



Ohio River Basin Trading Project

Summer 2013

Project Update

Project Overview

Water quality trading is a market-based approach to achieving water quality standards through programs that allow dischargers to purchase pollution reductions from another source. EPRI's Ohio River Basin Trading Project is a first-of-its-kind interstate trading program with initial participation from Ohio, Indiana, and Kentucky. The successful implementation of this Project will allow power companies, farmers, and other industrial dischargers to work together to improve water quality, minimizing costs to the public and stakeholders. The Project will also benefit receiving water bodies that are now threatened by nitrogen and phosphorus pollution.

Interstate Trading Agreement Signed

In August of 2012, representatives from Indiana, Kentucky and Ohio signed the plan that launched interstate water quality pilot trades in the Ohio River Basin. The plan serves as the basis for these states to implement pilot trades beginning in 2013 through 2015. While some states have adopted trading policies or rules to govern trading within their jurisdictions, this is the first interstate trading program where several states will operate under the same rules and a water quality credit generated in one state can be applied in another.

The pilot Project is also the world's largest water quality trading program. Currently it spans Ohio, Indiana, and Kentucky, but the

Manager Message

The Ohio River Basin Water Quality Trading Project has taken great strides in the last year. The trading plan that was signed last August 2012 by representatives from Indiana, Kentucky and Ohio has created the world's first interstate water quality trading project operating under a common trading plan. This plan represents the culmination of a tremendous collaborative effort across many stakeholders in the Ohio River Basin.

With a signed trading plan providing foundation, the majority of project work since August 2012 has been focused on generating an initial supply of water quality credits that will kick-start a fully functional program. In April of 2013, EPRI released a Request for Proposals to implement agricultural best management practices (BMPs) to reduce nutrients in targeted watersheds in the Ohio River Basin. Twelve Soil and Water Conservation Districts in the three states have stepped up to pilot test our process and have already begun contracting for BMPs with farmers who qualify for participation in our project.

EPRI is committed to supporting a transparent, defensible, and rigorous project. This has been demonstrated through our efforts to advance the **Science** through rigorous watershed modeling; **Consistency and Transparency** through the use of an on-line registry; **Stakeholder Engagement** through our multiple steering committees; **Credibility** through our balanced and legally defensible project structure; and **Trust** through our commit-

ment to integrity and open communication. The complexity of this effort has certainly presented challenges and our collaborative team has navigated hundreds of social, economic, and ecological considerations. However, we will not sway from our fundamental commitment to consistency, credibility, and collaboration.

Impacts on water quality in the Ohio River Basin come from many sources including power plants, wastewater treatment plants, urban stormwater, agriculture, and even from origins outside of the Basin via atmospheric deposition. Due to the many sources of impacts and high nutrient loading in some areas, improving water quality requires collaboration among national and state agencies, power plants, wastewater treatment plants, farmers, environmental groups, and others. We thank the efforts of all of the collaborators in the Ohio River Basin in working towards our shared goal of achieving water quality improvements more efficiently.

Sincerely,

Jessica Fox

Jessica Fox
EPRI Program Manager



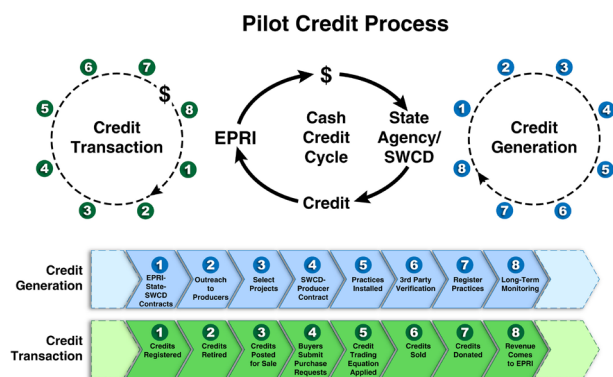


Signing of the Pilot Trading Plan V 1.0. From right to left, Steve Hohmann, Commissioner, Kentucky Department of Natural Resources; Bruce Scott, Commissioner, Kentucky Department of Natural Resources; Thomas Easterly, Commissioner, Indiana Department of Environmental Management; Joseph Kelsay, Director, Indiana State Department of Agriculture; Scott Nally, Director, Ohio Environmental Protection Agency; Karl Gebhardt, Chief and Deputy Director, Ohio Department of Natural Resources.

