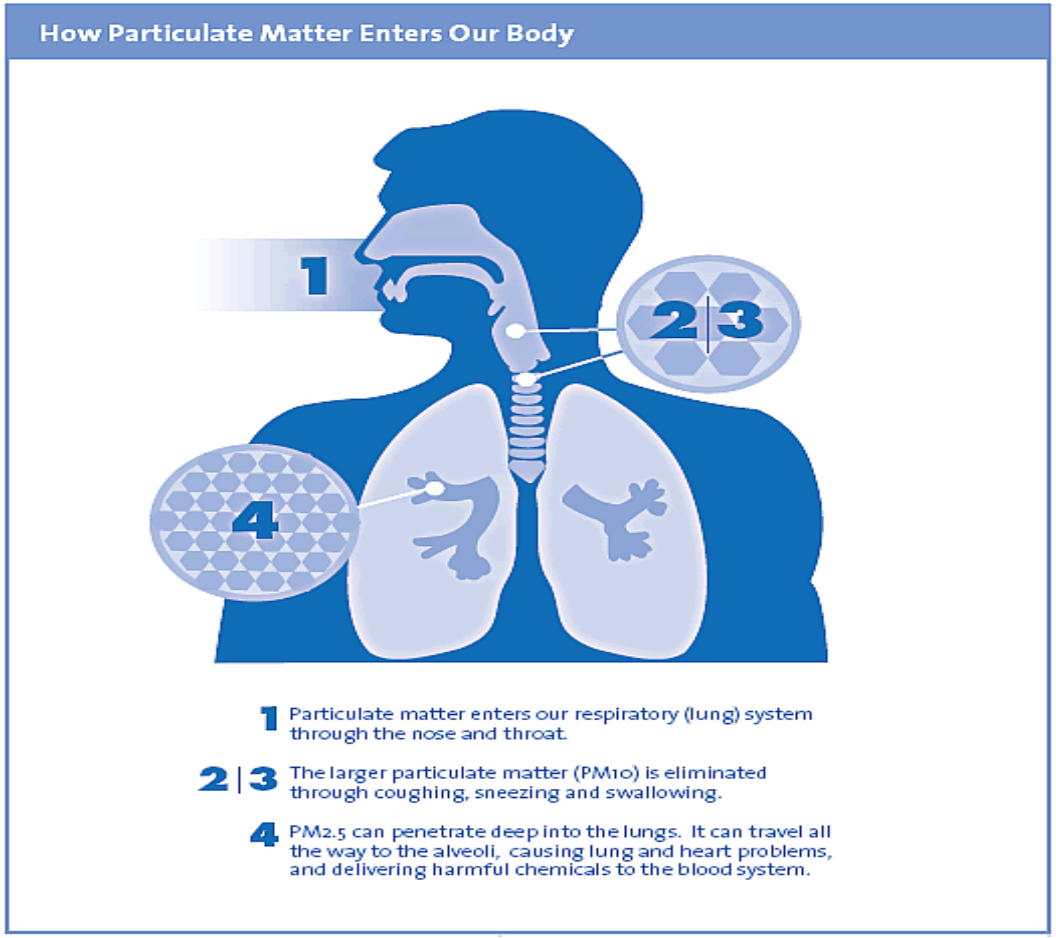
Particulate matter ($PM/PM_{10}/PM_{2.5}$)

