

US EPA ARCHIVE DOCUMENT

WELCOME TO Clean Air Act 101 Introduction & Module 1

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How the Training is Presented

- The training is provided in 8 Modules by Titles or Groups of Titles.
- It is recommended that Module 1 be taken first. Aside from that recommendation it is not essential that Modules 2 – 8 be taken in order.

Introduction - About This Training

- is not legal advice
- includes a brief history of the Clean Air Act,
- provides an overview of the Clean Air Act (CAA) as amended on November 15, 1990,
- provides an overview of all Titles, and
- emphasizes those Titles where implementation is primarily done by the State and Local Air Agencies with assistance and oversight by the EPA Regional Offices.

Module 1 of 8

- Introduction
- Brief History of the Clean Air Act
- Title I

History of the Clean Air Act

- July 9, 1970 President Nixon creates EPA and NOAA by Executive Order
- December 2, 1970 EPA opens its doors
- December 31, 1970 Congress passes the Clean Air Act (known as the Muskie Bill)

Clean Air Act of 1970

- EPA to establish NAAQS by April 1971
- States to meet NAAQS by 1975
- States develop SIPs to be approved by EPA
- Emission standards for new industries: New Source Performance Standards (NSPS)
- 95% reduction in emissions from new cars by 1975
- New program for hazardous air pollutants

1977 Clean Air Act Amendments

- Established New Source Review (NSR) and Prevention of Significant Deterioration (PSD)
- Established Class I areas for protection/ visibility program
- Extended Deadlines for attaining NAAQS
- Clean Air Scientific Advisory Committee reviews NAAQS analyses

1990 Clean Air Act Amendments

- Created extensive Specific Controls for nonattainment areas
- Extensive new requirements for vehicles and fuels
- Established the Ozone Transport Region and Commission
- New cap and trade Acid Rain Program

1990 Clean Air Act Amendments

continued

- Stratospheric Ozone Protection provisions
- Established new Title V Operating Permit Program
- Extensive new enforcement authorities
- Expanded authority for the Hazardous Air Pollution program

1990 Clean Air Act Amendments

continued

- Title I – Provisions for Attainment and Maintenance of National Ambient Air Quality Standards
- Title II – Provisions Relating to Mobile Sources
- Title III – Hazardous Air Pollutants
- Title IV – Acid Deposition Control
- Title V – Permits (Operating)
- Title VI – Stratospheric Ozone Protection
- Title VII – Provisions Related to Enforcement
- Title VIII – Miscellaneous Provisions
- Title IV – Clean Air Research
- Title X – Disadvantaged Business Concerns
- Title XI – Clean Air Employment Transition Assistance

Title I

- 110 -- SIPs for Criteria Air Pollutants
- New Source Review
 - Part C PSD
 - Part D Nonattainment provisions
- The Transport Region
- 111 – New Source Performance Standards
- 111d/129 -- Plans, Pollutants, Facilities
- 112 – Hazardous Air Pollutants
- 113 – Federal Enforcement
- 114 – Record Keeping, Inspections, Monitoring, and Entry

STATE IMPLEMENTATION PLANS (SIPs)

- Section 110 of the CAA
- 40 CFR Parts 51 & 52
- There are additional training courses online for SIPs and SIP Development
<http://www.epa.gov/apti/broadcast.html>

The Basics

- Criteria Air Pollutants
- National Ambient Air Quality Standards
- The SIP v. SIP Revisions
- Components of a SIP
- Infrastructure SIPs
- Designations
- Clean Data Findings v. Redesignations
- Part D Requirements
- Control Strategy SIPs
- Mobile Budgets
- Contingency Measures
- SIPs v. Title V Permits
- NSR
- The Ozone Transport Region

Criteria Air Pollutants

- Criteria Air Pollutants – Those pollutants for which EPA has promulgated national ambient air quality standards (NAAQS).
- The NAAQS are commonly referred to phonetically as the “NACKS”

The 7 CRITERIA AIR POLLUTANTS

- Particulate Matter (PM₁₀ PM_{2.5})
 - Sulfur Dioxide (SO₂)
 - Nitrogen Dioxide (NO₂)
 - Carbon Monoxide (CO)
 - Ozone (O₃)*
 - Lead (Pb)
- ***Note:** The pollutant ozone is not emitted directly into the air, but is formed from precursor emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOC) during the ozone season. Likewise much of the PM_{2.5} emissions are sulfates and nitrates that form from SO_x and NO_x.

