

How Can Certain Forest Lands and Products Participate As an Offset or Other Credit in a Cap and Trade Program?

Forest Sector Workgroup
Presentation

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Presentation Outline

- Sink-enhancing Activities
- What Role Do Offsets/Credits Play in a Cap and Trade System
- National LULUCF Accounts
- Existing Trading Systems, Registries, and Platforms

Sinks (part of LUCUCF account)

- Forest
 - Soil
 - Understory
 - Tree Bole
 - Branches
- Harvested Wood Products
 - Products in-use
 - Landfill

LULUCF Sink Issues

- Permanence (Non–permanence)
- Additionality / Baseline
- Leakage

Real, additional, verifiable, permanent and enforceable

Sink Enhancing Activities

- implementing forest management practices on commercial and other working forests
- harvesting forest products
- placing forestland in set aside or conservation usage
- reforestation projects
- afforestation projects
- avoid deforestation and forest fires

Afforestation

- ***Permanence***: Requires 100 year lifetime. Threats of fire, wind, disease can greatly reduce cumulative carbon sink
- ***Additionality***: Baseline is established as non-forested area prior to 1990. May require adjustment to trends observed prior to 1990.
- ***Leakage***: Limited if land is relatively available and alternative land use has a lower opportunity cost.

Managed Forest

- ***Permanence***: Same as afforestation projects
- ***Additionality***: Requires defining current management level for baseline, may require adjustment to trends observed prior to 1990
- ***Leakage***: Not obvious

Avoided Deforestation

- ***Permanence***: Same as above. In addition requires oversight to ensure land is maintained in forest.
- ***Additionality***: Prior to 1990 land use, may require adjustment to trends observed prior to 1990
- ***Leakage***: Can be extensive if other land-uses have higher opportunity cost

Reforestation

- ***Permanence***: Same as afforestation
- ***Additionality***: Same as afforestation
- ***Leakage***: Same as afforestation

The difference between afforestation and reforestation is what qualifies as eligible land

Harvested Wood Products (HWP)

- ***Permanence***: Uncertainty with decay rates
- ***Additionality***: Requires establishing a trend baseline
- ***Leakage***: Affects markets for non-wood substitutes positively

Longer-rotation Conservation Forest

- ***Permanence***: Same as afforestation
- ***Additionality***: Requires establishing a trend baseline over existing management levels
- ***Leakage***: With harvesting has an economic effect on financial returns, temporarily shorts HWP sink

Avoided Forest Fires

- **Permanence:** Reduces the risks in other forest-based sink activities
- **Additionality:** ...
- **Leakage:** ...

Avoiding forest fires is not considered a sink-enlacing activity, but rather viewed as a project component that increases permanence.

