

EMISSIONS TRADING PROGRAM REVIEW



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Table of Contents

0. Summary.....	1
0. Introduction.....	2
0. EPA Guidance on Emissions Trading Programs.....	3
0. Types of Emissions Trading Programs.....	6
Cap and Trade Programs.....	6
Credit Trading Programs.....	8
Mobile Source Emission Reduction Credit Programs.....	9
0. Review of State Emissions Trading Programs.....	10
California.....	10
Colorado.....	12
Connecticut.....	13
Delaware.....	13
Louisiana.....	14
Maine.....	14
Massachusetts.....	14
Michigan.....	15
New Hampshire.....	16
New Jersey.....	16
New York.....	17
Oklahoma.....	17
Texas.....	18
0. Review of the Idaho Emissions Trading Regulations.....	19
0. Options and Issues for Expanding Emissions Trading in Idaho.....	23
0. References.....	26

SUMMARY

There is a large amount of guidance and previous federal and state experience with emissions trading programs, including programs that incorporate mobile emission reduction credits. This wealth of experience is invaluable in defining and designing emission trading programs. The most basic criteria any emissions trading program must meet is that the credits, including mobile source credits, must be surplus, real and quantifiable, enforceable, and with an established life span. In addition, regulations that allow and define the emissions trading program must be contained in state regulations and approved by EPA. Idaho has the needed regulations in place and approved.

Emission trading programs generally fall into two categories: Cap-and-Trade programs or Credit Trading programs. Cap-and-Trade programs set an emissions cap on a source or sources then create a mechanism where the sources can trade allowances between themselves. Credit Trading programs create a process where emissions reductions are certified, which can then be traded between various sources, but don't necessarily set caps on specific sources. Reasons sources and other entities may wish to participate in a trading program can include offsetting emissions increases under New Source Review regulations, staying under a regional emissions cap set by a regulatory agency, improving air quality, or revenue generation.

Opportunities exist to create and use mobile source emission reduction credits. The creation of these credits provides regions and industry with an additional mode of flexibility in meeting air quality goals. Relative to many existing control programs, mobile sources can produce cost-effective emission reduction credits. At this time the best uses of mobile source emission reduction credits appear to be:

- allowing industry an alternative method of obtaining emission reductions
- offsetting emission increases from temporary sources
- providing a source of additional emission reductions for use in market-based emission reduction trading programs
- improving air quality

There are some problems associated with using mobile source emission reduction credits. In most state programs that allow mobile credits, the fraction of total credits represented by mobile sources is typically very small (<1%). This is due to the generally short-term nature of mobile credits, since most stationary sources more commonly need long-term credits. In addition, there are problems with quantifying and enforcing mobile emission reduction credits.

Idaho has most of the basic requirements needed to successfully run an emissions trading program that includes mobile emission credits. The regulatory structure is present, and there appears to be an adequate supply of potential source credits, especially in the Treasure Valley. The only missing component is the need for such a program. In the absence of a regional cap on emissions, the only other reason most sources would seek emissions credits is to comply with New Source Review offsetting requirements, which in Idaho's case is probably not sufficient justification for implementing a large program due to limited historical and forecast demand.

INTRODUCTION

This report looks at emissions trading programs, with special emphasis on mobile emissions trading. EPA guidance on operating emissions trading programs is reviewed, along with an overview of the various types of emissions trading programs, including mobile source emission reduction credit programs. Emissions trading programs in other selected states programs that incorporate mobile source emission credits are summarized, followed by a review of the present status of Idaho's emissions trading regulations. The report concludes by briefly examining some options and issues associated with expanding emissions trading in Idaho.

EPA GUIDANCE ON EMISSIONS TRADING PROGRAMS

EPA has developed a large and extensive amount of guidance and technical support on the implementation and operation of emissions trading programs, including guidance specifically directed at mobile emissions trading and offsets. While most guidance, and indeed most actual emissions trading, appears to involve New Source Review (NSR) emissions offsetting to comply with the offsetting requirements for sources in nonattainment areas, the general principles of the guidance applies to any emissions trading program.

There are some basic rules and requirements emissions trading programs must meet to be approvable by EPA. Specific criteria for in NSR offsetting, and by extension other emissions trading programs, are contained in the Clean Air Act (CAA) as follows:

- The baseline emissions must be consistent with the assumptions underlying the applicable State Implementation Plan (SIP).
- The emission reduction must be federally enforceable.
- The emission reduction must be in effect by the time the new modified source commences operation.
- The emission reduction must ensure that the new emissions increases will not interfere with attainment of the National Ambient Air Quality Standards.
- The emissions reduction must be an actual emission reduction of the pollutant for which an increase will occur.
- The emissions reduction generally must be located in the same nonattainment areas as the source needing offsets.
- The emissions reduction must be in sufficient amount to satisfy the applicable offset ratio.
- The emissions reduction must not be otherwise required under the Act.

EPA considers emissions trading programs to be part of a larger universe of Economic Incentive Programs (EIP), that also includes programs such as Financial Mechanism Programs and Clean Air Investment Funds (EPA, 2001). An EIP can include any anthropogenic source of air pollution, including mobile, area, and stationary sources, and can be developed for either attainment or non-attainment areas.

The Federal EIP guidance covers five of the six criteria pollutants, and their precursors. The five criteria pollutants covered are: CO, NO₂, O₃, (and its precursors), PM, and SO₂. Ozone precursors include VOCs and NO_x.

In addition to the general requirements that trading and offset programs must meet, there are requirements specific to mobile emissions reduction credits (MERCs) which must be met to be approvable by EPA (EPA, 1993). Before MERCs can be used in an area the state must include mobile source emissions reduction provisions in its banking and trading rules, and the state rules must be approved by EPA. MERCs used as offsets or for emissions trading programs have the following general characteristics:

- Must be quantifiable, enforceable, surplus (above that already required), and permanent within the timeframe specified.
- Can be used to satisfy Reasonably Available Control Technology (RACT), mitigate temporary increases or noncompliance, or meet NSR offset requirements.
- Can not be used to meet Best Available Control Technology (BACT) for NSR, Lowest Achievable Emissions Rate (LAER), New Source Performance Standards (NSPS), Federal I/M programs, or Employer Trip reduction programs.
- Due to the short-term nature of some mobile source emissions reductions, MERCs generally have a limited life. When MERCs are used for offsets, the source must obtain other MERCs before the original MERCs expire.

Emission reductions are surplus as long as they are not otherwise relied on in a SIP or in any SIP-related requirements such as transportation conformity. They are also surplus if they are not required in any other adopted State air quality programs not in a SIP, in any Federal rules that focus on reducing precursors of criteria pollutants such as NSPS, or in any statutorily mandated mobile source requirements.