same structure and tools could expand to include all Ohio River Basin States and would potentially create credit markets for 46 power plants, thousands of wastewater facilities and other industries, and approximately 230,000 farmers. The signed 'Pilot Trading Plan 1.0 for the Ohio River Basin Water Quality Trading Project' can be found on the [Agreements & Letters section of the Project website](#). Press coverage of the trading plan can be found on the [Reference Shelf of the Project website](#).

Pilot Credit Creation

Contracts are now in place between EPRI and the three state agriculture agencies participating in the pilot period: Ohio Department of Natural Resources, Kentucky Division of Conservation, and Indiana State Department of Agriculture. These contracts commit each state to removing 22,000 pounds of total nitrogen and 11,000 pounds of total phosphorus over a five-year period. Each state is contracted to receive funds (\$100,000), which they will pass to Soil and Water Conservation Districts (retaining 10% for overhead costs), who will then contract to farmers for approved BMPs (retaining 10% for SWCD overhead costs). In total, \$81,000 will be moved to farmers in each state in the form of cost-share for implementing approved BMPs.



Details of the pilot credit process can be found in the signed 'Pilot Trading Plan 1.0 for the Ohio River Basin Water Quality Trading Project' on the [Agreements & Letters section of the Project website](#).

Working with the state Departments of Agriculture, we released Conservation Project Applications (i.e., cost-share applications) in select counties in Indiana (Ripley, Switzerland, Ohio, Dearborn and Wayne counties), Ohio (Columbiana, Jefferson, Mahoning and Morgan counties), and Kentucky (Bracken, Boone and Mason counties) for farmers to apply for funding under the Project. EPRI will be funding 30 or more conservation projects to generate nutrient credits in the three states. Pre-approved BMPs include: (1) cover crops, (2) nutrient management, (3) vegetative filter strips, (4) grass waterways, (5) livestock exclusion, (6) heavy use protection areas, and/or (7) conservation tillage. Other BMPs may be considered on a case-by-case basis. Each BMP project is limited to \$10,000 of funding with no more than 75% cost-share. When proposals are accepted, producers sign agreements with their Soil and Water Conservation Districts for the implementation of the conservation practices.

We now are preparing to pilot test our Project documentation stream which will include farm practice history records, BMP verification reports, and credit certification report. We anticipate the credit life to be five years during the pilot period, but may be longer in future phases of the project. The first credit transaction is anticipated to occur in the fourth quarter of 2013.

EPRI Announces \$1M for Water Quality Trading Infrastructure

In August of 2012, USDA Under Secretary for Natural Resources and Environment Harris Sherman announced that EPRI received a Conservation Innovation Grant (CIG) of \$1 million to deploy an innovative, secure and proven online registry to support the Ohio River Basin Water Quality Trading Project. This will be the third CIG project grant since 2009. The 2012 grant funding added a key component that is critical to the long-term success of water quality trading in the region: transparent, efficient and robust market infrastructure. This infrastructure, provided by Markit, will include a sophisticated credit registry (see screenshot below), documentation flow tools, and a secure transaction platform. The registry system tracks credits through the credit lifecycle and provides appropriate public access to the documentation for each credit listing. Read the full press release on the [Reference Shelf of the Project website](#). Markit has been named Best Registry Provider for four consecutive years in the annual survey conducted by Environmental Finance magazine and we are proud to be working with them on this effort.



