A Registry for Environmental credits:

Chesapeake Bay Environmental Markets Team white Paper

Prepared by
Karen Bennett and Al Todd, USDA Office of Environmental Markets

May 2011

The Chesapeake Bay Environmental Markets Team (CB EMT) was chartered by the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, issued on May 12, 2010 as directed by Executive Order 13508. The CB EMT facilitates collaboration among federal agencies in development of the infrastructure needed for enabling environmental markets to function effectively in the Chesapeake Bay Watershed.

CB EMT working papers present the perspectives of technical experts on a broad variety of issues related to the development and operation of environmental markets. Information and opinions presented do not necessarily represent the adopted policy of EMT member agencies but are offered for public discussion and for consideration by member agencies as they carry out their responsibilities related to environmental markets.

This paper was prepared by the USDA Office of Environmental Markets for use by the Chesapeake Bay Environmental Markets Team (CB EMT). It serves as background for discussion about how federal agencies might guide the development of a registry or registries for the management of certified credits for environmental outcomes bought, sold or traded in the Chesapeake Bay watershed, including water quality credits used for TMDL compliance and offsets.

The Executive Order Strategy calls for the establishment of "*a platform for registering, reporting, and tracking measurable environmental benefits over time to facilitate commerce between buyers and sellers of credits and provide market transparency.*"

What is a registry?

An environmental registry is a secure, official database that tracks information about environmental benefits that may be used as commodities in a market system. The information maintained in a registry includes the ownership of the environmental benefits, the year in which the benefits are generated, and other necessary background information. Registries typically use unique serial numbers associated with each unit of benefit to prevent double counting. By tracking this information, registries ensure the integrity and transparency of environmental markets.

The environmental benefits tracked in registries are often packaged as credits or offsets, which the registry issues to the initial owner of the environmental benefits. Registries can track any change in ownership of credits, and when credits are used to meet a compliance obligation or a voluntary goal, the owner must retire them in the registry.

In regulatory markets a registry may be used to 'monitor' compliance. It may contain information about the environmental performance of each regulated entity, the number of allowances (units of environmental harm) allocated to each regulated entity, and the number of environmental credits that the regulated entity has purchased to meet its compliance obligation.

It should be noted that generally a registry itself does not calculate environmental benefits, evaluate design of conservation actions, conduct inspections or verify that procedures for credit generation have been met, certify the validity of credits or authorize credit sales. The Credit registry serves as the repository of information related to these processes and supports their tracking over time.

What are the key components of a registry?

A number of registries have been established over the past several years to accommodate environmental markets. A number of fundamental components of credit formation and tracking have emerged as consistent features of these registries. There are also, of course, some differences, mainly linked to the purpose that the registry is serving.

Consistent features of a Registry

1. Facilitate Auditing. Before crediting an environmental improvement in a trading program, every registry performs an audit of project documentation, ensuring that all required paperwork is in place, the standards have been followed, and that the work has been verified.
2. Prevent Double-counting. Along with the audit, registries ensure that a credit has not already been issued by their registry or any other registry for the project.
3. Credit Tracking. Once a credit has been awarded, it receives a unique serial number. The credit can then be tracked throughout its lifetime to alert owners to reporting requirements and ensure the credit is not improperly resold.
4. Long term Database. Once a credit has been used to meet a compliance obligation or a voluntary goal, it must be retired. Registries act as a vault to keep information on each project and its credits over time.
5. Internet-based. Most registry models utilize an internet-based computer program as a database for credits and perform routine checks on the data. These systems allow for greater transparency and monitoring which improves data accuracy, reduces cost, and saves time. Data management systems are generally designed to check and scan the data for double-selling (reselling a retired credit), missing reporting requirements, and other factors to provide a check on possible human error in data entry. Online systems are also available 24-7, to provide up-to-the-minute information for users.
6. Information Security. Registry information databases must have provisions for storage of information for a specific time period or in perpetuity depending on user design parameters.
7. Public Information. The scope of this information, from quite limited to completely open-access, differs from registry to registry. However, each system does provide some opportunity for the public to view information in order to foster transparency, credibility, and further compliance incentives for buyers. Allowing the public to retrieve information also aids allows people to better understand market activity and the environmental market process.
8. Source of financial market data. Registries are often linked directly to or serve as a live financial marketplace where environmental credit prices and transactions are displayed and provide up-to-the-minute information.

Different Registry Models

A variety of registry models exist that range in scale and complexity. However, their basic structures fall into three primary categories.

1. **Just the basics.** These registries incorporate all of the features listed in the previous section, but little more. This is the common model seen for registries tracking credits under voluntary markets and are typically developed and run by private sector vendors.
2. **Whole scale compliance monitoring**. Registries that have been established for regulatory markets, such as the Regional Greenhouse Gas Initiative CO_2 Allowance Tracking System (RGGI COATS)and the Environmental Protection Agency's Clean Air Markets, are set up to

monitor credit trading as well as overall regulatory compliance. As such, they are typically managed by government regulatory agencies, though sometimes developed by the private sector. RGGI COATS, for example, in addition to the standard registry functions listed above, also tracks regulated entity emissions and purchased offsets against the limits that must be met for regulatory compliance.

