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Honorable Stephen L. Johnson
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Johnson:

The Environmental Financial Advisory Board (EFAB) was asked by the Office of Air and Radiation to review the SmartWay Transport program to determine if there were any innovative finance mechanisms that could be devised to make the program more attractive. This report is our response to this request.

We have realized that the SmartWay Transport program is only the beginning of the opportunities for financing small-source emissions reductions. There are millions of small stationary or mobile diesel engines which are either owned by small businesses or private individuals, and which could be either retrofitted or replaced in order to reduce emissions. Furthermore, we found that among the states there were almost no finance programs to deal with these matters.

We, therefore, recommend that the Agency embark on a major effort to encourage the states to create Air Quality Finance Agencies (AQFAs). We would like to make two observations about this recommendation.

First, the Agency is home to two of the most innovative environmental finance programs in the world: the almost \$60 billion Clean Water State Revolving Fund and the \$11+ billion Safe Drinking Water State Revolving Fund (the "SRFs"). These, however, are in the water sector. Apart from the limited application of CWSRF dollars to fund mitigation of atmospheric deposition that impacts water quality, there is nothing comparable in the air sector or in any individual state. We believe such programs could address a great need.

Second, because of the inherent nature of the financial transactions themselves, such programs should not be onerous at the state level. The State of Maryland, for example, estimates that the average annual borrowing from its SRFs is in the \$8 million range. The average annual borrowing from a state AQFA is likely to be in the \$40,000 range – an immense difference. Furthermore,

SRF borrowers are public; state AQFA borrowers will be private. This means that the capitalization requirements for state AQFAs will be relatively modest. There are resources within state governments, such as state departments of economic development, which are experienced in private sector lending.

For these reasons the Board does not believe that implementation of AQFAs would prove overly burdensome to the states. On this point, the Agency should consider discussing, with the Department of Transportation, whether allocations of a small portion of its private activity bonding authority to state AQFAs could be undertaken in compliance with the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users ("SAFETEA-LU") to enhance the value of such programs.

This recommendation offers an opportunity to use an innovative set of tools to address our nation's air pollution problems. The creation of state AQFAs would be a landmark beginning to such efforts; and we commend this concept to you and the Agency.

It is a pleasure to offer this recommendation to you. As always, if the Board may provide further information or assist on this or any other matter, we would be delighted to do so.

Sincerely,



A. James Barnes
Chair



A. Stanley Meiburg
Designated Federal Official

United States Environmental Protection Agency

Environmental Financial Advisory Board

Report on Innovative Finance Programs for Air Pollution Reduction

SUMMARY

The Environmental Financial Advisory Board (the “Board”) was originally asked by the Office of Air and Radiation (OAR) to review the SmartWay retrofit program to determine if any innovative financing programs could be developed to spur sales of SmartWay kits and thus reduce the emissions of various oxides of nitrogen (collectively “NOx”), carbon dioxide (CO₂), and particulates that attend the various products comprising the kits.

The Board has identified several major innovations that will create significant market incentives not only for SmartWay Kits, but also for other programs that reduce air emissions from mobile sources and even other small, stationary sources. The Board recommends that these innovations be implemented at the State level. There are presently a few states that offer the odd, one-off grant, loan, or other incentive for these purposes¹; but none do so on the order of magnitude or with the concerted effort that we recommend here. To this end, we propose a major effort by the Agency to encourage States to create Air Quality Finance Authorities with the power to introduce these financial innovations. This would be the first major air emission reduction finance program anywhere in the world that we know of. In short, we recommend:

- States should create Air Quality Finance Authorities (AQFAs), or empower existing environmental finance authorities to finance certain types of air emission reduction equipment; or, at least, create a state-wide or regional air emission reduction financing program.
- State AQFAs should offer long-term, low-rate financing to small private owners of polluting equipment to upgrade their equipment or, if applicable, to retrofit it to reduce emissions.
- State AQFAs should be the nominal purchasers of such pollution reduction equipment for the purpose of achieving volume discounts which can be passed on to end-users. The equipment can be resold, or leased, to end-users.
- State AQFAs should negotiate fleet fuel discounts on behalf of those companies who use their programs.

