

FEATURE ARTICLE

ISSUES AT THE FOREFRONT OF WATER QUALITY POLLUTION
TRADING: HOW AGRICULTURE, REGULATION, AND MARKET
FACTORS WILL DRIVE FUTURE TRADES

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Water quality pollution trading, seen by many in the private sector as the future of water pollution control, is now an acceptable technique for managing water quality in many states. Trading is a market-based approach to improving water quality in which a discharger seeking to comply with challenging permit limitations purchases pollution “credits” from another source that provides the necessary pollution reduction. Due to mandatory Clean Water Act deadlines that are stretching water pollution control technologies to their limits, the trading of pollution credits has been heralded by the Environmental Protection Agency (EPA) as an innovative, cost-effective way to reduce water pollution. In 2003, EPA gave states the green light to develop and implement trading programs by issuing its “Water Quality Trading Policy” and hosting its first national trading conference. Since then, an increasing number of states have initiated a variety of water quality trading programs and a number of “hot” trading issues have emerged. These topics include the crucial role that agricultural producers play in trading, the enforceability of traded reductions, and the means for creating sustainable markets.

Agriculture has the potential to become the dominant source of saleable credits by virtue of its enormous capacity to reduce nutrient loadings to streams. Substantial federal conservation funding already has enabled many farmers to create and sell such pollution credits, and the federal government is increasingly supportive of using agricultural controls to improve water quality. EPA Administrator Stephen Johnson has endorsed this effort, stating that “America’s farmers are producers of solutions, not creators

of problems.” (EPA Administrator Stephen Johnson, *2nd National Water Quality Trading Conference*).

Johnson’s EPA is working with the U.S. Department of Agriculture (USDA) to memorialize their joint commitment to advance water quality trading and ecosystem-based services.

Equally necessary to create a viable trading program are enforcement mechanisms acceptable to both buyers and sellers. While the agricultural community hopes to capitalize on trading, it is unlikely to participate in that market if the price of participation is the imposition of mandatory controls on the quality of agricultural runoff. Similarly, point sources desiring to purchase pollution credits from agricultural producers will not be able to benefit from a trading market without assurance that purchased credits reflect real and continuing reductions by their sellers. A reasonable middle ground must be identified. Another issue that must be addressed for trading programs to flourish is the creation of a sustainable markets. The future of trading rests on the emergence of well functioning, active markets. Two key factors that will affect the viability of such markets are the imposition of clean water deadlines and watershed size. This article discusses each of these pressing water pollution trading issues.

Background

Simply put, water quality pollution trading is the purchase by one discharger of pollution reductions created by another. The buyer benefits by using the purchased credits to help satisfy effluent limitations imposed by its discharge permit, while the seller benefits from the exchange of money. A trading market

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emerges where sources that are required to reduce their discharges can satisfy those obligations more efficiently by purchasing credits from other sources than by installing treatment or otherwise modifying their own operations. The goal is cleaner water at a lower cost.

Although some state trading programs were developed and implemented in the 1990s, it was not until EPA released its "Water Quality Trading Policy" in 2003 that it gave its unequivocal support to water quality pollution trading. EPA views trading as a tool for providing greater flexibility and environmental benefits than could otherwise be achieved under more traditional regulatory approaches. In its 2003 Policy, EPA outlined the circumstances under which pollution trading may occur: When used to maintain a waterbody's existing water quality; to restore impaired waterbodies before a formal "total maximum daily load" (TMDL) is established; and in the rehabilitation of water bodies already subject to a TMDL. EPA believes that trading can be especially effective in addressing nutrient or sediment impaired waters.

In 2005, USDA announced its support of water quality pollution trading in its "Policy on Market-Based Environmental Stewardship." Over the last decade or so, USDA has developed a wide-range of programs designed to assist farmers and ranchers improving their environmental stewardship of the land. Under the USDA's vision, the resulting pollutant reductions would then be sold as credits to point source dischargers for whom in-plant reductions would be more costly.

Next year, EPA and USDA are expected to release an agreement to jointly advance trading. Currently there are nine trading programs in seven states that have generated 93 Clean Water Act National Pollution Discharge Elimination System (NPDES) permits authorizing trades involving 233 facilities. EPA's goal is to have trading incorporated into 33 percent of all NPDES permits issued in fiscal year 2007.

Analysis

Each water quality pollution trading program is unique because it is shaped by state trading rules, the number and kind of potential market participants, the range of pollutants for which trades can be accommodated, and watershed-specific characteristics. Even with such variability across trading programs, a number of common issues have emerged as hot topics

in the world of trading. Because the agricultural sector is expected to be the source of the majority of the tradable credits for nutrients and sediment, many of these issues focus on the challenges associated with the funding, creation and use of credits generated by agricultural producers.

One of the most intensely debated issues regarding agriculture and trading is whether farmers should be able to sell benefits created, at least in part, with the aid of government funding. Specifically, the question is whether a farmer who receives funding from the state or federal government to install conservation measures that improve water quality should then be able to sell credits reflecting those governmentally-funded pollution reductions. EPA and USDA firmly support the position that farmers should be allowed to sell any farm-generated credit, even where all or a portion of that credit was made possible by government funding. The federal agencies (along with the agricultural sector) believe that paying farmers twice for the same conservation measure is necessary to ensure that agriculture voluntarily takes a seat at the trading table. Regulated point sources, such as wastewater treatment plants and industry, are less convinced that it is good policy to allot billions of dollars in federal aid to generate farm-based improvements to water quality, only to have local rate payers and corporate shareholders pay again for those improvements under a water quality program that, for policy and political reasons, focuses only on point sources.

