Second Generation Issues Committee Newsletter

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MESSAGE FROM THE CHAIR

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Greetings to all members of the Special Committee on Second Generation Issues and to others reading this newsletter. As you know, our Committee focuses on innovative approaches to environmental regulation. Of late, the regulatory alternative receiving the most attention has been trading. This Newsletter issue focuses on that theme. Some believe that trading programs will encourage environmental innovation and provide better protection, with more flexibility, than traditional regulation. Others are less sanguine and raise concerns about monitoring and enforcement, public participation and "hot spots." This Newsletter contains a variety of perspectives on trading. In so doing, it seeks to further the healthy debate on this important topic. Congratulations to Newsletter Vice-Chair Joe Dawley for putting together such an excellent and timely issue.

In addition to work on the newsletter, our Committee has been active on a number of other fronts. In January we sponsored a Washington, D.C. brown-bag event on the Performance Track program, U.S. EPA's lead innovation initiative. The director of the program and others spoke on the program's goals and future. Jamie Conrad and George Wyeth did an excellent job of planning this event. Bob Sussman and Latham & Watkins provided free teleconference capacity for committee members. Almost 50 of you attended or participated by phone. The Committee will continue to put on these events so to provide you with the latest, most useful information on second generation policies and law.

Due to the leadership and efforts of Programs Vice-Chair Ira Feldman, the Committee had two program proposals accepted for the 11th Section Fall Meeting. One of these programs will look at trading initiatives being implemented under the Clean Air Act and Clean Water Act. The other will focus on innovative approaches to species protection currently being implemented under the Endangered Species Act. Thanks to Vice-Chairs Bob Sussman and J.B. Ruhl for their contributions to these proposals. I hope that you will join me at the 11th Section Fall Meeting, Oct. 8-12, 2003 in Washington, D.C. and will be able to attend these interesting programs.

We have also been working with other Committees in an effort to integrate sustainable development concepts into the Section's work, and to facilitate collaboration

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Joseph M. Dawley, Editor

In this issue:

This newsletter is a publication of the ABA Section of Environment, Energy, and Resources, and reports on the activities of the committee. All persons interested in joining the Section or one of its committees should contact the Section of Environment, Energy, and Resources, American Bar Association, 750 N. Lake Shore Drive, Chicago, IL 60611.

on sustainable development topics with other ABA and non-ABA groups. Vice-Chairs Ira Feldman and Chris Bell are ably representing the Committee in this effort.

Finally, Technology Vice-Chair Beth Termini has also been busy updating and improving the Committee Web page. I encourage you to visit it at http://www.abanet.org/environ/committees/secondgeneration/.

This has been an active and exciting time for the Special Committee on Second Generation Issues. I expect that the coming months will be equally productive. If you are a Committee member and would like to become involved in these or other projects please contact me at dhirsch@law.capital.edu or 614/236-6685. If you are not yet a member and would like to become one, contact our Membership vice-chair, Linda Breggin, at Breggin@eli.org or 615/279-1861.

MESSAGE FROM THE EDITOR

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Market-based approaches are an integral part of the larger concept of second generation programs in that such approaches have the ability to result in superior environmental performance at costs lower than available under command-and-control approaches. This issue explores the various viewpoints on market-based initiatives in the context of the Clean Water Act and the Clean Air Act. The EPA's recently published Water Trading Policy is the subject of articles by Alexandra Dunn and Prof. Rena Steinzor. While these two articles provide contrasting views of the policy, it is important to remember what the policy

provides, a national framework for water trading as one of many tools for solving water pollution problems. Clearly, the devil is in the details and states wishing to implement this tool have a daunting task ahead of them. Air emission trading is the subject of articles by Ned Helme and Matt Kittell, Professor Adam Babich and Dallas Burtraw. These articles provide perspectives on the European Union emission trading initiative, an analysis of the Louisiana Department of Environmental Quality's emission trading program, and an economic analysis of emission banking and trading programs. Although the perspectives vary dramatically, these articles discuss critical issues that should be considered in any emission trading program.

This issue marks the beginning of the Committee's efforts to produce thematic newsletter issues. Our next newsletter will focus on stakeholder participation. If you would like to contribute either by writing or locating authors, please contact me. Volunteers and contributors are always welcome!

Lastly, I would like to thank the authors for their efforts in making this such an interesting and informative issue.

MAKING WATER QUALITY TRADING A REAL WORLD OPTION

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On January 13, the U.S. Environmental Protection Agency's (EPA's) Office of Water released its final *Water Quality Trading Policy* (final policy). 68 *Fed. Reg.* 1608. The final policy has solid goals and important principles at its heart – encouraging states to adopt voluntary trading programs, facilitating the implementation of total maximum daily loads (TMDLs); reducing the cost of compliance with Clean Water Act (CWA) regulations, and establishing incentives for voluntary reductions and the promotion of watershed-based initiatives. The publicly owned treatment works (POTW) community supports the final policy, and agrees with EPA's belief as expressed in the final trading policy – "that market-based approaches such as water quality trading provide greater flexibility and have potential to achieve water quality and environmental benefits greater than would otherwise be achieved under more traditional regulatory approaches."

However, while the goals, principles and belief behind the final trading policy are unquestionable, making water quality trading a real, viable option for point source National Pollutant Discharge Elimination System (NPDES) permittees will take concentrated future efforts by many parties. While trading has been successfully demonstrated in pilot and demonstration projects across the country, it has yet to become "standard operating procedure" for most NPDES entities. This brief article discusses the areas in which the trading program will need to grow and mature to become a regular part of how sources strive to meet water quality standards in U.S. waters.

1. Filling in the details. Quite properly, EPA intends that the trading program be implemented at the state level, and tailored by each state to fit its needs. The final policy sets out a framework for states to follow in developing their trading programs, and helps to explain the various regulatory and policy constraints on the program from the federal perspective. Widespread interest in trading initially may be hampered by the fact that it may take some time for the states to create their programs and to flesh out implementation

details.

2. Setting pollutant reduction obligations. Equitable allocation of pollutant reduction obligations between point and nonpoint sources will be an essential element of a viable state trading program. EPA's final policy correctly indicates that where they are complete, TMDLs – with their point source wasteload allocations and/or nonpoint source load allocations – will establish the baseline for trading among point and nonpoint sources in an impaired stream. However, many impaired waterbodies do not yet have a TMDL established, or the water may not be listed as impaired at all. In those cases, EPA indicates that the baseline for trades will stem from the applicable point and nonpoint source requirements. The final policy also places an additional burden on pre-TMDL trades by seeking a "net reduction" result from the trade, rather than a "no net increase" result. When this net reduction standard is paired with imprecise pollutant removal responsibilities, point and nonpoint interest in trading may be limited in pre-TMDL or no-TMDL waters.

