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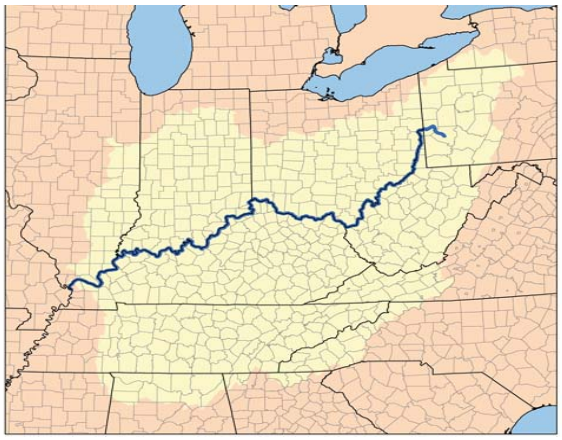
Ohio River Basin Trading Program for Water Quality and Greenhouse Gases



Ohio River Basin Project Area. Water quality trading offers Ohio River power companies opportunities to meet discharge limits, reduce emissions and protect watersheds at lower costs.

- Cost-effective option for reducing nitrogen discharges and greenhouse gas emissions
- Innovative approach to "stack" carbon and nitrogen credits
- Rigorous, ecologically based trading program design that unravels local/regional regulatory and stakeholder complexities
- Framework for long-term water quality management in the Ohio River Basin
- Implications for improvements in the Gulf of Mexico hypoxic zone
- Early experience understanding the role of trading in future company compliance strategies and business planning

Water quality trading is an innovative market-based approach to achieving water quality standards through programs that allow emitters to purchase pollution reductions from another source. Control costs for any one pollutant can differ from one emitter to another, and water quality trading provides an option for meeting pollution permit targets in a cost-effective manner. Similarly, carbon credit markets enable the most cost-effective solution for meeting anticipated carbon caps. Properly designed and deployed, the proposed trading program in the Ohio River Basin will produce both greenhouse gas (GHG) and water quality credits, protecting watersheds at lower overall costs. This project will be a first-of-its-kind regional multi-credit trading program and represents a comprehensive approach to designing and developing markets for nitrogen, phosphorus and GHG credits. Due to the large set of stakeholders in the project area, this effort will allow power companies, farmers, and other industrial dischargers to work together to improve water quality, minimizing costs to the public and stakeholders. The program will also benefit receiving water bodies that are now threatened by nitrogen and phosphorus pollution.

Value

The design and adoption of market mechanisms offers a flexible approach to finding the lowest cost options for improving water quality and reducing GHG emissions. The demonstration of a wide-scale, multi-pollutant approach enhances the value above a single pollutant credit market.

This work is timely as existing challenges to meet nutrient discharge limits may be amplified by increased effluent discharges of nitrogen (due to operation of air pollution controls), coupled with more stringent water quality based limits for surface waters.

Drivers and Trends

EPRI recently completed a feasibility analysis for multi-state water quality trading in the Ohio River Basin (EPRI Report 1015409). By participating in a regional trading program, power companies could receive benefits as either a purchaser or as a provider of credits. The benefits of participation may be realized as a long-term compliance strategy, an interim strategy prior to facility upgrades, or for compliance during difficult seasonal discharge management periods. The EPRI study also identified robust and diverse stakeholder interest and willingness among various stakeholders to participate in multi-credit, regional trading program for the Ohio River.

In addition to developing a regional water quality trading program for nitrogen and phosphorus, this project will build on EPRI work to quantify greenhouse gas credits for avoided

fertilizer use (EPRI Reports 1015463 and 1018364). Specifically, the project will develop an approach for stacking both carbon and water quality credits associated with avoided nitrogen over-application on agricultural crop lands. Further, this project will build on EPRI's work to establish a WARMF watershed model of the entire Ohio River Basin (EPRI Report 1018691), providing an ecological context for program design.

Project Summary

This project will be comprised of four tasks:

Organization and Facilitation of Stakeholder Group: Developing an Ohio River Basin regional trading program will require participation by multiple stakeholders and trading partners. Critical project relationships have already been established with Kieser & Associates, LLC, Ohio River Valley Water Sanitation Commission (ORSANCO), American Farmland Trust, Hunton & Williams LLP, and the University of California at Santa Barbara. Additional parties, including project funders, will be added to the core group. The group will communicate via quarterly webcasts.

Trading Program Design: Critical design considerations for a properly constructed program will involve crafting a wide range of elements that govern all aspects of program administration, execution of transactions between credit buyers, credit sellers, third-party aggregators and interactions of all parties with regulators. The design of the trading framework will be shaped by several attributes including:

- Consistency with EPA policy
- Developing trading ratios or other factors to account for the position of the buyers and sellers over a large project area as well as for pollutant equivalency
- Arrangements between state regulatory agencies, ORSANCO and EPA to address how interstate trading will occur
- Consideration of existing state trading rules

Modeling: The Watershed Analysis Risk Management Framework (WARMF) model will inform trading program design by simulating the ecological outcome of water quality credit trades, evaluating the potential ecological impact of different trading approaches,and tracking progress towards achieving nutrient reduction goals. The model will serve to implement an adaptive management strategy, as revised model predictions over time provide additional information. The implementation of this model will result in an informed basis for the ecological optimization of the trading program.

Evaluation of Credit Stacking: There are potential opportunities to stack water quality credits with GHGs emission reductions. This project will evaluate this opportunity and, if appropriate, develop an approach for credit stacking.

Deliverables

1. Quarterly web casts and e-mail reports communicating project updates
2. Peer-reviewed publication summarizing the approach to defining management structure of trading program
3. Technical Report summarizing WARMF model results from this project
4. Peer-reviewed publication summarizing opportunities to stack carbon credits for avoided nitrous oxide emissions from farms with water quality credits for nitrogen associated with reduced fertilizer use.

Price of Project

The price to participate in this project is based on individual company metrics. Please contact your account executive or the Customer Assistance Center for specific company pricing.

Project Status and Schedule

The initial phases of this project are currently underway. The work being done under this portion of the project will be complete by the end of 2011.

Who Can Participate

This project is open to participation from all potential trading programs stakeholders. Companies who will not be participating directly in the Ohio River program, but are interested in the development of water quality trading programs in general will also benefit from participation in this first of a kind project.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

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