Types of Trading

CLEAN AIR MARKET PROGRAMS

The United States has pioneered the use of emissions trading for more than 25 years. Emissions trading can take different forms and can be used in different sectors to meet regulatory requirements. There are three general types of emissions trading programs: cap and trade programs, project-based or credit programs, and rate-based or averaging programs.

Cap and Trade Programs

In a cap and trade program, sources are allocated a fixed number of allowances. Each allowance represents an authorization to emit a specific quantity of a pollutant (e.g., one ton). The number of allowances is capped in order to reduce emissions to the desired level, and sources are required to meet stringent, comprehensive emission monitoring requirements. At the end of the compliance period, emission sources must hold sufficient allowances to cover their emissions during the period. Sources that do not have a sufficient number of allowances to cover emissions must purchase allowances from sources that have excess allowances from reducing emissions.

Cap and trade programs have been applied to large electric power and industrial emissions sources. These programs do not require case-by-case review of allowance trades because of the certainty provided by the emissions cap, the fixed number of allowances available, and the stringent monitoring and tracking of all emissions. Examples of cap and trade programs include: the Acid Rain SO_2 Program; the Ozone Transport Commission NO_x Budget Trading Program and the NO_x SIP call; as well as proposed legislation and regulations for additional emission reductions in the power sector.

All three types of emission trading programs are meant to work in conjunction with existing regulations. Any emission trading program should be designed and undertaken to complement basic safeguards for public health and the environment under the Clean Air Act and other environmental laws.

Project-based, Credit or Offset Programs

In a project-based program, also referred to as a credit or offset program, sources earn credit for projects that reduce emissions more than is required by a pre-existing conventional regulation or other benchmark. These credits can then be traded to other facilities where they can be used for compliance with a conventional regulatory requirement. The decision to generate these credits is usually voluntary; however, credits must be certified through some sort of administrative process.

Credit programs impart flexibility to existing programs, but do not require reductions (except to the extent some percentage of credits generated may be retired for environmental benefit). In the past, the need to determine whether these types of credits represent real emission reductions has sometimes been time-consuming, costly and uncertain. However, credit programs may include a larger variety of sectors and source types than do the other types of trading programs. Examples of these types of programs include offset requirements for new sources in areas that do not meet National Ambient Air Quality Standards and open market trading programs in some states.











Three Forms of Trading Compared

	Potential to Limit Total Emissions	Cost Minimization	Administrative & Transaction Costs
Cap and Trade	**High**	**Yes**	**Low**
Project-based Trading	**Low to Medium**	**Yes**	**High**
Rate-based Trading	**Medium**	**Yes**	**Low to Medium**

Source: "Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control," June 2003 EPA 430-B-03-002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Rate-based or Averaging Programs

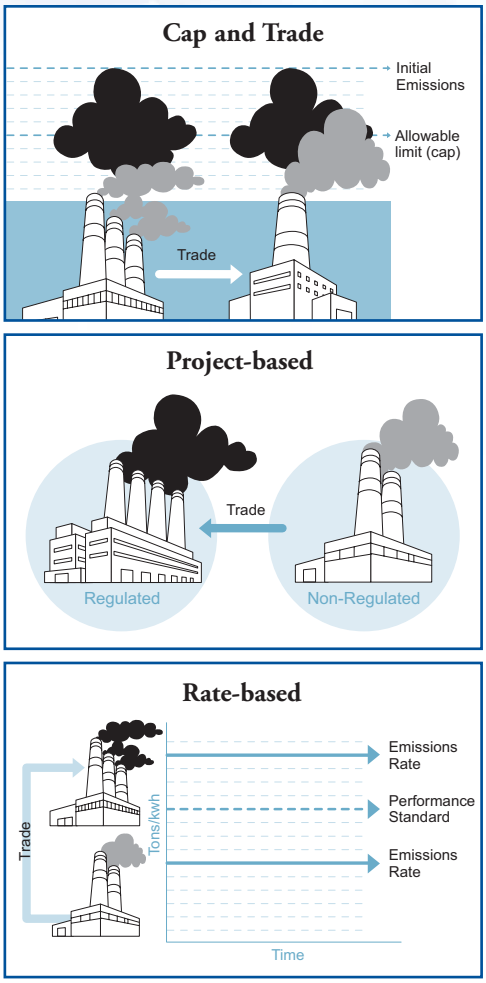
In rate-based or averaging programs, the regulatory authority sets a constant or declining emission rate performance standard (e.g. tons of emissions per megawatt hour). Emission sources with average emission rates below the performance standard earn credits that they can sell to other emission sources. Sources with emission rates above the standard must obtain credits to cover the excess. Rate-based programs can lower emissions, but emissions can subsequently grow if activity grows. The successful program to phase-out lead in gasoline in the early 1980s used this type of trading mechanism to provide flexibility and cost-savings to oil refineries before the final ban was implemented. These programs are most easily applied in a specific sector where facilities have similar emissions characteristics (such as refineries, mobile sources, and power plants).

For all types of emissions trading, the basic concept is similar: trading provides companies with the flexibility to develop cost effective emission reduction strategies.

Comparing Emission Trading Programs

For all types of emissions trading, the basic concept is similar: trading provides companies with the incentive to develop cost effective emission reduction strategies. Companies may elect to control emissions more than required and sell surplus allowances or credits to other facilities that may face more expensive options to reduce emissions. All three types of trading can include provisions to allow companies to save extra allowances or credits for use in future years (banking).

Each of the three forms of emission trading is appropriate in certain situations. When achieving and maintaining an absolute emission goal is important, a cap and trade program provides more certainty about total emissions from a defined set of sources. Administrative and transaction costs for cap and trade programs often are lower than for project-based trading. Project-based trading is burdened by higher uncertainty and risk and the need for extensive regulating authority involvement due to the need to assess individual projects. Offset trading programs have historically evolved from introducing limited flexibility in traditional command-and-control programs. Because offset programs usually do not require net emission reductions, they are not effective as stand-alone programs. However, a well-designed program may complement a command-and-control program that establishes emission or concentration limits. It also may complement a cap and trade program in sectors for which accurate emission measurement of regulated sources or activities may not be developed as well.



Source: "Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control," June 2003 EPA 430-B-03-002

Rate-based trading can be an effective way to promote efficiency if circumstances do not require an absolute cap on emissions. The administrative and transaction costs for rate-based trading programs are likely to be similar to those for cap and trade. All three types of emission trading programs are meant to work in conjunction with existing regulations. Any emission trading program should be designed and undertaken to complement basic safeguards for public health and the environment under the Clean Air Act and other environmental laws.