



Abbreviated Clean Air Act Glossary

(Based on EPA and Michigan State University College of Engineering glossaries but with modifications and additions.)

Acid Deposition (Acid Rain): A complex chemical and atmospheric phenomenon that occurs when emissions of sulfur and nitrogen compounds and other substances are transformed by chemical processes in the atmosphere, often far from the original sources, and then deposited on earth in either wet or dry form. The wet forms, popularly called "acid rain," can fall to earth as rain, snow, or fog. The dry forms are acidic gases or particulates.

Add-on Controls: Air pollution control devices that reduce the pollution in an exhaust gas. The control device usually does not affect the process being controlled and thus is "add-on" technology, as opposed to a scheme to control pollution through altering the basic process itself.

Air Toxics: Air pollutants for which National Ambient Air Quality Standards (NAAQS) do not exist (i.e., excluding ozone, carbon monoxide, particulate matter, sulfur dioxide, nitrogen oxides) that may reasonably be anticipated to cause cancer; adverse respiratory, cardiovascular, or developmental effects; reproductive dysfunctions, neurological disorders, heritable gene mutations, or other serious or irreversible chronic or acute adverse health effects in humans. (See also Hazardous Air Pollutants.)

Attainment Area: An area which meets National Ambient Air Quality Standards (NAAQS) as defined in the Clean Air Act. An area may be an attainment area for one criteria pollutant, while simultaneously being a nonattainment area for another criteria pollutant.

Banking: Holding unused permits or allowances for use in a future compliance period.

Best Available Control Technology (BACT): An emission limitation based on the maximum degree of emission reduction (considering energy, environmental, and economic impacts) achievable through application of production processes and available methods, systems, and techniques. It is determined on a case by case basis for major new or modified emissions sources in attainment areas and applies to each regulated pollutant.

Carbon Monoxide (CO): A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion. It is a criteria air pollutant.

Control Techniques Guideline (CTG): Guidance documents developed by EPA which define reasonably available control technology (RACT) for existing facilities which exceed certain quantities of air pollutants. CTGs contain information on both economic and technologic feasibility of the techniques.

Control Technologies, Control Measures: Technologies, processes, practices, or actions that are used to reduce air pollution.

Criteria Air Pollutants: Common air pollutants for which National Ambient Air Quality Standards (NAAQS) have been established. There are six criteria air pollutants: carbon monoxide, lead, nitrogen dioxide (NO₂), ozone, sulfur dioxide (SO₂), and particulate matter.

Emission Standard: The maximum legally allowable air pollution discharge from a source.

Emissions Trading: A system in which multiple emitters may exchange emissions allowance permits, allowing the system as a whole to meet emissions limits or reduction targets.

Federal Implementation Plan: A federally implemented plan to achieve National Ambient Air Quality Standards (NAAQS), used when a state is unable to develop or implement an adequate plan and under certain other circumstances.

Greenhouse Gases: Gases whose infrared absorption and emission properties allow the atmosphere to act as an insulating blanket keeping the Earth warmer than it would otherwise be. Water vapor, carbon dioxide (CO₂), ozone (O₃), methane (CH₄), nitrous oxide (N₂O), and a number of synthetic gases are most prominent. Concerns about anthropogenic emissions impacts on climate focus on emissions of CO₂, CH₄, N₂O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), which are also the gases targeted under emerging Clean Air Act regulations.

Hazardous Air Pollutants: Air pollutants not regulated by ambient air quality standards but which may present a threat of adverse human health or environmental effects. Examples include asbestos, benzene, beryllium compounds, coke oven emissions, mercury compounds, radionuclides, and vinyl chloride. There are 187 HAPs regulated under the CAA. (See also Air Toxics.)

Interstate Air Pollution: Air pollution which travels over state lines.

Lowest Achievable Emission Rate (LAER): The emissions rate that reflects the most stringent limitation in the implementation plan of any state, unless demonstrably unachievable, in which case, LAER is the most stringent limitation achieved in practice. LAER is applied to major new or modified emissions sources in nonattainment areas.

Major Sources: Sources that exceed a threshold based on actual or potential emissions so as to trigger certain emissions limitations or permitting requirements. Under the New Source Review program (NSR), sources in nonattainment areas with potential to emit 25, 50, or 100 tons per year (tpy) or more (depending on severity of nonattainment) of regulated pollutants are major sources. In attainment areas, major sources subject to Prevention of Significant Deterioration (PSD) provisions are those with potential to emit 100 or 250 tpy or more, depending upon the source category. [EPA has modified the major source threshold for greenhouse gases under PSD through the “tailoring rule.”] For hazardous air pollutants (HAPs), major sources are those with potential to emit 10 tpy or more of any single HAP or 25 tpy or more of a combination of HAPs.