3. **Meta-registries.** In addition to the market-specific or regional registries modeled as described above, some groups employ meta-registries to act as a type of "umbrella" that coordinates across various registries. The EU ETS and Kyoto Protocol carbon offset markets utilize registries at the country level. However, each has an additional meta-registry at the market level (EU level for ETS, worldwide for Kyoto) that keeps track of basic information on credits to ensure that one single project will not be credited in multiple countries. They track credits, note their passing upon retirement, and allow credits to pass through when being transferred between owners using different registries. All other registry functions are performed at the country level in individualized systems. These systems are complex and limited in number.

Who's who?

A diversity of regional, national or international registries have emerged to accommodate recent growth in environmental markets, primarily with a focus on carbon. They are listed below, along with which model they fall under, what markets or standards they currently serve, and key points of contact.

Just the basics.

- Markit: Markit was built to accommodate carbon, biodiversity, water, and ecosystem credits. It supports the Voluntary Carbon Standard (VCS), CarbonFix, the Climate, Community and Biodiversity Project Design Standards (CCB Standards), Cosain, Green-e Climate, Plan Vivo, Social Carbon, and Brazil Mata Viva. http://www.markitenvironmental.com/ Key point of contact: Joanna Silver, joanna.silver@markit.com; +64 (4) 495 2370.
- APX: Tracks carbon offsets and allowances. APX has over 2 billion certificates under management. Standards traded under are the Climate Action Reserve (CAR), the Gold Standard, and VCS. Key point of contact: Joseph Varnas, jvarnas@apx.com; 201.222.1422.
- ACR (American Carbon Registry): This registry tracks voluntary carbon credits developed under ACR's own standard. It's a subsidiary of Winrock International.
- Blue Registry (https://www.netinform.de/BlueRegistry/start.aspx): Registers carbon credits and green energy certificates. Credits traded are developed under the VER+ standard (Verified Emissions Reductions +, developed by TÜV SÜD who also owns Blue Registry). Key point of contact: Klaus Nuernberger, Klaus.Nuernberger@tuev-sued.de; +49 (0) 89 / 57 91 - 27 52.
- CCX Registry (Chicago Climate Exchange Registry): Used to track carbon offsets traded under the CCX platform. Closed in 2010.
- Caisse des Depots: Registers voluntary carbon offsets certified under VCS.

- Mission Markets Earth – Not exactly a registry but containing registry components for a multitude of market applications from carbon to catch shares to conservation easements. Serves as a financial investing platform for transactions involving environmental credits and other investments. http://mmearth.com/markets/

Whole scale compliance monitoring.

- RGGI COATS (Regional Greenhouse Gas Initiative CO_2 Allowance Tracking System): RGGI-specific registry, but covers all regulatory tracking of the program. Key point of contact: Peggy Quarles (developer, currently based out of SRA International).
- EPA Clean Air Markets: Tracks SO_2 and NO_x trades as well as regulatory compliance with the acid rain program under the Clean Air Act. Also developed by Peggy Quarles (and her husband Perrin) while they were at EPA. Key point of contact: Jeremy Schreifels, Schreifels.Jeremy@epamail.epa.gov; 202-343-9127.

What registry-like efforts are underway or applicable to the Chesapeake Bay region?

Nutrient Net (WRI) – an online interactive site set up and maintained by WRI (World Resources Institute). NutrientNet includes a registry component that registers and tracks water quality projects and their associated credits throughout their lifecycle. The site also provides individual user accounts which display nutrient credits available on the marketplace. http://pa.nutrientnet.org/

PENNVEST Nutrient Trading Clearinghouse - The Pennsylvania Infrastructure Investment Authority (PENNVEST) serves as the entity for "clearing" trades in Pennsylvania's Nutrient Trading Program. Specifically, PENNVEST enters into contracts with nutrient credit sellers to buy credits that they will subsequently sell to regulated point sources. With PA DEP, PENNVEST maintains a basic online table of approved credits and completed trades and is working with *Markit* to enhance this application. http://www.dep.state.pa.us/river/Nutrient%20trading.htm#Registry

Maryland Nutrient Trading Program – The Maryland Program has an online tool for credit calculation as well as registration. Maryland is currently in the process of certifying and verifying its first water quality projects and associated credits. The Maryland program is a variation of Nutrient Net which has been used in PA for some time. WRI is now building from the Maryland version of Nutrient Net to create a multistate platform for water quality trading.
http://nutrientnet.mdnutrienttrading.com/

Virginia Nutrient Credit Exchange Association, Inc. - The Virginia Nutrient Credit Exchange Association is a voluntary association of owners of 105 regulated municipal wastewater treatment plants and industrial facilities discharging nitrogen and phosphorus within the Chesapeake Bay watershed. The purpose of The Exchange is to coordinate and facilitate nutrient credit trading among its members with the goal of improving water quality in the Chesapeake Bay watershed efficiently and cost-effectively. VA has proposed expansion of the Exchange to include nonpoint source trading.