A Pound of Pollutant, a Pound of Reduction

An equally contentious issue is whether and how a credit generated by an agricultural source should be discounted to account for uncertainties in the pollutant's movement to the targeted water body. In one form, the question simply is whether a pound of pollutant reduction at the edge of a field provides the same benefit as a pound of reduction at the end of a discharge pipe. A more difficult question, and one with the potential to be divisive even within the agricultural community, is whether a reduction on a field remote from an impaired water has the same ecological value as the same reduction on a field abutting the water body. EPA supports a number of approaches to compensate for these uncertainties, including monitoring to verify load reductions and the use of discounted trading ratios (that is receiving only partial credit) in trades between nonpoint and point

sources. (For example, in some states, a point source discharger that needs to reduce its pollutant load by one pound can either make the one pound reduction itself or purchase two pounds of pollution credits from a nonpoint source discharger).

Enforceability

Enforceability—the assurance that a credit purchased will in fact be made good by its seller—is another issue that must be resolved satisfactorily if agricultural producers are to play a major role as a source of water quality credits. In point source-to-point source trading, trading obligations can be enforced through the NPDES permits issued to each of the trading partners. Trading with entities that are not required to have NPDES permits, however, has proven more challenging. The concern of credit purchasers, most-often regulated point sources, is that if a credit generator does not comply with its obligations to create and maintain sufficient credits, the credit purchaser could be liable for any resulting water quality impairment.

States have dealt with this nervousness on the part of point sources in a variety of ways. For some states, the commitment made by a farmer to USDA or EPA in exchange for conservation dollars is considered a sufficient guarantee of performance. In other states, the contract between a farmer and the state conservation district provides a safety net. Another option includes the execution of private contracts between the credit generator and credit purchaser. And in some states, a “bank” of credits is held by the state for use by dischargers in cases where credits lapse or are unfulfilled. Rounding out the options, states such as Florida place the onus on the farmer, requiring agricultural producers to obtain a general Clean Water Act permit—that is, to become regulated entities in their own right—before they are permitted to sell pollution credits. Each of these approaches imposes some form of accountability, albeit sometimes in ways that might not be acceptable to all potential participants in a credits market. In order for that market to flourish, one or more broadly accepted mechanisms for assuring accountability must be developed.

Creating a Sustainable Market

Assuming that the agricultural sector does become a major participant in a trading program, the creation of a sustainable market—a market that is flexible,

responsive and able to survive in the long-term—is essential to improving water quality. In many states, trading programs have been established but little or no trading has occurred. There are a number of reasons for the inactivity of these markets. Two of the most prevalent reasons are the lack of a regulatory impetus to trade and a market that is too small to function efficiently. A trading market is most likely to emerge and thrive if there is an imminent regulatory deadline on credit purchasers. A good example is the Clean Water Act’s TMDL program which requires many point sources to decrease their discharges by a date certain. The Cherry Creek trading program in Colorado, for example, resulted in trades after a TMDL required that point source nutrient discharges be reduced to zero. The need to achieve that reduction created the demand for credits, and that demand was satisfied by pollution credits generated by non-point sources.

Another factor that is critical to the development of a sustainable market is the creation of a large pool of market participants. Economists state that a well-functioning market should have many credit generators and credit purchasers. Only by having a large number of market participants can the right credit price be set and the market remains stable in the long-run. Large markets also reduce the cost associated with each trade by spreading overhead across a larger number of transactions.

Current water quality pollution trading has an inherently limited pool of participants because all trading programs are conducted in a single watershed to ensure the attainment of water quality in that watershed. In its 2003 Trading Policy, EPA only supports trading within a watershed or a defined area for which a TMDL has been approved. Economists have urged EPA to allow states to develop inter-state trading programs to increase the number of market participants in very large watersheds, most especially the Chesapeake Bay and the Gulf of Mexico. Broadening a trading area to include the widest possible watershed area would reduce the transaction costs associated with making trades, would decrease the price of pollution credits, and could help to create a viable market. To that end, EPA is now specifically looking at trading programs for the Mississippi and Ohio River basins. Others are seeking to increase trading efficiency even further, by providing a central “exchange” on which all domestic water quality credits would be traded.

Conclusion and Implications

As clean water deadlines approach and further pollution reductions become increasingly costly, water quality pollution trading appears to be an attractive approach to cost-effectively attain and maintain water quality. EPA and USDA have thrown their support behind trading, arguing that it is the only way that some watersheds can ever be reclaimed. The structure of trading programs is now being determined.

Parties affected by established or emerging trading programs should pay close attention to hot topics

that have arisen at the flashpoints of these emerging systems. Agriculture is seeking to take a pivotal role in the development of trading systems. Other affected parties (*i.e.*, point sources) will want to consider how best to simultaneously provide the kinds of incentives necessary to bring agriculture fully to the trading table, while ensuring the enforceability of agricultural conservation practices and a fair allocation of costs and benefits. For trading to effectively address water pollution, a vibrant, well-functioning market must be created and maintained. Affected parties, including both credit purchasers and credit generators, must be actively involved in the development of such trading programs.

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