Environmental Tools:

Emissions/Effluent Trading

What is emissions/effluent trading?

Emissions/effluent trading is a market-based mechanism that creates air or water emission permits, which are usually issued by a regulatory authority at the onset of a program. Each permit entitles its holders to emit a specified unit of pollution. There are two types of emission/effluent trading systems, a "cap and trade" system and a "baseline and credit" system (see below for more detail). Since permits are transferable, regulated parties can buy and sell (trade) permits at a price determined by the marketplace. The trading mechanism implements an environmental goal and provides flexibility in how regulated parties can collectively achieve the environmental goal. In some circumstances, trading can reduce costs of compliance in comparison to traditional forms of regulation.

In a typical trading system, the regulatory authority sets a collective emission limit or individual emission baselines for a targeted group of regulated parties. Participants within the trading system have an incentive to reduce pollution levels because permits are in limited supply. Those with relatively low pollution abatement costs have an incentive to reduce their emissions/effluents and to sell surplus permits (allowances or credits) to those entities with higher abatement costs.

Cap and trade system

In a cap and trade system, the total volume of emissions allowed from all facilities is established. Each facility is either allocated permits or participates in an auction process to buy permits to emit a portion of the total allowable emissions. If the facility emits less than the number of permits it holds, it can sell its excess permits. If a facility exceeds the number of permits it holds, then it must purchase more from other facilities within the program.

Baseline and credit system

In a baseline and credit system, each facility has a base level of emissions it is allowed to emit. If the facility's emissions are below the base level, it generates credits it can sell. If it emits above the base level, it must purchase credits to comply with its emissions obligations.

As a management tool, emission trading is most appropriate under the following conditions:

- The emission target is lower than business-as-usual emissions.
- Pollutants can be monitored and measured accurately. Mobile sources are less amenable to trading.
- Facilities differ in their unit abatement costs.
- There are a sufficient number of sources to ensure a competitive market of permits. However, there may be instances where trading of emission rights among a few sources is beneficial.
- There are no concerns about potential "hotspots" where cumulative emission loadings are high.

Where is it used?

USA- Acid Rain Program

The American *Environmental Protection Act* Acid Rain Program is a cap and trade system that was implemented in 1995. Its first phase impacted the SO_2 emissions of larger coal-burning plants in the eastern and mid western states. In 2000, the second phase broadened the system's coverage to smaller electricity generating units.

Alberta's Electricity Sector Emissions Trading Program

Alberta Environment has implemented an emission trading system for SO_2 and NO_x to help electricity generators make the transition to standards based on the best available technology economically achievable (BATEA). An emissions trading regulation is in place and is being implemented.

The Kyoto Protocol

The Kyoto Protocol is a cap and trade system that imposes national caps on the greenhouse gas emissions from Annex I (developed) countries. For example, in 2002, Canada committed to reducing its GHG emissions to 6% below 1990 levels by the first commitment period of 2008 to 2012. To help reach this goal the Protocol has established an emissions trading mechanism, as set out under Article 17 of the convention. This provision provides opportunities for participating countries to trade emission GHG units – from national emission accounts – with other participating countries.

Tool performance:

Pros

- Cap and trade can provide a high degree of certainty about the level of emissions in a region.
- Can facilitate a comprehensive airshed approach to emissions management if the airshed and trading market are managed appropriately to avoid hotspots.
- Significant potential for cost savings to regulated parties.
- Reduces burden on government to be experts on pollution abatement and technologies for all regulated sources.
- All facilities have incentives to explore low-cost pollution reduction options and find creative solutions to abatement technology.
- High levels of compliance, transparency, and complete accountability.
- Auctioning of permits can raise revenues

Cons

- Potential for environmental hotspots.
- It is difficult to reach consensus among participants on allowances and baselines.
- Potentially high transaction costs in some trading systems.
- Regulated parties/sectors may not all benefit to the same degree.
- Emission reduction targets must be sufficiently stringent to promote innovation.