¹ Grants: CA, PA, WI and TX. Loans: AR, MN. Other: OR.

- State AQFAs should acquire the rights to the emission reduction credit on each transaction and use or sell those emission credits to further reduce the cost of the program.
- EPA should review all of its funding programs which have a nexus to air emissions with a view to, wherever possible, using them as an incentive to encourage states to take the above actions.

BACKGROUND AND FINDINGS

The Board has determined that several innovative financing techniques can be used to promote the SmartWay program. Moreover, we have also determined that the same techniques may be applicable to a wide variety of other small, stationary emission sources.

The Board's investigations into the SmartWay program found that the real need for innovative finance lay in dealing with the tens of thousands of small trucking firms that lacked capital and did not enjoy superior credit ratings. Most of these truckers are locked into a financial regime with terms so short (3 – 5 years) and interest rates so high (~14%), that the cost of financing the kits was only marginally offset by the fuel savings – and only so for extremely long-haul carriers (125,000+ miles per year). For example, the cost of a SmartWay kit is estimated at \$20,100. To finance this amount for three years at 14% would require an annual payment of \$8,657. Estimated fuel savings of 3,500 gallons per year per tractor (based on a 14% savings on 125,000 miles at 5 miles per gallon) at a cost of \$2.50 per gallon would result in fuel cost savings of \$8,750 per year. Thus, a trucker who drove 125,000 miles would save only \$92.30 per year. This means that if the trucker erred on his actual mileage by only 200 miles (0.16%), he would lose money. This problem is exacerbated when shorter-haul trucks are considered, some of which drive only 20,000 miles per year. In addition, professional truckers are at least as skeptical as the average motorist when it comes to believing claims of fuel efficiency. So, the SmartWay retrofit program has not taken off, as it should have.

(It should be noted that the SmartWay program has pioneered two loan programs. The first, the SmartWay Loan program, takes advantage of the U.S. Small Business Administration's Business Express Loan program, offering 12% loans to firms that are 51% owned by women, veterans, minorities or firms located in certain distressed areas. It has generated about 100 loans to date, nationwide. The second is the SmartWay Plus Loan program which is offered through community development banks in Norfolk, Virginia, and New York City.)

The Board then learned of the activities of Cascade Sierra Solutions (CSS), a Non Governmental Organization (NGO) operating on the West Coast, which, we understand, was created by a grant from the SmartWay program, and which is "dedicated to saving fuel and reducing emissions from heavy-duty diesel engines". CSS has developed a program that exploits two additional cost saving factors. CSS, acting as an agent for the kit manufacturers, sells SmartWay kits directly to truckers. By aggregating these sales, they are able to achieve volume discounts of 6% on their

purchases of SmartWay kits². This volume discount could be passed on to end users to further enhance the attractiveness of the program. In addition, although their “clients” had no legal relationships among themselves, their “client” relationship with CSS was sufficient for CSS to negotiate a fleet fuel discount of 6%. For a 125,000 mile carrier, this results in additional savings of \$3,150 per year (with a SmartWay kit).

It soon became clear to the Board that the genius of CSS’s innovation lay in their ability to synthetically aggregate hundreds of small truckers to avail them of volume discounts.

We then began to further consider the question of the “synthetic aggregation” of small trucking companies and began to look at ports, where tens of thousands of trucks congregate daily³. Many ports are run by port authorities, which are units of state or local government.

There are four important conclusions we drew from our investigations of ports. First, port authorities have the ability to issue bonds. Second, ports, as large stationary sources of air pollution, have need to reduce emissions not only from their own equipment, but also from equipment owned by others, such as trucking companies, which are naturally drawn to, and use, port facilities. Third, because of this overarching interest in reducing air emissions, port authorities could afford to be less sensitive to credit concerns than are commercial bankers who have clear fiduciary responsibility for their depositors’ and shareholders’ funds. For this reason, port authorities should be more willing to extend the tenor of loans to terms commensurate with the service lives of air emission reduction facilities financed with their bonds.

