



NJ-CERT Module 1: Federal Clean Air Act & Enhanced Inspection and Maintenance Introduction

A course made for New Jersey's Certified Emission Repair Technician
(ERT)

Presented by the NJ Department of Environmental Protection (DEP)
Bureau of Mobile Sources



- **Note:** If you have not printed out the [Master Acronym List](#), please do so now **OR** have it open while viewing these Modules.
- For detailed rules and regulations, please visit [Section 2](#) on the NJ-CERT homepage.

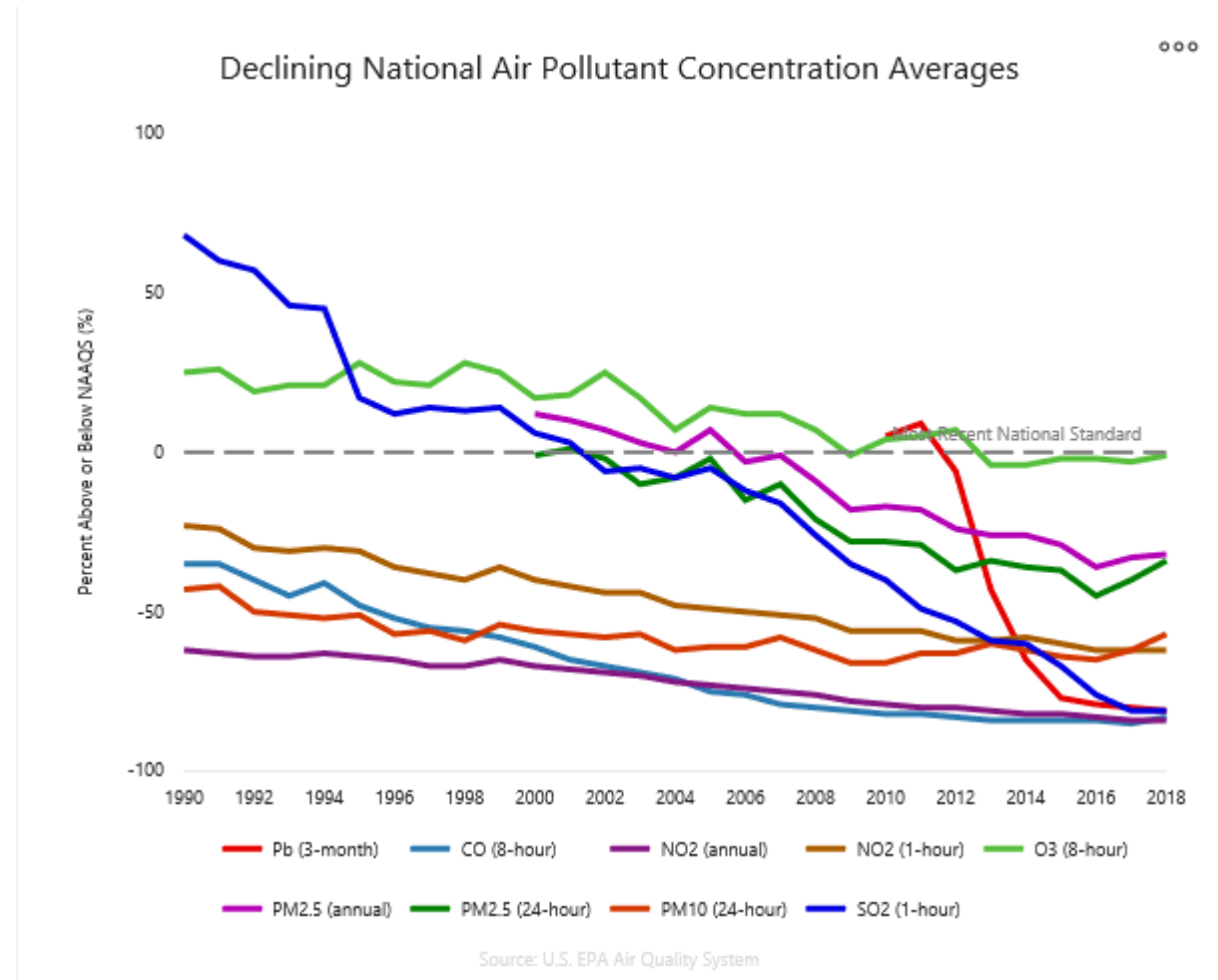
Thank you

Federal Clean Air Act

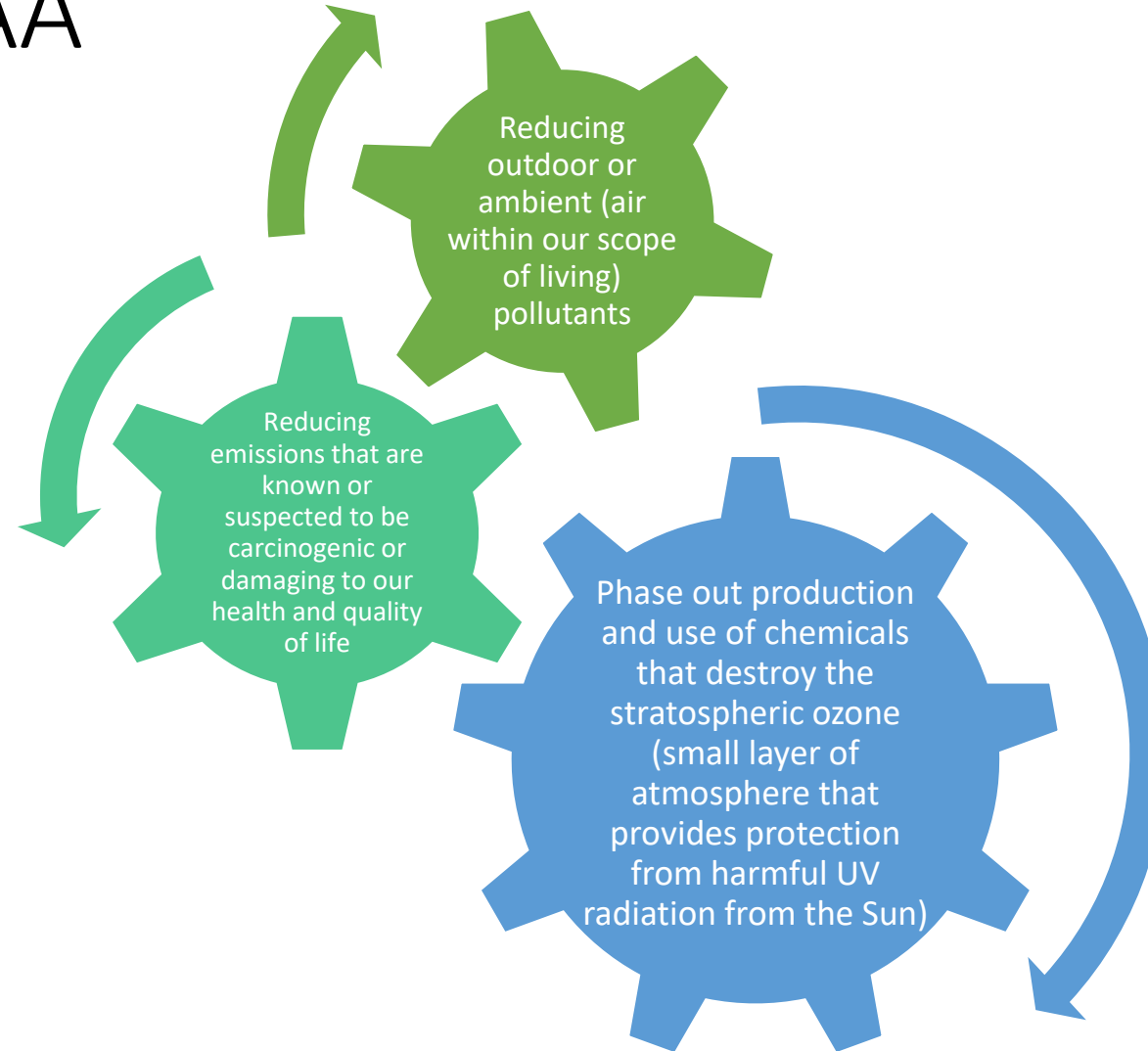
- The Federal Clean Air Act (CAA) is a law which forms the basis for the national air pollution control efforts.
- The CAA was established in 1970, with major revisions in 1977 & 1990.