The NAAQS

- The Clean Air Act calls for two types of national ambient air quality standards. "Primary" air quality standards are designed to establish limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.
- "Secondary" air quality standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The NAAQS

continued

- The secondary NAAQS for a given criteria pollutant is equal to or more stringent than the primary NAAQS for that same pollutant.
- Many species of plant and animal life are greatly impacted by air pollution.

40 CFR PART 50

<http://epa.gov/air/criteria.html>

This is the place on EPA's website where a table of the current NAAQS is located.

The footnotes are key!

Are SIPs Required for Anything Besides Criteria Pollutants?

- Yes!
- Regional Haze SIPs were due 12/2007 to improve visibility in Class I areas
- BART
- Reasonable Progress
- Five year look-back
- No sanctions for findings
- EPA still must FIP if State does not respond to “findings”

So What Is the SIP?

- Under the CAA, each state must develop a plan describing how it will attain and maintain the NAAQS. It is a state's plan to improve the air quality in nonattainment areas such that those areas will attain the primary NAAQS by a statutory deadline. It is also the state's plan to ensure that secondary standards are met as expeditiously as practicable and that attainment areas continue to meet the NAAQS.

So What is the SIP?

continued

- The State Implementation Plan is the air pollution reduction measures and strategies adopted by a State and approved by EPA for attaining and maintaining the NAAQS. (Codified 40 CFR Part 52)
- EPA Regional Administrators are delegated the authority to receive, return, approve or disapprove SIPs

What Happens After EPA Approves a SIP?

- Each State has a Subpart of 40 CFR Part 52 where there is a section called Identification of Plan.
- When EPA approves a SIP, it actually amends 40 CFR Part 52 to add the approved SIP.
- Once the SIP is in Federal regulations, EPA has the same authority and responsibility to enforce it as the state.

The SIP v. SIP Revisions

- The State Implementation Plan – Strictly speaking it is everything codified in a State's Subpart of 40 CFR Part 52
- The Ozone SIP – The whole attainment plan and all the SIP elements approved to control ozone precursors

The SIP v. SIP Revisions

continued

- The VOC RACT SIP – A Part D SIP element of ozone attainment plans to control VOCs from existing major stationary sources.
- The I/M SIP – A SIP element required in certain nonattainment areas for vehicle inspection & maintenance.
- Everyone in the air quality planning field tends to use the term “SIP” to cover it all.

Components of a SIP

- The required plan is called the State Implementation Plan (SIP) and is required under Section 110 of the CAA (40 CFR Part 51)
- Note 40 CFR Subparts F & G. These subparts describe the requirements for “control strategy” SIPs (e.g., Rate of progress (ROP), Attainment demonstrations)
- In general, the SIP requires a collection of programs and resources, including:

SIP Components

continued

- Monitoring Program: a collection of monitoring devices throughout the country which provide measurements of the concentrations in the air.
- This ambient air quality data is used (among other things) to calculate an area's design value.

Design Values

- The area's design value identifies whether an area should be designated as attainment or nonattainment.
- Design values are also used to determine whether an area is eligible for a clean data determination or eligible to be redesignated.

SIP Components

continued

- Emissions Inventories: compiled data of the sources and categories of emissions to the air for a given pollutant, and how much is emitted by each source or source category.
- Air Quality Calculations and Computer Modeling: methods/tools to predict future trends and the effects of emissions reduction strategies; and to produce the attainment demonstration.

SIP Components

continued

- Control Strategy studies: the goal is to determine how best (environmentally and cost/benefit wise) to reduce emissions in order to meet air quality standards.
- Formal Adoption of Measures/ Regulations (enforceable by EPA, States, and by citizen suits) to ensure that the reductions deemed necessary in the planning process will be achieved.

SIP Components

continued

- Periodic Review to evaluate whether those needed reductions were achieved in reality, and whether they had the predicted result.
- The air quality agency responsible for the SIP (usually a State Agency but can also be a Local or Tribal Agency) must have procedures to provide the public an opportunity to review a SIP revision before sending it to EPA for approval.