Sources

Criteria Pollutants

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

Health Effects



Source: British Columbia Air Quality

Criteria Pollutants

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

Source: Climate and Geohazards

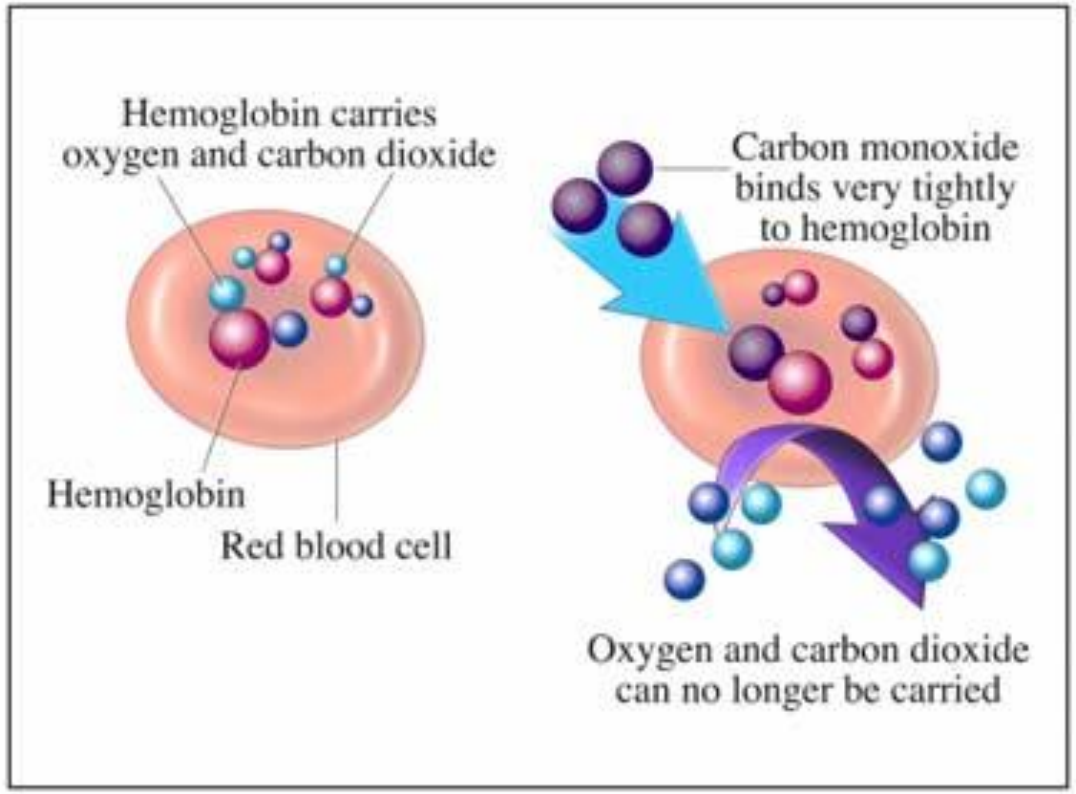
Environmental Effects

Criteria Pollutants

Carbon monoxide (CO)

Criteria Pollutants

Carbon monoxide (CO)



Source: UVa Health

Health Effects

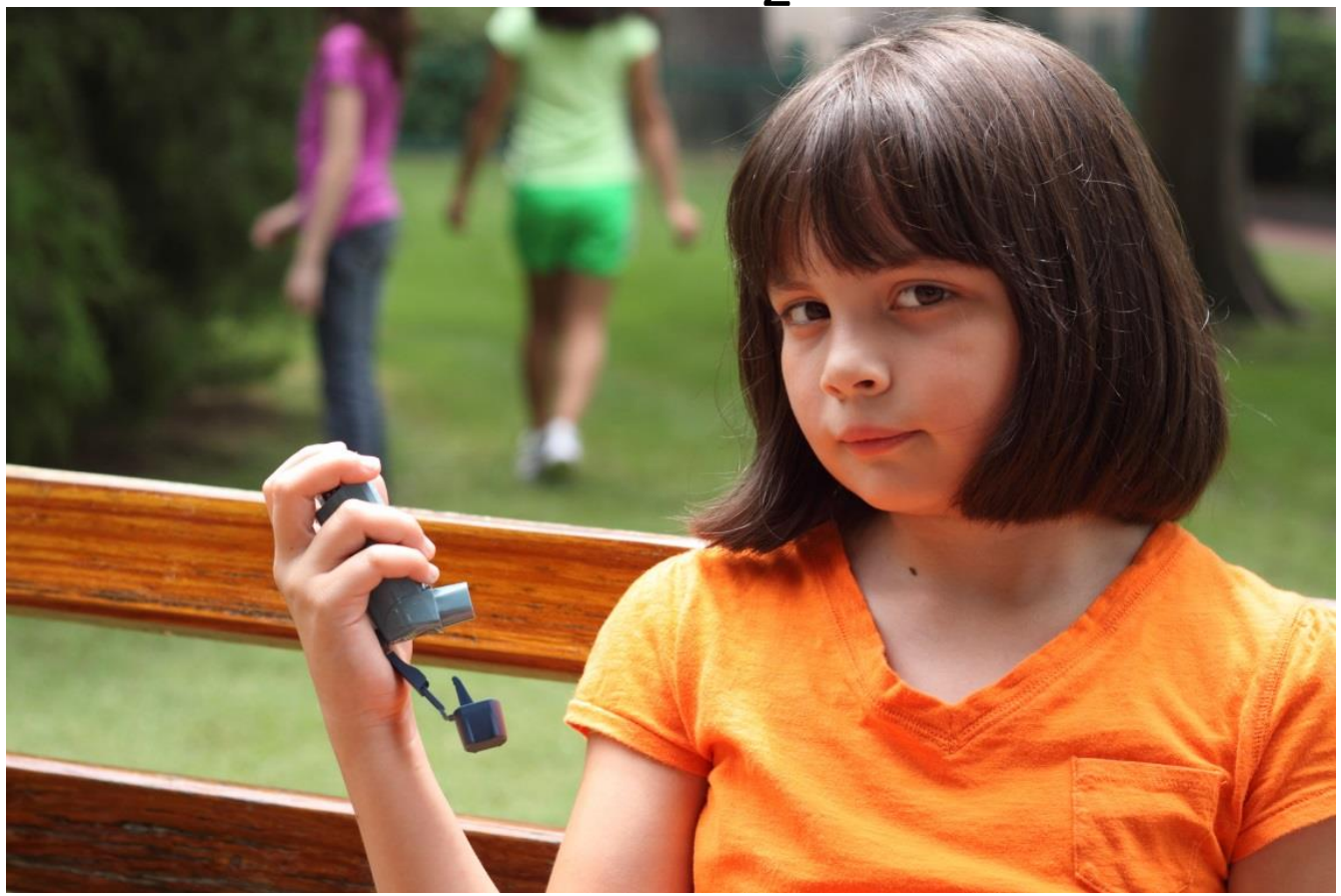
Criteria Pollutants

Nitrogen dioxide (NO_2) and Ozone (O_3)