3. Using NPDES permits to record trades. The final trading policy includes a potentially troublesome provision that "in the event of default by another source generating credits, an NPDES permittee using those credits is responsible for complying with the effluent limitations that would apply if the trade had not occurred." This provision leaves the point source "on the hook" if a nonpoint source trading partner fails to achieve promised reductions. Using the NPDES permit as the backstop for a trade may reduce point source interest in trading with nonpoint sources because the parties do not sit at the trading tables as equals – instead, the point source faces permit violations and fines, while the nonpoint source does not. This inequity also is reflected in the final policy's suggestion that greater than 1:1 trading ratios between point and nonpoint sources can compensate for nonpoint source uncertainty. Again, it appears that the point source generally will be called upon to make more extensive reductions than the nonpoint source for a trade to be viewed as viable.

4. Trading, antidegradation and antibacksliding. The trading policy's interaction with important CWA regulatory provisions such as antidegradation and antibacksliding remains to be further explored. While *de minimis* increases in loadings are allowable under the CWA and EPA's antidegradation policy, the final policy seems to set out a different standard – that antidegradation review will not be required when trades achieve a "no net increase" of the pollutant traded. Similarly, EPA's proposed trading policy stated that the agency will "not consider backsliding triggered where a source makes surplus reductions and later decides to discontinue generating credits as long as the actual discharge level does not exceed the discharge level previously authorized by permit." The final policy, however, contains modified language on this topic – that antibacksliding provisions are satisfied if a source later discontinues generating credits, providing that the "total pollutant load to the receiving water is not increased." Once again, the various approaches taken by states to integrate trading with antibacksliding and antidegradation will set the tone for future interest in the program.

When EPA announced the final trading policy, it also funded 11 trading demonstration projects across the country. The agency indicated it would hold trading workshops for state permitting authorities to further acceptance and understanding of trading options. So long as the issues and questions raised in this article are answered in a flexible, creative way to promote trading, the program is likely to be embraced over the long term by point and nonpoint sources.

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TOWARD BETTER BUBBLES: WHAT DOES EPA'S WATER QUALITY TRADING POLICY HAVE TO DO WITH FISH STICKS AND THERMOMETERS?

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Background

As part of a trend toward deregulation and greater use of market-based remedies, EPA and regulated industries are proposing trading as the leading method for tackling the nation's worst water quality problems. U.S. EPA, Water Quality Trading Policy, Jan. 13, 2003 <http://www.epa.gov/owow/watershed/trading/tradingpolicy.html> (last updated Jan. 16, 2003) (Water Quality Trading Policy). Although water quality trading has proved successful in some circumstances, specific safeguards are necessary to ensure that trading not only provides economic relief for regulated industries but also benefits the environment. For example, selenium trading in the California Grasslands successfully reduced selenium loadings in part because the program was enforceable through a federal contract with a declining cap and financial penalties for noncompliance. Susan A. Austin, *Designing a Nonpoint Source Selenium Load Trading Program*, 25 HARV. ENVTL. L. REV. 337 (2001).

Many of these safeguards are also necessary to ensure that trading regimes comply with the Clean Water Act (CWA) and therefore are not subject to successful legal challenges by disappointed participants or public interest groups. In a moment of candor, one industry lobbyist commented that EPA's most recent effort to articulate trading policy was like "Christmas all over again" for industries and POTWs. Unfortunately, this assessment may prove accurate unless EPA and the states respect the following principles when designing and implementing water trading programs:

- Trades must not undermine the existing legal structure.
- Trades must not create pollution "hotspots."
- Trades must "do no harm" by reducing pollution loads in all water segments affected by the system.
- Trades must be enforceable and verifiable.
- The public must be involved with trading.

EPA's Water Quality Trading Policy (Policy) is the product of the agency's susceptibility to a common, but very destructive, fact of life in a federalist system: the more national regulators try to provide open-ended flexibility in a program intended as an alternative to existing law, the more they tempt the states and industry to sidestep legal requirements, producing controversy and, ultimately, discrediting the entire initiative. Project XL and the Common Sense Initiative, two earlier iterations of reinvention at EPA, went this route, and water trading has the definite potential to start down the road to ruin. While the Policy adequately addresses some of the core principles I have mentioned, other issues remain either unaddressed or ambiguous, and these characteristics of the Policy could easily lead to poorly designed and functioning trading programs that will threaten rather than improve water quality.

By succumbing to this temptation to be permissive and therefore vague, EPA may well have squandered an important opportunity to nurture carefully circumscribed nutrient trading, enhancing the reputation of water trading both in Washington and at the grassroots level.

EPA Policy Purposes and Objectives

The Policy encourages states and tribes to develop water quality trading programs for a variety of constituents as a way to achieve water quality improvements at lowered costs. The Policy restricts trading to a watershed or Total Maximum Daily Load (TMDL)-defined segment, although there are no stated limitations on the size of the watershed. EPA specifically supports trading where it:

- Achieves early reductions and progress towards water quality standards pending development of TMDLS.
- Reduces the costs of TMDL implementation.
- Provides economic incentives for voluntary pollutant reductions.
- Reduces the cost of compliance with water quality based requirements.
- Offsets new or increased discharge to maintain support for designated uses.
- Creates ancillary benefits (*e.g.*, wetland creation).
- The Policy does not support trading to comply with existing technology-based effluent limitations.

Problems

Consistency with the Clean Water Act

Although the Policy states that trading is supposed to be consistent with the Clean Water Act (CWA) and "aligned with and incorporated into core water quality programs" (*e.g.*, watershed plans, water quality standards, the continuing planning process), the CWA does not provide any statutory authority for trading. Ann Powers, *Reducing Nitrogen Pollution on Long Island Sound: Is There a Place for Pollutant Trading?*, 23 COLUM. J. ENVTL. L. 137, 168 (1998). In this sense, the CWA is in sharp contrast to the Clean Air Act (CAA), which broadly employs trading to reduce emissions as part of several programs pursuant to explicit statutory authority, including provisions for compliance monitoring and enforcement. Absent statutory changes, at the very least EPA's efforts to authorize state trading programs requires a formal rulemaking process. In a case challenging an EPA guidance document issued under the CAA, the D.C. Circuit held that a guidance document that significantly expands the scope of regulations must undergo the formal rulemaking process. *Appalachian Power Co. v. EPA*, 208 F.3d 1015 (D.C. Cir. 2000).

Trading to Meet Water Quality Standards

As recognized in the Policy, trading cannot be used by an NPDES permittee to achieve its primary technology-based effluent limits. However, NPDES permits, in addition to technology limits, must also include water quality-based limits to ensure that ambient water quality standards are not violated. The Policy identifies trading to meet water quality standards as an instance where trading may occur to *offset an increased discharge*. This sort of trade merely moves a pollution problem from one spot to another, potentially allowing pollutants to be discharged at levels that are inconsistent with the water body's designated uses. Such trades are illegal because the CWA does not authorize a point source to pay another point source to "comply" with water quality standards at a different location.