Emission reductions use, generation, and other required actions are enforceable if they are independently verifiable, the program violations are defined, those liable for violations can be identified, and the state and/or EPA maintain the ability to apply penalties and secure appropriate corrective actions where applicable. Citizens must also have access to all the emissions-related information obtained from the source, and have the ability to file suits against sources for violations.

Emissions and emission reductions attributed to emissions credits are quantifiable if there can be a reliable and replicable measurement or determination made on them. Generally, sources may not include fugitive emissions when quantifying emissions associated with an EIP. When quantifying results, sources must use the same methodology used to measure baseline emissions unless there are good technical reasons why this is not appropriate and there is supporting documentation.

The results of an emission trade are permanent if it is ensured that no emission increases (compared to emissions if there were no trade) occur over the time defined in the SIP. It is also ensured if the reductions occur over the duration of the trade, or for as long as they are relied on in the SIP or SIP-related requirements.

Programs not allowed to use EIP are as follows:

- Any of the CAA title IV programs for NO_x and SO₂ reductions.
- Permitting requirements under CAA Title V (parts 70 and 71)
- Toxics emission averaging under National Emission Standards for Hazardous Air Pollutants (NESHAP) rules in 40 CFR part 63.
- Federally mandated clean fuel fleet programs.
- Trading provisions that implement controls based on control technique guidelines.
- Averaging, banking and trading programs created as part of specific mobile source rules, including:
 - Federal rules for heavy-duty diesel highway engines.

Federal rules for heavy-duty gasoline highway engines.

Federal rules for non-road compression ignition engines.

Federal rules for spark ignition marine engines.

The voluntary National Low Emission Vehicle (NLEV) program.

Averaging and trading provisions of the Federal reformulated gasoline (RFG) rules.

Averaging provisions under the anti-dumping provisions for conventional gasoline in the RFG rules.

Averaging provisions of State oxygenated fuel programs as developed under the EPA's Oxygenated Gasoline Implementation Guidelines

- Federal rules for Tier II motor vehicle standards and gasoline sulfur control,
- Phase II rule for small non-hand held equipment engines,
- Emission reductions created as the result of a consent decree.

TYPES OF EMISSIONS TRADING PROGRAMS

There are as many variations on emissions trading programs as there are entities that develop and enact such programs. The basic emissions trading concept involves at least two emission units: one emission unit with an emission reduction obligation uses emission reductions at a different emission unit to meet these emission obligations. Emissions trading can be done between entities (source buys emissions credits from another source), or created by a single entity (source funds a project which lowers emissions at another source). The sources need not be traditional point sources (smokestacks), but can be mobile, fugitive, or area sources as long as the emissions reductions are quantifiable and enforceable. Emissions credits also need not consist of traditional control measures. Source reduction, fuel modifications, work practices, BMP's, all could be used if the emissions can be quantified and the practice is enforceable.

Entities that would not use the emission credits could also participate. An entity (private org) could purchase emission credits from a source, then retire the credits, thereby lowering emissions in a particular area. Non-source entities (municipalities, individuals, groups), could also "get in the business" of creating emission credits by doing projects with emission reduction impacts. Landfill gas capture, tree plantings, paving, and other projects all result in emission reductions. There is also nothing preventing other entities from "helping" sources buy needed credits. Economic development entities could help prospective sources purchase needed credits to encourage location or expansion in their areas.

Most emissions trading programs are generally defined as either Cap-and-Trade Programs or Credit Trading Programs. A brief description of each is discussed below, followed by some common characteristics of mobile source emission reduction credit programs.

Cap-and-Trade

Cap-and-Trade Programs are emissions trading programs in which a regulatory body limits the total emissions from the sources participating in the program. The program allows participating sources flexibility in complying with their emission limit through the trading of allowances among sources included within the scope of the cap. Defined entities may be allocated shares, which they are free to trade amongst themselves. What all cap-based programs have in common is that, while these programs allow the shifting of tradable emission reductions between sources within the scope of the cap, the cap serves as the limit ensuring that, in the aggregate, the capped sources actually emit no more than the limit specified in the program cap. Within the Cap-and-Trade type category of emissions trading are two distinct subdivisions: Multi-Source Emission Cap-and-Trade Programs, and Source Specific Emission Cap Programs

Multi-Source Emission Cap-and-Trade Programs are emissions trading economic incentive programs that limit the total emissions from a certain category or group of sources to a level needed for an area to attain or maintain a National Ambient Air Quality Standard, and which allows sources flexibility in complying with their emission limits. Characteristics of multi-source cap-and-trade programs include:

- must cover all or most sources in a category or group of sources,
- always provides a limit on total emissions, programmatic emission reductions, and compliance flexibility,
- sets the mass-based limit for the entire category or group of sources.
- can allow banking of unused emission reductions for use in another compliance period, and
- must reflect the emission reductions that have been determined are required from the emissions inventory for the covered sources in an approvable attainment demonstration.

Source Specific Emission Cap Programs establish source-specific emissions caps which allows a specified stationary source or a limited group of sources that are subject to a rate-based emission limit to meet that requirement by accepting a mass-based emission limit, or cap, rather than complying directly with a rate-based limit. Source-specific emission caps usually apply to stationary sources, but may include area and mobile sources that are located at the same facility as the participating stationary source. A source-specific emission cap program:

- can cover only one or a few sources,
- always limits total emissions and provides compliance flexibility,
- sometimes provides programmatic emission reductions,
- may be set prior to determining the source's emission reduction requirements in an attainment plan,
- substitutes rate-based emission limits with mass-based emission limits,
- sets a mass-based limit using the participating source's rate-based emission limit and some appropriate recent activity level, and
- may allow banking of unused emission reductions.

Attributes that make Cap-and-Trade Programs successful include:

- The set of included sources is well defined.
- Methods for quantifying emissions are generally accepted as unbiased and trustworthy, and the relatively low level of uncertainty is quantified and accepted.
- Emission sources can feasibly and accurately collect the data used to calculate emissions.
- There is little potential for emissions to shift from included sources to excluded sources.
- Spikes in emission levels (short-lived peaks) or localized increases in emissions would not result in unacceptable air quality.
- Disproportionately high and adverse effects on communities of concern (if any) can be mitigated.
- Adequate penalty provisions can be implemented.
- The regulatory agency has sufficient resources to administer and enforce a program.
- Included sources are a major portion of the air quality problem, although the sources do not necessarily need to be the largest sources (multi-source cap-and-trade only).
- Given the purpose of the emission trading program, the total emission budget is set at a level consistent with the environmental goal (multi-source cap-and-trade only).
- Appropriate data are available to allocate budget shares and determine the impact of the program on the inventory (multi-source cap-and-trade only).

