EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Ohio River Basin Trading Project

January 2016 **Project Update**

Manager Message

The year 2015 marked a year of evolution and learning in the Ohio River Basin Trading Project. With many successes achieved, the team is taking time to step back and remap our next steps. With this project creating new legal agreements, science, and relationships, it has sometimes been difficult to create long-term roadmaps. We've worked on the cusp of innovation, both technical and socially, and our achievements were not guaranteed. Now with over 30 well-functioning conservation projects in place spanning five and ten year commitments across three states (Ohio, Indiana, and Kentucky), we are confident in our assessment that water quality trading can be socially and ecologically defensible. When structured appropriately, it is possible to put agricultural projects on the ground to generate credits that can meet permit compliance obligations. We have also demonstrated that we can move private money all the way from an organization like EPRI into the hands of small working farms, with support from the States of Ohio, Indiana, and Kentucky, and local Soil and Water Conservation District offices.

In 2016, we will focus on making the project economically viable at a program level. We are paying particular attention to the credit sales, revenue from which is reinvested into more funded farmers and conservation projects. We know that the next two years will be defining years that will determine the project's long-term future, largely dictated by the ability to sell the credits the project generates.

First, a quick look back on 2015. Proceeds from 2014 credit sales were re-invested back into the project, marking the third growing season of conservation practices. We organized a public auction of stewardship credits to sell credits used to meet corporate sustainability goals and offset supply chain impacts. When not enough buyers came forward to demonstrate a competitive market dynamic for stewardship credits, we postponed the auction and continued offering credits for sale via established contracting approaches. In the long run, we would like to see transactions in the program more liquid, without so much effort given for each transaction. Ideally, market supply and demand forces will determine the price of credits and incrementally less effort will be required for each buyer contract. This was the vision of the auction – to use a convenient platform to post credit bids, allow market dynamics to work, and execute agreements efficiently. This vision won't be realized until more buyers are coming forward more often. Until then, the floor price of credits at $10/pound is dictated by the real cost of BMP installation, maintenance, verification, monitoring, modeling, and credit registration (Credit Definition and Price Details). It is likely that the project needs to evolve into selling credits not only for meeting sustainability goals, but also for permit compliance obligations, the regulations for which are largely still pending.

The stewardship credit auction postponement seems to have caused some confusion about whether our project is on hold, which it is decidedly not the case as you will see by all the updates in this newsletter. We won the 2015 United States Water Prize, for which we are enormously humbled and grateful. And, of course, we continue to be grateful to our farmers who have done amazing conservation projects under this effort, and who support our local and global communities with their hard work.

One new development in the project is further investigating the ancillary co-benefits of water quality trading. In particular, new funding will allow us to pursue the creation of stacked water quality and carbon sequestration credits. This idea has been discussed on a theoretical level for many years and researchers identified stacking of carbon and water as the most likely, of all stacking scenarios, to be ecologically defensible. This will be the focus of our testing during the next three years.

Credits continue to be available for purchase, as noted below, and we are in the process of moving credits to the University of Connecticut as part of a project to test buyer preferences for the "ancillary" ecosystem values associated that we track on all our funded BMPs (pollinator habitat, carbon, soil health, animal health, etc.). Anyone can express interest in purchasing credits to ohiorivertrading@epri.com.

As we begin 2016, we are backed by $2M of new funding, active participation of states and stakeholders, and a commitment to follow through on the time consuming, but important, work of summarizing our lesson to share with others. We continue to be steadfast in our transparency, integrity, and defensibility in all aspects of project execution. The realization of many credit transactions will be critical to the continued success of this project and will determine if it moves beyond pilot phase. To be clear, EPRI is not an advocate for water quality trading per se but as a research organization, we are committed to testing under what conditions it can be socially, environmentally, and economically sustainable.

Sincerely,

Jessica Fox

Jessica Fox
EPRI Senior Program Manager

New Funding and Collaborators

In October, EPRI announced $2 million in private and public funding that will expand the scope of the Ohio River Basin Trading Project, a science-based approach to reducing nutrient loading. The U.S. Endowment for Forestry and Communities (Endowment) committed $1.5 million to integrate forestry projects as a best management practice on farmland for reducing nutrient (nitrogen and phosphorous) runoff. The U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) awarded a $300,000 Conservation Innovation Grant (CIG) to develop "credit stacking" of nutrient and greenhouse gas emission reductions. EPRI is contributing an additional $200,000.

The Endowment's grant will add to the list of agricultural conservation practices already in use on farms in Indiana, Ohio, and Kentucky under the project. EPRI will use the grant to add reforestation as an option along with other ongoing land management practices such as cover crops, filter strips, and livestock exclusion to generate nutrient credits for improving local and regional water quality, as well as providing social and economic benefits to the region. "Forestry is another option for reducing nutrient flow into waterways that creates wildlife habitat and provides farmers and private landowners with the potential for additional income from, for example, timber products," said Carlton Owen, the Endowment's president and CEO.

