

# What is a Carbon Credit?

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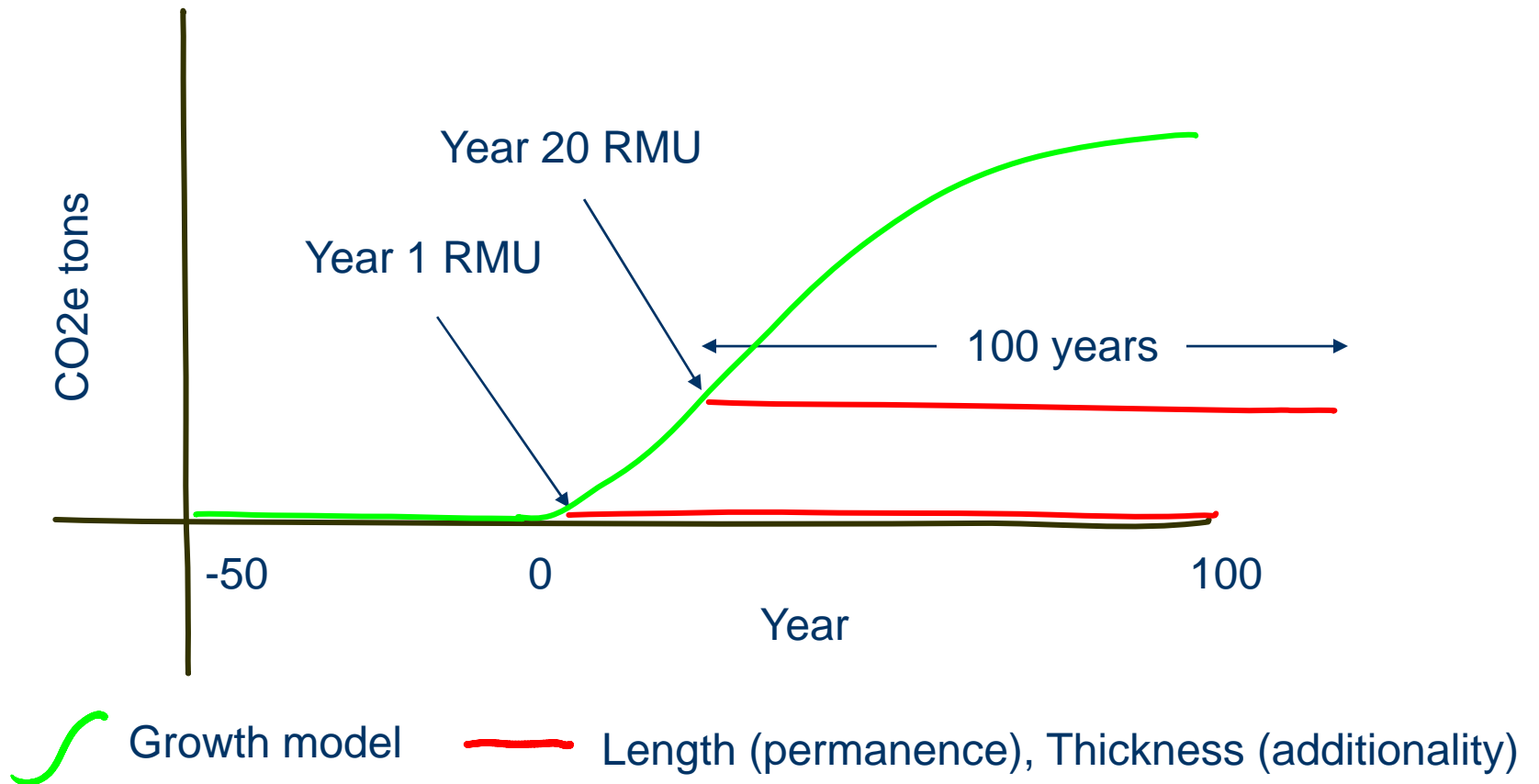
# Sinks (part of LUCUCF account)

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

# LULUCF Sink Issues

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

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



# Anatomy of a Carbon Credit

- Project design and submission of documentation
- Independent Validation Report
- Accreditation body accepts report to register the project
- Independent auditor verifies the offset
- Submit to a registry

***Real, additional, verifiable, permanent and enforceable***

# Sink Enhancing Activities

- afforestation projects
- reforestation projects
- implementing forest management practices on commercial and other working forests
- placing forestland in set aside or conservation usage
- 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.

# 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*



# Implementing Forest Management

- ***Permanence***: Same as afforestation projects
- ***Additionality***: Requires defining current management level for baseline, may require adjustment to trends observed prior to 1990
- ***Leakage***: minimal if impacts to market supplies are small

## 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 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

# 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.*

# 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



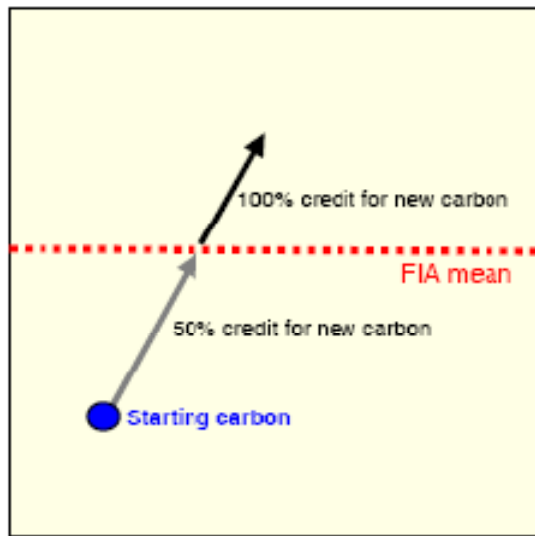
# Regional Greenhouse Gas Initiative

- 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.

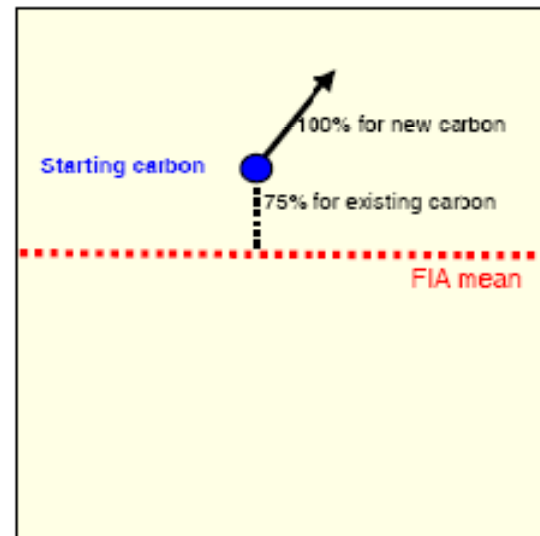


Figure 1. Recommended carbon credit for projects that start (A) below the FIA mean carbon stocking level for the forest type and region, and (B) above the FIA mean.

# 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: CCX

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

# Managed Forests: CCX

- 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

# 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



# 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.