Maximum Available Control Technology (MACT): Emission control standard for hazardous air pollution which requires the maximum reduction of emissions, with consideration of cost and feasibility.

The MACT must not be less than the average emission level achieved by controls on the best performing 12 percent of existing sources, by category of industrial and utility sources.

Minor NSR: Permitting program in some states applied to certain sources below the New Source Review (NSR) major source threshold.

Mobile Sources: Non-stationary sources of air pollution, including vehicles.

National Ambient Air Quality Standards (NAAQS): EPA standards for outdoor air throughout the country. These standards pertain to criteria air pollutants.

National Emissions Standards for Hazardous Air Pollutants (NESHAPS): Emissions standards set by EPA for hazardous air pollutants (HAPs) not covered by the National Ambient Air Quality Standards (NAAQS) that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness.

New Source Performance Standards (NSPS): Uniform national EPA air emission standards which limit the amount of pollution allowed from new, modified, and certain existing sources by source category based on available technologies.

New Source Review (NSR): A Clean Air Act requirement that State Implementation Plans must include a permit review that applies to the construction and operation of new and modified stationary sources in nonattainment areas to ensure attainment of National Ambient Air Quality Standards (NAAQS).

Nitrogen Oxides (NO_x): A major chemical component of photochemical smog and acid deposition. NO_x is a criteria air pollutant. Nitrogen dioxide (NO₂) is the species of NO_x subject to the National Ambient Air Quality Standards (NAAQS).

Nonattainment Area: An area where levels of one or more criteria air pollutants do not meet the National Ambient Air Quality Standards (NAAQS). An area may be an attainment area for one pollutant, while simultaneously being a nonattainment area for another pollutant.

Offsets: A concept whereby emissions from proposed new or modified stationary sources are balanced by reductions from existing sources to stabilize total emissions. Offsets at a greater than 1:1 ratio result in net reductions in emissions.

Ozone (O₃): Found in two layers of the atmosphere, the stratosphere and the troposphere. In the stratosphere ozone is a natural form of oxygen that provides a protective layer shielding the earth from ultraviolet radiation. In the troposphere, ozone is a chemical oxidant and major component of photochemical smog. It is a criteria air pollutant.

Particulates, Particulate Matter: Fine liquid or solid particles suspended in air, including dust, mist, smoke, fumes and smog. Suspended particulates are a criteria pollutant. PM₁₀ refers to particulate matter that is ten micrometers or less in diameter while PM_{2.5} refers to particulate matter 2.5 micrometers or less in diameter.

Performance Standards: 1. Requirements limiting the concentration of designated pollutants in emissions from incinerators. 2. EPA operating standards for various permitted pollution control systems, asbestos inspections, and other program operation requirements.

Permit: An authorization or license issued to allow the operation of a potential pollution source under the requirements of an environmental regulation. Permits are issued by the EPA or an approved state or local agency.

Potential to emit: The highest amount of pollution that could be emitted from a facility based on operating equipment at maximum design capacity. Used to determine applicability of permitting, including whether a source is regulated as a minor or major source.

Prevention of Significant Deterioration (PSD): Program under which state and/or federal permits are required on new major stationary sources in places where air quality already meets primary and secondary ambient air quality standards.

Primary Standards: National Ambient Air Quality Standards (NAAQS) which pertain to human health and safety.

Reasonable Available Control Technology (RACT): Control technology which is both economically and technologically feasible and reasonably available. Generally applied as a standard to existing sources in nonattainment areas, and is usually less stringent than new source performance standards (NSPS).

Secondary Standard: National Ambient Air Quality Standards (NAAQS) which pertain to public welfare, including effects on property, transportation infrastructure, soil, water, crops, and visibility.

State Implementation Plan: A plan, designed by a state and approved by the EPA, for the implementation and enforcement of air pollution standards in order to achieve and maintain National Ambient Air Quality Standards (NAAQS).

Stationary Source: An immobile source of pollution, such as a power plant or industrial facility.

Sulfur Dioxide (SO₂): A criteria air pollutant emitted from the combustion of sulfur containing fossil fuels and certain industrial processes. It is a precursor of acid deposition and particulate matter.

Volatile Organic Compound (VOC): Any organic compound that participates in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity.

Sources:

Environmental Protection Agency, www.EPA.gov/glossary

Michigan State University College of Engineering, <http://www.egr.msu.edu/tosc/delray/glossary.pdf>

With modifications and additions from the Alliance to Save Energy.