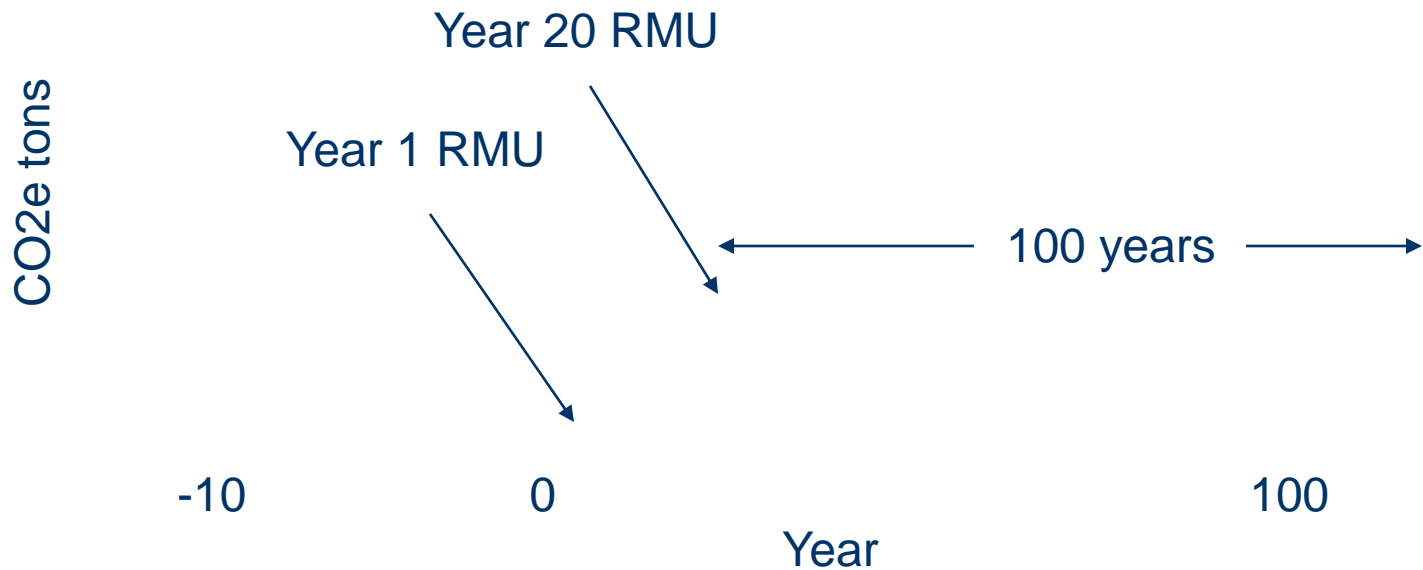
Use of Forest and HWP Sink-enhancing Activities to date

- Limited use due to uncertainty (permanence, additionality and leakage) and high transaction costs (use of models, verifiers, modelling efforts yet to be complete)
- Voluntary vs Compliance Market
- Connectivity of Forest and HWP sinks

What Are Offsets / Credits?

- Reducing costs
- Associated with emissions reduction activities
- Measured in CO₂e
- Kyoto “Commodities”
 - Assigned Amount Unit
 - Emissions Reduction Unit
 - Certified Emissions Reductions
 - Removal Unit

Graphic Example of a Removal Unit (RMU) (Afforestation project)



Growth model

Length (permanence), width (additionality)

National LULUCF Accounts

- Discussion on Issue, Methods, Activities since 2001
- Are not allowed to be sufficient enough so as to buy out all excess emissions
- Good Practice Guidelines



Trading Systems, Registries, Platforms and Intermediaries

	Trading System	Registry	Platform	Intermediary
The European Union Emissions Trading System (ETS)*	X	X	X	
The Climate Registry (TCR) and The California Climate Action Registry (CCAR)		X		X
The Chicago Climate Exchange (CCX)		X	X	X
The US Department of Energy Section 1605b GHG Registry Program		X		
World Resources Institute		X		X
The Voluntary Carbon Standard (VCS)		X		
The Climate Trust				X
NatSource Transaction Services*				X
Regional Greenhouse Gas Initiative (RGGI)	X	X		
NSW Greenhouse Gas Reduction Scheme (GGAS)*	X	X	X	

The European Union Emissions Trading System (ETS)

- Trial System
- LULUCF activities not covered directly
- Clean Development Mechanisms, but LULUCF activities are lacking

The New South Wales (NSW) Greenhouse Gas Reduction Scheme (GGAS)