Sources

Criteria Pollutants

Nitrogen dioxide (NO_2) and Ozone (O_3)



Health Effects

Criteria Pollutants

Nitrogen dioxide (NO_2) and Ozone (O_3)

Criteria Pollutants

Sulfur dioxide (SO_2)

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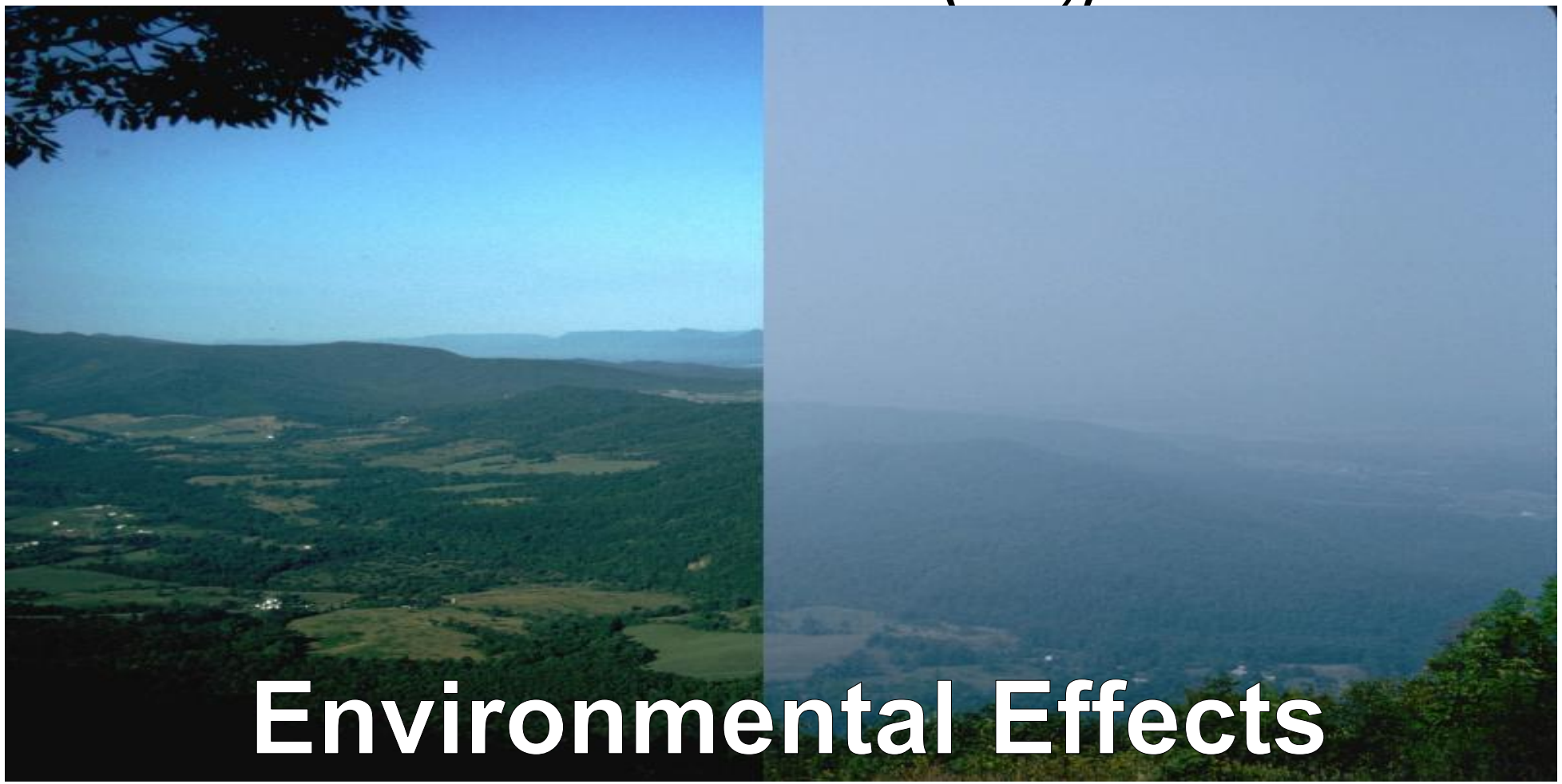
Sulfur dioxide (SO_2)

Criteria Pollutants

Sulfur dioxide (SO_2)



Criteria Pollutants

Lead

Sources

Criteria Pollutants

Lead

Health Effects

National Ambient Air Quality Standards (NAAQS)

- Attainment/Nonattainment for each pollutant and region
- To have been met nationwide by 1975
- To be reviewed every five years, but often takes longer
- Primary and Secondary NAAQS
  - Primary standards provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly
  - Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, and vegetation

National Ambient Air Quality Standards (NAAQS)

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

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)
- Based on cooperative federalism principles

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)
- EPA has one year to approve of a SIP, but that deadline may slip

Achieving NAAQS through Air Quality Planning: Section 110

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

NAAQS Enforcement Tools

- 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
  - EPA refusal to approve construction permits

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 major sources
- Requires use of the Best Available Control Technology ("BACT") for all pollutants emitted in a "significant" amount
- Requires air quality modeling and monitoring

Best Available Control Technology (BACT)