Fourth, as a result of this need to reduce emissions *in situ*, port authorities need emissions credits. It would, therefore, be very beneficial for ports to assist their trucking clientele to reduce emissions if the ports themselves could, in turn, get credit for the reductions.

At this stage of our investigations, two other important considerations occurred to us. First, there are other “non-port” areas (such as truck stops) where the intervention of a government agency could provide the same benefits. Thus we began to think of new, statewide agencies with financing authority for air pollution reduction.

Our second, and most important, consideration is that there is a wide universe of air polluters – both mobile and stationary - who share the same economic profile as do the truckers in the SmartWay program. These types of entities typically own various kinds of diesel powered vehicles - stationery equipment, such as cranes, powered by diesel engines; diesel powered construction equipment, and the like. The characteristics they share are as follows:

- 1) They are small source polluters.
- 2) There are literally millions of these small source polluters.

² CSS does not pass this savings on to their customers, but rather uses it to cover their administrative costs. In this report, we will recommend that these savings be passed along to SmartWay kit purchasers.

³ The Port of Baltimore, which is 13th in size in the United States, estimates that 2,500 trucks visit their facilities daily.

- 3) They are almost all owned by small private businesses or private owners.
- 4) They do not have superior credit and, therefore, have limited access to capital.

Our conclusion, in one sentence, is that these small polluters need to be synthetically aggregated and offered favorable financing terms by State AQFAs as an incentive either to install pollution reduction equipment, such as SmartWay kits, other air emission reduction equipment, or to purchase new state-of-the-art low emission engines.

From all of the above investigations, we conclude that a major finance program to advance the use of SmartWay kits and other air pollution reduction devices could be developed through State AQFAs or other governmental entities such as port authorities. Specifically, we believe:

- 1) That State AQFAs and other governmental entities with bonding authority should be able to issue bonds at favorable rates to finance the acquisition of SmartWay kits or other mobile-source pollution reduction devices, which can be sold or leased to trucking companies.
- 2) That the terms of such bonds can be commensurate with the service lives of the equipment so financed. In this case, term could be extended from 3 to as much as 10 years, with accompanying dramatic reductions in financing costs⁴.
- 3) That such agencies can negotiate volume discounts from the manufacturers of the components of the kits, and pass along this savings to SmartWay kit purchasers.
- 4) That such agencies can have their SmartWay kit purchasers collectively designated as a fleet for the purpose of obtaining fleet discounts for diesel fuel.
- 5) That such agencies should be allowed to keep for their own account, or trade, the emission credits attributable to all of the emission reductions from the trucks in their respective SmartWay fleets.

Below are a few examples of what could be done through State AQFAs.

Example #1 – New low emission trucks

Instead of just a SmartWay kit, let us consider brand new low-emission diesel tractor. Let us say that the average new, fuel-efficient, environmentally friendly tractor costs \$100,000. At conventional rates for small truckers paying full price for the tractor, it would cost them some \$29,128 per year. If they bought the same truck through a State AQFA with a volume discount, it would cost the same trucker only \$11,096 per year. Add in a fleet fuel discount card and the cost is lowered even further. The result is a very strong financial incentive for truckers to modernize their fleets with more fuel efficient models that pollute less.

⁴ A 10% loan of \$1,000 with a three-year term requires an annual payment of \$402.11. The same loan, with a 10-year term, only requires an annual payment of \$162.75. A 60% reduction!

Example #2 – Truck Stops

The characteristic emission problem with truck stops arises from idling. Trucks idle at such facilities, with their engines on, for as much as 10 hours per day. Each hour they idle consumes one gallon of fuel.

The alternative to idling is to have an Auxiliary Power Unit (APU) which supplies power to the cab while the driver sleeps or rests or to use Truck Stop Electrification (TSE). Both APUs and TSE significantly reduce idling emissions.

Truck stops are largely privately owned. The installation of APUs or TSE depends solely on whether the manufacturers of these devices can convince truck stop owners to install them. The manufacturers want to get paid in full as soon as possible. The truck stop owner, if he invests in APUs or TSE, wants to recover his investment as soon as possible. However, as the fees for using an on-site APUs or TSE approach the cost of burning fuel for the same period of time (\$2.50 per hour), the incentive for drivers to use them disappears.