The Conservation Innovation Grant will be used to vet opportunities for creating greenhouse gas and nutrient credits using the same agricultural practice while considering concerns about double counting. For example, it may be possible to account for nitrous oxide (N_2O) and nitrogen reductions from reduced fertilizer use and qualify them as greenhouse gas and nutrient reduction credits. "The Ohio River Basin Water Quality Trading Project is a great example of how public and private funding can be combined to address our shared natural resource challenges," said USDA's Natural Resources Conservation Service Chief, Jason Weller. "Our Conservation Innovation Grant program is one tool that government can use to help spur cutting-edge solutions to address water quality issues, such as the recent algal blooms in the Ohio River and Lake Erie, across the country."

As part of next phase of the project, the Delta Institute and the Coalition on Agricultural Greenhouse Gases will be joining EPRI and existing Ohio River Basin collaborators: American Farmland Trust; Troutman Sanders, LLP; Markit; Ohio River Valley Water Sanitation Commission; the University of California at Santa Barbara; the Ohio Farm Bureau Federation; the U.S. Environmental Protection Agency and the U.S. Department of Agriculture, Natural Resources Conservation Service; states of Ohio, Indiana, and Kentucky, and their Soil and Water Conservation Districts; and stakeholders from multiple advisory committees. EPRI will also be working with the Verified Carbon Standard and American Carbon Registry to assess the ability to bring carbon credits forward.

New EPRI Report: Status of Water Quality Regulations and their Impact on Water Quality Trading in the United States (Product ID: 3002006262)

Water quality trading is gaining traction as an important strategy to meet water quality goals, which include limits on nutrients (such and nitrogen and phosphorus), sediments, and temperature, among others. What are the main regulatory drivers for water quality in the United States? What does water quality trading activity look like across the country and in selected states? Are regulatory drivers key in determining whether water quality trading occurs?

This study examines the main federal water quality trading regulations, including waters deemed "impaired" by Section 303(d) of the Clean Water Act, total maximum daily loads (TMDLs), numeric nutrient criteria (NNC), and water quality standards. Additionally, there are case studies from California, Florida, Illinois, Ohio, and Wisconsin which discuss the water quality regulations and water quality trading that occurred in each state. See the report for research results: http://www.epri.com/search/Pages/results.aspx?k=3002006262

Stakeholder Feedback Survey

As part of the project's commitment to transparency, ongoing improvement, and stakeholder input, EPRI will be collecting feedback via a brief electronic survey. Details of the survey will be provided via email to those on our stakeholder email distribution list, as well as our farmers, states, and steering committees. To be added to the Ohio River Basin Trading Project email distribution list, please make a request to: ohiorivertrading@epri.com. The survey is anticipated for release in February with public results posted in the second quarter of 2016.

Stewardship Credits Sold to University of Connecticut as Part of Research Study

The University of Connecticut (UCONN) and EPRI are collaborating on environmental economics research to understand the value of co-benefits that water quality projects generate, such as wildlife habitat, pollinators, farm livestock welfare, or carbon sequestration that are produced through agricultural projects primarily designed to benefit water quality. Using adult students at the University, graduate student Pengfei Liu and Professor Stephen Swallow have demonstrated that individuals are willing to make real financial commitments to pay for water quality credits at prices that reflect differences in co-benefits provided by the associated projects. Analysis under review for publication suggest that consideration of co-benefits may increase the value of water quality credits by about 34%. The research addresses fundamental issues with regard to environmental valuation generally. As a result of the experiment, UCONN is purchasing 229 credits drawn from specific agricultural projects that provided different portfolios of co-benefits in the Ohio River Basin. The work was presented in September at the EPA-USDA National Workshop on Water Quality Markets in Lincoln, Nebraska.

Investor Roundtable on Water Quality Trading

In early November 2015, Encourage Capital hosted EPRI's team along with PennVest to discuss opportunities in water quality trading with representatives from the investment community in New York City. The meeting presented the example of water quality credits from the Ohio River Basin Trading Project and through a facilitated discussion, identified missing elements to unleash the market for impact investors. Technical complexity, assurance of buyers, and risk of erodible demand from regulatory change were themes noted from the discussion. There were several opportunities also identified as a result of the roundtable that are being vetted.

New Online Videos Feature Farmers Participating in the Ohio River Basin Trading Project

This project is working with many family farmers who have pride in their work, commitment to their profession and are responsible stewards of the land. To capture these stories and to highlight how funding from the Ohio River Basin Trading Project has helped farmers make important improvements to their farms, project collaborator American Farmland Trust dispatched a writer and videographer to conduct video interviews in Kentucky, Ohio, and Indiana. These raw, unscripted stories highlight that programs like this are crucial to support farmers and ranchers and can have a positive impact on the farmer, their animals, the public, and the ecosystem. Check our website for links to the full videos.