- Step 1 – Identify all control technologies
  - Don’t have to consider options that “redefine” the source
  - BACT/RACT/LAER Clearinghouse
- Step 2 – Eliminate technically infeasible options
  - Carbon, capture, and sequestration
- Step 3 – Rank remaining control technologies
- Step 4 – Evaluate most effective controls
  - Case-by-case consideration of energy, environmental, and economic impacts
- Step 5 – Select BACT

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 inspection & maintenance; NSR offset ratio
- Serious nonattainment (§ 182(c)): Enhanced monitoring; enhanced inspection & maintenance; clean-fuel vehicle program; vapor recovery; transportation controls; reformulated gasoline
- Severe/Extreme (§ 182(d-e)): Enhanced offsets; reduced vehicle miles traveled

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 Renewable Fuel Standard

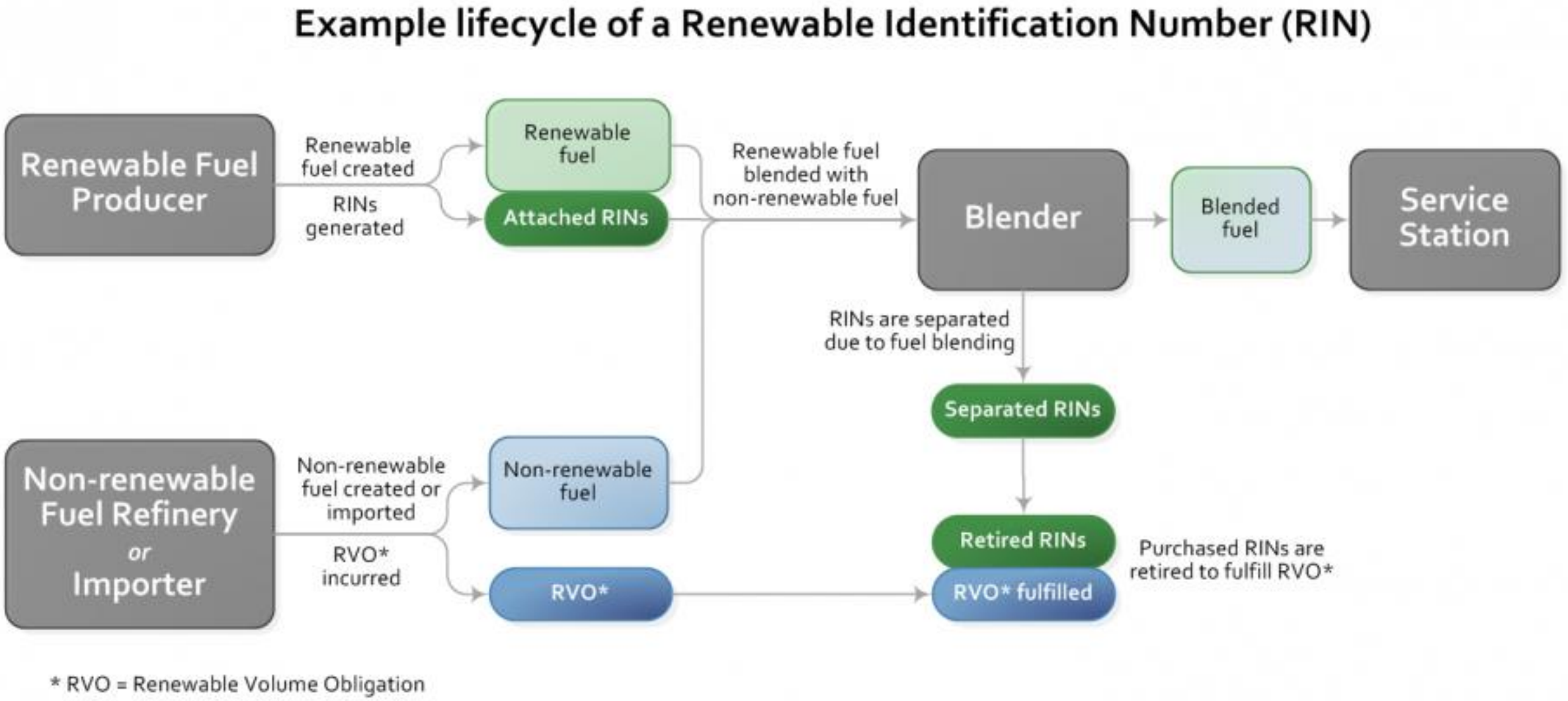
- Established through the Energy Policy Act of 2005
- Amended through the Energy Independence and Security Act of 2007
- Goal: To increase the use of renewable fuels in the U.S. transportation system every year and reduce dependence on foreign fuels
- Sets annual volumes of renewable fuel as a percentage of fuel sold
- Four nested categories of “renewable fuel”
  - Renewable fuel
  - Advanced biofuel
  - Biomass-Based Diesel
  - Cellulosic biofuel

How the RFS Works

- EPA, with the assistance of the Energy Information Administration, estimates fuel consumption for coming year
- EPA then determines what percentage of renewable fuel the fuel market can accommodate
- Refiners/Importers of traditional fuels (gasoline and diesel) must meet renewable volume obligations (RVO)
- RINs are used to track compliance

Source: New York Times

RFS Table (EPA)



The Renewable Fuel Standard

- Issues that have arisen with the RFS:
  - Lots of fraud and volatility in RINs
  - Blendwall issue with ethanol
  - Limits on biodiesel blending in winter
  - Reliance on foreign imports of renewable fuels
  - Biodiesel “dumping” driving down domestic price
  - Disputes over appropriate “point of obligation”
  - Advanced biofuels have failed to develop as hoped

Part II

Mobile Sources

Title II – Mobile Sources

- Part A – Motor Vehicle Emission and Fuel Standards
- Part B – Aircraft Emission Standards
- Part C – Clean Fuels Vehicles

What are Mobile Sources?