It is worth noting in this context that, even if EPA insists, as a practical matter, that trading comply with TMDLs, such standards apply over a far greater area than water quality standards. Considerable violations of such standards could easily occur without exceeding an overall TMDL. Indeed, the new guidance would have little value to industry if this outcome was not possible.

Valid Trading Opportunities

Nutrients provide an excellent opportunity for trading because they are a leading cause of water quality impairment and are largely attributable to nonpoint sources of pollution, which are inadequately controlled under existing law. Under TMDLs, trading can be limited to circumstances in which there is adequate information on ambient water quality, sources of pollution, current loadings and the amount of reduction needed to meet water quality standards (*i.e.*, baseline loadings and a declining pollution cap), which are all provided by the TMDL program. Unfortunately, the Policy allows pre-TMDL trading and does not require that a declining cap on discharges be set before trading commences. To achieve benefits for the environment, trading must be:

- limited to point-point trading of reductions that go beyond those already required under an NPDES permit (technology and water-quality-based standards); or

- done to implement future reductions under either a TMDL or, in the case of waters that are not yet impaired, occur under an alternative declining cap that will maintain water quality standards.

Toxics Trading

The Policy allows trading of "other" pollutants (*e.g.*, ammonia or selenium) on a case-by-case basis where prior approval is provided via an NPDES permit, TMDL, or as part of a state/tribal watershed plan or pilot trading project. It prohibits trading of "persistent bioaccumulative toxics" (PBTs) *unless* such schemes are a "pilot project" designed to obtain more information about PBT trading.

The problem with this ostensible compromise on the trading of toxics is that one person's "case-by-case" review or series of "pilot projects" can easily become another person's entire program. It is profoundly disappointing that EPA did not shut the door to these dangerous experiments not just with environmental quality, but with public health. Trading must not apply to toxic pollutants because of the risk to human health aquatic life and the potential to create "hot spots." A hot spot is a localized concentration of pollutants in excess of water quality standards, that could result in fish kills and contamination, adverse human exposure, beach closures and other impacts on aquatic life. The potential for creating hot spots is particularly troublesome in the case of toxics since the hot spots created today may not dissipate for decades or even centuries to come.

The Mercury Example: Not Just Water, But Also Air

Mercury, for example, is recognized as a serious threat to human health that poses a threat to children and pregnant women who consume a range of fish. Once mercury is deposited in water, fish absorb it. USATODAY, Anita Manning, *If You Eat a lot of Fish, you may Run a Health Risk*, <http://usatoday.com/news/health/2002-11-04-fish-1acover_x.htm> (Nov. 4, 2002). When humans eat the fish, their bodies take in the poison. At even very low levels, mercury poisoning in pregnant women damages their babies' central nervous system and causes heart, kidney and brain damage. Yet pregnant women are not the only ones at risk. After a year-long study, a San Francisco physician announced in November 2002 that she had found symptoms of low-level mercury poisoning in dozens of her patients who consumed typical amounts of fish. Symptoms included hair loss, fatigue, depression, difficulty concentrating and headaches.

In addition, the families of low-income, subsistence fishermen, who rely on daily catch for the protein portion of their diet, are at even

greater risk. In 2001, 44 states issued public-health warnings that people should not eat mercury-contaminated fish from local waters. The Great Lakes, the Florida Everglades, and portions of the Chesapeake Bay are afflicted, along with hundreds of other lesser-known water bodies. Provoked by the very severe problems in the Great Lakes, a broad coalition of sportsmen, wildlife groups, and environmentalists has urged EPA to work toward a phase-out of all mercury pollution.

In nine states, fish advisories for mercury extend from inland lakes to coastal waters where tuna and other popular fish are caught. Tuna is the most consumed fish in the country, but because of concerns about mercury, many experts recommend that pregnant women limit themselves to two small cans per week. As one indication of the extent of this problem, the Senate Environment and Public Works Committee passed legislation in 2002 banning mercury thermometers – a mere drop in the bucket by comparison to the quantities of mercury that could be traded the administration is now prepared to let industry pump into the environment.

EPA, in fact, has already funded one mercury pilot project in Sacramento, California. How many more may be in the pipeline is anyone's guess.

To add insult to injury the Bush administration's "Clear Skies" initiative, if enacted, will establish a complex credit-swapping scheme by which power plants will be entitled to trade mercury emissions. Most of the mercury that ends up in the water is released first into the air, from smokestacks where large utilities burn coal. The heavy metal particles in the smoke fall down into the water. The president's "Clear Skies" initiative, supposedly crafted to clean up the air more cheaply, would permit the creation of "hot spots" with vastly more mercury than the environment can sustain.

Under the current approach, plants must comply with technology-based standards that limit the amount of hazardous pollutants emitted to the atmosphere; however, the EPA has yet to promulgate its technology-based Maximum Achievable Control Standard for mercury. But the Bush administration has decided that this straightforward solution is too costly for the utility industry. Under Clear Skies, power plants will be free to trade un-used credits with plants up or downwind, even if mercury emissions land where fish are spawned. Worse, high sulfur coal, such as the coal used by the infamous "Big Dirties" in the Midwest, produces more mercury than low sulfur coal, used by the relatively clean power plants in the Southwest. There is nothing in the Clear Skies proposal that prohibits trading of mercury credits generated by utilities in the arid southwestern deserts while the Great Lakes, the Everglades, and the Chesapeake Bay become *more* polluted.

Antidegradation

The Policy also states that antidegradation review is not required as part of trading programs because EPA does not believe that trading will result in "lower water quality" where trading programs result in a no net increase of pollutants. This assumes that trading is done in close proximity, but in the case of a trade within a large watershed there could be a localized pollutant impact even though there was a no net increase, thus requiring antidegradation analysis to protect existing uses.

Enforcement and Monitoring: The Potential for Waste and Fraud

Although the Policy lists elements that should be used to ensure a successful state/tribal trading program, there is no requirement that states or tribes include any of these elements. This permissiveness is especially troubling with respect to provisions for enforcement or

monitoring. For example, the Policy recommends that credits should be generated before or at the same time as they are used to comply with a limit, that standardized protocols should be used to account for the uncertainty associated with reduction of nonpoint source (NPS) pollution, and that there should be methods for determining compliance.

Trading programs, however, are subject to manipulation and fraud and thus demand stringent monitoring and enforcement mechanisms. Failed programs to reduce air pollution in Los Angeles by the South Coast Air Quality Management District make this point clear. Richard Toshiyuki Drury, et al., *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 DUKE ENVTL. L. & POL'Y. FOR. 231 (1999). In that case, stationary sources reported emission reduction credits from various sources, including taking older cars off the road, without any verifiable accounting of the actual emission reduction. This creative accounting resulted in the creation of volatile organic compound hotspots in minority neighborhoods. This real life and spectacular failure makes plain that all trades should be governed by a regulation, permit or other enforceable mechanism with both governmental and citizen enforcement provisions.

