

## **Emissions Trading Goes Mobile: Mobile Source Emission Reduction Credits**

by David Aron Livingston

In February, 1993, the California Air Resources Board (ARB) issued "Guidelines for the Generation and Use of Mobile Source Emission Reduction Credits" (ARB Guidelines)<sup>1</sup> as guidance to Air Quality Management Districts (Districts) in California. The guidelines are intended primarily to encourage districts to adopt mobile source (i.e. vehicular) credit banking systems as a way to put a market price on mobile source pollution reduction. These mobile source credits could then be offset against increases in pollution resulting from economic growth. These mobile source reductions would be in lieu of obtaining emission reductions from industrial and other stationary sources. The Sacramento Metropolitan Air Quality Management District (SMAQMD), with ARB approval, proposes to go beyond the guidelines with a system that would enable employers to trade emissions credits from one mobile source (e.g. purchasing alternatively-fueled vehicles), to another mobile source (e.g. average vehicle ridership requirements.)<sup>2</sup>

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This article begins with a cursory review of emissions trading schemes. It then provides an overview of selected current California emissions trading experiments. It then briefly summarizes the policy arguments for and against emissions trading in general and mobile-to-mobile trading in particular. The article concludes by discussing a controversial proposal to extend the mobile credit system to individual vehicle owners.

### **The Emission Credit Concept**

Emission credits systems rely on natural market forces to determine the price a polluter must pay for the privilege of polluting. The first step in creating a system is to determine the geographic area, usually an air basin, in which current and potential polluters will need permits.

Next, an emissions limit, based on state and federal health standards, is established for the entire area. Each existing or new source of pollution is then required to meet their individual emissions limit, so that collectively the larger area target will be met. Sources exceeding their emissions reduction requirement may convert this excess reduction into a "credit." This credit may then be sold, at whatever price the market will bear, to pollution sources that have not met their requirement.<sup>3</sup> Alternatively, the creditor may "bank" the credit to offset their own future emission reduction requirements, or for future sale to another.

The emission credit concept was applied to stationary sources (e.g. industrial and utility) in the U.S. beginning in the 1970's. This allowed utility companies and major industrial generators to trade credits among themselves. For example, within an air basin, if power plant X was unable to meet its goal of reducing its annual output of sulphur dioxide (SO<sub>2</sub>), plant X could buy a credit from factory Y, which had exceeded its target reduction of SO<sub>2</sub>.

Given the limited but encouraging success of early emissions trading and receptivity by regulated stationary source industries, the Clean

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Air Act Amendments of 1990 authorized the use of "economic incentive programs" by state and local governments facing air pollution control requirements.<sup>4</sup> This opened the door for trading credits between stationary sources and mobile sources. Factory X could now offset certain industrial emissions with credits earned through reduction of mobile source pollutants, for example, by

junking old high-emitting cars. However, in subsequent rulemaking, the Environmental Protection Agency (EPA) cautioned that "Clean Air Act nonattainment areas should not view emissions traded between mobile and stationary sources as cure-all's for pollution because of the temporary nature of many mobile-source reductions."<sup>5</sup>

### **The ARB Guidelines**

Capitalizing on the market-based opportunities encouraged in the 1990 Clean Air Act Amendments, in February, 1993, the California Air Resources Board approved and distributed "Guidelines for the Generation and Use of Mobile Source Emission Reduction Credits" (ARB Guidelines).<sup>6</sup> The ARB Guidelines point out that in California, vehicular

sources account for about 60 percent of all ozone forming emissions, and over 90 percent of all carbon monoxide (CO) emissions.<sup>7</sup> The ARB Guidelines were crafted in response to pressure from business and even from some environmental groups to provide greater flexibility in meeting clean air goals in nonattainment areas. Rather than treat pollution from mobile and stationary sources separately, the ARB Guidelines acknowledge that both sources of pollution combine within an air basin and therefore should be tackled together.

In attempting to address EPA concerns about quantifying of mobile source reductions, the ARB Guidelines list four criteria which any mobile

source crediting system must satisfy. First, the reductions must be in addition to those already required under federal, state, and local air quality laws to avoid double-counting which would actually reduce air quality. Second, the reductions must be quantifiable. Anyone attempting to receive a credit for a mobile source must document the number of miles driven, the vehicle usage patterns, the emission rates for both the original and replacement vehicles, and the number of years

a reduction will last. Third, the emissions-reduction value of the credit should remain constant over its life so that buyers and sellers can better predict the future worth of the credit. Finally, the lifespan of the credit will depend on the type of emission reduction used to generate the credit. For example, a company which purchases an electric vehicle for company use might receive a credit lasting nine years, while buying and junking an older, high-emitting vehicle might receive a credit lasting three years.<sup>8</sup> The ARB Guidelines go on to detail three programs Districts could use for generating mobile source credits: accelerated retirement of older vehicles ("cash-for-clunkers"),<sup>9</sup> purchase of low-emission buses,<sup>10</sup> and purchase of zero-emission vehicles.<sup>11</sup> The guidelines encourage Districts to create other programs using the above criteria.