✓ Since then, criteria pollutants have decreased significantly (refer to image to the right)

❖ For more information regarding the highlights and trends associated with the CAA please follow this [link](#)

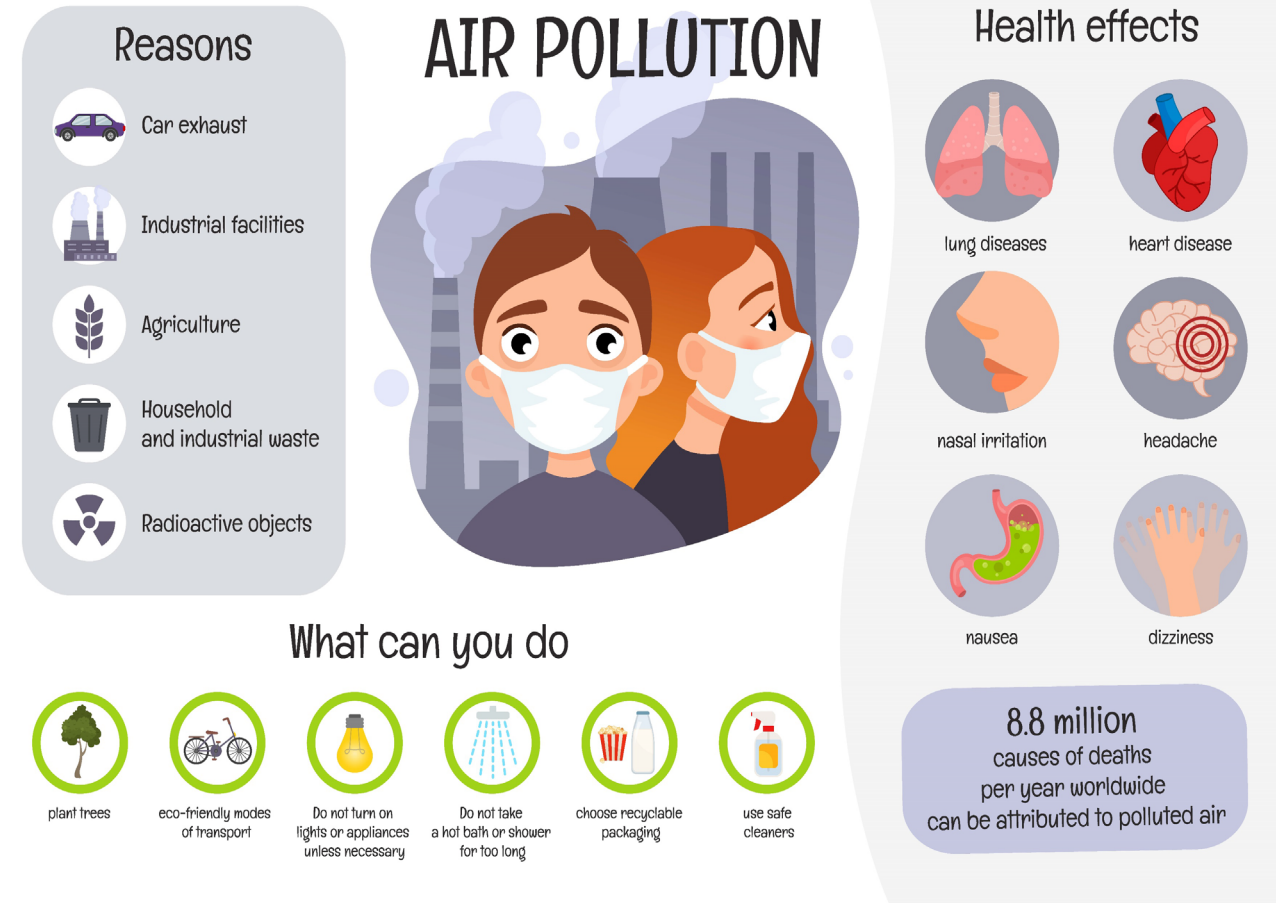


Main Goals of the CAA



CAA & Your Health

- The CAA aims to protect public health and welfare nationwide against air pollution. Some negative effects of air pollution include but are not limited to:
 - Breathing polluted air can make you SICK
 - Can damage plants, animals, buildings, roads, bridges, and vehicles
 - Can interrupt air travel
 - Create billions of dollars in damage per year
 - Creates thousands of illnesses, which lead to sick days, large medical bills and hospitalizations and lost school days
- ❖ The graphic to the right explains how air pollution affects your long term and short term health. These affect EVERYONE, not just individuals in sensitive groups.