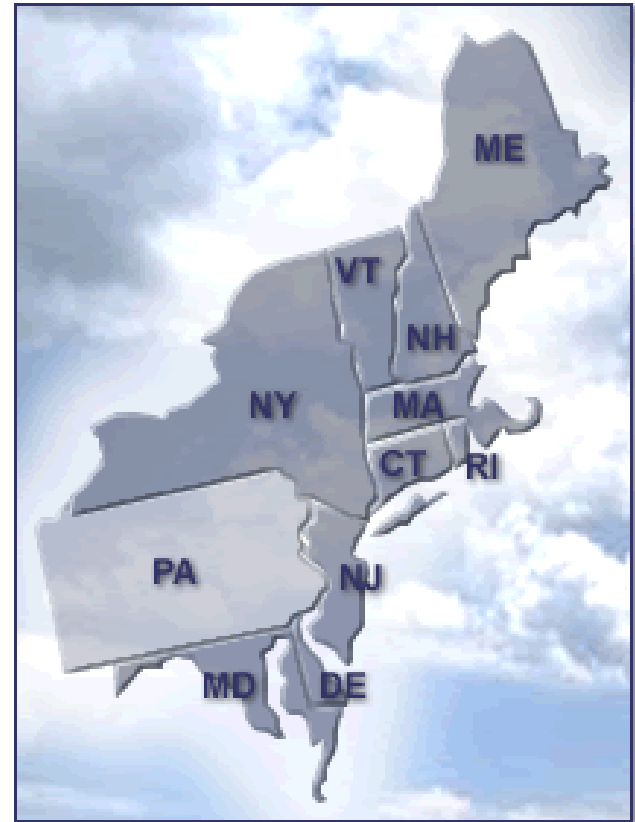
- Commenced on January 1, 2003
- Benchmark Participants
- Compliance Regulator (IPPT)
- Scheme Administrator
 - Assesses projects, accredits parties, creates certificates and monitors compliance
 - Manages registry
 - Force forest managers to purchase on the market for insufficient carbon stock

Forest Credits (Abatement Certificates)

- NGAC cover a range of activities including afforestation and reforestation
- Combines Kyoto Protocol with Australian Standard
- Enhance LULUCF sink using eligible land
- Registered Carbon Sequestration Right
- Annual credits
 - 100 years (easement) and reporting schedule
- Managed forests (sequestration after Dec 31, 2002)?
 - 70% probability that net increase > number of NGACs it has created

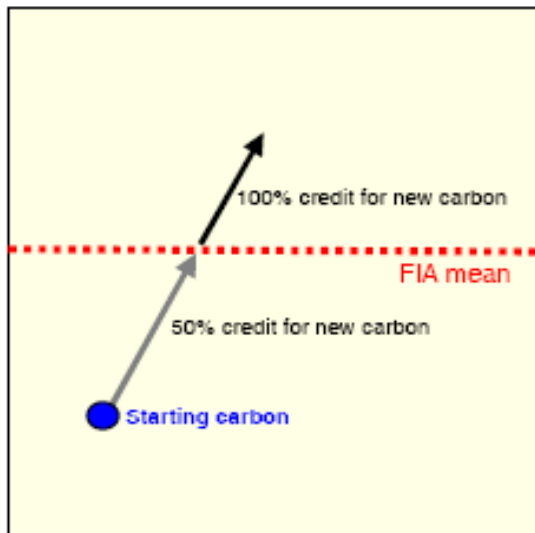
Regional Greenhouse Gas Initiative

- Draft forest activity recommendations
- Considering
 - afforestation
 - avoided deforestation
 - active forest management
- Afforestation is only current qualifying activity



Active Forest Management (Draft Recommendation)

A. If starting with carbon stocks below FIA mean for region.



B. If starting with carbon stocks above FIA mean for region.

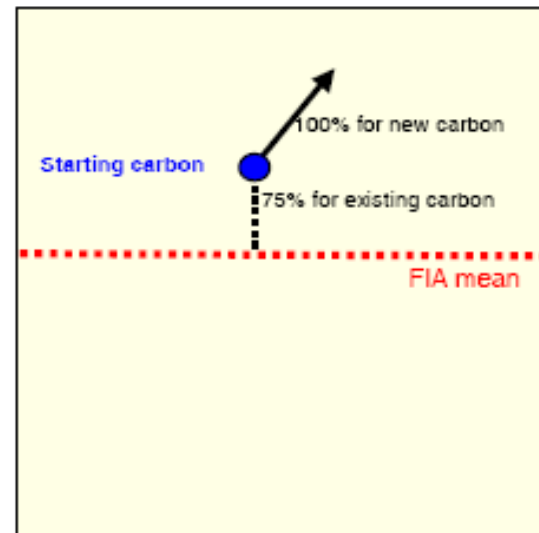


Figure 1. Recommended carbon credit for projects that start (A) below the FIA mean carbon stocking level for the forest type and region, and (B) above the FIA mean.

