Market Mechanisms and Incentives: Applications to Environmental Policy

PROCEEDINGS
SESSION TWO

MARKET MECHANISMS IN ENVIRONMENTAL POLICY: A PANEL DISCUSSION

A WORKSHOP SPONSORED BY THE US ENVIRONMENTAL PROTECTION AGENCY'S NATIONAL CENTER FOR ENVIRONMENTAL ECONOMICS AND NATIONAL CENTER FOR ENVIRONMENTAL RESEARCH

May 1-2, 2003
Wyndham Hotel
Washington, DC

Edited by Alpha-Gamma Technologies, Inc.
4700 Falls of Neuse Rd., Suite 350, Raleigh, NC 27609

ACKNOWLEDGEMENTS

Sections of this report, indicated as "summarizations", were prepared by Alpha-Gamma Technologies, Inc. with funding from the Nation Center for Environmental Economics. Alpha-Gamma wishes to thank Kelly Maguire and project officer Nicole Owens of the National Center for Environmental Economics.

DISCLAIMER

These proceedings are being distributed in the interest of increasing public understanding and knowledge of the issues at the Workshop and have been prepared independently of the Workshop. Although the proceedings have been funded in part by the United States Environmental Protection Agency under Contract Number 68-W-01-055 to Alpha-Gamma Technologies, Inc., it may not necessarily reflect the views of the Agency and no official endorsement should be inferred.

Session II Proceedings

Table of Contents

Tracy Mehan, Assistant Administrator, US EPA, Office of Water

I. Office of Water Objectives

The Office of Water focuses on economics, environmental ecology, and human health when setting its objectives. Currently, a central issue contained within these objectives is monetizing ecological benefits. Presently, the Clean Water Act (CWA), while moving beyond health issues, still has to explore issues fundamental to biological and physical integrity of streams. Moreover, while CWA costs are well documented, ecological benefits have proven to be more difficult to quantify, especially in the non-cancer sector.

The Clean Water Act is presently dealing with several issues as they relate to the interface of economics, environment and ecology. First, the price mechanism is a significant issue in dealing with the investment gap as it relates to water, drinking water, and wastewater infrastructure over time. At present, the United States has the lowest average household cost in terms of paying for infrastructure than any other member countries of the Organization of Economic Cooperation and Development (OECD). Second, mitigation banking in the wetland area is being tried as a least cost market based approach. Third is the whole issue of water quality trading which is the focus of this presentation.

II. Current CWA Status

At present, the CWA is moving away from "end of pipe" solutions and towards examining diffuse sources. The bulk of water quality problems today center on non point source discharges. In addition, the CWA is moving from technology based end of pipe solutions, to achievement of water quality standards as the endpoint to judge the success of the CWA's progress. This will take time as the CWA has been in general, a single purpose tool centered on point source discharges. In addition, cost barriers must be faced as we are seeing increased costs for incremental gains in clean water.

At present, the Office of Water is looking to work with USDA on issues such as Farm Bill implementation, with the Office of Air on issues such as mercury and nitrogen deposition in the Chesapeake Bay, with the Coast Guard controlling ballast water discharges of exotic species, and state and local governments on land use and construction. An important objective is to increase the incentive portion of the CWA, including trading, while still protecting the environment.

III. Water Quality Trading

The Office of Water was drawn to trading based on successes of the Clean Air Act, in particular the acid rain trading program. A significant effort is presently underway to integrate the trading concept in a multitude of clean water programs. One of the main reasons for this is economic: EPA estimates of savings from potential point-to-point; point-to-non point; and pretreatment trading range from $658 million to over $7 billion annually.

Trading may lower costs significantly in certain instances. For example, the World Resources Institute recently completed a study on benefits of trading phosphorus credits between point sources, non point sources and diffuse runoff sources in three watersheds in Michigan, Minnesota, and Wisconsin. The study concluded that the cost estimate for point source controls ranged from $10.38/lb in Wisconsin to $23.89/lb in Michigan, and that trading between point and non point sources may reduce control costs to $5.95/lb in Wisconsin to $4.04 in Michigan.

The success of Long Island Sound (Connecticut) point-to-point nitrogen trading between Publicly Owned Treatment Works is a specific example of significant savings based on trading. This project expects to save over $200 million, and achieve water quality standards 4 to 5 years ahead of time.

The Office of Water is mindful of the technical challenges in creating a market or framework for trading. A key difference with air trading is that the pollutant reductions in air trading are very typically fungible and measurable with CEMS (Continuous Emissions Monitoring Systems) and other such tools. There is no real corollary to this in most water trading scenarios. It is believed that the new January 13 Water Quality Trading Policy will provide an authoritative road map to outline the path forward to assist in achieving water quality standards through trading.

Even with trading as a key tool, emphasis on water quality standards must be kept in mind. A significant concern with trading revolves around potential hotspots and distribution impacts. These concerns are shared by the Office of Water and our endpoint is the achievement of water quality standards themselves. While these standards are largely driven by the states and as such, vary across the country, such standards are in essence our equivalent of the MACT (Maximum Achievable Control Technology) air standards, and must be adhered to as we work our way through trading scenarios.