"Last year I was hunting rabbit, down over the hill with my cousin. When we got all done my cousin said, "You know, I never seen them dogs stop one time to drink outta the stream." It kinda made me think, well, I know what's going into that stream. We knew we needed to do something, but funding was a problem. It was real easy working with EPRI and AFT [American Farmland Trust]".

Lowmiller Farms (dad and two sons) used funding from the trading project to make improvements to their milk house and feedlot that help protect a nearby stream.

"I've seen other people do projects that was good for the environment. If the cattle stay out of the river banks, they don't erode as bad. Cut down on the mud, especially during springtime when you got springtime cows here and keep their udders clean, the calves will nurse better. It is just a win-win situation for me. I'd been doing the same thing today as I'd done for the 15 years, putting a little bit of gravel in and put a Band-Aid on the problem. I'm glad I'm one of the people that got to use the money to do what we did here. I love it."

Frank Suttles, Jr. used funding from the trading program to make improvements to his pasture and feeding areas along with installing cattle exclusion fencing to manage the river.

"Once I started getting more cows, every time it rained I'd watch the nutrients wash down the hill and disappear. I wanted to do something or change something. Without EPRI and AFT, it would not be possible. My dad used to fish down the road on the bridge, there used to be an old-school railroad truss bridge. He used to sit on that bridge and fish when he was a kid. My grandpa used to catch catfish in the area. The only thing I've seen was a little minnow. I know that someday I'm not gonna be here and somebody else will deal with whatever I leave them. This is a much better way to leave my legacy than some people in the past have done."

Ken Merrick of Conser Run Farm used funding from the trading project to make improvements to his feedlot and to install fencing that keeps his cows out of a nearby stream.

"I filled out the application and it wasn't long 'till I got approved for it. I wouldn't had the money to done it with. I couldn't have done it without the funding. It made a great big difference in my farm and in my life. You can see the difference in my cattle and how they've gained weight. I'm really grateful for it to come my way."

Clara Claxon used funding from the trading project to make improvements to her pasture and feeding area.

Congratulations to the Project Team!

U.S. WATER PRIZE

As noted in the March 2015 Project Newsletter, the team was on the cusp of accepting the 2015 United States Water Prize award. Below are photos taken at the award ceremony of the United States Water Prize for the Ohio River Basin Trading Project (see additional detail on the award in the previous project update here). Click here for a video of Fox describing the 2015 U.S. Water Prize award.

Jessica Fox, Senior Program Manager with EPRI, accepting U.S. Water Prize.
Photo credit: USDA Natural Resource Conservation Service

Fox 2015 Water Prize Acceptance Speech Highlights, April 13, 2015, Washington D.C.

"It has been my privilege to manage this project and support the incredible team who has made it happen. Our story is one of creativity, passion, and raw perseverance. It has been a slow and steady effort – not without certain complexities. It has required commitments of the project team, the states, electric power companies, federal and state agencies, and many, many farmers.

We have built a transparent, scientifically based, and the largest water quality credit program in the world.

Now there is the question of, "Are we done? Have we achieved our vision?"

We didn't know how far we could get when we started this effort more than 8 years ago. The effort required commitments from BOLD state leaders who could not be sure of the outcomes. It was this boldness and acceptance of possible failure that will continue to lead us collectively to a sustainable water future.

You cannot be innovative and at the same time fear failure. When you are working on the threshold of innovation, nothing will go perfectly. We cannot structure our projects based on fear of failure or an incisive headline… we simply don't have time for this fear.

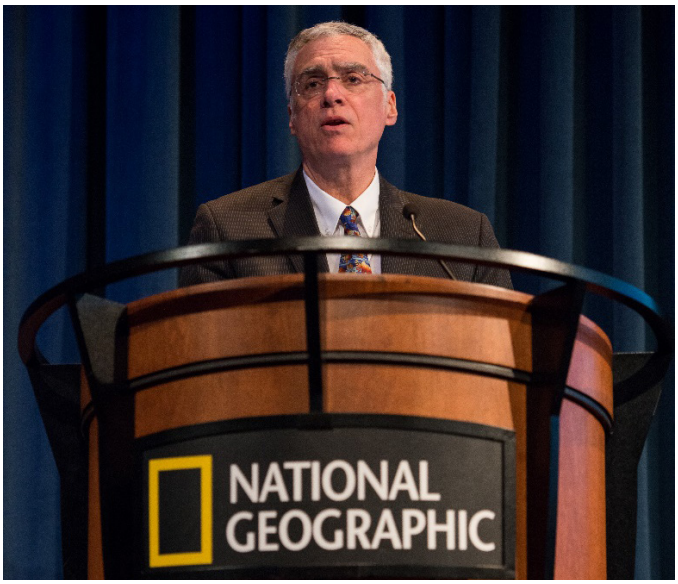
Receiving the Water Prize from esteemed colleagues, and to share a stage with other successful projects is indeed an honor. We are extremely proud of the project. But, if I have a worry tonight, it is that we will pat ourselves on the back and say, "We did it. We are successful." The truth is that Water Prize marks yet another beginning.