Compounding the potential for waste and fraud is the fact that the technology necessary to measure pollution reductions at non-point sources is still in its infancy. Consider, for example, a promise by agribusiness to erect a tree buffer to stop run-off from reaching the local water body. It is far more of an art than a science to predict how effective the buffer will be in stopping run-off, especially since meteorology, topology and geology (*e.g.*, soil type) play such a crucial role in those determinations.

For this reason, environmentalists have called for *trading ratios* that would compensate for problems in the methodology of measuring non-point emissions by requiring, for example, two credits from a non-point source to be traded for one credit from a point source. The EPA Policy, however, neither acknowledges these problems nor recommends this kind of solution.

Public Involvement

Public participation is key to environmental programs. Similar to monitoring and enforcement, EPA makes references to public participation and access to information but without any specific requirements. If the trade is part of an NPDES permit, the public will have a chance to comment only when the permit including a trading program is issued, but not for each trade. For trades that are not part of an NPDES permit, the opportunity for public involvement is unspecified and the Policy supports public participation and access to information and encourages states and tribes to make information available. There are no requirements, however, for such involvement.

The public must have a seat at the table when developing a trading program. All trading programs involve changes to components of a state water pollution program that require full public review (*e.g.*, the TMDL, the NPDES program, the impaired waters list, etc). The public must be allowed to comment on and object to proposed trades, and should be given adequate information to track trades and their water quality effects. The Policy "encourages" entities to make trading information available to the public, but does not call for public comment on proposed trades or publicly available information on water quality impacts.

Summary

Water quality trading offers promise in solving

some of our remaining and intractable water quality problems. It is not, however, the "silver bullet" answer to solve all problems. Each trading program must be tailored to local conditions and based upon a legally defensible background that will support trading consistent with existing legislative authority. To achieve real gains, trading must focus on reducing nutrients in TMDL settings with an enforceable and declining cap against which credits can be measured.

For More Information

Rena Steinzor, Center for Progressive Regulation, Testimony before the House Subcommittee on Water Resources and the Environment of the U.S. House of Representatives regarding Water Quality Trading: An Innovative Approach to Achieving Water Quality Goals on a Watershed Basis. June 13, 2002. http://www.house.gov/transportation/water/06-13-02/steinzor.html

Rena I. Steinzor, *Toward Better Bubbles and Future Lives: A Progressive Response to the Conservative Agenda for Reforming Environmental Law*, 32 ELR 11421 (2002).

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THE STING: HOW LOUISIANA'S EMISSION CREDIT TRADING SYSTEM DIRTIES THE AIR

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On its face, emission credit trading sounds like a good idea – why not let Adam Smith's invisible hand do some heavy lifting and lighten the load on an already overworked bureaucracy? The idea is to create artificial market forces that inspire the regulated community to reduce pollution while minimizing the inefficiencies of one-size-fits-all regulations. A credible market in pollution credits, however, requires sophisticated regulatory administration, including strict requirements for monitoring and verification of purported emission reductions. In Louisiana, the emission credit market is not credible. Instead, the Louisiana Department of Environmental Quality (LDEQ) and EPA Region 6 allow emission increases based on spurious credits, creating a Wild West atmosphere that is inconsistent with the Clean Air Act's goals. Further, LDEQ and Region 6 have put together a breathtaking "sting" on residents of the Baton Rogue nonattainment area – including much of Louisiana's "cancer alley." After issuing a "NO_x waiver" that created artificially high levels of permitted nitrogen oxides or NO_x, EPA has approved LDEQ's adoption of an inter-pollutant trading scheme to exchange pumped-up NO_x permit limits for credits that justify increased emissions of volatile organic compounds. These compounds react with sunlight and oxygen to form ozone – all in communities where the air already violates the federal health protection standard for ozone pollution.

Louisiana's emission reduction bank is used in a "nonattainment area," *i.e.*, an area that has

failed to attain the national standard for ozone in ambient air. The Clean Air Act provides that new pollution is permissible in such areas only if offset by pollution reductions. Moreover, the Act requires companies to overcompensate for new pollution by offsetting even more pollution than they emit – for example by providing offsets in a 1.3/1 ratio. Thus, when the Clean Air Act is administered honestly and competently, new industrial growth actually results in cleaner air.

The idea of adding emission trading as a component of this system is that such trading can, in theory, create incentives to drive pollution levels down more efficiently than the offset requirements acting alone. This is because the drive to generate credits should lead to net reductions in emissions. For example, suppose a polluter voluntarily reduces emissions by 1.3 tons and therefore receives credits that can justify one ton of increased emissions. If another polluter is willing to pay more for the credits than our first polluter paid to achieve the 1.3 ton reduction, the first polluter benefits from the transaction. The result is cleaner air, since a net .3 tons of pollution have been removed from the emissions inventory. Further, the reduction occurred where it was cheapest – and thus most economically efficient – to achieve.

The trading system, however, can break down. For example, an emission credit market cannot work properly if (1) credits and reductions are not reliably measured or tracked, allowing credits for more emission reductions than market participants actually achieve; (2) the regulatory system awards credits for reductions that would have occurred anyway – without the incentive of the trading system – such as reductions required by law; (3) reductions are calculated from atypical or artificially inflated baselines; or (4) monitoring and enforcement are not sufficient to prevent emissions in excess of legal limits. All of these problems infect Louisiana's emission trading program.

A coalition of grass roots environmental protection organizations spearheaded by the Louisiana Environmental Action Network (LEAN) and represented by law students in the Tulane Environmental Law Clinic blew the whistle on the Louisiana program on Oct. 6, 2000. On that date, LEAN, EPA, and LDEQ filed a Joint Motion for Voluntary Remand in Fifth Circuit Case No. 99-60570, in which LDEQ admitted that it had administered its bank in violation of EPA policy and EPA found "it is difficult to access data documenting the amount of valid CAA offset credits" and "there are insufficiencies in the banking database." These findings are strong on their face, and even stronger when read in context of EPA's general reluctance to publicly criticize state agencies. In a Dec. 22, 2000 Order, EPA reiterated that to legally rely on its "banked" emission reduction credits, LDEQ must check to ensure that the credits are not for reductions otherwise required by law "at the time the credits are used." In a letter attached to the Oct. 6, 2000 Joint Motion, however, LDEQ admitted it "has not been [LDEQ's] practice to perform such a review." Thus, the bottom line is that: (1) LDEQ was failing to check to ensure that credits were valid before allowing increased emissions based on those credits, and (2) LDEQ did not (and does not) maintain a database sufficient to keep track of credits.