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### SMAQMD Rule 1005

While ARB was drafting their guidelines, SMAQMD, which already had a mobile-stationary crediting system in place, proposed two rules to address mobile source emissions. One was the Employee Commute Alternatives Rule (Rule 1001)<sup>12</sup>. This rule would require employers to increase the average number of employees per vehicle

arriving at the worksite. In responding to this proposed rule, employers argued that they have no control over their employees' travel mode, and that certain types of industries would be unable to comply. The other was a Reduced Emission Vehicle/Alternative Fuel rule (Rule 1003)<sup>13</sup>, which would require operators of vehicle fleets to "introduce and use reduced-emission vehicles prior to, and in greater numbers than, the statewide average requirements of the California Air Resources Board."<sup>14</sup> The ARB worried this rule would "double count" reduced emission vehicles, first by giving a credit to the manufacturer and then to the purchaser. In response to these twin concerns, SMAQMD proposed Rule 1005 - "Mobile Source Emission Reduction Credit/Banking" (Rule 1005)<sup>15</sup> - as a means to give regulated businesses greater flexibility. Rule 1005 would allow credits traded between mobile sources to meet the requirements of multiple rules.

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rule to earn their own credits or buy another's. The Rule lists eight potential sources for earning mobile source emission reduction credits (MERC): introducing reduced emission vehicles and/or alternative fuel vehicles when not required, converting vehicles to reduced emission vehicles, increasing smog inspections from a biannual to annual basis, "cash-for-clunkers" programs, elimination of vehicular trips through telecommuting or other means, purchasing used reduced

emission vehicles, and other "innovative" sources receiving prior approval by SMAQMD.<sup>16</sup> In essence, Rule 1005 allows regulated businesses to use or take advantage of others' use of the optional measures specified in Rule 1003 to meet one general mobile source emission reduction requirement.

Following is an example of how this mobile-to-mobile credit banking transaction would work. Company X buys electric vehicles for their fleet in advance and in excess of ARB and SMAQMD requirements. In doing so, Company X reduces the total amount of pollutant P below their combined maximum level required by Rule 1001, Rule 1003, and other mobile source rules. The excess reduction is stored in the emissions bank in the form of a Certificate of Advance Placement (CAP). Company

Y, which was unable to meet their maximum level for pollutant P from their mobile sources, can buy Company X's CAP from the bank, with the proceeds returning to Company X. Company X could also keep their CAP in the bank and use it in later years to meet a mobile reduction shortfall. Alternatively, Company X can convert their CAP into the potentially higher-priced MERC for transfer to the stationary source market. To convert CAP to MERC, Company X would need to match the emissions listed on the CAP certificate with real, surplus, quantifiable, enforceable and permanent reductions. Factory Z could then purchase Company X's MERC credit, provided that the time period of the credit matches the time period for which Z needs the emission reduction credit. Due to potential problems with verification inherent in mobile-to-mobile trades and the requirement that CAP follow guidelines to be converted to MERC, Rule 1005 would require setting up a separate bank for mobile-to-mobile emissions.

Rule 1005 will also require regulated entities to meet an annually decreasing emissions cap. For example, suppose a regulated fleet operator, e.g. a parcel delivery service, decides in 1994 to replace a gasoline powered fleet with a methanol burning fleet. Under Rule 1003, the operator in 1994 must meet the ARB emissions requirements of 1996. In 1995, the operator must meet the lowered ARB emissions requirements of 1997, and so on. To create and bank a credit, therefore, the operator must meet or exceed the emissions that SMAQMD is requiring. The operator, then, would necessarily be creating reductions two years in advance and in excess of ARB requirements.

An advantage of Rule 1005 over RECLAIM is that Rule 1005 will provide an opportunity for non-regulated businesses or individuals to generate real emissions reductions credits.<sup>17</sup> Rule 1005 may thus provide an incentive additional to existing tax breaks and SMAQMD rebates for purchase of low- or zero-emission (electric) vehicles.

The legal basis for Rule 1005 is found in California Health and Safety Code §40709. This section allows air quality districts to establish banking systems "by which certain reductions in the emissions of air contaminants may be banked and used to offset certain future increases in the emission of air contaminants."<sup>18</sup> The section requires that the reductions be surplus, i.e. beyond that required of existing federal, state, or local law. It also points out that such systems are not designed to recognize pre-existing pollution rights, but rather to keep track of new rights earned

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through the system.

