

Nutrient Trading Workshops

January 25, 2010 and February 1, 2010

- 9 AM Welcome – DEP Deputy Secretary John Hines
Nutrient Trading Program Overview – DEP
Banking and Exchange Overview – PennVest and Chicago Climate Exchange
- 10:15 AM Agriculture Panel
Overview – PA Farm Bureau
Participating Farmer Perspective
Conservation District Technical Assistance – Chester Conservation District
- 11:00 AM Point Source Panel
Municipal Authority Needs – PA Municipal Authorities Association
Development Perspective – PA Builders' Association
- 11:30 AM Successful Trade Panel
Mount Joy Trade – Mount Joy Municipal Authority
Fairview Township, York County Nutrient Trade
Lycoming County Nutrient Trading Project
- 12:15 PM Adjournment

Thank you to the Sponsors !



Nutrient Trading Program Overview

Program Timeline

- 2003- Discussion on the Pfizer Voluntary Trade began.
- 2004- Chesapeake Bay Tributary Strategy was issued that include a description of the market based program.
- 2005- Interim Final Policy was published in October.
- 2006- Throughout the year a number of stakeholder meetings were held to develop and define the program. In December the Final Policy, Appendix and 3 Attachments were published.
- 2007 - Present: Program implementation, outreach and enhancements have been made.

Who can participate in the program ?

- Any facility subject to new cap loads for nutrients or sediment related to restoration and protection of the Bay, mostly wastewater treatment facilities.
- Any farmer who may voluntarily choose to implement nutrient or sediment reduction measures beyond those required and thereby earn revenue.
- Any developer that seeks to create a new or expanding discharge that must meet the zero net load.
- Any aggregator that seeks to arrange for the sale of credits generated by another person, or arranges for the credits to be certified, verified and registered.

Program Basics

- Applicable for the Chesapeake Bay Watershed
- Credit = Unit of Trade.
 - Expressed as mass/per unit time (lbs/yr).
 - Shelf life of one year (October-September).
 - Generated and traded in the same watershed.
 - Must be certified, verified and registered prior to use for permit compliance.
- Total phosphorous and/or total nitrogen reduction credits.
 - All trading must involve comparable credits (nitrogen for nitrogen).
- Nitrogen and phosphorous reductions TO THE BAY beyond baseline and threshold requirements.
- Applicable trading ratios that are being used:
 - Edge of Segment;
 - Delivery; and
 - Reserve.

Eligibility for Credit Generation

Point Source

- Discharge loading limit expressed in an NPDES Permit.

Nonpoint Source

- Must be in baseline compliance with applicable conservation and nutrient management requirements.
- Must be beyond compliance, by either a 20% reduction in nutrients, 100' setback OR the establishment of a 35' buffer.

So how does one move forward with:



- Submitting a Proposal and Obtaining Approval (Certification)
- Interacting on the Marketplace
- Entering into a Trade (Verification and Registration)

Credits and Contracts

- 81 proposals have been submitted
- 55 have been approved
 - approximately 1.7 million nitrogen (N) credits, 202,000 phosphorous (P) credits
- 8 contracts completed:
 - 6 for new development
 - 2 for existing WWTP facilities

Certified Credit Generating Activities

Agricultural BMPS	No-till, cover crops, riparian buffer, stream bank fencing, rotational grazing, field lane stabilization, manure storages, mortality composters, poultry manure export
Manure Technology	Bion Environmental Technologies- Dairy Manure Processing
Point Source	Milton Regional Sewer Authority

Credit Generating Activities- currently in for consideration

- Technologies: CARD, ElectroCell, leP, EnergyWorks and Bion.
- Point Source: Bellefonte and Northwestern Lancaster County Authority.
- AG: No-till

Future Program Activities

- In addition to the on-going review of proposals and outreach opportunities, staff is working on the follow key initiatives related to the program:
 - development of a “bank and exchange”; and
 - development of regulations.

Overview: Purchasing / Selling Nutrient Credits Through PENNVEST's Nutrient Credit Clearinghouse

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CCX - Jeff O'Hara, johara@chicagoclimateexchange.com

Summary

- PENNVEST will serve as an intermediary in PA's nutrient credit market by purchasing credits from sellers and selling them to credit buyers
- PENNVEST will be able to enter into these contracts starting in first quarter 2010
- PENNVEST can accommodate different types of contracts depending on needs of participants
- Contracts will contain *force majeure* clauses in event of regulatory changes
- PENNVEST will require participants to satisfy eligibility requirements in order to reduce its exposure to contract non-performance

Clearinghouse Summary

- Benefits to buyers of purchasing credits through PENNVEST:
 - Adhere to governmental procurement requirements
 - Reduce search costs
 - Reduce negotiation costs
 - Reduce potential of sell-side default risk due to PENNVEST's large portfolio of sellers
 - Reduce burden of enforcing contracts
- Benefits to credit sellers: focus buy-side interest, reduce contracting and search costs, makes undertaking credit-generating projects more viable
- Participants free to execute transactions bilaterally and use or not use PENNVEST services

Types of PENNVEST Market Services

- Forward auctions for multiyear delivery for “strips” of certified credits to be generated in future years
- Spot auctions at end of compliance year (Oct – Nov) for verified credits
- “Clearing” of bilateral trades: PENNVEST serving as an intermediary between PS with identified credit project (e.g., geographically local project)
- New growth escrow for developers that need to offset new or expanded discharges