Imagine the reaction if a financial bank admitted in federal court that it had not properly tracked its customers' accounts and declined, in that same Motion, to rebut a federal agency's statement that its financial database was insufficient. An honest banker, of course, would respond not only with prompt reforms for future accounts but with a thorough audit to provide his or her existing customers with a full accounting. If the banker did not provide such an accounting, regulators would promptly step in since inaction would

risk the credibility of our financial institutions. Should government institutions take problems with emission trading banks as seriously as they do financial banks? True, a corrupt financial bank might wipe out the savings of a hard working family. But health and life are just as important as finance. People affected by Louisiana's emission reduction bank include those with health problems associated with unhealthful concentrations of ozone in the air. In a July 16, 2001 Federal Register notice, EPA found that "[i]nhaling even low levels of ozone can trigger a variety of health problems including chest pains, coughing, nausea, throat irritation, and congestion. It also can worsen bronchitis and asthma. Exposure to ozone can also reduce lung capacity in healthy adults."

Because we know that LDEQ has issued permits based on emission credits without checking whether those credits are valid, and because we know that LDEQ's database has been insufficient to track credits, it is clear that some facilities in the Baton Rouge area are emitting tons of volatile organic compounds that are not offset by emission reductions as required by the Clean Air Act. The upshot is that because of irregularities in Louisiana's bank, an untold number of facilities are using existing permits to emit excessive amounts of volatile organic compounds in an area where the air already fails to meet minimum health protection standards. This is a current public health problem.

EPA and LDEQ, however, have failed to audit Louisiana's bank and have failed to provide the public with an accounting of which companies are continuing to emit excessive amounts of illegal pollution based on invalid credits. This behavior is analogous to that of a financial banker telling a customer not to "dwell on the past," having emptied that customer's accounts. EPA and LDEQ's refusal to identify facilities that emit based on invalid credits condemns area residents to suffer health effects from pollution that is illegal under the Clean Air Act. Further, by failing to respond to the bank's failure with a full accounting, EPA and LDEQ undercut the credibility of the emission banking system, to the detriment of members of the regulated community who could benefit from a bank that was honestly and competently administered. It is as if Securities and Exchange Commission had responded to the Enron scandals by telling the investing public to "let bygones be bygones."

EPA and LDEQ have now announced plans to expand Louisiana's banking system – to allow inter-pollutant trading. Bear in mind that EPA – which told the Fifth Circuit on Oct. 6, 2000, that "there are insufficiencies in the banking database" – has never reexamined that database and found it to be sufficient. Indeed, student attorneys at the Tulane Environmental Law Clinic have been unable to find EPA personnel who will admit even to having seen the current database. When pressed, EPA now argues that the bank is not a "database" but "merely functions as a bulletin board to facilitate stationary source communications and offset purchases." Moreover, on behalf of LEAN, the Clinic's student attorneys have continued to identify – and to document in administrative comments and petitions – instances of LDEQ double-counting of emission credits and reliance on invalid credits. Nonetheless, LDEQ's database must now do double-duty, tracking credits for NO_x, credits for volatile organic compounds, and trades between the two.

There is more: EPA and LDEQ's new plan for inter-pollutant trading will allow artificially high permitted levels of NO_x to be translated into credits for increased emissions of volatile organic compounds. This scheme to end-run Clean Air Act requirements is based on a series of events that could not have been

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better timed if EPA and LDEQ had purposefully plotted to "sting" Baton Rouge breathers. Here is what happened.

First, in 1994, LDEQ and its modeling consultants prepared a demonstration for EPA that NO_x was not significantly contributing to the Baton Rouge area's violation of the ozone health protection standard. In 1996, EPA bought into LDEQ's theory that NO_x emission controls would not contribute to attaining the standard. Thus, EPA exempted Louisiana from most NO_x controls and allowed LDEQ to issue permits for emissions of NO_x in amounts far greater than would have been legal under Clean Air Act requirements for reasonably available control technology and the lowest achievable emission rate. In other words, having convinced EPA that NO_x did not matter to Louisiana's air quality, LDEQ issued permits allowing artificially high levels of NO_x emissions. Next, in 2002, LDEQ and its same modeling consultants prepared a demonstration that NO_x contributes to the ozone problem after all. EPA reevaluated and rescinded the NO_x waiver. Now that NO_x emissions are again recognized as a problem in Louisiana, EPA and LDEQ have announced a trading scheme under which voluntary reductions from a baseline pumped-up by the NO_x waiver can be converted into volatile organic compound emissions via tradable offsets. In other words, LDEQ's inconsistent representations about the affect of NO_x on air quality in Louisiana have created a double windfall for polluters at the cost of the health and welfare of Baton Rouge area residents – first by defeating Clean Air Act requirements for control of NO_x, and then by using the resulting excess NO_x emissions to end-run the Act's provisions that prohibit net increases in volatile organic compound emissions in a nonattainment area.

The effects of Louisiana's dysfunctional emissions trading program are exacerbated by EPA's incomplete and delayed implementation of the hazardous air pollutant program. Because of these delays in EPA promulgation and revision of national regulations, residents of the Baton Rouge area rely on the Clean Air Act's limits on volatile organic compounds as their first line of defense against a wide array of toxic and carcinogenic pollutants that qualify as volatile organic compounds. EPA and LDEQ's inter-pollutant trading scheme reduces that protection in communities that are already overburdened.

Why are many Louisiana "cancer alley" communities overburdened with pollution? In a 2001 book, *Chronicles from the Environmental Justice Frontline*, J. Timmons Roberts and Melissa M. Toffolon-Weiss explore the history of the predominately African-American communities living on the fence line of refineries and chemical plants in this part of Louisiana. They explain that following the Civil War, freed slaves built small communities on the margins of former plantations near the Mississippi River. These same plantation lands were ideal locations for large industrial plants built after 1940. During this period of industrialization, Louisiana African-Americans were largely excluded from voting and thus had little ability to protect the rural character of their communities. As a result, huge refineries and chemical plants now loom over many of these communities. Residents of these predominately lower-income and African-American communities learn to "shelter in place" from the risks of explosions, fires, and chemical releases that – to at least some extent – are inherent to the enterprise. For companies to avoid installing state-of-the-art controls in these communities, and increase volatile organic compound emissions based on credits from reductions made somewhere else, adds insult to injury.

Are banking problems unique to Louisiana? Apparently not. A September 2002 report by

EPA's inspector general concludes that "open market" emission trading programs are impaired by "lack of safeguards, use of data of uncertain quality, and limited oversight of trading activities." But a more fundamental reason for failure of markets for emission credits is that rather than creating invisible-hand like incentives to contribute to the greater good, markets like Louisiana's drive market participants to seek out loopholes – to maximize production of credits (and thus pollution) while minimizing the costs of such credits in terms of actual emission reductions. In other words, Louisiana's market is essentially upside down. What the emission trading market treats as a "product" (emission credits) translates to pollution that harms society while what the market treats as "costs" (emission reductions) are what delivers benefits to society. To work effectively, such a market requires extensive regulatory oversight to carefully control market participants' natural inclinations to cut costs and maximize production of tradable goods. But under typical funding constraints, most regulators have a difficult time keeping track of and enforcing traditional, relatively static and uniform emission limits. The fundamental reason that emission markets fail, therefore, is that agencies are using a regulatory apparatus designed for a relatively simple purpose – to enforce uniform command and control regulations – for the much more challenging purpose of policing market behavior.

