Offset Credit Stacking: Introduction and Overview

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With recognition:
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## Environmental Credit Markets

<table>
<thead>
<tr>
<th>Natural Resource</th>
<th>Federal Guidance/ Policy (Year)</th>
<th>Credit Currency</th>
<th>Total Annual Market Value</th>
<th>Credit Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon (global)</td>
<td>Pending</td>
<td>Pounds (lbs) tons CO₂e</td>
<td>$142 billion</td>
<td>$1-$20</td>
</tr>
<tr>
<td>Wetlands and streams (U.S.)</td>
<td>Mitigation Banking Regulations (2008), superseding Mitigation Banking Guidance (1995)</td>
<td>Acres and functions</td>
<td>$1.8-$3.2 billion</td>
<td>$3,000-$653,000</td>
</tr>
<tr>
<td>Water Quality (U.S.)</td>
<td>Water Quality Trading (2003)</td>
<td>Pounds of nutrients, or similarly specific credit</td>
<td>$10.8 million</td>
<td>• $1.21-$10 (lb Nitrogen)</td>
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<td></td>
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<td></td>
<td>• $3.76-$25.16 (lb Phosphorous)</td>
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</tbody>
</table>
Confusion of Terms

- Bundling
- Unbundling
- Credit stacking
- Payment stacking
- Double dipping
- Double counting
- Horizontal stacking
- Vertical stacking
- Temporal Stacking
Continuum of Credit Stacking

Credit Types per Acre

1 species credit: San Joaquin kit fox

2+ species credits: San Joaquin & Burrowing Owl

2+ credit types in different markets: wetlands and vernal pool fairy shrimp

2+ credit types, multiple agency agreements: carbon & species carbon & wetland carbon & WQ species & WQ WQ & wetlands

Unbundling Values

Conservation Bank Credit

Habitat
Listed species
non-listed species
Greenhouse gas sequestration
Water filtration & assimilation
Ancillary recreational value

Unbundled Credits

Species Credits
Carbon Credits
Water Quality Credits
Ecotourism/recreation

Fox, J. Getting Two for One: Opportunities and Challenges in Credit Stacking.
Coordination of Policies

7 agencies involved in environmental credit markets!

- Some existing policies are conflicting.
- The absence of policies creates uncertainty.
- Ultimately, lack of clarity and coordination risks accountability of stacked payments & credits and destabilizes markets.

<table>
<thead>
<tr>
<th>Credit Type</th>
<th>Oversight Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>Private organizations, DOE EPA, USDA</td>
</tr>
<tr>
<td>Endangered Species</td>
<td>FWS, state Departments of Fish and Game, NOAA</td>
</tr>
<tr>
<td>Wetlands</td>
<td>U.S. Army Corps of Engineers, NOAA, EPA</td>
</tr>
<tr>
<td>Water Quality</td>
<td>EPA, Office of Water. Some states.</td>
</tr>
</tbody>
</table>
Regulatory Uncertainty

• The United States Environmental Protection Agency (USEPA) Water Quality Trading Policy:
  “supports the creation of water quality trading credits in ways that achieve ancillary environmental benefits . . . such as the creation and restoration of wetlands, floodplains and wildlife and/or waterfowl habitat.”

Assumption is landowner retains rights to those ancillary credits, though not specifically stated.
Regulatory Uncertainty

Thumbs Up from USDA:
USDA allows for “the sale of carbon, water quality, or other environmental credits” associated with federal grants (EQIP, CRP, WRP).

Thumbs Down from EPA & ACE:
United States Army Corps of Engineers (USACE) and USEPA have issued a regulation that precludes the use of CRP or WRP monies to generate wetland credits.
National Credit Stacking Study (Jan 2010)

Collaboration:

• EPRI
• Stetson University
• World Resources Institute
• University of Kentucky

Credit Stacking Survey

The Electric Power Research Institute (EPRI), World Resources Institute, Stetson University College of Law, and the University of Kentucky invite you to participate in the first national survey on mitigation credit stacking.

The growing markets in carbon sequestration, water quality trading, and wetland and species banking have brought attention to the need for understanding protocols, case studies, and opinions for how credits can be stacked among these different markets. Compiling the national perspectives on credit stacking requires receiving quality data from market practitioners and regulators like you. Your responses will shape the future of this national debate.

The survey will take about 5 minutes.

Take the survey

We appreciate receiving your response within two weeks. Please feel free to forward this survey to your contacts involved with market mechanisms.

Thank you very much.

Jessica Fux
Senior Project Manager, EPRI
Profile of Survey Takers

• 318 responses
  – 40% Credit sellers (127)
  – 25% Researchers (87)
  – 25% Policy Makers (85)
  – 10% Buyers (19)

Where it was sent:
• USDA
• Forest Service
• EPA
• NMBA members
• Universities
• Ecosystem Marketplace
• National Ecosystem Research Partnership
Defining Credit Stacking

1. Establishing more than one credit type on one piece of property, but not spatially overlapped. (10%)

2. Establishing more than one credit type on spatially overlapping areas, ie in the same acre. (83%)

3. Establishing credits on property that is publicly owned (National Park, Forest Service). (0%)

4. Establishing credits for a best management or conservation practice that was originally funded by the government (via grants, subsidies, payments, etc) (1%).