Summary Chart of Market Events

	<u>Long-term Forward Contracting</u>	<u>"Spot" Sales At End of Year</u>	<u>Bilateral Clearing Services for Contracts</u>	<u>New Growth Escrow for Developers Needing NPDES Permit</u>
Objective	Designed to satisfy long-term point source compliance needs	Designed to allow point sources and uncontracted nonpoint projects ability to buy/sell to assure compliance	Allow point sources to purchase credits from identified projects (e.g., geographically local projects)	Provide developers a simple process to obtain a "letter-of-intent" and contract to purchase credits
Type of Contract	Forward	Spot	Forward	Call Option
Determination of Price, Quantity, and Premium	Determined through competitive auction	Determined through competitive auction	Bilaterally negotiated between credit buyer and seller	Price and option purchase premium set by negotiation; developers can choose from price-premium combinations
Schedule of Market Events	Specified schedule based on interest (e.g., quarterly)	Annually near/at end of compliance year	PENNVEST to offer clearing as requested on case-by-case basis	As requested on case-by-case basis
Delivery Schedule	Delivery for multiple, successive years ("strips"); duration determined prior to auction	Immediate delivery of verified credits	Bilaterally negotiated, subject to restrictions PENNVEST may impose	If option exercised, delivery for strip of credits for length of permit

Proposed Auction Structure

- Structure:
 - sealed-bid, single-round, uniform price
- Procedure:
 - Participants submit bids and offers
 - Administrator aggregates bids / offers and calculates market-clearing credit price and credit quantity
 - Administrator may solicit non-binding commitments to participate to indicate the quantity of credits available on the auction
- Benefits of structure: simplicity, have worked well in practice
 - Unsuccessful participants may participate in an auction in the future
 - Public release of price information provides information for future auctions, compliance strategies, and investment decisions

Steps Involved to Participate

- Understand rules and commitments they define
- Execute PENNVEST Enrollment Letter and provide required documentation
- Enter into contract with PENNVEST through defined market event
- Credit Sellers
 - Receive verification from DEP for certified projects
 - Transfer legal title of credits to PENNVEST at agreed schedule
 - Receive payment from PENNVEST at agreed schedule
- Credit Buyers
 - Buyers submit payments to PENNVEST at agreed schedule
 - PENNVEST transfers legal title of credits to Buyer at agreed schedule
 - Buyer reports credit registration number on DMR

Buyer Eligibility Requirements for Forward Contracts

- PENNVEST will always accept 100% up-front payment in lieu of other listed alternatives for any type of organization
- Sewage Treatment Plant Operators
 - Authorities - pledge of taxing authority of underlying municipality
 - Municipalities – pledge of tax revenues
 - All (includes privately owned) - revenue pledge (if credit-worthy) - First lien on revenues, or shared first or second lien
 - Other alternatives outlined below
- Others
 - Letter of Credit
 - Bonding
 - Other forms of financial guarantee may be considered
 - Developers – evidence of conformance with sound land use planning

Seller Eligibility Requirements for Forward Contracts

- DEP certification that project is valid
- Legal title / credit ownership
- Copy of approved verification plan
- Contract durability for aggregated projects: underlying contract between aggregator and project owner for credit generation must be at least as many years as aggregator's commitment to sell credits to PENNVEST
- Evidence of implementation for capital-intensive projects
- Performance commitments (next slide)

Sell-Side Performance Commitments for Forward Auctions

- If an “intentional” default occurs, sellers must make PENNVEST whole, through actions that can include (but are not limited to)
 - Replace and deliver to PENNVEST an equivalent credit quantity and type
 - Provide funds to compensate PENNVEST for any and all additional costs incurred by acquiring replacement credits
 - E.g., if initial forward contract was for \$6/lb, seller defaulted and PENNVEST forced to buy them at \$8/lb, then original seller responsible for \$2/lb
- Sewage treatment plant operators: same collateral requirements for sell-side as buy-side
- Private entities: PENNVEST may require lien on the entity’s assets, including land, capital, and future revenues from credit (and other product) sales

Mechanisms Available to PENNVEST To Assure Credit Supply Should Seller Default Occur

- 10% DEP reserve pool
- PENNVEST internal reserve pool from credits from projects it funds
- Existing uncontracted supply, some of which is from already implemented projects
- Consider purchasing “call option” contracts from other supply sources to ensure adequate access to supply

Process for Developers

- Step 1: Sellers inform PENNVEST of prices and premiums they would accept to sell “call option” to developers
- Step 2: Developers establish eligibility, identify price and premium willing to pay, and submit partial up-front payment to PENNVEST
- Step 3: PENNVEST transfers “premium” to credit seller to reserve credits
- Step 4: PENNVEST gives developer Letter of Intent they can submit to DEP in planning module submission
- Step 5: If DEP approves planning module, developer notifies PENNVEST to establish forward contract contingent on receiving NPDES permit
- Step 6: Developer submits evidence to DEP of nutrient contract established in NPDES permit application

Clearinghouse Structure

- Advisory committee consisting of stakeholders to offer input
- CCX to administer auctions
- PENNVEST to provide
 - Webpage with clearinghouse information
 - Rulebook outlining terms, requirements, and conditions for entering into contract
 - 1 page enrollment letter for participants acknowledging clearinghouse structure and to abide by its rulebook
 - Simple bid and offer forms
 - Letter of Intent for developers
 - Other standard forms and documents needed by participants (e.g., transfer of funds, transfer of credits, eligibility accepted, contract terms)

Next Steps

- Early Feb: Results from stakeholder survey to gauge interest will be compiled and reviewed
- Mid Feb: Procedures and documents will be finalized
- Mid to late Feb: DEP and PENNVEST will make official announcement of PENNVEST's role
 - Webpage will be created where relevant procedures and documents will be accessible to participants
- Late Feb / early March: PENNVEST will be available to enter into nutrient credit contracts
 - CCX will serve as administrator of auctions

Where to go for more information?

PA DEP's Nutrient Trading Website:

<http://www.dep.state.pa.us>

Keyword: "Nutrient Trading"