Therefore, I'd like to suggest that we take this night off – relax, make connections, and celebrate one step forward. But, tomorrow get up and begin again! Let yesterday's follies be gone, find opportunities in your failures, and BEGIN AGAIN. I humbly accept this award on behalf of my technical project team, the states, the farmers, and the many leaders who were able to take another step forward on an innovative effort."

Ohio River Basin Project Team at U.S. Water Prize award ceremony

"Through solid science, transparency, and exceptional management, the EPRI project is a national model for how to advance non-traditional collaborations that benefit our common good. Now companies have the opportunity to be part of this effort, receive turn-key verified credits to meet their stewardship goals, and support local communities. Efforts like this will be critical for protecting America's waters for years to come."

– Bob Perciasepe, President, Center For Climate and Energy Solutions. Former Deputy Administrator, EPA



Bob Perciasepe, former Deputy Administrator of the U.S. Environmental Protection Agency, presenting award to Ohio River Basin WQT project team

"American Electric Power is very pleased that EPRI's Ohio River Basin Water Quality Trading Project has been selected for the 2015 U.S. Water Prize... We have recognized for years the importance of protecting the water and ecosystems in the Ohio River Basin and have been a partner in the trading program since its inception. This project gives us an entirely new option for meeting our broader sustainability targets, supports farmers, and contributes to our community. We congratulate EPRI on this effort and look forward to their next steps when the project will engage many more stakeholders."

– Nick Akins, Chairman, President and CEO of American Electric Power

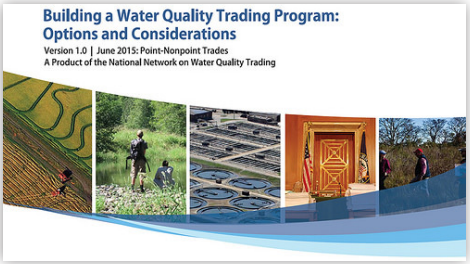
OTHER AWARDS

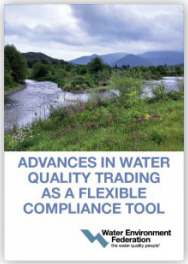
We are extremely proud of our world-class project team! Many of our project collaborators have recently received additional awards, including:

- Markit – Named "Best Voluntary Carbon Registry" by readers of Environmental Finance for the sixth consecutive year.
- Brooks Smith, of Troutman Sanders, LLP – Named among inaugural list of "50 Energy & Environment Trailblazers" by the National Law Journal, amongst other awards.
- Dr. Arturo Keller, of University of California at Santa Barbara – Awarded a $1.5 million Agilent "Thought Leader" award in support of his research on the use of nanoparticles in agriculture and the environmental consequences.
- American Farmland Trust will lead a CIG project to establish a pollinator habitat credit program in Michigan, and will work with the National Association of Conservation Districts in a second CIG project to develop materials and provide specialized training to increase participation of soil and water conservation districts in nutrient trading programs.

EPRI Participation in National Water Quality Trading Efforts

EPRI and its collaborators on the project have served as technical advisors in multiple national activities related to water quality trading and transferring knowledge from the Ohio River Basin trading project. For example, EPRI, along with the USDA, provided seed funding for the National Network on Water Quality Trading, which recently released a final publication "Building a Water Quality Trading Program." EPRI and the Ohio River Basin Trading Project are mentioned multiple times in this report, which synthesizes 11 key elements of water quality trading program design gleaned from the Network's 18 advisor organizations. The Water Environment Federation recently published *Advances in Water Quality Trading as a Flexible Compliance Tool*, in which EPRI's Jessica Fox was an editor. The book "explores the status of water quality trading and recent changes in the industry and is a guide for implementing and using water quality trading for regulatory compliance purposes" and the Ohio River Basin was mentioned in multiple chapters (source). Other contributing authors included Ann Sorensen of American Farmland Trust and Brooks Smith at Troutman Sanders. EPRI has also provided technical expertise as an advisory member of the Water Quality Trading Alliance. Finally, the September EPA-USDA National Workshop on Water Quality Markets featured the Ohio River Basin Trading Project in multiple presentations facilitated by Brian Brandt (American Farmland Trust) and other project team leaders. We are also aware of two additional books being drafted by university researchers which include review of our project.





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 waterbodies that are now threatened by nitrogen and phosphorus pollution.

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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.

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