SIP Components

continued

- In cases where the EPA fails to approve a SIP, the Agency can issue and enforce a Federal Implementation Plan (FIP) to ensure attainment and maintenance of the NAAQS.
- In addition, Section 179 of the Act contains penalties, referred to as "sanctions" which EPA can impose in areas not satisfying the Act's Part D SIP requirements.
- There is a SIP Training Module dedicated to Sanctions and FIPs.

The Infrastructure SIPs

- Section 110 (a)(1) and (2)(a) – (m) of the CAA
- Due 3 years after the promulgation of a new or revised NAAQS – regardless of whether or not the state has any nonattainment areas
- Required by statutory deadline – no exceptions

The Infrastructure SIPs

continued

- Watch for cross references to Part D nonattainment requirements
- Note that 110(a)(2)(D) deals with transport
- Pay attention to both the nonattainment NSR permitting requirements and the Part C – PSD Permitting Program requirements.
- Even if a State believes no updates are necessary – must provide public notice and hearing for THAT determination.

Designations

- How do we know an area is nonattainment?
- Design values – Need the data
- State Recommendations
- Boundaries

When Are Attainment SIPs Due?

- Usually three years after an area is designated nonattainment.
- Specifics for what elements are required and their deadlines is usually in the Implementation Rule.
- What happens if the area's air quality attains before the SIP is due?

A Clean Data Determination or Clean Data Finding

- Relieves the State from having to do an ROP Plan/Attainment Demonstration.
- Area is still designated nonattainment.
- State may request or EPA may initiate the action.
- Requires rulemaking.
- While not a SIP revision, language is codified in the State's subpart of Part 52 – not Part 81.

A Redesignation

- Requires a State to submit requests satisfying five requirements (Section 107).
- Maintenance Plan is a critical element and is a SIP revision (MPs have mobile budgets).
- Redesignates an area from nonattainment to attainment.
- Requires rulemaking and is codified in both Part 52 (the maintenance plan) and in Part 81 (the change in an area's designation from nonattainment to attainment).

Requirements for Clean Data Determinations v. Redesignations

Clean Data Finding

3 years of violation free data (i.e., clean data)

Redesignation

- 3 years of violation free data
- Fully approved 110 SIP
- Part D SIP Requirements due to date submitted and approved
- Improvement in air quality from enforceable reductions
- Approved maintenance plan (10 years) including contingency measures

The Attainment Plan

- The Infrastructure 110 (1) and (2)(a)–(m) requirements.
- All applicable Part D requirements including Reasonably Available Control Measures (RACT & State mobile/area programs) and a NSR Permitting Program.
- Federal mobile/fuel measures.
- Federal area source measures.

The Attainment Plan

continued

- A Rate of Progress Plan (mobile budgets)
- A Demonstration of Attainment (mobile budgets)
- Contingency Measures

Part D Requirements

- The CAA mandated requirements for designated nonattainment areas.
- Increase in number and stringency depending upon the classification of a designated nonattainment area.
- Covered in the Implementation Rule issued by EPA after it promulgates a new NAAQS.
- Findings of failure to submit, incompleteness or disapprovals of Part D SIP elements commence sanctions and FIP clocks.

The Control Strategy SIPs

- Rate of Progress (ROP) Plans
- Attainment Plans
- Maintenance Plans

These plans take into account the creditable reductions and “demonstrate” attainment, ROP or Maintenance.