The long-term solution to reconciling our desire for emission trading markets with the limitations of our regulatory programs is unclear. What is clear, however, is that residents of Louisiana's cancer alley are at least entitled to – and the continued credibility of the emission trading system requires – a full accounting of the excess tons of pollution that continue to be released into Louisiana communities due to credits that everyone now acknowledges are invalid.

GREENHOUSE GAS EMISSIONS TRADING IN THE EUROPEAN UNION

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In the early days of the international climate change policy debate, the European Union opposed the use of greenhouse gas emissions trading while the United States promoted such measures. Over time a polar shift occurred as European policy makers embraced the economic logic of emissions trading while the Bush administration withdrew the United States from the international greenhouse gas emissions trading table. Today, the United States cowers away from greenhouse gas emissions trading (particularly on the federal level) while the European Union is set to enact a system for their Member States that will create the largest emissions trading market in the world.

The EU Parliament and Council is close to adopting a greenhouse gas (GHG) emissions trading program (EU Trading Program) that will be similar to the proposal published in Council Directive 96/61/EC on Dec. 11, 2002 (Directive). The purpose of the EU Trading Program is to help the EU achieve its GHG emissions reduction target under the Kyoto Protocol (8 percent below the level of emissions in 1990) in a cost-effective fashion. As proposed in the Directive, the Trading Program will be implemented in two phases, with the first phase beginning in 2005 and the second phase commencing in 2008.

During the first phase of the EU Trading Program, only carbon dioxide (CO_2) will be included. This is largely due to the fact that monitoring, reporting, and verification (MRV) systems are more advanced with regards to CO_2 than for the other GHGs included in the

Kyoto Protocol (methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride). When MRV systems improve for these other GHGs, the European Commission (EC) may decide to include them in the program. Additionally, Member States can include other GHGs upon EC approval during the second phase.

Covered Entities

The Directive establishes activities subject to EU Trading Program as well as the threshold for individual installations. In total, it is anticipated that the Trading Program will apply to over 5,000 installations from the energy, metal, oil refining, construction materials and paper sectors. Specific activities and thresholds subject to the requirements of the Trading Program are summarized in Table I – Activities Subject to EU Trading Program.

The Directive authorizes Member States to to the EC to exclude certain installations Trading and activities from the first phase of the apply Program. In exchange, those installations and activities must face national regulations of equal stringency to what they would face under the EU Trading Program. Moreover, exclusion of installations and activities from the Trading Program must not cause any distortion to the EU internal market. Member States can also include activities not listed in the Directive or installations that fall below the threshold for activities set forth in the Directive if the EC determines that inclusion of such activities and installations does not disrupt the internal market or compromise the environmental integrity of the Trading Program. These provisions were designed, in part, to give states like the Netherlands and Germany the opportunity to continue to rely on their systems of negotiated energy efficiency agreements with heavy export-oriented industrial sectors.

Activity	**Threshold**
Combustion for energy production	20 MW
Mineral oil refineries	No threshold
Coke ovens	No threshold
Production and processing of ferrous metals	Capacity exceeding 2.5 tons per hour
Cement production	Capacity exceeding 500 tons per day
Lime production	Capacity exceeding 50 tons per day
Glass production	Capacity exceeding 20 tons per day
Ceramics production	Capacity exceeding 75 tons per day
Pulp production from timber and other fibrous materials	No threshold
Paper and board production	Capacity exceeding 20 tons per day

Table I – Activities Subject to EU Trading Program

Implementation

Member States must prepare a "national allocation plan" which establishes the total number of allowances to distribute and how the allowances will be distributed. The plan must be based upon "common allocation criteria" that are to be developed by the EC based upon the following criteria:

1) The Member State's commitment relative to the EU Kyoto Protocol target and EU burden sharing agreement;
2) Potential emission reductions from particular activities, such as from technological innovation;
3) Other EU policies;
4) Fair trade practices;
5) Ability to integrate new entrants into the system;
6) Consistency with a national strategy for clean and energy efficient technologies;
7) Ability for public review and comment; and
8) Accounting of all installations included in Trading Program.

During the first phase of the Program, Member States are required to give allowances to installations at no cost through grandfathering. However, during the subsequent 5-year phase Member States will only be required to grandfather 90 percent of the allowances and can allocate the remaining 10 percent through alternative methods such as an auction. Allowances are tradable between participating installations in all Member States.

Permitting

Installations subject to the Trading Program must obtain an operating permit from a "competent authority" in the relevant member state. To receive a permit, installations must demonstrate competence with regard to monitoring and reporting of emissions.

Monitoring and Reporting

In recognition of the fundamental necessity for accurate and verifiable emissions estimates for the functioning of an emissions trading (ET) system, the Directive contains provisions for measurement methodology and verification requirements. These provisions require installations to monitor emissions either through activity data or with continuous monitoring equipment. If continuous monitoring equipment is used, calculations will also be required for verification purposes. Emission factors from standard sources (*e.g.*, IPCC, EU) are to be used unless an installation receives approval for a plant-specific factor. Emissions reports must be submitted annually and verified by a certified independent reviewer prior to submission. The Directive requires Member States to implement electronic registries to track allocations, exchanges and cancellations. These registries must be in accordance with standards to be developed by the EC and must be open to public review.

Penalties for Non-Compliance

Installations participating in the Trading Program are subject to penalties if their emissions exceed the number of allowances they surrender at the end of each year. During the first phase, the penalty for emissions in excess of allowances is 40 per ton of carbon dioxide equivalent. For subsequent phases, the penalty is 100 per ton. In addition to paying the fine, installations with excess emissions are required to obtain an adequate number of allowances in the next period to account for the overage. These penalties represent a departure from EC environmental law, as they have been absent from previous environmental legislation. In the case of the Trading Program, the penalty for excess emissions will increase the likelihood of compliance with the established emissions caps since the financial penalties

will almost assuredly be more expensive than investments in emissions reductions or purchases of allowances from other installations in the Program (the median price estimate for allowances from a recent expert poll conducted by Point Carbon was 6.8 per ton of carbon dioxide equivalent). The success of the sulfur dioxide emissions trading program for acid rain control in the United States is attributable, to a large extent, to the high cost of penalties for non-compliance, which create a clear financial incentive for compliance.

Intra-state Pooling

The Directive allows for the pooling of emissions by installations. In such instances, the installations aggregate their emissions and a "trustee" represents them and receives and manages the allowances. The trustee is held accountable for penalties levied for emissions in excess of surrendered allowances rather than individual installations in the pool. In practice, the payment of penalties for emissions overages will likely be distributed among members of the pool based on contractual language agreed upon by the pool participants. The pooling provision lends itself well to certain member state policies, such as the German and Dutch negotiated agreements mentioned above.