Types of Vehicles, Engines, and Equipment

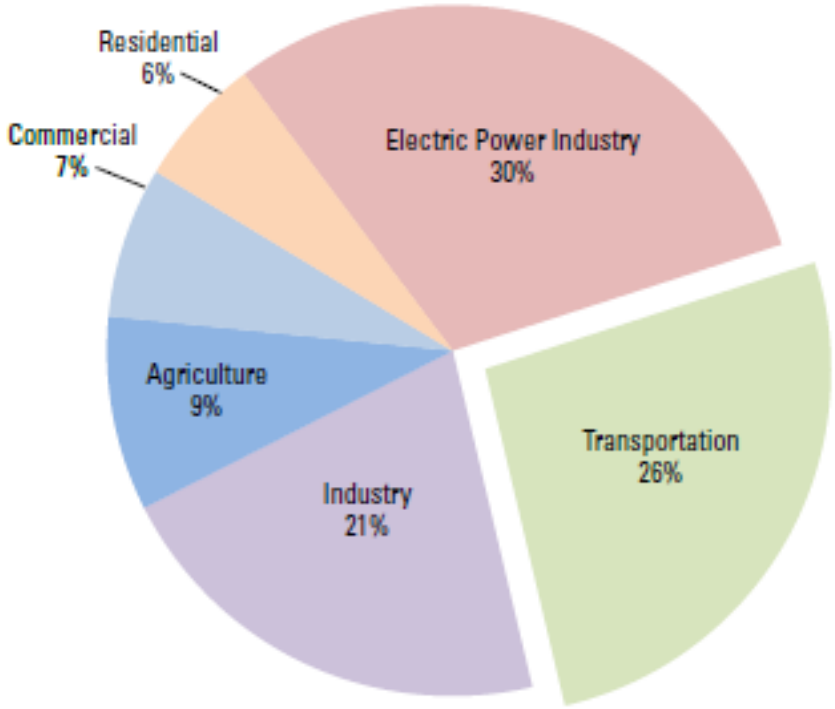
Highway

- Cars & light trucks
- Heavy trucks
- Buses
- Motorcycles

Non-road

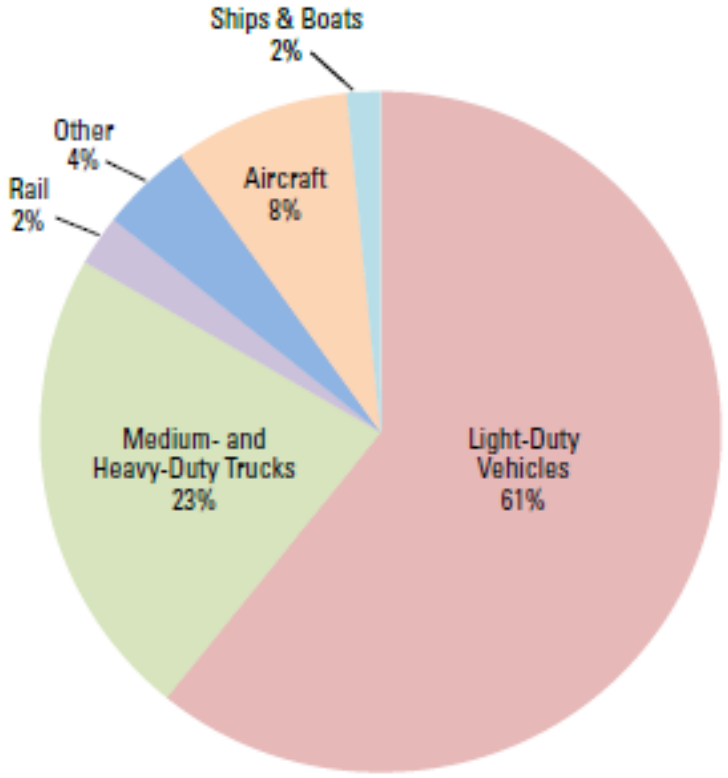
- Aircraft
- Boats and Ships
- Construction Equipment
- Lawn & Garden
- Locomotives
- Personal watercraft
- Snowmobiles, dirt bikes, ATVs

Mobile Source Emissions



Share of U.S. GHG Emissions by Sector[3,4]

Note: Totals may not add to 100% due to rounding.



Share of U.S. Transportation Sector GHG Emissions by Source[4,5]

Note: Totals may not add to 100% due to rounding.