Credit Trading

Credit Trading is a broad category of emissions trading programs that basically entails the certification of emissions reductions, which can then be traded. Who does the certification and the process and parameters of the actual trading program vary widely. As long as the guidelines previously discussed are complied with, there is great flexibility in the design and scope of credit trading programs. Two of the more common credit trading programs include Open-Market Trading Programs and Emission Averaging Programs.

An Open-Market Trading (OMT) Program gives sources flexibility in complying with a variety of rate-based emission limits required in a SIP. These types of programs include two distinguishing components: 1) emission reductions are generated during a discrete period of time and quantified in units of mass; and 2) emission reductions are used some time after they are generated (i.e. use and generate do not occur contemporaneously). This allows sources to use emission reductions created through discrete actions taken in the past to meet current or future emission reduction requirements. Sources often participate in OMT programs to comply with RACT. An OMT program does not necessarily limit or reduce emissions; therefore, you must be careful to ensure that the implementation of an OMT program will not jeopardize the attainment and maintenance plan. The OMT transactions require two parties: a generator and a user.

Emission Averaging Programs provide a source or group of sources (typically stationary sources) flexibility in complying with a rate-based regulatory limit by averaging the rate of pollution it emits with another source. Emission averaging programs involve emission units at one facility or, if not at the same facility, within the same area. Emission averaging enables a source emitting above its allowable emission rate limit to comply with that rate limit by averaging its emissions with a second source emitting below that second source's regulatory rate limit.

Attributes that make Open Market Trading and Emission Averaging successful include:

- Comparing potential trading partners, the differences in emission control cost differentials exceed the transaction costs of making a trade.
- A cap on the total emissions from participating sources is not crucial for achieving air quality objectives.
- A well-defined baseline level of emissions (emissions prior to implementing the program can be calculated.
- Methods for quantifying emissions are generally accepted as unbiased and trustworthy, and the relatively low level of uncertainty is quantified and accepted.
- Emission sources can readily and accurately collect the data necessary to calculate emissions.
- Spikes in emission levels (short-lived peaks) or localized increases in emissions are managed so they do not lead to unacceptable degradation in air quality.
- Disproportionately high and adverse effects on communities of concern (if any) can be mitigated.
- Economic efficiency issues do not overwhelm equity issues among communities.
- Adequate penalty provisions can be implemented.
- The regulatory agency has sufficient resources to administer and enforce a program.

Mobile Source Emission Reduction Credit Programs

Mobile source emission reduction credits are created when reductions in emissions from cars, buses, or other mobile sources exceed the reductions required by federal, state, and local laws.

Various opportunities for generating mobile source emission reduction credits exist. Examples of how such credits could be produced include the application of control technology earlier than required by existing regulations or by the use of emission control equipment not otherwise required. For instance, mobile source emission reduction credits could be created by the purchase of low-emission transit buses or by the elimination of old, high-emitting cars through an accelerated retirement program. Some possible uses of mobile source emission reduction credits include delaying compliance with prohibitory rules, offsetting emissions from temporary sources, improving air quality in general, and using them as an alternative to controls otherwise required of industrial sources.

There are also several well-established diesel emission reduction programs that could be used as a source of mobile emission reduction credits. The Voluntary Diesel Retrofit Program has been successfully used to reduce particulate emissions from diesel vehicles, while at the same time providing the added benefit of decreasing health risk associated with diesel emissions. (EPA, 2002)

For emission reductions to qualify as mobile source emission reduction credits, several specific fundamental criteria must be met. These criteria include:

1. The reductions must not be required by law or regulation, or otherwise assumed to occur as part of a regional air quality plan.
2. The reductions must be real, and quantified to an acceptable degree of certainty.
3. To be used as stationary source offsets or to replace other emission reduction requirements, the mechanism used to obtain mobile source emission reduction credits must be enforceable and legally binding.
4. The life of the reduction must be reasonably established, and commensurate with the proposed use of the credit.

Mobile source emission reduction credit programs do not require emission reductions from industry. These programs provide flexibility to industry in meeting requirements for emission reductions. Such a program does not necessarily benefit air quality--unless the emission reduction credits are purchased specifically to benefit air quality. For example, states along with environmental groups might choose to obtain mobile source emission reduction credits to meet air quality goals.

REVIEW OF STATE EMISSIONS TRADING PROGRAMS

Substantial portions of this section were lifted from a report prepared from a Canadian examination of the United States experience with emissions trading programs that had mobile emission trading components (Haite, 1998). The report looked at three districts in California and twelve states that have adopted rules that permit MERC creation.

The main purpose of most of the programs is to provide additional sources of credits for use by stationary sources to meet NSR offset and RACT requirements. Many of the programs also allow MERCs to be used by stationary sources for netting, bubbles, BACT requirements (under some conditions), and as penalties for non-compliance in various jurisdictions. Where MERCs have been created they typically represent a tiny fraction (<1%) of the emission reduction credits created by stationary sources over the same period. Although the EPA guidance allows a variety of options for generating MERCs, virtually all of the credits actually created have come from scrapping high-emitting vehicles and selling reformulated gasoline.

A state-by-state review of selected emissions trading programs that incorporate MERCs follows. The California entry includes a table listing prices paid for emissions offsets (from all sources) in 2002 in selected California Districts.

California

California Air Resources Board (ARB)

In May 1997, the California ARB adopted a state-wide regulation for Interchangeable Air Pollution Emission Reduction Credits. An interchangeable credit is "an emission reduction credit generated from a stationary, mobile, or area source that can be used, traded, or banked among programs and/or source categories".

The primary purpose of the regulation is to facilitate the use of emission reduction credits as a compliance alternative for meeting control requirements. Interchangeable credit rules may be developed for any criteria pollutants which have regulatory requirements, including VOCs, NO_x, SO_x, PM, and CO, but not air toxics. To standardize and facilitate credit trading, the regulation establishes a uniform credit currency, expressed in pounds of pollutant in the year generated.

Interchangeable credits are expected to be used primarily by stationary sources. They can also be used for compliance with other requirements, such as trip reduction commitments for companies required to reduce single occupancy vehicle use by their employees. Interchangeable credits must represent verified emission reductions that are real, permanent over the period of credit generation, quantifiable, enforceable, and surplus to emission reductions that are already needed to comply with an existing requirement (local, state, or Federal) or air quality plan.

The following table presents the average, median, high and low costs for NO_x, HC, PM₁₀, CO, and SO_x offsets reported by several California Districts in 2002.