Enduring Wood Products or For Displacement of Fossil Fuel Energy

- In access of business-as-usual production level
- Product carbon would be based on the estimated residual carbon 100 years after harvest
- Displacement of fossil fuel energy would be based on the excess biomass delivered to a heating facility over the mean for forest biomass

The Chicago Climate Exchange

- Offset Providers or Offset Aggregators
- Carbon Financial Instrument (CCI) contracts
- Projects must not be required by law
- Owners must make long-term commitments to maintain stocks in forestry although not permanently
- Holdings must be certified for sustainable management under a CCX approved program
- Projects must be third party verified by CCX approved verifiers
- must maintain a carbon reserve pool of 20% of annual CCI contracts

Approved Activities

- afforestation,
- managed forestry,
- carbon stored in long lived wood products,
- reduced emissions from deforestation and degradation, and
- urban tree planting.

Managed Forests

- Offsets for the additional net carbon sequestered in their forest stocks from the previous year
- Long-lived wood products carbon stored in long-lived wood products in use and landfill at the end of 100 years
- A committee on forestry provides case-by-case approval

The US DoE Section 1605b GHG Registry Program

- Voluntary Reporting of Greenhouse Gases Program
- Includes Forest and HWP sinks
- Uses tabular data reflecting averages over large area
- Many USDA Forest Service models

World Resources Institute (WRI)

- Two separate but linked standards (methods)
 - Corporate Accounting and Reporting Standards
 - Project Accounting Protocol and Guidelines
 - Two projects types:
 - reforestation and
 - forest management

LULUCF Sinks

- Carbon stocks and their changes
- GHG removal
- GHG effects
- Baseline candidates and procedures
- Land-use or management trends
- Uncertainty
- Permanence
- Additionality

Steps In Accounting and Reporting GHG Reductions

- define the assessment boundary
- select the baseline procedure
- identify the baseline candidate
- estimate the GHG reductions from the baseline using a project-specific procedure or performance standard
- apply a land-use or management trend factor
- monitor and quantify GHG reductions by creating a monitoring plan
- develop a carbon reversibility management plan that assesses and mitigates carbon reversibility
- report the GHG reductions

HWP Sink Activities

- The WRI protocol recognizes the substitution effect as a secondary-effect leakage. While this recognition is important, there is yet no mechanism in place to measure it

The California Climate Action Registry (CCAR) and The Climate Registry

- CCAR has two protocols
 - forest-related activities in forest sector
 - forest project protocol
- CCAR has three certifiable activities
 - Conservation-based Forest Management
 - Reforestation activities
 - Conservation projects

Implementation

- Project Steps
 - Design project
 - Complete the project pre-screening process (optional)
 - Implement project
 - Collect direct sampling information
 - Report project activity
 - Certify project activity
- After reporting a forest project for the first year, you will need to complete the following steps on an ongoing basis until the project is completed:
 - Maintain project activity
 - Certify non-biological emissions annually (at entity level)
 - Certify biological carbon stocks and CO₂ emissions for entity and project in years 1 and 5 of the certification cycle

Project Eligibility

- ownership summary,
- entity-wide inventory reporting,
- long-term carbon security and environmental integrity,
- baseline characterization (temporal or project-based),
- project additionality (must exceed existing laws or threat to conversion exists),
- activity-shifting leakage, market leakage and other effects.