Certifying an Engine or Vehicle

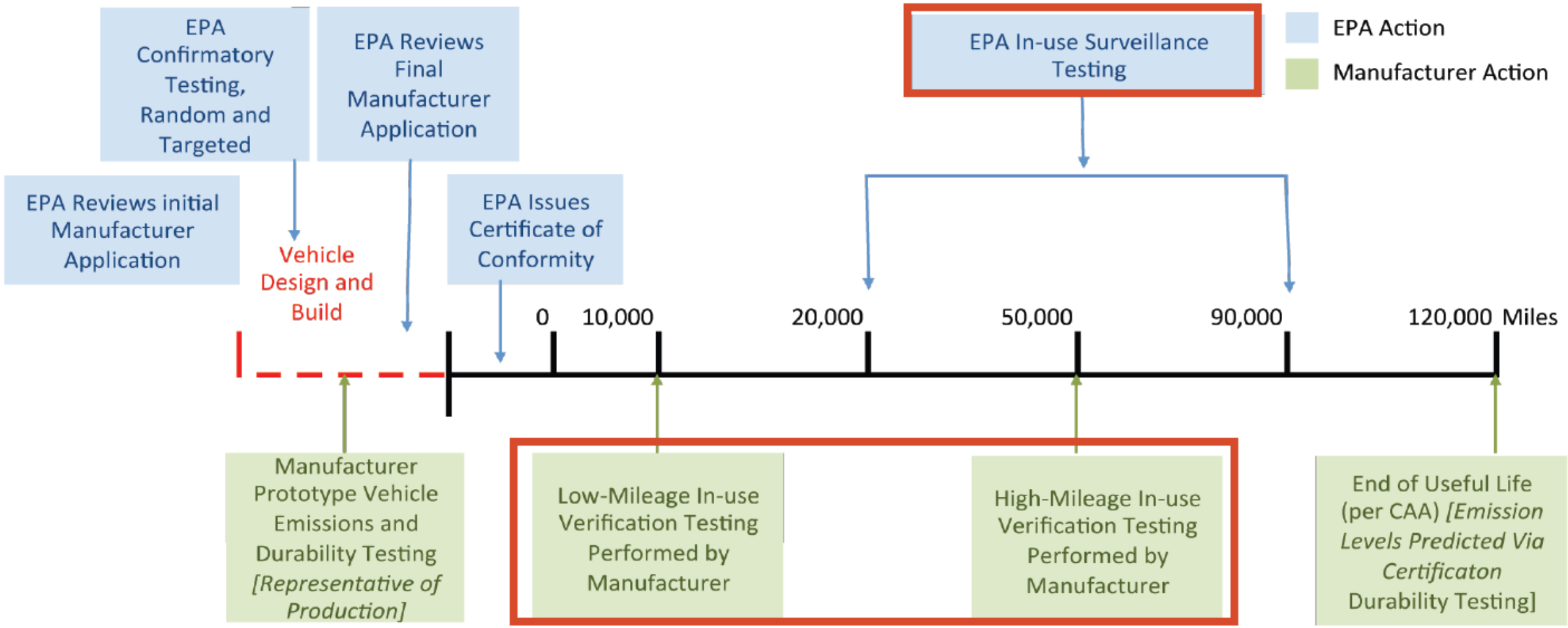
- The US emission standards establish certification emission limits applicable to each certified vehicle, as well as fleet average standards.
- Emission limits differ by engine/vehicle type
- Engines/vehicles sold in the U.S. must be covered by a certificate of conformity ("COC") issued by EPA
  - Valid for only one model year
- Engines/vehicles must maintain compliance for the duration of their useful life
  - 10 years; 120,000 miles – light duty
  - 10 years; 435,000 miles – heavy duty

Compliance Overview

- Certification
  - Application – must demonstrate that the engine/vehicle meets emission standards for criteria pollutants and GHGs
  - Testing – durability, evaporative
  - Statement of Compliance
- On-Board Diagnostic Systems
- Production Conformity
- In-use Compliance
  - PEMS testing
  - Manufacturer In-use Verification testing (light duty)
  - EPA confirmatory testing
- Emissions Defects/Recalls

Light-Duty Vehicles

Compliance Life



Source: EPA 2007 Progress Report: Vehicle and Engine Compliance Activities

Dieselgate

Case Study

CAA Legal Framework

Certificates of Conformity

- Vehicles sold in the U.S. must be covered by a certificate of conformity ("COC") issued by EPA
  - Certifies that the engine complies with emission standards
  - Vehicles covered by COC if conform in all material respects
- Clean Air Act Section 203(a)(1) prohibits selling vehicles or engines in the U.S. not covered by a COC

CAA Legal Framework

Tampering

- Clean Air Act Section 203(a)(3)(A) prohibits all persons (including OEMs and suppliers) from "removing or rendering inoperative any device or element of design" that was installed on the vehicle to comply with emissions standards

CAA Legal Framework

Defeat Devices

- Clean Air Act Section 203(a)(3)(B) prohibits all persons from selling or installing any part or component designed to “bypass, defeat, or render inoperative any device or element of design” that was installed on the vehicle to comply with emissions standards

How Did Dieselgate Start?

How was the issue discovered?