2002 Prices Paid in Dollars Per Ton for Offsets					
	NOx	HC	PM10	CO	SOx
Average (mean)	\$35,261	\$9,633	\$49,327	\$27,802	\$14,156
Median	\$30,000	\$8,630	\$20,000	\$38,356	\$7,450
High	\$140,000	\$70,000	\$136,986	\$47,397	\$65,753
Low	\$990	\$485	\$3,289	\$300	\$3,289

Sacramento Metropolitan Air Quality Management District (SMAQMD)

In 1992 the SMAQMD initiated a program that allows MERCs to be used or sold as stationary source offsets (mobile-to-stationary MERCs). These MERCs can be generated by: (1) adding cleaner-fuel vehicles to existing fleets; (2) replacing existing fleet vehicles with cleaner-fuel vehicles; (3) converting existing fleets with cleaner-fuel vehicles; or (4) implementing telecommuting programs.

Two applications to generate mobile-to-stationary MERCs have been filed: an industrial facility wants to implement an early retirement program and the City of Sacramento is interested in purchasing alternatively fueled buses.

San Diego Air Pollution Control District (APCD)

Rule 27 of the San Diego APCD governs the creation, ownership, use, and transfer of MERCs. Five alternative MERC-generating programs are set forth:

- (1) accelerated vehicle retirement;
- (2) purchasing and operating new low-emission urban buses;
- (3) purchasing zero-emission vehicles;
- (4) retrofitting passenger cars, light-duty trucks, and medium-duty vehicles to reduce emissions;
- (5) retrofitting on-road heavy-duty vehicles and engines to low-emission configurations.

MERCs can be used by stationary sources as emission offsets for new source review (NSR). MERCs can be transferred (traded) in whole or in part as long as both the transferor(s) and transferee(s) comply with all applicable conditions of the MERC certificate and all applicable requirements of the rule.

No MERCs have been created in San Diego to-date under Rule 27. The limited interest in MERCs might be due to the limited demand for emission reduction credits in San Diego and/or the short life of a MERC relative to a stationary source credit.

South Coast Air Quality Management District (SCAQMD)

The Mobile Source Offset Program is composed of rules which provide for the generation of MERCs from various categories of mobile sources. NO_x, VOC, CO and PM MERCs can be generated by scrapping old, high-emitting vehicles. Reductions are calculated assuming that each vehicle has a remaining useful life of three years. The MERCs are valid for five years and the share that can be used in a given year is restricted. As of early 1998, the SCAQMD had approved 15 scrappage plans and approximately 22,000 vehicles had been scrapped.

Other sources of credits include switching to low- or zero-emission vehicles and the operation of low- or zero-emission off-road equipment. These MERCs expire in two years and can only be used in the air basin where the equipment operator is based. Credits for clean lawn and garden equipment can be generated through purchase of low-polluting lawn and garden equipment or the early retirement of older, high-polluting lawn and garden equipment. The MERCs can be used in the year they are created or the following year.

MERCs from these programs can be used as offsets for new and expanding sources under the NSR process, as a method of compliance with on-road motor vehicle options, as an alternative method of compliance with source specific standards, and as an alternative method of compliance with any other SCAQMD regulation that allows the use of MERCs.

Colorado

The Colorado Air Quality Control Commission adopted a Generic Emissions Trading and Banking program in 1996. The program involves the banking and trading of emission reduction credits (ERCs). The program is applicable statewide, including in attainment, non-attainment, and maintenance areas.

There are two basic types of ERCs: permanent and temporary. Permanent ERCs reflect emission reductions that are permanent, while temporary ERCs reflect emission reductions that are of limited duration. As a result, permanent ERCs are measured in tons/year, and temporary ERCs in tons. The program also accommodates mobile source emission reduction credits (MERCs), which are considered temporary ERCs. The program applies to stationary, mobile, and area sources. Mobile sources are limited to vehicles used on the highway. The criteria pollutants, with the exception of lead, are covered. Ten percent of all credits are retired when certified.

MERCs can be generated by scrapping vehicles with relatively high emissions and replacing them with lower-emitting vehicles, switching fuels, installing add-on emissions control systems, and implementing operational strategies such as trip reduction plans and revised routing strategies. MERCs are quantified from the product of the annual emission reduction and the remaining useful life of the vehicle constituting the baseline. To ensure a nontrivial impact, the remaining useful life must be more than three years, and total emissions reductions must be at least 10 tons.

ERCs can be used as NSR offsets, as well as for RACT and BACT compliance, though only prospectively for new BACT requirements. The ERC provisions do not allow a source to remove BACT where already installed. Prohibited uses include for netting out of NSR, or to meet NSPS, LAER or hazardous air pollutant standards. ERCs can only be traded within the same non-attainment, attainment, or maintenance area, or from a non-attainment or maintenance area to an attainment area.

Connecticut

Connecticut has had a NO_x Emission Reduction Credit Trading Program since mid-1995. The program involves voluntary trading and banking of NO_x ERCs. Two types of ERCs are defined: mass-based, reflecting discrete emission reductions; and rate-based, reflecting continuous emission reductions. The discrete ERCs are measured in tons and the continuous ERCs in tons per year. Credit generators have shown a preference for discrete ERCs because they offer more flexibility than the permanent commitment associated with continuous ERCs.

Both stationary and mobile sources may participate in the program, either as ERC generators or users. Participation is primarily by stationary sources, however. So far, ERCs have been approved from five stationary sources. Approximately 15 ERC generation requests are currently being reviewed, two of which are from mobile sources (for reformulated gasoline). The approved ERCs are being used by about 35 stationary sources as well as one mobile source.

The program is primarily intended for cost-effective and flexible RACT compliance but ERCs are also being used as offsets in NSR and for penalty purposes. An environmental benefit is ensured by a ten percent discount on credits created.

Delaware

Delaware's voluntary Emission Banking and Trading Program became effective in 1997. Mobile sources that are greater than one ton per year are eligible for credit if they are determined to be real, surplus, permanent, quantifiable, and enforceable. All reductions must be certified by the state prior to banking or use. Certified reductions are termed emission reduction credits (ERCs) and are incorporated into permit terms. Reductions must have occurred after January 1, 1991 and can be generated by overcontrol, materials substitution, production limitations, process changes, shutdowns, early reductions, pollution prevention, and other activities approved by the Department of Natural Resources and Environmental Control. VOCs and NO_x ERCs generated during the ozone season (April 1 through October 31) can be used at any time of the year; however, ERCs generated outside of the ozone season (November 1 through March 31) can only be used in the same season as generated. Inter-sector (e.g., mobile source to stationary source) trading is allowed, as is inter-state trading within the Ozone Transport Region.