IV. Future Vision of a Nutrient Trading Program

Imagine an Upper Mississippi or Upper Ohio trading program that provided benefits to the water in the immediate vicinity. This program provides an impetus to achieve a 25-30% reduction of loading to the Gulf of Mexico and begins to roll back the hypoxia problem. At the same time, this program allows members of the Chicago Climate Exchange to purchase credits generated by farmers (with Farm Bill funding) to create greenhouse gas emission credits for NOx, which provides a significant benefit in terms of water quality and carbon sequestration. This scenario allows for multiple benefits with a least cost approach to achieving multiple goals. We need to take advantage of the Farm Bill investment that Congress has decided to make in American agricultural conservation and use it to advance water quality goals.

V. Questions and Answers:

Q: How would you envision all the issues of agricultural subsidies fitting into a nutrient trading program?

A: There are people who are very concerned with allowing credits to be generated through government subsidies, but that is the system we have and must work with. Maybe I don't understand your question.

Q: If the activities have been subsidized, and is part of the baseline, how does that generate a credit?

A: It may or may not be part of the baseline. It is unclear how the USDA will deploy these resources; whether it will be a traditional agricultural program that will be arrayed, laid out as an entitlement program to farmers with a given type of operation. Some people may or may not avail themselves to such a program. In the case of a concentrated animal feeding program, they may get a partial payment for an on-site lagoon system. So they may need the EQUIP money, dollars from a point source looking to buy credits, and dollars from the Chicago climate exchange to sweeten the deal. In this case, what is the term? Will this be done in perpetuity or just in the short term? While I see your point, it is more of a theoretical question, and I think the more difficult question is whether they are going to put in buffer strips in perpetuity or not, which would be more relevant to the carbon and greenhouse gas emission issues and we would need it on the water side at least for the 5 year term NPDES permit. This is a work in progress, done in the spirit of continuous improvement. There will be trial and error, experimentation, failures, but hopefully people will see the economic and environmental logic of this and will make an effort to try it out.

One last thing. Think of all of this as three legs of the milk stool which includes trading, TDMLs, and watershed based permitting. These options allow you to pick and choose the option that best applies to your particular situation.

Market Mechanisms
(Emissions Trading)
1:30-2:30pm
Jeffrey Holmstead, Assistant Administrator, US EPA, Office of Air
Panel session with Tracy Mehan and Paul Gilman

Intro

The Administration has proposed to expand the Title IV cap and trade approach to NOx and mercury through Clear Skies legislation. The Clear Skies proposal—and the other multi-pollutant bills being considered by Congress--are proof positive that market mechanisms have truly arrived as a broadly accepted component of the Government's approach to air pollution.

I know you'll be hearing more about Clear Skies during this conference. I'd like to use my time this afternoon to talk about the many other areas in which the Air Office uses market-based approaches.

Beyond Title IV—market mechanisms over the last 20 years
The Air Office has been using market mechanisms for much longer than most people realize. EPA's first major success in implementing a market-based environmental policy began in the 1980's with the lead phase-down. Historically, lead was added to gasoline to inexpensively boost octane levels, but it also had serious side effects on human health. In response, EPA developed an averaging, banking and trading program to phase-out lead from gas. The program was a total success. Atmospheric concentrations of lead were reduced more rapidly than anyone had anticipated. No price spikes occurred and the program saved around $225 million in compliance costs.

A few years later, EPA adopted a market-based permit system to implement the phase-out of CFCs and other ozone-depleting substances. This strategy was unique in that it included a concurrent excise tax. The result was that the switch to non-ozone-depleting substances was made faster and with less cost than initially estimated. Today, we are using the same method to reduce HCFC use.

Market Mechanisms at Work Today

Since the 1990 Clean Air Act amendments, market mechanisms have become a part of nearly every action we take.

- The NOx SIP call was built upon a regional cap and trade format.
- The offset requirement for new sources constructed in nonattainment areas is also a form of trading.
- Each of EPA's major mobile source rules—including Tier II, the Heavy-Duty Diesel Rule, and the proposed non-road rule—are built on an averaging, banking and trading framework. Even lawnmower makers can trade emissions credits.

We've learned a lot over the last ten years. We know that market mechanisms encourage technological innovations, lower compliance costs, and can bring about early action. We've also learned a great deal about the industries we regulate—which will serve us well in years to come. For example, engine manufacturers are reluctant to trade credits with other companies, however they take full advantage of this flexibility within their own company.

However, as we look to the future of market mechanisms and environmental policy, it will be important to keep a few things in mind:

--Ensuring that a market-based approach achieves equal to better environmental results—to avoid the regulatory relief stigma;
--Recognizing that the EJ community continues to be skeptical;
--Including robust compliance monitoring.

Future Uses

Open Market Trading

Open market trading is a promising approach, although it needs more study. You may have heard that New Jersey and Michigan and the City of Chicago have experimented with open market trading. The result has been mixed.