CAA Continued

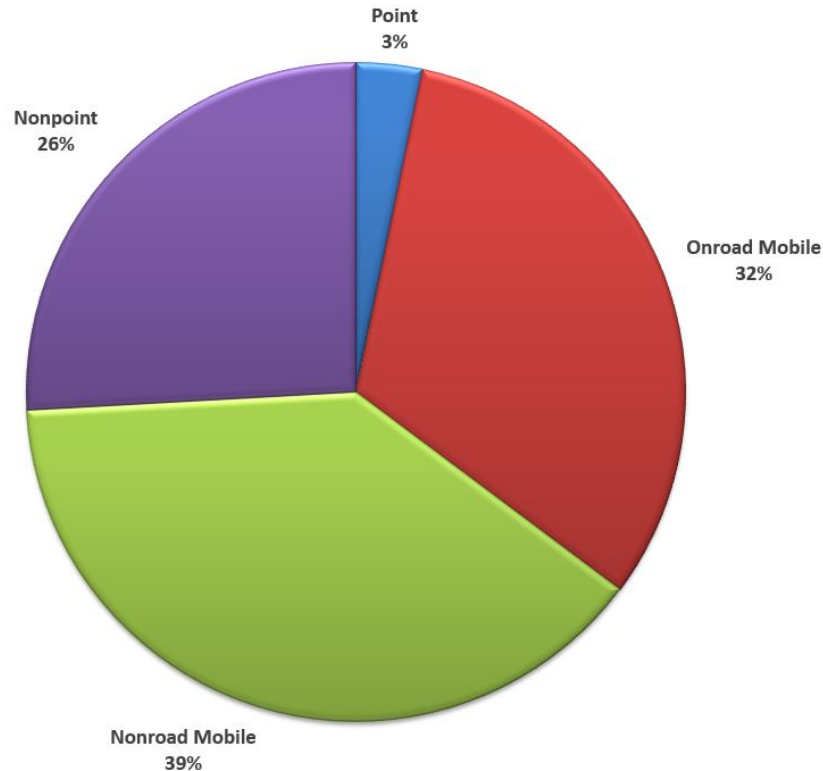
The CAA established standards for the six (6) common *“criteria pollutants”*.

Criteria pollutants are both **common** and **damaging** to human welfare.

1. **Particulate matter:** includes small, solid and liquid particles (dust, smoke, pollen, mist, sand, fly ash)
2. **Ozone:** chemical created by NO_x and VOC's in the presence of heat and sunlight
3. **Sulfur dioxide:** colorless gas formed by burning coal or oil (which contains sulfur), can create acid rain
4. **Nitrogen dioxide:** highly reactive gas, can create ozone and comes from fuel burning vehicles
5. **Carbon monoxide:** colorless, odorless gas formed when carbon in fuel is not burned completely.
6. **Lead:** naturally occurring metal that used to be found in gasoline but has been phased out. Now is most commonly found in metal processing.

Vehicle Emission Significance

Sources of Air Toxics in New Jersey
Based on USEPA's 2014 Air Toxics Inventory



Note: Nonpoint-not directly linked to any particular source, cannot be directly traced back to a location

Point-can be directly linked to a location/source

Source: NJDEP

- **Mobile Sources are responsible for more than ½ of the toxic air pollutant emissions in the United States.**
- Mobile Sources create air pollution through internal engine combustion and fuel evaporation (when fuel leaks out of the vehicle and can evaporate into the ambient air).
- Vehicles have an internal combustion engine which ideally would only produce CO₂ and water vapor
- Vehicle combustion also produces:
 - Volatile organic compounds (Volatile means the substance can be evaporated or pass from a liquid to a gas state)
 - Carbon monoxide
 - Oxides of Nitrogen
 - Carbon Dioxide
 - Particulate Matter
- These pollutants can cause severe health effects and even some cancers.
- The Clean Air Act requires manufacturers to build cleaner engines & refineries to produce cleaner fuel.
- EPA requires states to run vehicle inspection programs where vehicle pollution is an ongoing problem.

Inspection and Maintenance

The CAA *requires* states with air pollution problems (nonattainment area) from mobile sources to implement an Inspection and Maintenance program

- This also requires vehicles to be equipped with “On Board Diagnostic” or OBD systems to detect a malfunction of any pollution control device within the vehicle. The OBD system itself is also inspected to ensure proper function and capability.
- Inspection can also detect emission equipment tampering.
- Each state is responsible for their own Inspection and Maintenance program.

❖ Module 2 will elaborate more on NJ’s I/M program.