- In May 2014, researchers at West Virginia University tested VW vehicles using Portable Emissions Measurement System ("PEMS") equipment
- Discovered high emissions levels during normal operation
- 11 million vehicles impacted worldwide starting with MY2009
  - Approximately 600,000 in the U.S.

How Did Dieselgate Start? (cont'd

What did VW do?

- VW installed software in 2.0L and 3.0L diesel engines to detect when the vehicle was being tested for emission certification
  - During testing, the software activated full emissions controls to pass
  - During normal operation, the software reduced emissions controls to improve power and fuel economy
- As a result, during normal driving conditions:
  - 2.0L vehicles: NOx emissions up to 40x higher than EPA's legal limit
  - 3.0L vehicles: NOx emissions up to 9x higher than EPA's legal limit

Claims Against VW

EPA Claims Against VW

1. Selling vehicles not covered by COCs
   – COC did not include the defeat device software
2. Installing defeat devices in 2.0L and 3.0L diesel engines
   – Software reduced emissions controls under normal driving conditions
3. Tampering with emissions controls
   – Allege that VW rendered emissions controls inoperative
4. Failing to report Clean Air Act violations

Also…

- Criminal Investigation
- Civil suits from customers, shareholders, etc.

VW – Settlement Overview

- VW has agreed to spend up to a total of $25 billion in the U.S. to address claims from owners, environmental regulators, U.S. states and dealers and to make buyback offers
- VW pled guilty to criminal charges brought by DOJ that VW installed defeat devices to allow certain diesel vehicles to emit 40 times over the legal limit and then tried to cover up its misconduct.
- DOJ has indicted six VW executives.

VW – Settlement Details

Civil and Criminal Resolutions

- Resolution of Criminal Allegations by DOJ
  - Criminal Fine: $2.8 billion
- Resolution of Civil Actions
  - Class Action 2.0 Liter Settlement/FTC Consent Order
    - $10 billion, including buybacks and other compensation
  - $2 billion in Zero Emission Vehicle investments (DOJ consent decree)
  - $2.7 billion in mitigation trust payments (DOJ consent decree)
  - Class Action 3.0 Liter Settlement:
    - $1.2 to $4 billion, including buybacks and other compensation
  - $225 million in mitigation trust payments (per DOJ consent decree)
  - EPA Clean Air Act Settlement:
    - $1.45 billion civil penalty
    - Injunctive relief
  - Civil FIRREA settlement: $50 million
  - Settlement with State Attorneys General: $603 million
  - Settlement with U.S. Franchise Dealers: $1.2 billion

VW – Ongoing Claims

- VW still faces claims from individuals who opted out of the class action settlements
- Securities class actions (e.g., stockholders' and bondholders' putative class action in CA federal court)
- State lawsuits against VW for violations of state environmental laws

Expanding Scope of Dieselgate

Other OEMs and Suppliers in the Crosshairs

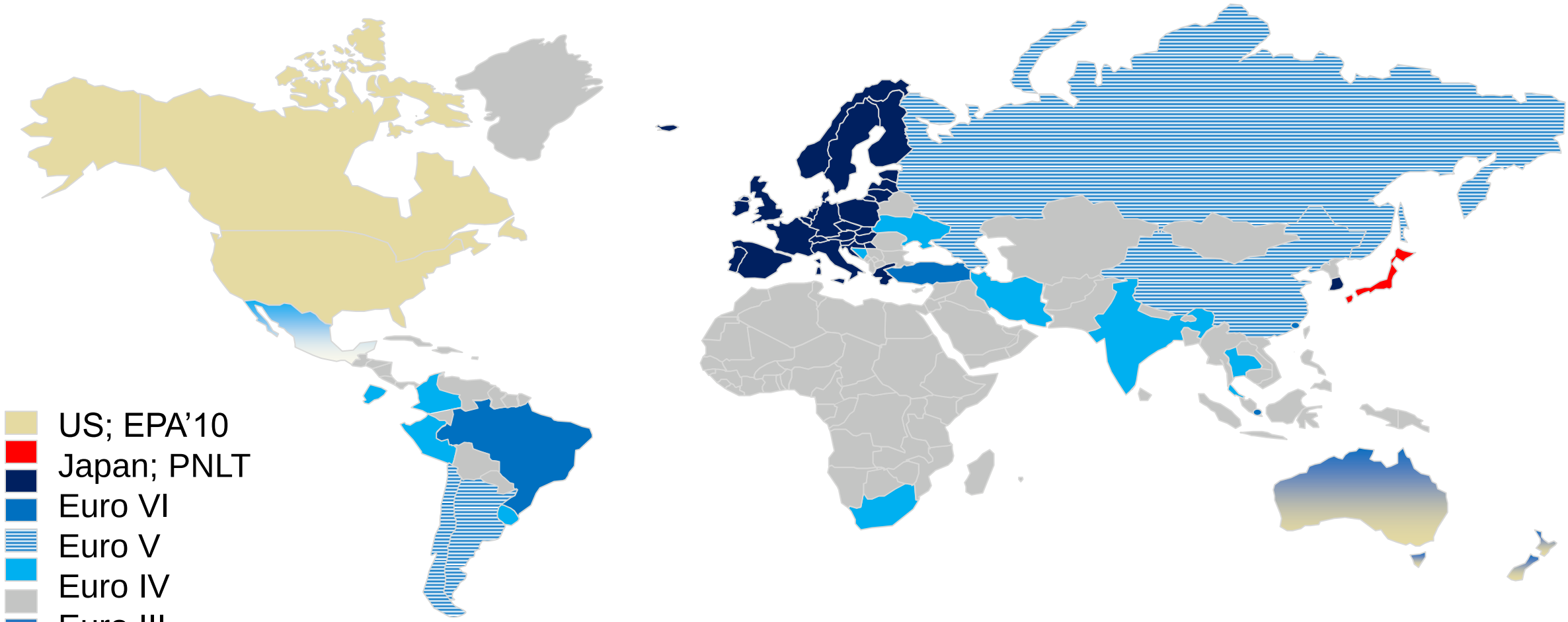
- Audi
  - Certain diesel Audis included in VW plea
  - Additional civil and criminal investigations ongoing
  - Heating up quickly
    - DOJ issued criminal indictment for Ex-Audi engineer on July 6, 2017
    - Basis of criminal charges apparently a whistleblower identified as “Cooperating Witness 1”
  - Class actions
- FCA
  - NOVs issued by EPA and CARB allege violations of CAA regarding presence of undisclosed AECDs
  - Civil complaint filed by DOJ on behalf of EPA (May 23, 2017)
  - Criminal investigations ongoing
  - Class actions (also include suppliers Cummins and Bosch)
- Bosch
  - To date, no criminal charges or civil claims brought by DOJ (early and unqualified cooperation)
  - Class actions
- Others likely as investigations heat up