Prior to certification, emission reductions are assessed a 10% discount, unless generated by a shutdown or early reduction. If generated by a shutdown, a 50% discount is assessed, half of which is permanently retired by the state and half of which is transferred to Delaware's Economic Development Office to help offset any job loss due to the shutdown.

Louisiana

The Louisiana Regulations on Control of Emissions through the Use of Emissions Reduction Credits Banking became effective in 1994. The regulations govern the use of ERCs and MERCs as NSR offsets and in netting. MERCs are generated by scrapping vehicles and provide an alternative method of compliance for stationary sources. Fair market value, and a minimum of \$450, must be paid to motorists who offer up their vehicles for scrapping. MERCs must be surplus, enforceable, permanent, quantifiable and real. MERCs are valid for three years and must be used internally, i.e., MERCs can not be traded.

The Department of Environmental Quality (DEQ) maintains a directory of vehicles available for scrapping. The DEQ will release to stationary-source facilities looking to create MERCs the names and telephone numbers of vehicle owners sufficient to meet all or part of the desired number of emission reduction credits. To date, ERCs have been generated, but none have been used as offsets or for netting. No MERCs have been generated. The DEQ believes that generators are holding on to their credits in anticipation of future internal use.

Maine

Maine's offset trading rule was adopted in 1998. While the rule does not prohibit generation and use of mobile credits, it does not specifically provide for them. A backlog of trades is pending, but none are from a mobile source.

Maine's offset rule was delayed several years because emissions trading became a hugely controversial issue in 1994. A paper plant needed offsets to expand, but no credits were available, so it was proposed that the state give the facility some credits generated by excess NO_x reductions from Maine's automobile inspection and maintenance program, which was targeted at VOC reductions. A public outcry ensued, against emissions trading and against the already unpopular I/M program.

Massachusetts

The Innovative Market Program for Air Credit Trading (IMPACT) was launched in 1994 and was approved by the EPA in 1996. IMPACT is a voluntary, statewide emission banking and trading program. Reductions must be real, quantifiable, surplus, enforceable, and permanent to be eligible for certification as ERCs. The Department of Environmental Quality (DEP) must certify all ERCs prior to use, banking or trading, and conditions for generation or use are incorporated into permit terms. ERCs are quantified in terms of the average hourly or daily emission rate, expressed in pounds. DEP is currently proposing the creation of a Mass ERC Bank for credits calculated in tons and a Rate ERC Bank for credits calculated in tons per year. Credit life is equal to the expected life of the reduction - either a discrete timeframe or forever. Credits in the Rate Bank will only be available for use as offsets and expire after 10 years.

Reductions from stationary, area, or mobile sources that occurred after December 31, 1990 may be certified under the program. Eligible activities include implementing more stringent emission controls, source reduction, fuel switching, energy conservation programs, lawn and garden equipment trade-in programs, fleet conversions, vehicle scrappage, or ride sharing. Reductions from shutdowns or curtailments are also eligible, subject to certain restrictions.

ERCs can be used for offsets, netting (as long as they are generated at the same source and used within five years of the reduction), and compliance with other regulations not relied on for SIP purposes (e.g., RACT).

Since the inception of the program, DEP has received a total of 51 applications for emission reduction credit (ERC) generation, of which 17 are in various stages of the approval process, 17 have been rejected or withdrawn, and 17 are undergoing review. DEP has received one application to use ERCs to delay compliance with NO_x control requirements. And seven sources plan to use ERCs as a result of DEP enforcement actions.

Only one mobile source credit creation action has been approved. It involved early introduction of low Reid Vapour Pressure gasoline. The quantity of credits created was small. There have been no mobile source uses.

Michigan

The Michigan Offset Trading Program became effective at the state level in 1996. The Michigan Emission Trading Program is a voluntary, open-market program with statewide applicability. The unit of currency is the Emission Reduction Credit (ERC), equal to one ton of emissions reductions. The program applies to all criteria pollutants and is open to participation by any type of emissions source, stationary, mobile, or area. The program is intended to facilitate the attainment and maintenance of National Ambient Air Quality Standards (NAAQS) and create market-based incentives for emissions reductions. A ten- percent net air quality benefit contribution is deducted before ERCs can be used. For VOC and NO_x ERCs an additional 10% discount is applied for every ozone season that use is deferred.

Emission reductions must be real, surplus, enforceable, permanent, and quantifiable. Allowable credit-generating activities include installation or modification of control equipment, process or operational changes, reformulation of raw materials or products, energy conservation, pollution prevention programs, production curtailment or shutdown, early emissions reductions, and area and mobile source controls if a baseline can be established.

Allowable uses of ERCs are NSR offsets, netting and RACT compliance. ERCs can also be used for BACT and LAER compliance, but only if the required control equipment has been installed, operated, and maintained properly and the associated emission limit cannot be achieved. Otherwise, ERCs cannot be used in lieu of the technology or work practice requirements of BACT, LAER, MACT, NSPS, or NESHAPs.

ERC generation, use, and trading are self-certified by sources. Notices to generate or use ERCs are not certified or approved by the DEQ; rather, the DEQ only determines whether the notices are complete or incomplete. ERCs can be used for up to five calendar years after the year in which they were generated.

Over 80 submittals have been received under the program to date. The only mobile source credits created to-date are VOC and CO reductions achieved through voluntary production and sale of low Reid Vapour Pressure (RVP) gasoline in southeast Michigan by Marathon Oil. This action accounts for about 17% of the ozone season VOC reductions under the program to-date. A small portion of these VOC credits, 3.5 tons, have been traded and used.

New Hampshire

New Hampshire adopted both an Emissions Reduction Credits (ERC) Trading Program and a Discrete Emissions Reductions (DER) Trading Program in early 1997. ERCs are rate-based units (1 ERC = 1 ton/year) representing continuous, permanent emission reduction while DERs are mass-based units (1 DER = 1 ton) representing discrete, retrospective emission reductions. Both ERCs and DERs can be generated by stationary, mobile, or area sources.

The programs are intended to give RACT sources and sources subject to NSR flexibility and the opportunity to reduce compliance costs. ERCs generated through shutdowns can only be used by the generator (they can't be traded). If the generator cannot use them, they become "public ERCs" in a state-controlled account. The state can use these ERCs for purposes of job retention (highest priority), economic development, and job creation. Ten percent of all DER credits are retired before they are used to provide an environmental benefit.

Allowable protocols for ERC or DER generation by mobile sources are as in EPA's Guidance to States Developing Generic ERCs from Mobile Sources (MERC) Regulations (February 1994), such as vehicle scrappage, clean fuel fleets, and employee commute options. The Department of Environmental Services (DES) will evaluate mobile source ERC and DER generation protocols to determine the applicability of the credits to stationary sources.