If, however, a State AQFA were to acquire a non-possessor easement interest in the air rights over the truck stop from the truck stop owner (for which it would pay the truck stop owner an annual fee), then the state agency could purchase the APUs or TSE from the manufacturers, and finance them with low-cost, long-term, bonds and have the manufacturers install and, if necessary, maintain them. The manufacturer would get paid in full up front. The truck stop owner would receive additional risk-free annual income from the state. And the State AQFA would be able to set user fees at substantially lower rates because of the low cost of the underlying long-term financing.

For example, a truck stop owner would likely want to recover his investment in three years on a cash-on-cash basis. For every \$1,000 of investment he would need to recover \$333 per year in net fees. But with 10-year, taxable bonds at 5%, a state agency would only have to recover \$130 per year. Thus there would be much more room to offer truckers savings sufficiently substantial to induce them to use the APU and avoid the polluting emissions.

Depending on state law, the same result might be achieved by the creation of Air Quality Improvement Districts; much like the Neighborhood Improvement Districts used in brownfields reclamations. An Air Quality Improvement District could be created at a truck stop, which might allow the issuance of bonds to finance the installation of APUs at that site. This could be done at truck stops all over the State. If there were 10 truck stops in a State that could accommodate 50 trucks each, the daily fuel savings would be 5,000 gallons or over 1,750,000 gallons per year with commensurate reductions in NOX and CO₂.

Example #3 – “Drayage Yards”

The second stationary source of mobile emissions that we considered are what might be called – for lack of a better term – “drayage yards”. Drayage, the Board came to learn, has a very specific meaning in port-related terminology. It refers to trucks that remove containers from ports and deliver them to marshaling yards a few miles from the port from whence they are

further disbursed. They also do the reverse, i.e. deliver containers from the yard to the port. These drayage yards are privately owned and, like ports, are magnets for trucks.

There are two issues regarding drayage yards that need consideration. The first is that, like truck stops and ports, much idling occurs there. However, there are differences between the idling that occurs at truck stops and that which occurs at drayage yards. At truck stops, there are a relatively small number of trucks that idle for long periods of time. These can be dealt with effectively by stationary APUs that are affixed to each truck parking space. At drayage yards, the characteristic idling is the converse, i.e., many trucks idling for relatively short periods of time. This type of idling can best be dealt with by replacing older trucks with newer, cleaner models. Privately owned drayage yards, however, have no capability of offering the owners of their older user-trucks any financial incentives to replace them. States, however, could intervene and create such incentives through AQFAs.

It would certainly be in the interest of a State to reduce such emissions by creating a program to finance cleaner trucks that use such facilities.⁵ In this regard, the concepts of an Air Quality Improvement Easement or an Air Quality Improvement District would be very useful in bringing the financial power of long-term, bond financing to bear on this problem.

The second issue involving drayage yards deals directly with emission credits.

As previously noted, drayage yards reside only a few miles from the port they serve. Thus, they will virtually always be in the same airshed as is the port itself. So, too, will be the dray trucks. They will always be driving and polluting within the same airshed where the port is located. Ways and means, therefore, need to be developed where a stationary source of mobile emissions, such as a port (public) or a drayage yard (private), can legally obtain emissions credits from the owners of the mobile sources whose emission reductions they finance. Ports and State AQFAs should be able to acquire the emissions credits from the truckers whom they induce to buy SmartWay kits; newer, cleaner trucks and other pollution reduction devices.

We understand that the Agency has already dealt with this issue at least once in San Diego, California, where an electric generating utility in need of emission credits purchased a fleet of sanitation trucks that used natural gas/propane for a privately-owned company that handled solid waste disposal for the county government. The utility was able to acquire and use the Mobile source Emission Reduction Credits (MERCs) effected by the new engines. These sanitation trucks always remained within the county which, in turn, was within the same non-attainment area as the power plant. In this case, the Agency was able to satisfy itself that such reductions were “real, quantifiable, federally enforceable, permanent and surplus” within the meaning of the Clean Air Act. This precedent must be expanded to encourage lower vehicle emissions which will benefit more non-attainment areas.