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Ohio River Basin - Water Quality Trading Project

Clear Search:

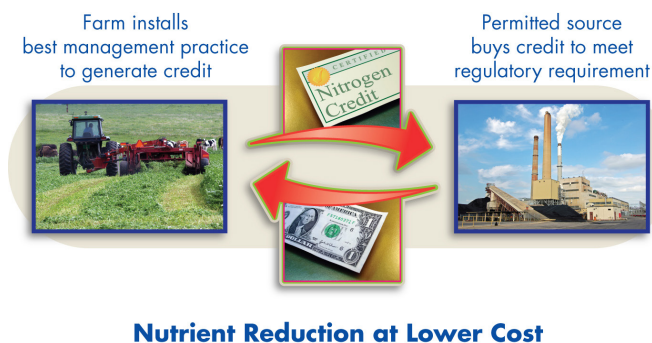
Account Holders	Projects	Issuances / Listings	Holdings	Retired Credits	
Project Name	Project Type	Project Start Date	Start Date of Construction	State / Province	Watershed (HUC-6)
Apr2 OIB Project 1	Phosphorus Reduction	02 Apr 2013	24 Apr 2013	MI	Watershed (HUC-6)
Apr2 OIB Project 1	Nitrogen Reduction	02 Apr 2013	30 Apr 2013	MI	Watershed (HUC-6)

Customized Public View of Project Trading Registry

Watershed Modeling and Credit Calculation

A fundamental challenge for water quality trading is understanding, quantifying, and managing the uncertainty associated with the implementation of practices on-the-ground and their associated water quality benefits over time and place. This challenge is especially pronounced when trading involves agricultural nonpoint sources as credit sellers. The Ohio River Basin Water Quality Trading Project is using a scientifically-based credit equation methodology that will account for location-specific nutrient attenuation factors, rather than a blanket trading ratio throughout the entire Ohio River Basin. The use of models ensures that the credits in the project appropriately account for both farm and watershed unique characteristics on a transaction by transaction basis.

The Project uses two models used for estimating nutrient reduction from the point of generation (credit seller) to the point of use (credit buyer). We are currently using EPA Region 5's spreadsheet model for estimating nutrient reductions at the edge of the field as different Best Management Practices (BMPs) are implemented. However, we continue to monitor opportunities to improve the edge-of-field estimates, including the USDA/NRCS Nutrient Tracking Tool (NTT) and others. The Watershed Analysis Risk Management Framework (WARMF) model is used for estimating nutrient attenuation (reduction) from the edge-of-field to the point of use. Under funding from USDA and EPA, the Project collaborated with the University of California Santa Barbara to calibrate the WARMF model with observational data. Nutrient load attenuation factors were developed for total nitrogen (TN) and total phosphorus (TP) for the watersheds in the Project pilot area. Modeling this attenuation creates a trade ratio of the amount of nutrients at the point of creation to the amount of nutrient reduction at the buyer location specific to each credit. More results of the model calibration can be found in the EPRI report (1025820) "Implementation of the Watershed Analysis Risk Management Framework (WARMF) Watershed Model for Nutrient Trading in the Ohio River Basin" which can be found on the [Reference Shelf of the Project website](#).



Project Collaborator's Spotlight – American Farmland Trust Discusses Farmer Involvement in the Trading Project



Long before the Ohio River Basin Water Quality Trading Project headed out into the field to test pilot trades, American Farmland Trust (AFT) and our collaborator, the Ohio Farm Bureau Federation, asked approximately 150 farmers and other agricultural stakeholders for their input regarding concerns with WQT, and incorporated their suggestions into the design of how the Ohio River Basin WQT Project would work. An EPRI report (1023642) summarizes those six agricultural listening sessions and can be found on the [Reference Shelf of the Project website](#). Farmers wanted straightforward applications and contracts, trusted market intermediaries like Soil and Water Conservation District (SWCD) staff, access to technical assistance, synergy with existing federal and state conservation incentive programs, and consistent and transparent rules. By incorporating this early farmer feedback we ensured the Project works for both buyers and sellers. Now that we have a signed trading plan, we're continuing to benefit greatly from the feedback provided by farmers, SWCD staff, State agricultural agency staff, USDA Natural Resources Conservation Service staff and the Project's active and engaged Agricultural Stakeholder Advisory Committee.