If properly designed and implemented, I believe this type of trading could be a great tool for areas with the toughest pollution problems. We know that Clear Skies, along with our existing control programs, will bring most of the country into attainment with the air quality standards. Yet, for some areas, like southern California, robust, local measures will be essential. Open market trading programs encourage emissions reductions from the smallest of sources. We've already seen that the possibility of generating open market credits has encouraged diesel retrofit and idling reduction.

Clear Skies

International Trading

Clear Skies includes a provision to study how trading might be expanded beyond US borders. I expect that this issue will gain momentum in coming years.

VOCs

VOC trading is also an area we are putting some thought into. Because of the fugitive nature of VOCs, this presents a challenge.

I imagine that each of you will play a role in designing and evaluating the future role of market mechanisms in environmental policy. I welcome your ideas and your assistance.

May 1, 2003 2:00PM
Question and Discussion Session

Q. Peter Kuch, Resource Economist:
This question is set in the context of Clear Skies but as it applies to water, Mr. Mehan—please feel free to give an answer. It's about the difficult question of allocation. For the most part, emission trade, or cap-and-trade, programs have used to allocate, for free, the allowances to polluters, and there is a notion that there might be good efficiencies or other properties to auctioning them or using other methods, auction in particular, and I believe that Clear Skies has an auction provision. The question I have is: There will be a lot of negotiating about Clear Skies and similar proposals—where in the politics of this does this fall as an important issue? What other things might you give away before you had to give away an auction or vice versa?

A. Jeff Holmstead:
I mentioned before that pollution taxes was a very efficient way of achieving pollution reductions. Auctions are the most efficient way of distributing allowances, but I think it has some of the same political problems. We do believe that for efficiency purposes an auction is the right way to go, but I can't say that that's one of our highest priority issues. So it's something we do believe in, and we know that there are other people who, understandably, would rather not have to pay for something that they might be able to get for free through the political process, and at this point, our real goal is to get 50 votes in the Senate and 218 votes in the House, and we're looking at a lot of different ways that we might be able to do that.

A. G.Tracy Mehan:
From the water perspective, it really is a whole different parallel universe. First of all, it's an extremely federalized program in that 45 states have delegated authority to carry out the Clean Water Program. This is where the TMDL program can have a lot to say, because under a TMDL (total maximum daily load), when it's approved by EPA (usually it should be done by the state and approved by the EPA), it will do a waste-load allocation to the point sources, so specific point sources will get an allocation. Then it's either a gross-load allocation to the non-point sources or sometimes there could be sub-categorization depending on the data. But, the one universe is regulated—the other is not. Right now, at least among point sources—you know, even without a TMDL—there are usually off-line negotiations and then they come in and all the point source discharges will lay it out to the permit writers, say in a state agency, and you're overall okay. You meet the technology-based standards and whatever we think we can do on the water quality standards, and then they all agree to it.

I think it's going to be very different and it's going be driven, again, state-by-state and watershed-by-watershed depending on what sorts of mechanisms the local jurisdictions are going to want to put in place—so, much more of a mixed bag.

Q. Mark Landry, Abt Associates:
My question is for Assistant Administrator Mehan. I am curious to know what dialogue or collaborative efforts the Office of Water is making with USDA, particularly NRCS, in terms of facilitating trading—perhaps some kind of integration of the water quality trading policy with the conservation emissions grants program. Can you speak to this?

A. Tracy Mehan:
Well, I can tell you that for 2003 I did a little memo—and if you asked me what my four priorities given a discretionary dollar given a discretionary time, given a discretionary political capital, what I would put it on, one of those top four was the strategic partnership with agriculture. Again, this a whole 31 years later where we're moving to the whole watershed, clearly this is a huge opportunity. I think agriculture realizes that with human beings sprawling out over the landscape, second homes, suburbanization, they're rubbing elbows with civilian non-farm populations so they've got problems there they have to deal with whether they want to or not. We've got the wind to our back with the Farm Bill resources under the conservation title, so this is from the USDA-level down to the state conservationists we are on a tremendously positive engagement with agriculture at all levels—a lot of goodwill after we resolved the KAFO rule—very much engaged on what we can do on the upper Mississippi—Bruce Knight and I have talked quite a bit—he's the chief of the NRCS, and he's very committed to trading. He appeared with Governor Whitman at the roll-out press conference of our Water Quality Trading. We're looking at innovative grants—we are heavily, deeply engaged with agriculture.

It was funny, I gave a talk yesterday for a hundred environmental engineers from Ford Motor Company and boy, do they want to talk to you! [Jeff Holmstead]. I was glad to be invited—a friend from Michigan invited me down to Norfolk, where they were meeting, and I agreed to talk to them, although I don't talk to industry groups much anymore. Instead, I'm talking to the National Association of Conservation Districts, club plane managers, land managers, agriculture and forestry types. We have an effluent guideline going through here from industry, but again, we're moving to the whole watershed, and agriculture is a premier partner in that whole effort.