Though there is solid legal authority for Rule 1005, there are policy arguments against extending emissions trading between mobile sources. Many of these policy arguments emerged during the debate preceding the recent adoption of the Regional Clean Air Incentives Market (RECLAIM) system by the South Coast Air Quality Management District (SCAQMD). RECLAIM is a mobile-to-stationary trading system which in part inspired adoption of the ARB Guidelines discussed above. Like Rule 1005, RECLAIM imposes a decreasing annual cap on pollution allowable from regulated companies.

Environmental groups are split over the wisdom of emissions trading in general and RECLAIM in particular.<sup>19</sup> Some groups, including the Environmental Defense Fund (EDF), argue that such trading systems are necessary to break down the artificial barriers between stationary and mobile source emissions. Such groups have been working closely with big business to expand the free-market allocation of pollution rights. EDF, for example, has joined forces with General Motors (GM) to jointly author a "Mobile Emissions Reduction Crediting" proposal limited to the "cash for clunkers" concept.<sup>20</sup>

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In contrast, the Natural Resources Defense Council (NRDC) fiercely opposes trading between mobile and stationary emissions. NRDC maintains that the difficulty of verifying and evaluating the reductions from innumerable vehicles will effectively yield "paper credits not reflecting real emission reductions." NRDC questions whether the EDF/GM methodology for measuring reductions from scrapped vehicles will actually reduce emissions.<sup>21</sup> In the debate over RECLAIM, small businesses in the Los Angeles region questioned whether their compliance costs would actually decrease. They worried that the crediting system is too complex and too dependant upon rapid technological advance in pollution reduction technologies.<sup>22</sup> Area environmentalists, while applauding the provision for the annual lowering of emissions caps, objected that the first round annual emissions allocations were too generously granted as a means to pull Southern California out of its recession. They also argued that the penalty provisions to deter cheating were too weak, and that small and big businesses would continue lobbying for special treatment.<sup>23</sup>

A further criticism of such trading schemes follows from the economic debate over the purpose of creating markets for pollution.<sup>24</sup> Free-market environmentalists generally view markets for pollution as a way of internalizing an inherently "bad" externality. Pro-growth forces generally view such markets as merely a way to balance competing interests of people. This latter perspective accepts pollution as a necessary by-product of economic progress, while recognizing its ill effects on human health. Essentially, the environmentalists ask how to internalize all bad externalities, while pro-growth forces ask whether the market will require it.

Groups critical of mobile-stationary trading schemes may be further skeptical of Rule 1005 because it arguably adds insult to injury. One regulated company may simply be trading their false or overvalued credit for another's similarly overvalued credit, and the net result is that both companies will be in "compliance" without any reduction in air pollution. In addition, mobile-to-mobile credits may suffer the same fate of the stationary smokestack industry credits of the 1970's. Such stationary credits were traded primarily internally, "in essence, shifting pollution among a facility's smokestacks."<sup>25</sup> Since the mobile-to-mobile trading system was introduced expressly to provide alternatives to meeting other rules, the same trend toward internal trading is probable.

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Despite these policy criticisms, Rule 1005 is not likely to encounter legal challenge by business because it does not require any additional emission reductions - it merely gives them an alternative compliance mechanism. Environmentalists are unlikely to challenge it because the crediting system is conservative in awarding credits and because the registering ratio is 1.3:1. Only 10/13 of the credit will return to the generator, 2/13 will be "banked" by the District to improve air quality, and 1/13 put in escrow for the generator to later convert to MERC. The 2/13 banked provides at least a buffer to degradation of air quality from potential over-crediting, and may actually improve air quality. Finally, the District's Environmental Coordinator has determined that the rule qualifies for a General Exemption under the California Environmental Quality Act (CEQA).

### The Next Step?

Though historically there has been some opposition to emissions trading systems, they appear to be the wave of the future. If the RECLAIM mobile-stationary system and the SMAQMD Rule 1005 mobile-to-mobile trading system are successful in both reducing compliance costs and in achieving verifiable pollution reduction, we can expect broader application of the emissions trading concept. Workable trading schemes may become an increasingly important tool for Districts to combat the increasing average annual vehicle miles traveled and an increasing population, especially in California. The next step, theoretically, would be to expand emissions trading systems to the private, individual vehicle owner.<sup>26</sup>

Under such a system, stationary (industrial) emissions, businesses' mobile fleet emissions, and individual mobile emissions would be served by one central emissions bank. Every vehicle in a region would then receive an annual emissions allowance proportionate to the region's emissions budget. If the owner ended up polluting less than his or her allotment, the owner would receive a credit that could be banked and sold to either stationary or other mobile sources. Owners who exceeded their allowance would need to buy others' credits to make up the difference.