During the pilot trading period, project collaborators and participants get invaluable real time experience with establishing conservation practices on the ground while learning what works and what doesn't. We are looking for BMP projects that provide cost-effective nutrient reductions, address priority concerns for the county or State, produce ancillary benefits for the basin (improvements in air quality or wildlife habitat), and provide the Project with a range of different practices to test. By calculating potential nutrient reductions in terms of pounds reduced (or credits) from various practices and their costs, the Project helps farmers and SWCD staff focus on how many pounds of nutrients they can keep out of the watershed. This focus on being paid for performance will be critical to efficiently improving the overall water quality from agriculture practices going forward.

American Farmland Trust's interest in private ecosystem services markets is deeply rooted in its 33-year history of protecting farmland, promoting sound farming practices and keeping farmers on the land. As AFT's Director of Research and project lead Ann Sorensen points out, "AFT believes water quality trading markets can be an important tool to improve water quality better, faster, and cheaper by paying farmers to implement needed conservation practices to reduce nutrient run-off, provide additional environmental benefits to the watersheds and protect critical farmland soils in the process."

Documentation and Consistency

The Project team is currently vetting a comprehensive documentation portfolio that will ensure the pilot credits are consistent and defensible. 100% of our BMP projects will be verified with on-the-ground field visits by the state agriculture agency, then monitored at a minimum of once per year for the five year term of the funding agreements. All projects will need to be reviewed and confirmed by the permitting authority in each state prior to credits being released for transaction. A full set of project documentation will be required prior to credit release, including Farm Practice History Affidavit, Baseline Certification Report, BMP Verification Report, Annual Monitoring Report, aerial farm photos, as well as others. We will also have records for numbers of credits held in the project reserve pool (to mitigate unforeseen BMP failures), as well as Credit Suspension Notifications in the event the credits are suspended for any reason. The entire documentation flow process will be enforced via the on-line credit registry provided by Markit, and will not allow projects to proceed unless the necessary documents have been completed, reviewed and approved by the State Agriculture Agencies and the State Permitting Authority. Hunton & Williams is providing legal support for this effort as we strive for simplicity yet completeness.

Stakeholder Steering Committees

The project has actively sought input with stakeholders at appropriate intervals since 2009. We have three organized stakeholder steering committees including Agriculture, Power Plants, and Environmental Groups. We appreciate the National Association of Clean Water Agencies (NACWA) for hosting project calls with their WQT wastewater treatment plant committee, as needed. Further, we have direct engagement with State and Federal Agencies at appropriate levels and frequencies. We are grateful for the energy and candid input from all of our participating stakeholders, without whom the project would not be possible.



Funders and Collaborators

Project Funders

American Electric Power
Duke Energy
Electric Power Research Institute
Exelon Corporation
Hoosier Energy
Tennessee Valley Authority
U.S. Department of Agriculture – Natural Resources Conservation Services
U.S. Environmental Protection Agency

Cost-Share Contributors

American Farmland Trust
Kieser & Associates, LLC
Markit
The Mosaic Company Foundation (via American Farmland Trust)
Ohio Farm Bureau
Ohio River Valley Water Sanitation Commission (ORSANCO)

Project Technical Support Team

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Electric Power Research Institute
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Ohio Farm Bureau
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University of California at Santa Barbara

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EPRI intends to support a collaborative process for the development of this project. The project website was designed to facilitate communication of important project materials, and to solicit questions, comments, and feedback from the many interested stakeholders. Please visit the project website for more information and to download meeting materials, related EPRI reports, Frequently Asked Questions, and additional project resources.

Electric Power Research Institute

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