5. Other (5.5%)
### Consensus Definition of Credit Stacking

#### Not Stacked (Spatially Distinct)
- 1 acre forest earning carbon credits
- 1 acre forest earning endangered species habitat credits

| One property | Total Credits = 2 | Total Acres = 2 |

#### Stacked (Spatially Overlapped)
- 1 acre forest earning both carbon credits and endangered species habitat credits

| One property | Total Credits = 2 | Total Acres = 1 |
Most Common Scenario

Wetland and Species
Van Vleck Ranch Mitigation Bank, California
Vernal pool fairy shrimp (species)
Vernal pools (wetlands)

Elements
Coordinated banking review team.
Once parcel is sold, it is retired.
No double counting.
A Case of Double Dipping?

North Carolina, Neu-Con Bank:

Wetlands (2000) and Water Quality (2009)

More from George Kelly at this workshop . . .
The Crux of Stacking

Can you get paid twice for the same conservation action?

• Drive to maximize Economic Returns
• Concern over Ecological Validation
• Development of Policy
Accounting Units

- Species
- Wetlands
- Carbon
- Water Quality

Bundles of Ecosystem Values (Acres)

Defined Accounting Units (tons, pounds)
Additionallity

• How do you determine additionallity:
  – Technology Test
  – Investment Test
  – Barrier Test
  – Common Practice Test
  – Timing Test
  – Performance/ Benchmark Test
Ohio River Basin Trading Project

EPRI-MSU N2O Offsets Protocol
-- "Quantifying N2O Emissions
Reductions in US Agricultural
Crops through N Fertilizer
Rate Reduction"

Mitig Adapt Strateg Glob Change (2010) 15:185–204
DOI 10.1007/s11027-010-9212-7

ORIGINAL ARTICLE

Nitrogen fertilizer management for nitrous oxide (N$_2$O) mitigation in intensive corn (Maize) production: an emissions reduction protocol for US Midwest agriculture

Neville Millar • G. Philip Robertson • Peter R. Grace • Ron J. Gehl • John P. Hoben
The Trading Plan is Signed!

August 9th, 2012 in Cincinnati Ohio

June 22: A nutrient pollution article in The Economist mentions EPRI's Water Quality Trading Program.
ORB WQT Stakeholder Engagement

Organizations:
- Electric Power Research Institute
- American Farmland Trust
- Ohio Farm Bureau Federation
- ORSANCO
- Tennessee Valley Authority
- American Electric Power
- Hoosier Energy
- Duke Energy
- Hunton & Williams
- Kieser & Associates
- UC Santa Barbara

Agencies:
- USEPA
- USDA

Steering Committees:
- WWTP
- Agriculture
- Power Plants
- Environmental Groups

States:
- Ohio
- Indiana
- Kentucky
Opportunities for Conservation

• BMP Examples:
  – Cattle Exclusion Fencing,
  – Nutrient Management,
  – Cover Crops,
  – Buffer Strips,
  – Grass Waterways,
  – Heavy Use Pads,
  – Manure Pits

• Enhance Ecosystem Services:
  – carbon sequestration,
  – native plants,
  – habitat, etc.
Other Examples

• Environmental Banc and Exchange (EBX)
• Willamette Partnership – Credit Accounting System
• Climate Action Reserve – Policies on Stacking
Ecological Benefit of Stacking

83.9% of survey respondents are optimistic that stacking results in positive ecological benefits.

But . . . 45% did not know of any research or studies that support ecological benefit.

And . . . We didn’t found one study to verify additional ecological benefits of credit stacking.
Is Stacking Needed for Conservation?

• Do landowners and project developers need to get more money in order to implement conservation?

• Ohio River Basin WQT Project
  – Farmers willing to do conservation practices on working farms for 75% cost-share (they pay 25%)
  – Is more needed for permanent conservation easements? How much more?
Stacking is Growing

73% of survey respondents plan to become involved in credit stacking.
Current Play of Credit Stacking

• Consensus around definition
• Many sellers, researchers, and policy makers already interested
• Many more are expecting to become involved
• Optimism about the potential for credit stacking to provide positive ecological benefits, despite lack of evidence
• Even interest across various stacking scenarios
• There are very few case study examples of credit stacking, as defined in EPRI Survey
• Very little (if any) scientific research validating optimism about ecological benefits of stacking
Moving from Concept to Reality: Defining Details

- Prohibitions: for example, when acres is the credit metric
- Requirements: additionality, agency monitoring, etc.
- How to test/verify compliance with requirements
- Necessity: Is it needed as a conservation incentive?
- Benefits: Which stacking scenarios lead to good ROI and/or ecosystem benefits.
- Protocols/Policies
- Pilot Projects: what is needed, characteristics, steps.
Questions

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