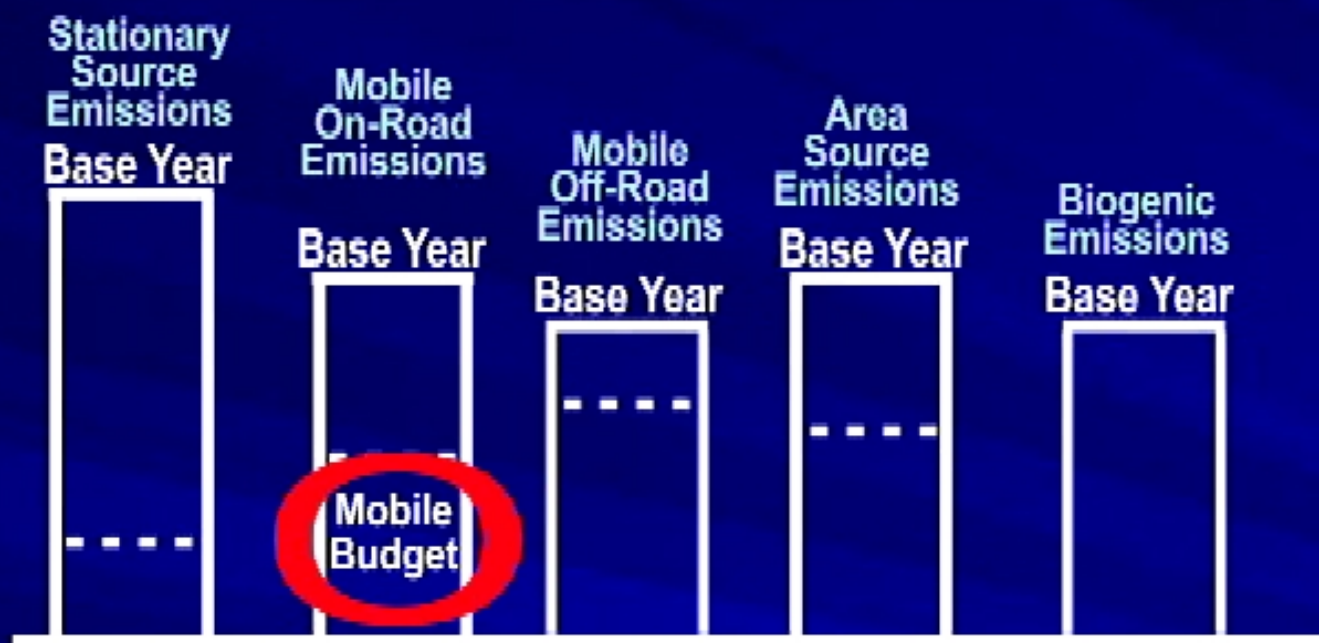
They all have:

- Mobile Budgets
- Contingency Measures

MOBILE BUDGETS

- The amount of on-road mobile emissions specifically identified in a control strategy plan for a criteria pollutant and its precursors that may remain “in the air” after attainment, ROP or maintenance is demonstrated.
- Budgets are used by Metropolitan Planning Organizations (MPOs) to demonstrate “transportation conformity.”
- If there are multiple budgets for a given year, the “tightest” set of budgets applies.

Conceptual Mobile Budget



--- The Amount of Emissions "Remaining" in the Air After
Reductions Necessary to Demonstrate Attainment,
Rate of Progress or Maintenance

Contingency Measures

- Attainment and ROP Plans - Measures that would go “automatically” into effect if progress or attainment is not met by a required date or milestone date. May be implemented early.
- Maintenance Plans – An identified set of measures that would be adopted and implemented should an area exceed/violate after it has been redesignated. May not be implemented early.

SIPS & Title V Permits

- SIPs are required under Title I of the CAA and must stand complete on their own.
- Title V permits are required under Title V of the CAA.
- Title V permits may not be used to “create” or “fix” or “fill-in” SIP requirements.
- Title V permits “house” existing SIP requirements (and all other applicable federal and state requirements).

The SIP v. Title V Permit

- The issue is NOT federal enforceability.
- Nothing is made part of the SIP until and unless it goes through the state and federal processes required to codify it in 40 CFR Part 52 pursuant to Section 110.
- SIP requirements cannot be open-ended with the “details” to be set in the Title V permit.
- SIP revision requests to approve documents or regulations with expiration or sunset dates pose approvability problems.

New Source Review

- Strictly speaking NSR refers to the all of the construction permitting of stationary sources under the CAA.
- Minor source NSR is the permitting of new minor sources and minor modifications.
- Nonattainment Major NSR is the preconstruction permitting program for new major sources and major modifications in nonattainment areas.
- Prevention of Significant Deterioration (PSD) is the NSR preconstruction permitting program for new major sources and major modifications in attainment areas.

NSR and the SIP

- NSR requirements are SIP requirements.
- The SIP must have a minor NSR permitting program [Sec.110(a)(2)(C)].
- Under Part D of the CAA, the SIP must include a nonattainment NSR pre-construction permitting program for major sources and major modifications (Sec. 110, and in Part D 172, 173).