⁵ We understand the SmartWay program is already cooperating with the ports of Norfolk and New York/New Jersey on a pilot program similar hereto.

ADDITIONAL CONSIDERATIONS

Before concluding, we would like to offer some observations on two related matters: the possible use of tax-exempt bonds and the implementation of the recommendations contained herein

Tax-exempt Bonds

Tax-exempt bonds are the mainstays of finance programs in the water and wastewater sectors. This is not the case in the air sector. The reason for this is that most drinking water providers and wastewater treatment system operators are public entities that can readily issue tax-exempt bonds for capital projects. Most air polluters, on the other hand, are private, where the issuance of tax-exempt bonds is awkward and problematic. Tax-exempt bonds issued for the benefit of private entities are called Private Activity Bonds (PABs).

The discussions above regarding the possible issuance of tax-exempt bonds raise the following questions: Under what circumstances, if any, could a government agency such as a port authority, or State AQFA, issue tax-exempt bonds to purchase mobile source air pollution abatement equipment for sale or lease to private entities?

Based on informal discussions with bond counsel, we believe that tax-exempt PABs cannot be issued to finance air pollution control devices for private users. There are, however, two small exceptions. The first is what might be called a *de minimis* exception: if the PAB is a part of a larger bond issue and constitutes less than 5% of such issue and is less than \$15 million. Thus, bonds issued for the purposes described herein could be issued as a small part of a larger tax-exempt bond financing issued for other purposes as long as the amount was below those two stated thresholds. The large capital programs of ports may avail them of the opportunity to aggregate air emission financing as part of larger tax-exempt financings while remaining compliant with these *de minimis* thresholds.

The second exception appears to be of even more limited applicability. It was created by the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or “SAFETEA-LU”, (Pub. L. No. 109-59), which was enacted in 2005. Section 11143 of this Act added sections 142(a)(15) and 142(m) to the Internal Revenue Code, which authorize up to \$15,000,000,000 of tax-exempt private activity bonds to be issued by State or local governments for a new type of exempt facility, i.e. “qualified highway or surface freight transfer facilities”. The relevant part of the definition of this term for our purposes is “any surface transportation project that receives Federal assistance under title 23, United States Code”. So, if one of the programs described above is part of a larger transportation program that is receiving grants from the U.S. Department of Transportation under title 23 of the U.S. Code, then bonds issued for that program are eligible for this exception. Included under title 23 (section 149(b)) are qualified highway or surface freight transfer projects that have air quality benefits. These are projects that are, determined by the Transportation Secretary, after consultation with the EPA Administrator, “likely to contribute to the attainment of a national ambient air quality standard, whether through reductions in vehicle miles traveled, fuel consumption, or through other factors.”

It is apparent that this matter is quite complicated. States should be aware of these exceptions and seek competent bond counsel to advise them.

In the final analysis, however, if all avenues to tax-exempt bond financing fail, States should be prepared to issue taxable bonds for the programs described herein. In the current interest rate environment, a tax-exempt, 10-year bond would yield about 4%; while its taxable counterpart would yield about 5%. The difference in payment between these two bonds is \$123 vs. \$130 per year (per \$1,000 financed). This is minimal; whereas the difference between these and the conventional financing available to most small truckers (\$430.73) is many times larger. In addition, if State AQFAs chose to lease the emission reduction equipment to end-users, they would be able to aggregate and sell the depreciation benefits of the equipment for tax purposes, and use the proceeds of such sales to further reduce the cost of the program to the end users. So, State AQFAs should pursue taxable financing when all else fails.

Implementation

In the course of our investigations, we had informal conversations with officials at two major ports. When the subject of establishing financing programs for the truckers who use their facilities came up, it became abundantly clear that the port officials did not see themselves in the banking business and were very uncomfortable with the thought of entering it, even on a limited basis. The same sentiment is probably true of state air pollution control agencies that see themselves as regulators, and certainly not lenders.