Coordination with Other Programs

In an effort to realize gains in economic efficiency, the EU hopes to link the Trading Program with other systems, in particular, the Kyoto Protocol flexibility mechanisms (ET, joint implementation (JI), and the clean development mechanism (CDM)). With regards to ET, linking the EU and Kyoto systems cannot effectively occur until 2008, the beginning of the first Kyoto Protocol Commitment Period. The second phase of the Trading Program is slated to begin in concert with the Kyoto Protocol in 2008. Most European stakeholders agree that allowances from the EU Trading Program should be equivalent to and exchangeable for allowances from the Kyoto system. There is less agreement about whether to allow JI and CDM credits to be used in the EU Trading Program. There is currently a debate occurring over this issue as policy makers try to decide whether to allow JI and CDM credits, and if so, when such crediting should begin. Some stakeholders, the European Parliament in particular, oppose the use of JI and CDM credits in the first phase of the EU Trading Program. The Directive currently contains language favorable to inclusion of JI and CDM credits beginning in 2005. Although the language in the directive emphasizes linkages between other parties to the Kyoto Protocol, there could be room for linkages with non-Kyoto parties such as the United States. For example, carbon dioxide allowances created for an ET program in a state or region in the United States could be compatible with EU allowances, thus facilitating cross-Atlantic trades and improving the economic efficiency of both the EU and U.S.-based programs.

Summary

The EU Trading Program is a complex environmental policy that melds centralized authority with devolved powers and breaks new ground in European environmental policy. By embracing ET, the EU will be the staging ground for the world's first large-scale test of CO_2 emissions trading and will likely chart the path for ET under the Kyoto Protocol. With the experience gained from the first phase of the Trading Program, European interests will take a leading role in developing innovative approaches to a low-cost, low-carbon future. The Center for Clean Air Policy assisted the European Union in developing the greenhouse gas emissions trading program and has recently been selected by the European Commission to prepare Member States to participate in the emission trading system.

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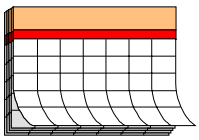

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EMISSION TRADING AND ALLOWANCE DISTRIBUTION

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For the first time since 1990, Congress may be poised to enact major clean air legislation. Proposals now before Congress would impose dramatic reductions in emissions on electricity generators and large industrial facilities. For a description of current proposals see: http://www.rff.org/multipollutants/. They address multiple pollutants including sulfur dioxide (SO_2), nitrogen oxides (NO_x), mercury (Hg), and some proposals address carbon dioxide (CO_2) as well. The level and timing of emission reductions characterize the political debate. But one of the most controversial issues in 1990 – that is the question of whether to use emission trading – has fallen off the table. All of the current proposals embrace a cap and trade program for most, if not all, of the emission reductions that would be achieved. This represents a tremendous reversal of thinking from prevailing thought just over a decade ago when trading was a wonky idea, at best.

In spite of its widespread acceptance as a concept, the *second generation issues* concerning the specifc design of trading programs are likely, ultimately, to raise a din that outdoes earlier controversy about trading as a concept.

One of the biggest issues in designing a market-based trading policy is how to initially distribute the emission allowances. The choice has tremendous effects on the distribution of costs of a trading program. But just as importantly, how allowances are distributed can have dramatic effects on the efficiency and overall cost of a trading program, a point that has emerged in the

recent economics literature (available from the author upon request). However, in the recent political debates the method of distributing emission allowances has only recently begun to attract the attention it deserves.

Economics of the Distribution of Emission Allowances under the Acid Rain Program

The 1990 Clean Air Amendments initiated the first grand experiment in emissions trading in the regulation of SO_2 from power plants. The SO_2 program established a cap on the distribution of emission allowances each year representing about a 50 percent reduction in aggregate emissions. Individual firms have flexibility to decide how to comply. Firms can buy or sell allowances, or bank them for use in a future year.

Under the SO_2 program in 1990, there was a keen awareness that the allowances were valuable, but there was relatively little squabbling over their distribution. The vast majority of allowances were distributed for free to incumbent firms based on the generation at each plant during a base year period. This general allocation rule became known as "grandfathering."

A key difference between 1990 and today is the change in the regulation of the electricity industry. In 1990 the entire industry was subject to regulation, with prices determined by regulators and set roughly equal to average cost of providing service. Today about 17 states have committed to competitive pricing of electricity. The way that prices are set makes a huge difference in the performance of the program, and the issues are complicated. But with literally billions of dollars at stake each year in potential transfers of wealth among industry, consumers and the government, understanding these issues may be worth the trouble.

Emission allowances for SO_2 represented a new cost with an asset value – that is, the value of allowances being given away for free – equal to nearly $2 billion per year. Under cost of service regulation, however, since firms paid nothing to acquire the allowances initially, they were included in the firms' calculation of total and average cost at zero original cost. Only sales and acquisitions of allowances are accounted for differently. Hence, under cost of service regulation firms were prevented from charging customers for something they received for free. However, firms were expected to pass through to customers through regulated prices the cost of reducing emissions and the net cost of allowance purchases and sales in addition to their endowment.

Under competitive pricing the way firms recover costs is quite different. The guiding principle under competitive pricing is that electricity price is set equal to the marginal cost of providing electricity. Firms are expected to offer to provide service at the opportunity cost of doing so.

How, then, would emission allowances be reflected in electricity price? Allowances would be reflected at their market value, or opportunity cost, without regard to how they were acquired initially. For each kilowatt-hour (kWh) of generation, the opportunity cost of electricity would include familiar variable costs such as fuel and labor costs, and in addition it would include the cost of emission allowances used to generate electricity. Like Jed Clampett who discovered oil on his farm in *The Beverley Hillbillies,* firms that wake up to discover they have been endowed with emission allowances for free are not going to give them away for free. Instead, under competitive electricity pricing, they will charge customers for using them at the value they would receive were the allowances instead sold in the allowance market.

Consequently, under competitive electricity pricing, firms can expect to earn revenues related to the market value of emission allowances. That is why one hears emission allowances described as an "asset." They are a liquid, federally created intangible property right, with a well-defined market value.

However, firms do not necessarily come out ahead under competitive pricing. The "other shoe," so to speak, is the cost that firms face in reducing their emissions. Under regulated pricing, firms could expect to see that cost reflected automatically in electricity price. But under competitive pricing this might not be the case.

For example, imagine a firm that generates only with coal, which typically has high levels of emissions. Coal is a baseload resource, meaning it is used first before other plants with lower capital costs and higher variable costs are operated. A coal plant is likely to run all day and night, while a "peaking" gas plant will run only when electricity demand is highest in the afternoon. During the afternoon, then, the gas plant will determine the variable cost of operation. Gas plants have emissions that are lower per kWh than coal, and the value of allowances used by the gas plant will be reflected in electricity price but this may not be as great as the value of allowances used by the coal plant. In this case, the coal plant is unable to pass on all of the value of its allowances. In addition, the cost of emission reductions are less for the gas plant, so although the gas plant charges for these, the price of electricity may not be adequate to pay for emission reductions at the dirtier coal plant.