Continuing Focus of EPA

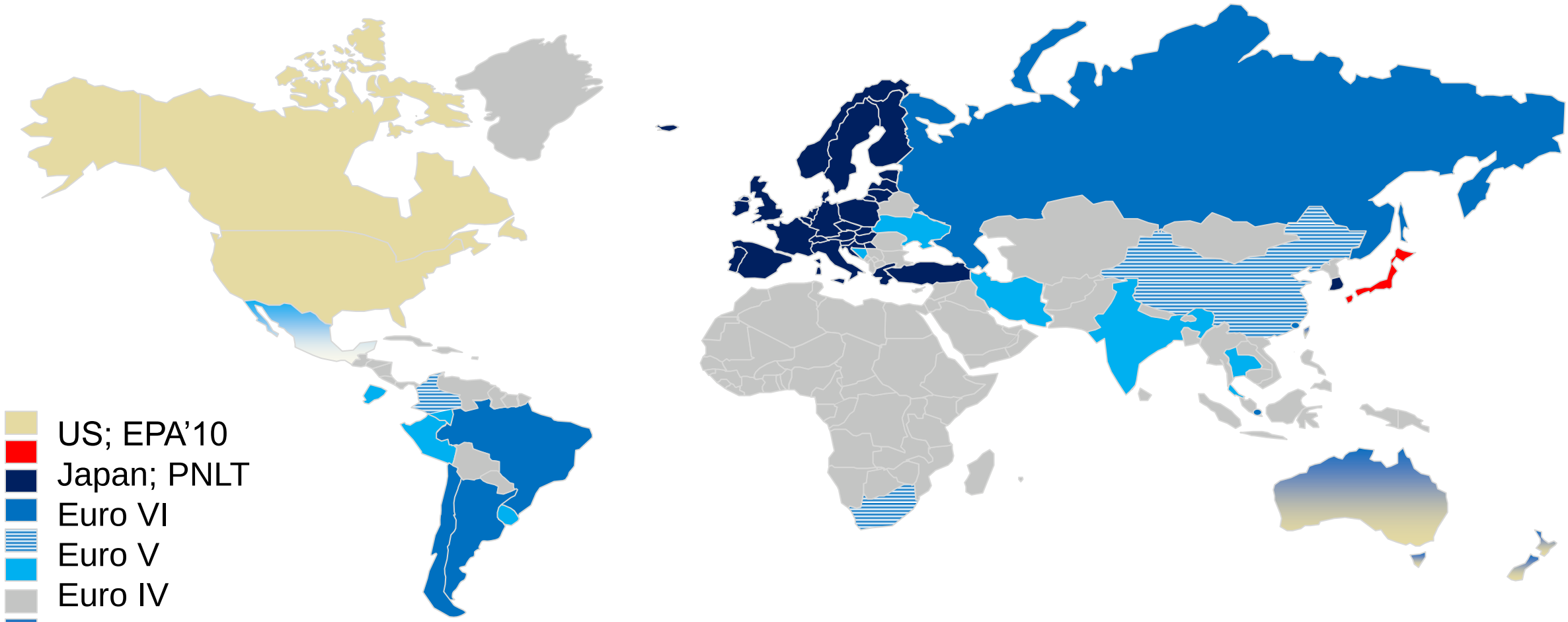
EPA Administrator Scott Pruitt stated on July 10, 2017:

- “What VW did was very, very troublesome and we need to make sure it doesn’t happen again.”
- When discussing VW and Fiat cases, Pruitt described their actions as “strategic and intentional” and stated that they “should be dealt with very aggressively.”

Global Picture: Emissions Regulations 2014



Global Picture: Emissions Regulations 2015



Global Picture: Emissions Regulations 2020