The Climate Trust

- Proposals must meet two essential tests
 - It must be demonstrated that an offset project would not otherwise occur without the funding provided by the offset purchaser, and
 - the results must be rigorously quantified
- World Bank Bio Carbon Fund

The Voluntary Carbon Standard

- Offset is a VCU
- ISO standards (14000 series)
- Activities to be Covered
 - Afforestation, Reforestation and Revegetation (ARR)
 - Agricultural Land Management (ALM)
 - Improved Forest Management (IFM)
 - Reducing Emissions from Deforestation (RED)

6 Steps

- project submittal
- validation of the VCS PD
- submittal of the VCS PD
- VCS registry operator checks documentation
- a check that the project has not been previously registered
- the VCS registry

Buffers

- Addresses risk of non-permanence
- Reserves of non-tradable carbon credits to cover unforeseen losses in carbon stocks
- Projects must undergo a risk assessment
 - project risk
 - economic risk
 - regulatory and social risk
 - natural disturbance risk

NatSource Transaction Services

- Assist in developing Clean Development Mechanism (CDM) and Joint Implementation (JI) projects
- No evidence of LULUCF projects transacted to date

Summary of Sink-enhancing Activities Treatment in Protocols

Sink-enhancing Activity	Protocol Trading Schemes
Afforestation	ETS CDM (directed towards developing countries, no activity registered), NSW GGAS (requires carbon sequestration rights, 100 year lifetime, ability to manage risks), RGGI (limited opportunity since majority of area is forest land), CCX (activities on or after Jan 1990 on eligible land, minimum 15 year project lifetime), 1605b (protocol for voluntary reporting LULUCF sinks using region, forest type, previous land-use, productivity class (if available) and management intensity (if available)). WRI, CCAR and VCS have methodologies with risk management plans, baseline and leakage aspects. The Climate Trust is a project proposal request submitted for financial support.

Summary of Sink-enhancing Activities Treatment in Protocols

<p>Managed Forest</p>	<p>NSW GGAS (unclear but it appears carbon sequestered after Dec 31, 2002 can be registered, if it has not been previously registered, requires uncertainty analysis), RGGI (draft protocol uses a baseline based on periodic regional inventory and fractional credits based on individual ranking relative to the baseline, must maintain carbon stocking levels over 99 years, must control for project leakage), CCX (requires additional net carbon (growth minus harvest), 1605b (see afforestation). WRI (protocol to measure changes in carbon stocks, primary and secondary project effects, baseline calculations and trend factor adjustments). WRI, CCAR and VCS have methodologies with risk management plans, baseline and leakage aspects (as above). Baseline determined by existing practices and regulations. The Climate Trust is a project proposal request submitted for financial support.</p>
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Summary of Sink-enhancing Activities Treatment in Protocols

<p>Avoided Deforestation</p>	<p>ETS CDM (directed towards developing countries, little or no activity registered) RGGI (reducing land conversions from forestry, protocol in comment period), CCX (see managed forests)</p>
<p>Reforestation</p>	<p>ETS CDM (directed towards developing countries, no activity registered), 1605b (see afforestation), WRI (see managed forests). WRI, CCAR and VCS (see above).</p>
<p>Harvested Wood Products</p>	<p>RGGI (must be in excess of business-as-usual production level, based on 100 year residual), CCX (credit for carbon in product and landfill at end of 100 years), 1605b (see afforestation, allows reporting for carbon in product and landfill). WRI, CCAR recognize this sink and its market-based leakage and secondary effects in wood product markets with optional reporting.</p>

Summary of Sink-enhancing Activities Treatment in Protocols

Longer-rotation conservation	See comments for managed forests. Without recognition of market-based leakage and secondary effects in wood product markets, it can lead to overestimated credits produced.
Avoided Fires	Seen as a risk rather than project activity by WRI, CCAR, VCS. Buffer accounts or risk assessment require planning for fire occurrences within other sink-enhancing activities.