In the example above, the firm might come out a loser, if its increment in revenues is less than its increment in costs. But the scenario could be reversed. Imagine a firm that operates a nuclear facility with no emissions. This facility has no costs associated with emission reductions or emission allowances, but under competitive pricing it will benefit from the increase in electricity prices due to costs borne at other facilities.

Whether or not emission allowance allocations are sufficient, or overly sufficient, to compensate firms for the cost of emission reductions is an empirical question. Whether allocations *should be* sufficient to do so is a political one. However, one result from economic models is clear. It is possible that the value of emission allowances could dramatically overcompensate firms for the cost of reducing emissions if all allowances are given away for free, by grandfathering, as was done under the SO_2 program. Whether this is true depends on the pollutants that are regulated, especially whether CO_2 is included, and on the portfolio of generation technologies owned by individual firms.

Economics of the Distribution of Emission Allowances under the Regional NO_x Program

The second grand experiment in emission trading is the summertime NO_x cap and trade program to take effect in 19 Eastern states and the District of Columbia. It will take affect for 8 Northeastern states in May of this year, and for the remaining states in June 2004.

The NO_x program is different from the SO_2 program because the distribution of emission allowances was not specified in statute or decided by the Environmental Protection Agency (EPA). Rather, the EPA established allocations to each state and those states in turn are responsible for determining the method of allocation to affected sources. Nonetheless, almost all emission allowances will be distributed for free to incumbent producers, as was done for the SO_2 program. In times of severe budget challenges facing state governments, the value of the NO_x emission allowances has attracted the

attention of some state officials, and for good reason. The annual value of the NO_x emission allowances depends on the market price of the allowances, which is uncertain. But, if emission allowances trade at $2,500 per ton, the value of all the allowances will approximate $1 billion. Currently, NO_x emission allowances for use in 2005 are trading at well over twice that price, suggesting an aggregate asset value of $2 billion per year.

In Kentucky, for example, the value of NO_x allowances at a price of around $5,000 per ton is over $180 million per year. In Indiana the value is around $240 million per year. To return to the theme above, how these allowances are reflected in electricity price will depend on the nature of regulation in each state. In regulated regions, they would be priced at original cost of zero, but firms would recover their cost of reducing emissions directly, if regulators behave according to the textbook. In competitive regions, however, firms would be expected to gain from the value of allowances through higher prices, although they could not recover the cost of emission reductions directly. The fairness of a cap and trade approach from the viewpoint of electricity generators or consumers, and specifically the fairness of free distribution of emission allowances, would seem to many observers to hinge on the comparison of the value of emission allowances and the costs of emission reductions.

Distribution of Emission Allowances under Current Proposals

After the SO_2 and regional NO_x programs take effect, the next grand experiment could be the implementation of cap and trade programs being debated currently in Washington. If these programs include just SO_2, NO_x and Hg, as the Bush administration's Clear Skies Initiative would do, then the value of emission allowances may be somewhat proximate to costs. Even in this instance, however, the value could be greater than costs, which is part of the reason the Clear Skies Initiative does not give all of the allowances away for free. Instead, the Initiative would institute a revenue raising auction for a small share of the allowance pie. That share starts out at 1 percent but ends up at 100 percent after about fifty years. In net present value terms, this represents about 15 percent of the aggregate value of allowances.

However, if CO_2 is included in the legislation, as is proposed in bills by Sen. Jeffords and another by Sen. Carper, the landscape looks entirely different. In this case it is certain that the value of emission allowances would dramatically outsize the cost of reducing emission reductions. The reason is simply that only a small percentage of emissions will be reduced. The value of emission allowances is the allowance price multiplied by the quantity of remaining emissions. It may take a little geometry to make this point convincingly, but for a 5 percent reduction in emissions, the value of emission allowances could be expected to be 20 times greater than the cost of emission reductions, and probably more. Further, for CO_2, the asset value of allowances may easily exceed $30 billion per year, even under modest emission cap targets.

This poses an conundrum. What should be done with emission allowance revenues? The preference of industry is pretty clear. Grandfathering to incumbent firms has billions of dollars worth of appeal. On the other hand, governors and senators may sense the appeal of this potential source of revenue to fund programs such as education, especially when it appears that grandfathering is unjustified based on costs. The Jeffords bill suggests yet another approach. The bill would auction allowances, and return most of the revenue directly to households as a rebate and the federal government would not see any of it.

Distributing Emission Allowances Through Auction

In public policy schools and law schools, and indeed in most economics departments, the decision about how to distribute emission allowances within a pollution trading program has been viewed as largely a distributional one. But the biggest surprise may be that this decision has tremendous efficiency implications as well. For this reason, in general economists overwhelmingly prefer an auction as the way to distribute emission allowances. There are generally two reasons for this.

One reason economists prefer an auction is that whether electricity price is set by regulators or by the market, the value of allowances is reflected in electricity price, at least to a large degree. This prevents a potentially tremendous distortion in electricity price between regions of the country depending on the nature of regulation. Also, when electricity price reflects the full opportunity cost of emission allowances, it leads to more efficient decisions. For example, an auction provides a signal to consumers about the opportunity cost of using electricity, giving them the incentive to make investments in efficient refrigerators, etc., in a way that takes full social costs into account.

The second reason economists prefer an auction is more technical. Emission cap and trade programs impose a cost of industry that raises costs just as does a new tax; in fact, economists might think of regulatory costs as a virtual tax. One rare thing that economists agree on is that despite their necessity, taxes have the unfortunate property of promoting inefficiency in the economy. This is because, as a result of a tax, the willingness to pay for a good or service will necessarily differ from its opportunity cost, and the difference is the magnitude of the tax. A new virtual tax magnifies this inefficiency at a rate that accelerates with the magnitude of taxes in aggregate. The virtue of an auction, in this context, is that it raises revenues that at least in principal can be used to reduce preexisting taxes.

Summary

The likely outcome on this issue is not clear. It probably is clear that in the future at least some portion of emission allowances will be auctioned in one form or another, especially if society decides to use a cap and trade approach to regulate CO_2. The importance of this issue can hardly be exaggerated. If we move forward in regulating CO_2 with more aggressive reduction targets the value of allowances would begin to approximate the institution of social security, for its magnitude and its role in the economy. Resolving this will require that we address both fairness and efficiency.

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The Special Committee on Second Generation Issues welcomes the participation of members who are interested in preparing this Newsletter.

If you would like to lend a hand by writing, editing, identifying authors or identifying issues, please contact the editor Joseph Dawley at 304/558-5929 or jdawley@dep.state.wv.us.