NSR and the SIP

continued

- PSD is actually required to be part of the SIP under Part C of the CAA.
- The majority of States have SIP-Approved PSD programs.
- Where a State does not have a SIP-approved PSD program, EPA promulgated a FIP into that State's Subpart of 40 CFR Part 52.

NSR and the SIP

continued

- In those instances, the State may have taken delegation of the FIP and is implementing the PSD program found at 40 CFR part 52.
- Otherwise EPA is implementing PSD in such a State and EPA is the permitting authority.

Brief Overview of the New Source Review Permit Program

What Is the NSR Permit Program?

- Preconstruction air quality permit program for both major new sources and major modifications at existing sources of air emissions.
- “New Source Review” (NSR) – encompasses Nonattainment Area NSR, Prevention of Significant Deterioration (PSD) and Minor NSR.
- NSR Program is part of the SIP (Title I).

What Does NSR Determine?

Defines what measures will be used to control new air pollution emissions from a facility:

- **Lowest Achievable Emission Rate (LAER)**
 - For nonattainment NSR areas
 - Does not consider cost

- **Best Available Control Technology (BACT)**
 - For PSD areas, i.e. attainment areas
 - Considers cost effectiveness of control options

Examples of Pollution Control Options?

- Air Pollution Control Devices:
 - Sulfur Dioxide Scrubbers
 - Selective and Non-selective Catalytic Reduction Units for the Control of Nitrogen Oxides
 - Baghouses and Electrostatic Precipitators for Control of Particulate Matter
- Fuel Types or Restrictions (e.g. low-sulfur coal)
- Optimal Combustion Practices
- Workplace Standards (e.g. enclose spray booths)

When is NSR Triggered?

- Prior to Construction of a New Facility
 - New source must have a certain level (threshold) of emissions of any of the six criteria pollutants (except ozone). (Must be a “Major Source“)

- Prior to Modification of Existing Facility
 - Modification must result in a threshold amount of new air pollution

- Once triggered, NSR is applied on a Pollutant-by-Pollutant basis for all regulated pollutants

Other Requirements of NSR

- Air Quality Modeling for PSD Permits to Ensure that Air Quality in Clean Areas Does Not Degrade
- Emission Offsets for NSR Permits to Ensure No Net Increase in Emissions in Nonattainment Areas
- Special Considerations for Protected Areas

Who Runs the NSR Program?

- In Most Cases, the State Agencies Issue NSR Permits Under Their EPA Approved Programs
- EPA Provides Oversight/Auditing
- EPA Issues NSR Permits on Federal Lands and Where State Does Not Have Program.

The Ozone Transport Region (OTR) & The Ozone Transport Commission (OTC)

- The Ozone Transport Region (OTR) and the Ozone Transport Commission (OTC) established by the 1990 CAA – section 184

Includes: ME, NH, VT, MA, CT, RI, NY, NJ, DE, PA, MD, DC and Northern VA

The OTR's Additional Requirements

- Entire state is considered a moderate ozone nonattainment area* for the purposes of requirements applicable to major stationary sources of VOC and NOx. This means:
 - Nonattainment NSR applies statewide for VOC and NOx and PSD continues to apply in the designated attainment areas for the pollutants for which they are attainment (e.g. NO₂) and RACT for NOx and VOC apply statewide.
- * those N/A areas of an OTR state classified higher than moderate must meet the Part D requirements for the higher classification.

The OTR's Additional Requirements

continued

- Enhanced I/M and Stage II (or equivalent) required in MSA's and adjoining counties with a population >100,000 (versus 200,000)
- No VOC or NOx opt-outs
- See Section 184

The OTC's Executive Board

- The Governor or his/her representative and one other State Official (Mayor for the District)
- The AA for OAR and the RA's from Regions 1, 2, and 3 are non-voting members of the OTC.