Although, significant point to point source trading has occurred, currently, the registry is visible only to members. http://www.theexchangeassociation.org/

Chesapeake Bay TMDL Tracking and Accounting System (BayTAS) -The Chesapeake Bay TMDL Tracking and Accounting System (BayTAS) was developed to inform EPA, the Bay Jurisdictions, and the public on progress in implementing the Bay Total Maximum Daily Load (Bay TMDL). Although this effort is not yet complete, future versions of BayTAS propose reporting of Best Management Practice (BMP) implementation and verification and pollution offsets. Bay TAS contains the Bay TMDL Load and Waste Load Allocations for Total Nitrogen, Total Phosphorus, and Total Suspended Solids by jurisdiction, by segment in each jurisdiction, and by source sector, the 2009 Baseline Loadings Data from the Chesapeake Bay Watershed Model showing the Bay Jurisdictions' 2009 loadings, identifies whether an NPDES permit for a significant permittee has incorporated the assigned WLA, and contains a list identifying the significant permittees in the Bay TMDL and basic facility information for those permittees, such as name, type, location, and annual discharge monitoring report (DMR) data submitted to EPA. . http://stat.chesapeakebay.net/BayTAS/

Regulatory In-lieu fee and Bank Information Tracking System (RIBITS) - RIBITS is an interactive web-based compensatory mitigation tracking system developed by the USACE, that will eventually allow the public to track the status of USACE approved In-lieu Fee programs and Mitigation Banks. RIBITS tracks the status of mitigation banks, monitors credits and debits incurred by permitting actions, and allows review of compliance reports and other information in a single Internet-based interface. RIBITS is based on an underlying SQL database and the website is partitioned into public and restricted access areas. The public component provides information on mitigation concepts, bank establishment guidance, assessment tools, habitat classification, and highlights existing mitigation banks. The restricted component allows mitigation bank managers to monitor their bank's credit ledger and ecological progress and provides access to supporting documentation (i.e. banking instruments, monitoring reports, etc). RIBITS is in various levels of use in all but a few Corps district's nationally and approximately 80% of historic information has been uploaded. Due to limited banking activity, RIBITS data is currently limited in the Bay Watershed.

National Conservation Planning Database (NRCS) - This is the primary conservation planning tool used by NRCS, conservation districts, and technical service providers to develop and record information related to conservation planning and design, layout, and evaluation of approved conservation practices. It is integrated with Microsoft Office and ArcGIS software for the development and management of Conservation Plans, using tabular data and spatial data. Customer data in included in the National Conservation Planning Database (NCPDB), and is made available to the Performance Reporting System (PRS) and the Program Contracts System (ProTracts). Access is my authorized user only.

The Chesapeake Bay Bank Marketplace (Pinchot Institute**)** – The Bay Bank is also partnering with *Markit* Environmental Registry to provide a multiple market registry that will ensure that only credits

developed according to specific market rules will be issued and that credits can be tracked for the life a contract. The registry is also a first step in developing rules that allow credit "bundling" or "stacking," the ability to generate multiple credits from a single conservation action. The multi-state nature of the registry will assist the development of regional ecosystem markets like interstate water quality trading. http://www.thebaybank.org/education/credit_registration_and_issuance

The Chesapeake Fund (Forest Trends) - The Fund provides individuals and businesses the ability to calculate their nitrogen footprint and identify ways to reduce their impact. The Fund provides the ability to purchase offsets that will be used to pay for cost-effective projects in targeted watersheds. Based on high nitrogen reduction return on investment. The Fund envisioned a project registry for voluntary funders to choose from. http://www.chesapeakefund.org/projects_1.shtml

The Conservation Registry - The Registry is a national online, centralized database that records, tracks and maps on-the-ground conservation projects (established by Defenders of Wildlife) to help users understand the context, distribution, and effectiveness of collective efforts to protect and restore ecosystems. It is a synthesis tool that gathers information from multiple sources. The Registry captures three project types: 1) a project designed to protect or restore habitat, fish and wildlife, or an ecological process, 2) a change in land designation to enhance the focus on conservation management, and 3) monitoring, research and education projects tied to a location. Individual member or thematic accounts can be established or searchable by users. A search for the "Chesapeake Bay" yielded 87 project entries. http://www.conservationregistry.org/

What is needed for the Chesapeake Bay?

There are a number of questions relevant to further Credit registry development in the Bay region:

- *What are the primary functions needed for a credit registry? What criteria should guide design?*
- *What other databases/institutions would a credit registry need to connect to?*
- *Should a registry be accessible to the public? What information should be included? What info should be confidential?*
- *What are the advantages and disadvantages with federal, state, or private sector management of a registry?*
- *How should a registry be maintained? who bears the cost?*
- *Should there be a watershed wide registry? Or should there be a mechanism for networking individual state and private registries? What are the pros and cons?*
- *Does it make sense to focus on water quality only or to develop a watershed-wide registry for multiple environmental credits?*

The Chesapeake Bay Environmental Markets Team will host a workshop with key stakeholders involved in market development to discuss these questions and will provide discussion of the results as part of this white paper series.