New Jersey

The regulation establishing New Jersey's Open Market Trading Program became operative in 1996. Several trades have been approved or are underway, and agreements for interstate trading with Connecticut and Massachusetts are in place.

New Jersey's open market trading program authorizes the creation, use, and trading of discrete emission reductions (DERs). A DER represents 100 pounds of emission reductions from stationary or mobile sources. Generators and users must supply notice and certification to the state registry, and all DERs must be verified by an independent third party prior to use.

NOx and VOC DERs can be generated by stationary or mobile sources. Reductions must be real, surplus, and quantifiable. The generation and use periods for any "batch" of DERs cannot exceed 1 year; however, additional batches can be generated and used over consecutive periods. DERs cannot be generated by shutdowns or curtailments. DERs can not be generated or used if this causes an increase in HAP emissions above the de minimis level established by EPA. DERs generated outside the ozone season cannot be used during the ozone season. Inter-pollutant trading is prohibited. A 10% discount is assessed at the time of use to benefit the environment.

In general, DERs can be used to meet requirements for VOC and NOx RACT, and offsets. DER use may be required by the State as compensation for excess VOC and NOx emissions under alternative emission limits (AELs), innovative control technology plans, and MEG alerts. DERs cannot be used to comply with NSPS, LAER, BACT, NESHAPs, and certain motor vehicle standards, and other requirements specified by the regulation.

To date only one action has been implemented to create mobile source credits; the sale of low Reid Vapour Pressure gasoline to create 18.85 tons of VOC credits. This represents well under 1% of the total credits created in the state.

New York

The NSR Emission Offset Program authorizes the creation, use, and trading of emission reduction credits (ERCs). The ERCs are rate-based units (1 ERC = 1 ton/year) representing continuous, permanent emission reductions. ERCs can be used by stationary sources for new source review (NSR) netting and as NSR offsets only. ERCs must be certified by and registered with the NYSDEC before they can be used or traded. Emission reductions that are quantifiable, enforceable, permanent, and surplus are eligible for certification as ERCs. Once certified and registered, ERCs are not discounted and have unlimited life.

All types of emission reductions from stationary sources are allowable, including overcontrol, process changes, energy conservation, and production curtailments or shutdowns. Stationary sources can also implement demand-side management measures - energy-saving process or equipment changes that generate NOx credits for electric utilities. The NYSDEC is considering adding provisions for generating credits from mobile sources, pending the release of mobile source quantification protocols in EPA's Open Market Trading Guidance. So far in the program, two ERC trades have been approved, both for NOx, and both inter-firm.

Oklahoma

Tulsa's MERIT (Maximizing Emission Reductions by Inter-source Trading) Program, established in 1993, allows industrial firms that need to temporarily increase emissions above permitted levels to do so by generating MERCs. MERCs can be generated from a range of methods -- from carpooling and telecommuting to corporate-sponsored tune-ups for employees. Credit value and life are determined on a case-by-case basis. No MERCs have been generated in the program to date.

Texas

Texas has an emissions banking and trading program for its four ozone non-attainment areas. ERCs under the program can be generated by stationary, mobile and area sources. It also has an accelerated vehicle retirement program that enables MERCs to be generated by scrapping automobiles and light-duty trucks. The ERCs and MERCs can only be used by stationary sources for offsets. Finally, the clean fleet program that will go into effect in late 1998 can generate MERCs or facilitate compliance with the Federal Clean Fuel Fleet Program requirements.

The ERCs, equal to one ton of emissions per year, can be used as offsets only in the nonattainment area in which they were generated. ERCs must be certified by the Texas Natural Resources Conservation Commission (TNRCC) before they are sold, so there is no risk to the buyer. In the three years since the program was established there has been only one transaction (125 tons of NO_x ERCs in Houston). Activity has been low because there has been little NSR permitting, and new sources that have applied for permits have been netting out of NSR and its offset requirements.

REVIEW OF THE IDAHO EMISSIONS TRADING REGULATIONS

IDAPA 58.01.01, Rules for the Control Of Air Pollution in Idaho, currently has provisions approved by EPA that allow for the creation and operation of emissions trading and banking programs. The initial regulations relating to emissions reduction credits were promulgated by the state in 1994, with revisions and additions in 2000. EPA approval for most of the regulations became effective in early 2003. Since Idaho has mobile source emissions reduction provisions in its banking and trading rules, and the state rules have been approved by EPA, one of the conditions EPA sets for utilizing such a program has already been met.

In some cases there may be SIP provisions which have regulatory implications on any emissions trading program. For example in the Northern Ada Maintenance Plan SIP is a provision that trading emissions between source categories in conformity determinations is prohibited unless the SIP specifically establishes a trading mechanism, which this SIP does not (page 4-5). This provision would take precedence over any state regulation which would otherwise allow such an activity.

Specific IDAPA sections which relate to emissions trading are:

SECTION 58.01.01.006. GENERAL DEFINITIONS

01. Accountable. Any SIP emission trading program must account for the aggregate effect of the emissions trades in the demonstration of reasonable further progress, attainment, or maintenance. (4-5-00)

82. Quantifiable. The Department must be able to determine the emissions impact of any SIP trading programs requirement(s) or emission limit(s). (4-5-00)

85. Replicable. Any SIP procedures for applying emission trading shall be structured so that two (2) independent entities would obtain the same result when determining compliance with the emission trading provisions. (4-5-00)

SECTION 58.01.01.204. PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN NONATTAINMENT AREAS AND IN THE FORMER PM-10 NORTHERN ADA COUNTY NONATTAINMENT AREA (AS DEFINED IN SECTION 582)

The provision specifically referencing the former PM-10 northern Ada County nonattainment area in Section 204 shall expire by its terms and without further action when the EPA designates the former nonattainment area as either attainment or nonattainment. No permit to construct shall be granted for a new major facility or major modification which is proposed for location in a nonattainment area or in the former PM-10 northern Ada County nonattainment area and which would be major for the nonattainment regulated air pollutant(s) unless the applicant shows to the satisfaction of the Department all of the following: (3-30-01)

02. Required Offsets. Allowable emissions from the new major facility or major modification are offset by reductions in actual emissions from stationary sources, facilities, and/or mobile sources in the nonattainment area so as to represent reasonable further progress. All offsetting emission reductions must satisfy the requirements for emission reduction credits (Section 460) and provide for a net air quality benefit which satisfies the requirements of Section 208. If the offsets are provided by other stationary sources or facilities, a permit to construct shall not be issued for the new major facility or major modification until the offsetting reductions are made enforceable through the issuance of operating permits. The new major facility or major modification may not commence operation, and an operating permit for the new major facility or major modification shall not be effective before the date the offsetting reductions are achieved. (4-5-00)

SECTION 58.01.01.206. OPTIONAL OFFSETS FOR PERMITS TO CONSTRUCT

The owner or operator of any proposed new or modified stationary source, new major facility, or major modification, which cannot meet the requirements of Subsections 203.02, 203.03, 204.04, 205.01.b. or 205.01.c., may propose the use of an emission offset in order to meet those requirements and thereby obtain a permit to construct. Any proposed emission offset must satisfy the requirements for emission reduction credits, Section 460, and demonstrate, through appropriate dispersion modeling, that the offset will reduce ambient concentrations sufficiently to meet the requirements at all modeled receptors which could not otherwise have met the requirements.

