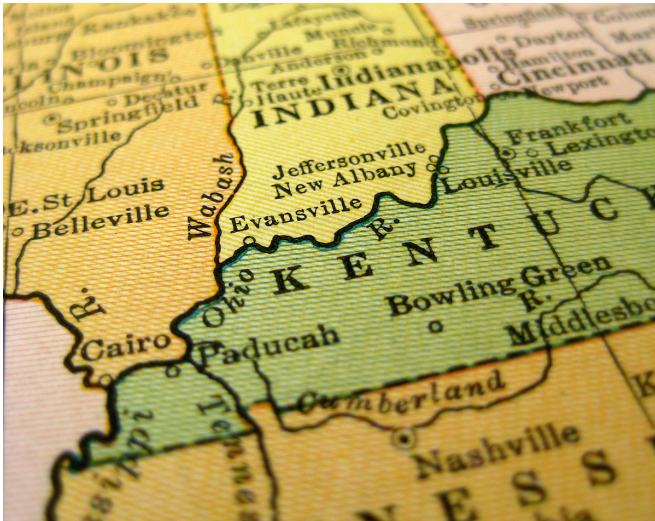


Ohio River Basin Trading Project

Frequently Asked Questions



The Ohio River Basin Trading Project is a first-of-its-kind interstate trading program and represents a comprehensive approach to improving regional water quality and minimizing costs to the public and stakeholders. The project focus is on designing and developing pilot water quality trading markets for nitrogen and phosphorus discharges. The project involves a large set of stakeholders – including regulatory agencies, power companies, farmers, wastewater treatment facilities and other industrial dischargers – working collaboratively to protect watersheds throughout the Ohio River Basin. The project may also benefit downstream water bodies as far away as the Gulf of Mexico.

1. What is water quality trading?

Commercial operations such as manufacturing, power plants, industrial processes, wastewater treatment facilities, etc. hold permits issued by local or regional regulatory agencies that allow discharges into water bodies (rivers, lakes, streams). Water quality trading is a market-based approach that allows one discharge source to purchase reduction credits from another similar source.

2. How does water quality trading work?

A trading program enables facilities facing high discharge control costs to buy reductions from another facility or farm with lower control costs. Typically the cost of agricultural best management practices (BMPs) are significantly less than installing nutrient reduction control technologies. This exchange, or trade, results in the same reductions at a lower overall cost, providing more flexibility for achieving water quality standards. In this project, entities in the Ohio River Basin will have the option to control nitrogen and phosphorous discharges through a trading market.

3. Are there any active water quality trading programs in the United States?

Approximately 80 pilot projects, feasibility assessments, and trading programs have been conducted in the United States in the last 20 years, though few have resulted in active trading. EPRI has conducted in-depth reviews of these programs for guidance in developing the Ohio River Basin Trading Program. The Ohio Basin Program is designed to maximize both ecological and economic success not yet achieved in other efforts and will be a first-of-its kind interstate trading program.

4. How do nitrogen and phosphorus discharges affect water quality?

Nitrogen and phosphorus can reduce the oxygen level necessary to support fish and other aquatic life in water bodies in the United States. When excess nutrients like nitrogen and phosphorus are introduced into a water system, plants can grow in excess amounts. When these plants die and decay, they consume more oxygen. Exces-

sive plant growth can result in low levels of oxygen, which leads to the suffocation of fish and other aquatic animals. The lack of oxygen can result in a “dead zone” (an oxygen-deprived area that cannot support aquatic or marine life).

5. How does trading nutrient credits impact water quality?

At a minimum, trading credits for nitrogen and phosphorous could result in the same ecological outcome as would have been otherwise achieved with end of pipe control technologies, but at a lower overall cost. However, given the financial incentives to engage in a trading program (i.e. the potential value of the trading credits), it is possible for this market-based approach to achieve greater improvements in water quality than could have been achieved by traditional command and control regulatory approaches such as stricter permit limits.

6. What organizations are participating in the Ohio River Trading Project?

The following organizations are working to implement this project: American Electric Power, American Farmland Trust, Duke Energy, Electric Power Research Institute, Exelon Corporation, Hoosier Energy, Markit Environmental Registry, Ohio Farm Bureau Federation, Ohio River Valley Water Sanitation Commission (ORSANCO), Tennessee Valley Authority, Troutman Sanders, LLP, The Mosaic Company Foundation (via American Farmland Trust), U.S. Department of Agriculture, U.S. Environmental Protection Agency, and University of California at Santa Barbara. However, there are thousands of stakeholders in the project area and EPRI is interested in participation from these organizations and individuals.

7. Which states make up the Ohio River Basin?

The effort covers a large geographic area. Parts of eight states make up the Ohio River Basin including Illinois, Indiana, Kentucky, Maryland, Ohio, Pennsylvania, Tennessee and West Virginia. In August 2012, Ohio, Indiana and Kentucky signed an interstate pilot trading plan making it now the world’s largest water quality trading program and only interstate trading program.

8. When do you anticipate the first trade?

The Project began in 2009, and EPRI anticipates having an established program and functioning credit trading market by 2015. The first credit transaction will occur in March 2014 with a public auction anticipated for late 2014.

9. How does the project plan to monitor/ evaluate/ document the success of the trading program both during and after it has been implemented?