The principal advantage of such a system is that it would require vehicle owners to be conscious of their significant contribution to air pollution; a requirement to "pay as you pollute."<sup>27</sup> This expanded system would internalize and privatize the majority of the costs of providing clean air. In addition to the whatever obligation drivers may feel to protect the environment, they would have an economic incentive to keep their

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vehicle(s) in good repair, to purchase lower-emitting (or electric) vehicles, and to carpool, vanpool, take transit or bicycle. Vehicle manufacturers, in turn, would be forced to compete in producing lower-emission vehicles.

The main problem with such a system is measurement and verification. How often would emissions be monitored? Would the readings be averaged? Would the annual or averaged reading be multiplied by the number of miles driven? Would vehicle owners balk at the frequency of testing? These questions would require careful

consideration to avoid fraud and to keep transaction costs to a minimum. Of course, the verification burden may end up being no greater than current smog check programs, and would certainly be less burdensome than the "no-drive" days which Districts are considering as a last resort to meet state and federal clean air standards. A broader problem is that, like any emissions trading system, to meet air pollution standards it depends on annual reductions in owners' emissions cap to counteract the trends toward higher average vehicle-miles traveled and population growth. If the federal government continues to grant one extension after another to nonattainment areas, the annual reductions necessary may not occur, and the individual's cost of compliance would be minimized to the point where no change in behavior is necessary.

### Conclusion

Emissions trading systems in general and mobile-stationary and mobile-to-mobile trading in particular are receiving increased attention as alternatives to prevalent command-and-control regulation. These systems may provide positive market incentives to reduce pollution. Success with the current and proposed systems may warrant extension to the individual vehicle owner.

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### NOTES

1. "Guidelines for the Generation and Use of Mobile Source Emission Reduction Credits," (hereinafter "Guidelines...") State of California, California Environmental Protection Agency, Air Resources Board, February 19, 1993.
2. "Rule 1005 - Mobile Source Emission Reduction Credit/Banking," Staff Report by the Sacramento Air Quality Management District, October 13, 1993.
3. "Dealing in Dirt," California Lawyer, March 1993, p. 26
4. Lobsenz, George, "EPA Encourages Incentive Programs to Reduce Urban Smog," Environment Week, Volume 6, Number 8, February 25, 1993.
5. "EPA Issues Interim State Guidelines for Mobile-Stationary CAA Trading," Air & Water Pollution Report, Volume 31, Number 9, March 1, 1993.
6. "Guidelines..."
7. Ibid., p. 1.
8. Ibid., pp. 14-16.
9. Ibid., pp. 23-32.
10. Ibid., pp. 33-52.
11. Ibid., pp. 53-61.
12. SMAQMD has suspended work on this rule subject to a pending EPA decision on whether to upgrade Sacramento's ozone nonattainment status from "serious" to "severe." EPA will require Districts within severe areas to enact ridership reduction rules similar to Rule 1001, but will not allow Districts in these areas to trade emissions from this type of mobile generation. Should Sacramento retain its serious status, the hypothetical trading discussed following could become reality.
13. "Rule 1003 - Reduced-Emission Fleet Vehicles/Alternative Fuels," Staff Report by the Sacramento Air Quality Management District, October 13, 1993.

14. Ibid., p. 2.
15. "Rule 1005 - Mobile Source Emission Reduction Credit/Banking," Staff Report by the Sacramento Air Quality Management District, October 13, 1993.
16. Ibid., p. 3.
17. Comment by Phil Stafford, SMAQMD, April 25, 1994.
18. Rule 1005, p. 2.
19. Lobsenz, George, "Green Groups Split Over Emission Trading Proposal," Environment Week, No. 29, Vol. 6, July 22, 1993.
20. "Mobile Emissions Reduction Crediting: A Clean Air Act Economic Incentive Policy Proposal for Retiring High-Emitting Vehicles," by Environmental Defense Fund and General Motors, undated.
21. Lobenz, "Green Groups ...."
22. "Southern California Board Approves Region-Wide Pollution Trading Scheme," Environment Week, No. 41, Vol. 6, October 21, 1993.
23. Ibid.
24. The following discussion derives from Dennis, Jeanne M., "Smoke for Sale: Paradoxes and Problems of the Emissions Trading Program of the Clean Air Act Amendments of 1990," 40 UCLA L.Rev. 1101, pp. 1108-1112.
25. Ibid., at p. 1112.
26. This system was proposed by Dean Drake of General Motors Corporations environmental and energy staff, and is quoted by Fernandez, Linda, "EPA Criticized at Vehicle Conference; Mobile-Stationary Trading Advocated," Air Water Pollution Report, No. 49, Vol. 31, December 20, 1993.
27. Theoretically, this is what the gas tax does, but since the current price of gas adjusted for inflation stands about where it did in 1970, gas prices are not now a significant disincentive to drive. Also, only a small percentage of the gas tax goes to promoting mass-transit and other alternatives to private auto travel.

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