That said, the Board believes there are two points to consider. The first is that there are ample skills in most state governments for mounting private sector lending programs. They are not in any department that deals with the environment; rather they are in the department of economic development. Even most large counties have private sector lending programs associated with their economic development programs. This is a very important point because there will most certainly be some defaults and delinquencies in any lending program for truckers or other such small businesses. The agencies that run the State Revolving Fund programs deal largely with municipal borrowers or public authorities where defaults and delinquencies are very rare. But the economic developers have appropriate analytical skills to minimize initial credit risks as well as the skills to manage defaults, foreclosure, repossession and the resale of physical assets.

The second point is that there are alternative strategies for implementing such lending programs. CSS is a good example. Instead of having a state, or port authority, directly manage an air quality financing program, they could contract with a NGO such as CSS to manage it for them. Or, in the final analysis, states could set up linked deposit programs or issue limited loan guaranties to qualified commercial banks and let them manage these types of lending programs.

Setting up state sponsored programs will require capital commitments. Seed money can be provided from a number of state sources such as general, economic development or environmental funds from taxes or fee income. Existing federal programs may also provide a complement of capitalization dollars to support state efforts.

RECOMMENDATIONS

Bearing in mind the above considerations, the Board now recommends:

- 1) That the Agency adopt a series of formal policies to encourage States to form AQFAs, or empower existing state environmental finance authorities to finance air pollution reduction equipment; or, at least, create a state-wide or regional air pollution reduction financing program.
- 2) That the Agency encourage the States to offer long-term, low-rate financing to small private owners of polluting equipment to upgrade their equipment or, if applicable, to retrofit it to reduce emissions.
- 3) That the Agency encourage States to take advantage of volume discounts in the purchasing of such equipment.
- 4) That the Agency encourage States to negotiate fleet fuel discounts on behalf of those who use their programs.
- 5) That the Agency work with the States to permit them to acquire the rights to the emission reduction credits on each transaction and sell those credits to further reduce the cost of their programs.
- 6) EPA should review all of its funding programs which have a nexus to air emissions with a view to, wherever possible, using them as an incentive to encourage states to take the above actions.

The Board further recommends:

- 7) That the Agency approach DOT regarding the use of a portion of the untapped \$15 billion in private activity bonds to underwrite mobile source air emissions reduction efforts if this can be done on terms consistent with title 23 of the US Code.
- 8) That, bearing in mind differences in State laws and differences in State priorities with respect to air emission reductions, the Agency form Regional Task Forces in each EPA region to facilitate the dialogue with the States on these matters.
- 9) That the Agency consider:
 - a) undertaking the development of new rules which would permit the trading of MERCs generated through financing programs such as those described herein,
 - b) obtain advice on generic questions such as bond counsels' opinions on the questions of tax-exempt bond issuance that are raised above,
 - c) coordinate the work of the respective Regional Task Forces, and
 - d) disseminate information about advances made in developing innovative financing programs among them.

CONCLUSION

In the water and wastewater sectors, the Agency is home to some of the most innovative financing programs in the world. Similar innovations have been used to support “brownfields” redevelopment. However, because the world of air polluters is populated with small, private entities that are difficult to finance – instead of large public ones that are easy to finance – little has been done to create financial incentives in this field. This need not continue.

The Agency now has a unique opportunity to launch a major initiative to reduce air pollution throughout the country by working with the States to create financial incentives for low emission equipment of all types.

Such programs need not be costly. Most can be accomplished with financial guaranties. As such they can be initially capitalized with modest loans from State governments and supported on an ongoing basis by reasonable guaranty fees. Ultimately the initial capitalization loans could even be repaid to State treasuries.

In summary, the creation of State AQFAs which provide a combination of long-term, low-cost financing; trading of emissions credits; and the utilization of volume discounts can form a powerful innovative financing program that, we believe, can significantly reduce air pollution throughout the United States. We commend these methods to the Agency.

Finally, we note that “air quality finance” is almost an entirely new field with some entirely new concepts. The Board will be happy to continue to work with the Agency to expand this field in the interests of improving air quality for all Americans.