State Effective: 6/30/95, EPA Effective: 2/18/2003

SECTION 58.01.01.207. REQUIREMENTS FOR EMISSION REDUCTION CREDIT

In order to be credited in a permit to construct, any emission reduction credit must satisfy the requirements of Section 460.

State Effective: 5/1/94, EPA Effective: 2/18/2003

SECTION 58.01.01.208. DEMONSTRATION OF NET AIR QUALITY BENEFIT

The demonstration of net air quality benefit shall: (5-1-94)

00. VOCs. For trades involving volatile organic compounds, show that total emissions are reduced for the air basin in which the stationary source or facility is located; (5-1-94)

00. Other Regulated Air Pollutants. For trades involving any other regulated air pollutant, show through appropriate dispersion modeling that the trade will not cause an increase in ambient concentrations at any modeled receptor; (4-5-00)

03. Mobile Sources. For trades involving mobile sources, show a reduction in the ambient impact of emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for adverse ambient impact where the major facility or major modification would otherwise cause or significantly contribute to a violation of any national ambient air quality standard. (4-5-00)

State Effective: , EPA Effective: 2/18/2003

SECTION 58.01.01.460. REQUIREMENTS FOR EMISSION REDUCTION CREDIT

In order to be credited in a permit to construct, Tier I operating permit or Tier II operating permit any emission reduction must satisfy the following: (5-1-94)

00. Allowable Emissions. The proposed level of allowable emissions must be less than the actual emissions of the stationary source(s) or emission unit(s) providing the emission reduction credit. No emission reduction(s) can be credited for actual emissions which exceed the allowable emissions of the stationary source(s) or emission unit(s). (5-1-94)

02. Timing Of Emission Reduction. In an attainment or unclassifiable area any emission reduction which occurs prior to the minor source baseline date must have been banked with the Department prior to the minor source baseline date in order to be credited; in a nonattainment area the emission reduction must occur after the base year of any control strategy for the particular regulated air pollutant. (4-5-00)

03. Emission Rate Calculation. The emission rate before and after the reduction must be calculated using the same method and averaging time and the characteristics necessary to evaluate any future use of the emission reduction credit must be described. (5-1-94)

04. Permit Issuance. A permit to construct, Tier I operating permit or Tier II operating permit shall be issued which establishes a new emission standard for the facility, or restricts the operating rate, hours of operation, or the type or amount of material combusted, stored or processed for the stationary source(s) or emission unit(s) providing the emission reductions. (4-5-00)

05. Imposed Reductions. Emission reductions imposed by local, state or federal regulations or permits shall not be allowed for emission reduction credits. (5-1-94)

06. Mobile Sources. The proposed level of allowable emissions must be less than the actual emissions of the mobile sources or stationary sources providing the emission reduction credit. Mobile source emission reduction credits shall be made state or federally enforceable by SIP revision. The form of the SIP revision may be a state or local regulation, operating permit condition, consent or enforcement order, or any mechanism available to the state that is enforceable. (4-5-00)

EPA Effective: 2/18/2003

SECTION 58.01.01.461. REQUIREMENTS FOR BANKING EMISSION REDUCTION CREDITS (ERC'S)

01. Application To Bank An ERC. The owner or operator of any facility may apply to the Department for a Tier I or Tier II operating permit (or a revision thereto) to bank an emission reduction credit. An application to bank an emission reduction credit must be received by the Department no later than one (1) year after the reduction occurs. The Department may issue or revise such a Tier I or Tier II operating permit and a "Certificate of Ownership" for an emission reduction credit, provided that all emission reductions satisfy the requirements for emission reduction credits (Section 460). (5-1-94)

- 02. Banking Period.** Emission reduction credits may be banked with the Department. The banked emission reduction credits may be used for offsets, netting in accordance with the definition of net emissions increase at Section 007, or alternative emission limits (bubbles), or sold to other facilities. The use of banked emission reduction credits must satisfy the applicable requirements of the program in which they are proposed for use, including approval of a permit to construct or a Tier I or Tier II operating permit. (4-5-00)
- 03. Certificate Of Ownership.** Upon issuing or revising a Tier I or Tier II operating permit for an emission reduction credit, the Department will issue a "Certificate of Ownership" which will identify the owner of the credits, quantify the credited emission reduction and describe the characteristics of the emissions which were reduced and emissions unit(s) which previously emitted them. (5-1-94)
- 04. Adjustment By Department.** If at any time the Department, or the owner or operator of a facility which has produced an emission reduction credit, finds that the actual reduction in emissions differs from that in the certificate of ownership, the Department will adjust the amount of banked emission reduction credits to reflect the actual emission reduction and issue a revised certificate of ownership. (5-1-94)
- 05. Proportional Discounts.** If at any time the Department finds that additional emission reductions are necessary to attain and maintain any ambient air quality standard or applicable prevention of significant deterioration (PSD) increment, banked emission reduction credits at facilities in the affected area may be proportionally discounted by an amount which will not exceed the percentage of emission reduction required for that area. (4-5-00)
- 06. Transfer Of Ownership.** Whenever the holder of a certificate of ownership for banked emission reduction credits, sells or otherwise transfers ownership of all or part of the banked credits, the holder shall submit the certificate of ownership to the Department. The Department will issue a revised certificate(s) of ownership which reflects the old and new holder(s) and amount(s) of banked emission reduction credits. (5-1-94)
- 07. Public Registry.** The Department will maintain a public registry of all banked emissions reduction credits, indicating the current holder of each certificate of ownership and the amount and type of credited emissions. (5-1-94)

EPA Effective: 2/18/2003

OPTIONS AND ISSUES FOR EXPANDING EMISSIONS TRADING IN IDAHO

Generally any emissions trading program needs two basic features to be successful – need and supply. Need can be in the form of major sources wanting to locate or modify in nonattainment areas (which requires offsets), by emissions caps for specified areas imposed by regulatory agencies, or by incentive programs (financial, enforcement, environmental justice) that reward emissions reductions. Supply gets down to the central question of whether there is enough excess emissions capacity in an area to support the goals of the envisioned trading program. The excess emissions available to sources in an area must also match the needs of the sources (i.e. only short-term credits available when long-term needed).