There are many factors included in evaluating success including ecological, economic, and social factors. On an ecological level, the project is using two watershed models (WARMF and the EPA Region 5 spreadsheet model) to estimate nutrient reduction from the point of generation (credit seller) to the point of use (credit buyer). The use of models ensures that the project pays for performance, not simply conservation practices. The Pilot Trading Plan 1.0 includes processes to monitor and verify trades. The Project is also developing an online credit registry which will both act as a mechanism to ensure proper documentation flow and provide transparency. Finally, the project expects to evaluate the economic and broader social success of the program.

10. Will this project provide benefits beyond nitrogen and phosphorous reductions?

Examples of potential benefits of implementing best management practices (depending on the nature of BMPs) include reducing sediment runoff and greenhouse gas emissions or providing habitat for terrestrial wildlife. During the pilot period, this project intends to calculate greenhouse gas reductions via reduced fertilizer application of the pilot trades. EPRI will use a nitrous oxide calculator developed by EPRI and Michigan State University. The MSU-EPRI Methodology completed verification with the American Carbon Registry in July of 2012, and the Voluntary Carbon Standard in March of 2013.

11. What is the Gulf of Mexico hypoxic zone and how is it related to this project?

The Gulf of Mexico Hypoxic Zone is a “dead zone” in the northern Gulf of Mexico along the Louisiana-Texas coast that cannot support marine or aquatic life due to depleted oxygen levels in the water. Its area varies in size, but can cover up to 6,000-7,000 square miles beginning at the Mississippi River delta and extending westward to the upper Texas coast. It is the largest hypoxic zone currently affecting the United States and the second largest hypoxic zone worldwide. The dead zone is believed to be caused in part by excess nutrients (primarily nitrogen but also phosphorus) delivered from the Mississippi River in combination with seasonal movements of fresh and salt waters. The Ohio River Basin is one of six subbasins that drain into the Mississippi River Basin and the nutrient loads from the Ohio Basin are contributing to an unknown degree to the

problems in the Gulf of Mexico. While it is uncertain the degree to which water quality trading in the Ohio River Basin will affect the Gulf of Mexico Hypoxic zone, it is emerging as an important tool to address water quality issues.

12. What is a credit and how is it generated?

One credit is equal to one pound of total nitrogen (TN) or total phosphorous (TP) that, through voluntary action, is prevented from discharging into the Ohio River Basin in a given year. The Project uses two models to estimate the nutrient reduction from the point of generation (credit seller) to the point of use (credit buyer). Farmers apply for cost-share funds to implement best management practices (BMPs) like cover crops, nutrient management, or other practices. The application must show that the farm is reducing its loading of TN or TP below current conditions (i.e. prior 3 year practices). After an application is accepted and the BMP is implemented, local Soil and Water Conservation District (SWCD) representatives visit the farm to verify that the practices have been put in place. After a BMP is verified, the final step in generating a Point of Generation Credit is certification. During certification, the State Agency will secure any water quality agency approvals needed to authorize a credit.

13. What is a credit registry?

A credit registry is a tracking system that follows a credit from creation to sale to retirement. The credit registry provides checks and balances to ensure that a water quality credit is being created and used as intended. The online registry provides security measures similar online banking. In one online location:

- A project developer can enter information about a project,
- EPRI watershed models can calculate specific trade ratios for each transaction,
- Verifiers can indicate that best management practices have been implemented on the ground,
- State agencies can certify that a credit is available for use in regulatory compliance,
- Credit buyers can search for and purchase credits, and
- Stakeholders can view public information on projects.

This credit registry is a key component of a water quality

trading program that includes participants and regulators across multiple states and agencies.

14. What is EPRI's role in developing this project?

EPRI leads this project, having funded a feasibility assessment and completed due diligence for the project concept. EPRI is supported by a multi-institutional collaboration as described above and on our website: <http://wqt.epri.com>.

15. What is a stewardship credit?

A "stewardship credit," like any other water quality credit, is a quantified and verified representation of a reduction of a pollutant. What makes a stewardship credit different is that it will not be applied towards a regulatory permit obligation. A stewardship credit can therefore create a net gain in water quality. In order to test program design elements, the Ohio River Basin Water Quality Trading Project had to promote early and voluntary participation by point source buyers, even in advance of compliance drivers such as numeric nutrient criteria. The business case reasons for purchasing stewardship credits that cannot be applied towards a permit obligation include: 1) Quantified ecosystem benefits that can be applied towards corporate sustainability goals; 2) Flexible compliance schedules in the future, if stricter permit limits are assigned, and 3) Experience in the program that will create comfort for future participation. In acting as the credit seller for the first transactions, EPRI requires that "...the Parties recognize that improving water quality in the Ohio River Basin is of individual and collective value; that the transaction of nutrient credits for stewardship purposes may advance this shared value by reducing nutrient loading in the Ohio River Basin and providing additional ecological and social benefits; and that the experience gained and the reporting of the results of this undertaking are expected to benefit the public."

Technical Contact

Jessica Fox at 650.855.2138 (OhioRiverTrading@epri.com)

For More Information

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

Electric Power Research Institute

3420 Hillview Avenue, Palo Alto, California 94304-1338 • PO Box 10412, Palo Alto, California 94303-0813 USA
800.313.3774 • 650.855.2121 • askepri@epri.com • www.epri.com