

# Water Quality Trading: Pilot Trades for Compliance with Nutrient Criteria and Greenhouse Gas Targets



## Nutrient Reduction at Lower Cost

*Water quality trading offers opportunities to meet nutrient discharge limits, reduce emissions, and protect watersheds at lower costs.*

### Background and Key Research Questions

Water quality trading (WQT) is an innovative market-based approach to achieving water quality standards through credit programs, allowing emitters to purchase nutrient reductions from another source. It allows cost-effective compliance with in-stream nutrient targets by funding a combination of agricultural “best management practices” and environmental restoration projects that will achieve the same or better nutrient reductions compared to installing high-cost technological solutions. Funding conservation practices through WQT has the potential for accelerating greater, long term societal and environmental benefits such as sequestering greenhouse gases (GHGs), protecting biodiversity, restoring wetlands, and establishing recreation areas for hiking and fishing. WQT may allow companies to achieve cost-effective regulatory compliance, and also position companies to meet ecological targets for the benefit of society and the industrial community alike.

Based on a platform established under the EPR-led Ohio River Basin water quality trading project, EPR intends to pursue the execution of water quality pilot trades. Launched in October 2009 with U.S. Department of Agriculture (USDA), U.S. Environmental Protection Agency (EPA) and state collaboration, the Ohio River project is 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. The scale

- Experience with credit transactions that may be used for compliance with nitrogen limits
- Resolution of key technical issues associated with the power industry using water quality trading
- Ecological co-benefits—improved wetlands, restored habitat, and carbon sequestration
- Results inform future regional water quality trading and credit stacking for other regions
- Alignment with corporate sustainability initiatives, supporting many ancillary environmental outcomes

of the project is large enough to have significant regional water quality improvements and serves as the test-bed for pilot trades. More details can be found at [www.epri.com/ohiorivertrading](http://www.epri.com/ohiorivertrading).

### Benefits

WQT has potential as an integral part of corporate water nutrient compliance strategies for facility upgrades, retirement, or to mitigate difficult seasonal discharge management periods. Some companies may benefit as either a purchaser or as a provider of credits. Others will benefit by helping to resolve key technical issues that may determine the future of trading as a compliance tool, as well as evaluating ancillary environmental benefits associated with WQT.

This project intends to provide the technical basis for resolving key issues to determine the efficacy of WQT. These issues include quantifying credits; demonstrating the viability of watershed modeling as a basis for trades; establishing technically sound, yet reasonable verification and monitoring requirements for credit generation; demonstrating the viability of interstate trades; testing the likelihood of stacking GHG and water quality credits; and other issues. The pilot trades will also demonstrate the business case for credit sellers and buyers, necessary for securing long-term stakeholder interest.

### Project Summary

With broad interstate interest and support, this effort will focus on executing pilot trades. It will mark an important milestone

in assessing the value for power company participation as a buyer of credits in WQT markets. The project's goals are to:

**Potentially execute one or more pilot trades involving an EPRI member company(s):** Water quality credit trades for nitrogen may be executed in the project area, with a preference for opportunities to acquire GHG credits. If credits are generated, EPRI will act as the aggregator of credits, which may be sold, donated, or retired, as appropriate. EPRI member company(s) will be notified of opportunities to purchase credits.

**Finalize Pilot Trading Framework:** Critical design considerations for a properly constructed program will involve key elements that will determine the rules and framework for a regional trading program, such as credit trading ratios, credit calculation methods, verification and monitoring of nutrient reductions, and the role of the watershed model in governing trades. This effort will develop a trading framework for power companies.

**Modeling:** The Watershed Analysis Risk Management Framework (WARMF) model will inform trading program design by simulating the in-stream outcome of water quality credit trades, evaluating the potential watershed impact of different trading approaches, and tracking progress towards achieving nutrient reduction goals. This will build on EPRI's work to establish a WARMF watershed model of the Ohio River Basin (EPRI Report 1018691) and provide an ecological context for the trading program.

**Facilitate Stakeholder Support:** Pilot trades will require approval of EPA permitting authorities, support from USDA, and possibly interstate agreements. EPRI will endeavor to facilitate these agreements and acquire necessary support to execute pilot trades.

**Evaluate Credit Stacking:** EPRI is currently preparing several benchmark publications to inform credit stacking - getting more than one credit type for a given conservation action. This project will use WQT pilot trades to assess opportunities for stacking GHG and nutrient credits. It will work with participating farmers to estimate GHG credits generated through adopted agricultural practices and assess different calculator tools and protocols, including the newly released USDA COMET VR 2.0 tool. This effort builds on EPRI research

to quantify GHG credits for avoided fertilizer use on farms (EPRI Reports 1015463 and 1018364). GHG credits resulting from this effort may be offered for sale, if appropriate.

### **Deliverables**

- Potentially execute one or more water quality credit trades with EPRI member company(s)
- Finalize a framework for pilot trades
- Complete Watershed modeling simulations of pilot trades using WARMF
- Pursue state and federal agency approval for pilot trades, and acknowledgement that the resulting credits can be used for NPDES permit compliance
- EPRI or peer-reviewed publication evaluating the technical basis for stacking GHG and water quality credits
- Funder webcasts, in-person meetings, and e-mail reports communicating project updates

### **Price of Project**

For companies producing over 5,000 MW of fossil generation, the price will be \$200,000, over 2 years (\$100,000 per year). All others will be \$100,000 over 2 years (\$50,000 per year). EPRI Tailored Collaboration or Self Directed funds can be applied.

### **Project Status and Schedule**

This effort will be completed by the end of 2013.

### **Who Should Join**

This project is open to participation from EPRI members and other project stakeholders. Companies who are interested in the evaluation of water quality trading as a compliance tool and GHG and water quality credit stacking will benefit from participation.

### **Contact Information**

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

### **Technical Contact**

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