Emission trading for offsetting under NSR has not been used much in Idaho, sources usually seeking to “net out” or taking permit restrictions that keep them under significance levels. With many of the nonattainment areas in Idaho being redesignated as attainment, particularly the larger ones like Northern Ada and Portneuf Valley, the need for NSR offsets is becoming even less. The smaller nonattainment areas (Sandpoint and Pinehurst) probably do not have enough of a pool of stationary sources to provide capacity for NSR emissions offset trading, so are also unlikely to see any activity in this type of trading.

At this time there are no regulatory emissions caps designated for any specific areas in Idaho. In addition, there are no emissions caps for any designated stationary source categories (such as would exist in a Multi-Source Cap and Trade program). The only categorical emissions caps that can actually be said to exist in Idaho are the motor vehicle emissions budgets (MVEB) that are in the SIP maintenance plans for Northern Ada and Portneuf Valley. There are however some source-specific caps for stationary sources in Idaho. The nine stationary sources identified in the Northern Ada maintenance plan (page 5-3) have mass-based emissions caps that are designated by the SIP, and that theoretically could function within a cap and trade program, but would also require a SIP revision to change. Any other stationary sources that only have a mass-based emission limitation could also be said to be operating under an emissions cap. There is no identified system to allow these types of sources to trade under their respective caps, although there appears to be nothing in the governing regulations prohibiting it.

While there are some incentive programs in Idaho that encourage emissions reductions, such as the Congestion Mitigation Air Quality funding program, there are no incentive programs that encourage or reward emissions trading activities. Allowing temporary emissions offsets to be used for excess emissions non-compliance penalties, where the excess emissions are “made-up for” by generating offsets, is an example of this type of incentive. Incentives can also be used to encourage sources to go beyond an emission reduction target. By setting a price on pollution and pollution reductions through a fee-based approach or a trading program, some sources can realize an economic gain or avoid additional costs by selling excess emission reductions, or making the reductions for less than the cost imposed by a fee.

The question of adequate emissions credit supply for an emissions trading program to be successful depends on both the geographic boundaries of the program area, and the pool of sources from which entities can look for emissions credits. Both of these criteria have regulatory, scientific, and practical implications in the design and operation of any emissions trading program.

A trading program will work better when the emissions impacts from the sources are similar. If the geography of an area is such that pollutants are transported over a large area, emissions from a large number of sources throughout the area most likely contribute to the problem relatively equally. In this case a trading program that includes many sources and/or source categories over a large geographical area may work well. Care must be taken however that emissions reductions obtained from one source and used by another have some common relationship in an airshed. Emission trading programs in which stationary sources may purchase emission reduction credits from either mobile sources or distant sources can be perceived to be unjust because the local population's exposure is increased while some other population's exposure is lessened. Serious environmental justice issues can arise from such scenarios, and must be carefully evaluated in any trading program.

Ozone, particulate matter, and regional haze are examples of air pollution problems in which the location of a source relative to a particular receptor is one of the determinants of effect. Many approaches--including adjusting the "currency" in emission trading programs--may be used to explicitly incorporate source location into program design. Using a more "refined" emission trading program than one in which tons are traded for tons without regard to the location of the sources may be more efficient for an air pollution problem in which both the quantity of emissions and the location of sources matter.

Another potential consideration in designing an emissions trading program is the temporal nature of a specific areas air pollution problem. Ambient concentrations of criteria pollutants have episodic fluctuations. If air quality problems follow a predictable seasonal pattern it may be worthwhile to allocate more credit to those emission reductions that occur during the "bad" season to provide a greater incentive for emission reductions during episodes and critical periods.

In Idaho there are already some identified geographic boundaries that would lend themselves well to defining emission trading areas. The Treasure Valley Airshed has been receiving attention for the interrelated nature of its air pollution impacts, and for some pollutants could probably benefit greatly from a well-designed trading program. An additional plus for this area is the relatively large amount of potential emissions credits that exist in the valley. When looking at the emission inventory contained in the Northern Ada maintenance plan, the current PM10 actual emissions for industrial point sources in Ada and Canyon counties combined are 1,173 tons per year, while the current permitted potential to emit for these same sources is 5,279 tons per year. This 4,106 ton per year difference represents a large potential pool of emissions credits for trading. If you factor in mobile emissions into the potential trading pool there are tens of thousands of tons of PM10 emissions that could be available in the Treasure Valley Airshed.

There are some problems with looking to mobile sources for emission credits. Typically, mobile emissions have not been utilized much in states that include these sources in their trading programs. One of the reasons for the limited use of MERC is the mismatch between the needs of the buyer and the characteristics of the credits. Stationary source typically need offsets with an indefinite life, while MERCs typically have a life of around three years, which means the firm needs to replace the MERCs every three years over the life of the facility. MERC emission reductions can also be difficult to quantify and enforce, both of which need adequate demonstration to allow their use.

Once the geographic regions and emissions sources that will participate in an emissions trading program are delineated, the form and structure of the program needs to be defined. A trading program is much more likely to succeed if the affected parties are involved early on in the process. For example, regulated industries may have more interest in a trading program if they feel that their particular circumstances and ability to comply are accounted for. For trading programs that include mobile emissions, there should be consideration on involving any agencies that will play a role in the implementation of the program. For example, a program that includes MERCs will likely need input from a metropolitan planning organization, a State Department of Transportation, or a local transportation authority.

Most emissions trading programs requires brokers, analysts, and certifiers. In many cases all these functions are conducted by the state, however the private sector or non-profits can fulfill these functions. Some of the specific steps needed in implementing trading programs include:

- Development of a registry
- Establishment of an oversight body
- Determination of a verification procedure
- Determination of when the program should begin
- Agreement on how emissions reductions actions undertaken prior to operation of the program should be handled

All these steps have important implications for the future success of the program. For example, if credit is allocated to emissions reductions that took place before the program started, it could “flood the market”, cheapen the value of credits, and defeat the purpose of the program initially. The ramifications of actions need to be thought through to avoid potentially negative reactions from both source and non-source entities. The experience in Maine involving credits from the state I/M program (page 14) is a good example of this. An overly complex and bureaucratic program that makes access to the program difficult for many sources is also undesirable. A general rule of thumb is that the greater the number of sources participating in the market, and the simpler the rules, the lower the total costs will be for all participating sources, and the more effective the program will become.

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