Other Important SIP Related Topics

- Findings, Sanctions and FIPs
- How to Submit a Complete SIP Revision to an EPA Region Office – See 40 CFR Part 51 Appendix v
- Types of Actions and Rulemaking Procedures EPA May Use to Take Actions on SIPs - E-Docketing
- The Administrative Procedures Act (APA) governs EPA's rulemaking process for actions on SIPs NOT Section 301(d) of the CAA

Other Important SIP Related Topics

Continued

Legal Challenges to SIP actions are filed/heard in the Court of Appeals

- See SIP training modules entitled: SIP Law and Rulemaking on State Implementation Plans & Sanctions, Federal Implementation Plans (FIPs), and SIP Calls Under the Clean Air Act detailed training on these topics.

Section 111 – New Source Performance Standards

- These are federal emission standards promulgated by source category at 40 CFR Part 60.
- These are technology-based emission standards and are not tied to an air quality value or any ambient standard.
- Most States take delegation of NSPS standards and implement them via Title V permits.
- See NSCEP/NEPIS - EPA's Gateway to Free Digital & Paper Publications

111d Plans

- There are section 111d pollutants – those pollutants are not criteria pollutants nor are they listed as hazardous air pollutants.
- Fluorides, Total reduced sulfur, Hydrogen sulfide, and Reduced sulfur compounds.
- 111d plans are not linked to an ambient air quality standard or value.
- States must submit plans to require performance standards for existing sources of 111d pollutants.

111d Plans

continued

- 111d plans may take into account the useful life of a source.
- EPA prescribes the procedures for establishing these plans. EPA approves State plans via rulemaking.
- In the absence of a State plan, EPA may promulgate and enforce a FIP.

Section 129 Plans

- Required plans for each category of solid waste incineration units. EPA promulgates guidelines for each category of solid waste incinerator.

- Numerical emission limitations required for:
 - Particulate matter (total and fine)
 - Opacity (as appropriate)
 - Sulfur dioxide
 - Hydrogen chloride
 - Oxides of nitrogen
 - Carbon monoxide
 - Lead
 - Mercury
 - Dioxins and dibenzofurans

Section 129 Plans

continued

- States have one year to submit their 129 plan which must be as protective as the federal guidelines.
- Sources are permitted under Title V
- EPA approves via rulemaking.
- If State plan is late or deficient EPA will promulgate a federal plan 2 years after issuing the guidelines.

Section 112

- This section of the CAA provides the authority and responsibility to regulate and assess the impacts of hazardous air pollutants (HAPS).
- Title III of the 1990 CAA Amendments greatly increased the scope and nature of the hazardous air pollution requirements of the CAA.
- Module 3 of this training is devoted to Section 112 and the expanded authority promulgated by Title III of the 1990 CAA Amendments.

Section 113 – Federal Enforcement

- This section of the Clean Air Act provides EPA its authority and responsibility to enforce the Clean Air Act.
- The 1990 Amendments provided enhanced enforcement capabilities under Title VII.
- Title VII references Section 113 of Title I.
- Module 7 of this training covers Sec. 113 and Title VII of the 1990 CAA Amendments.

Section 113 – Federal Enforcement

continued

- (a)(1) Order to comply with the SIP
- (a)(2) State failure to enforce the SIP or Title V permit program
- (a)(3) EPA enforcement of other CAA requirements
- (a)(4) Requirements for orders
- (a)(5) Failure to comply with NSR requirements

Section 113 – Federal Enforcement

continued

- (b) Civil judicial enforcement
- (c) Criminal penalties
- (d) Adm. assessment of civil penalties
- (e) Penalty assessment criteria
- (f) Awards (to persons who supply info)
- (g) Settlement public participation
- (h) Defines “Operator”

Section 114 - Recordkeeping, Inspections, Monitoring, Entry

- (a) Authority of the Administrator or authorized representative
- (b) State enforcement
- (c) Availability of records, reports, and information to the public; disclose of trade secrets (CBI)
- (d) Notice of proposed entry, inspection, or monitoring

RESOURCES

- Region 1 – Anne Arnold
- Region 2 – Rick Ruvo
- Region 3 – Cristina Fernandez (Maria Pino, Acting)
- Region 4 – Dick Schutt
- Region 5 – Jay Bortzer
- Region 6 – Guy Donaldson
- Region 7 – Josh Tapp
- Region 8 - Monica Morales
- Region 9 - Lisa Hanf
- Region 10 - Michael McGown

- For general questions:
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END OF MODULE 1
Of
Clean Air Act 101