The History and Status of Forest Carbon Offsets

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Personal Memories

- September, 1988 – American Forestry Association, Global ReLeaf Campaign
- 1990 – AFA gets EPA grant, works with Forest Service to research and publish “Forests and Global Change.”

Trees as Carbon Offsets

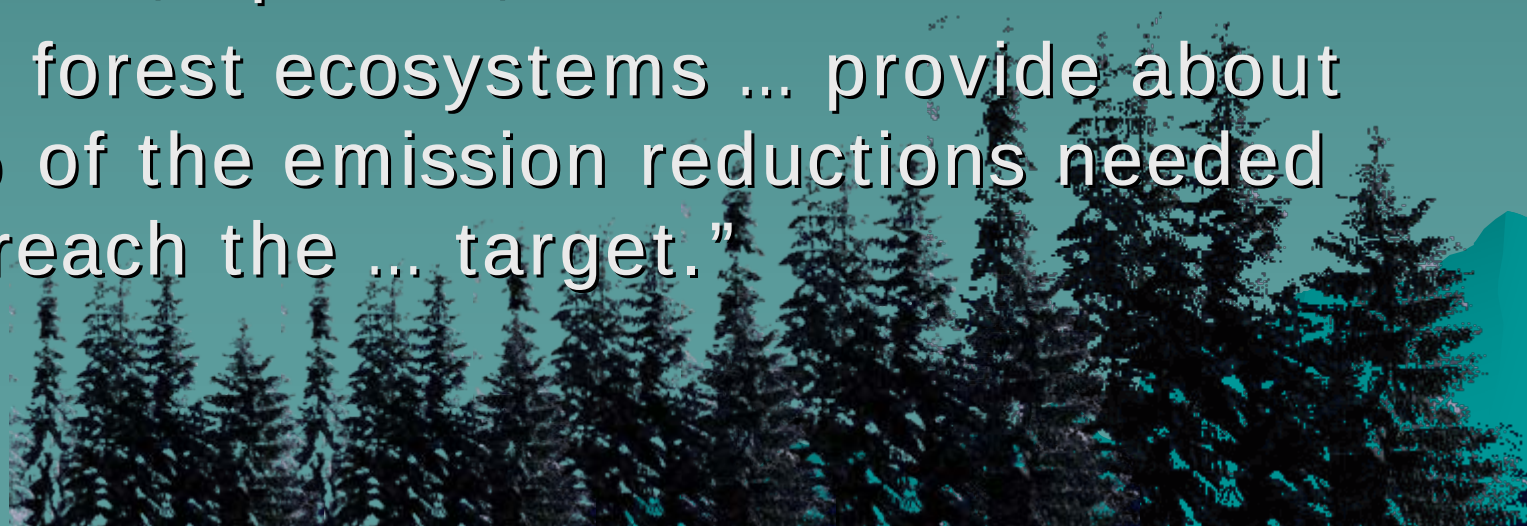
- February, 1992 – AFA is proposing tree planting projects to large power plant builders as a way to mitigate emissions.
- Forests and Global Change, Volume 1: Opportunities for Increasing Forest Cover

International Agreement

- Framework Convention on Climate Change – Rio de Janeiro, 1992
  - "... achieve... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."
- U.S. Ratifies

National Commitment

- The Climate Change Action Plan
  - "Today, I ... announce our nation's commitment to reducing our emissions of greenhouse gases to their 1990 levels by the year 2000." President Bill Clinton, April 21, 1993.
  - "... forest ecosystems ... provide about 9% of the emission reductions needed to reach the ... target."

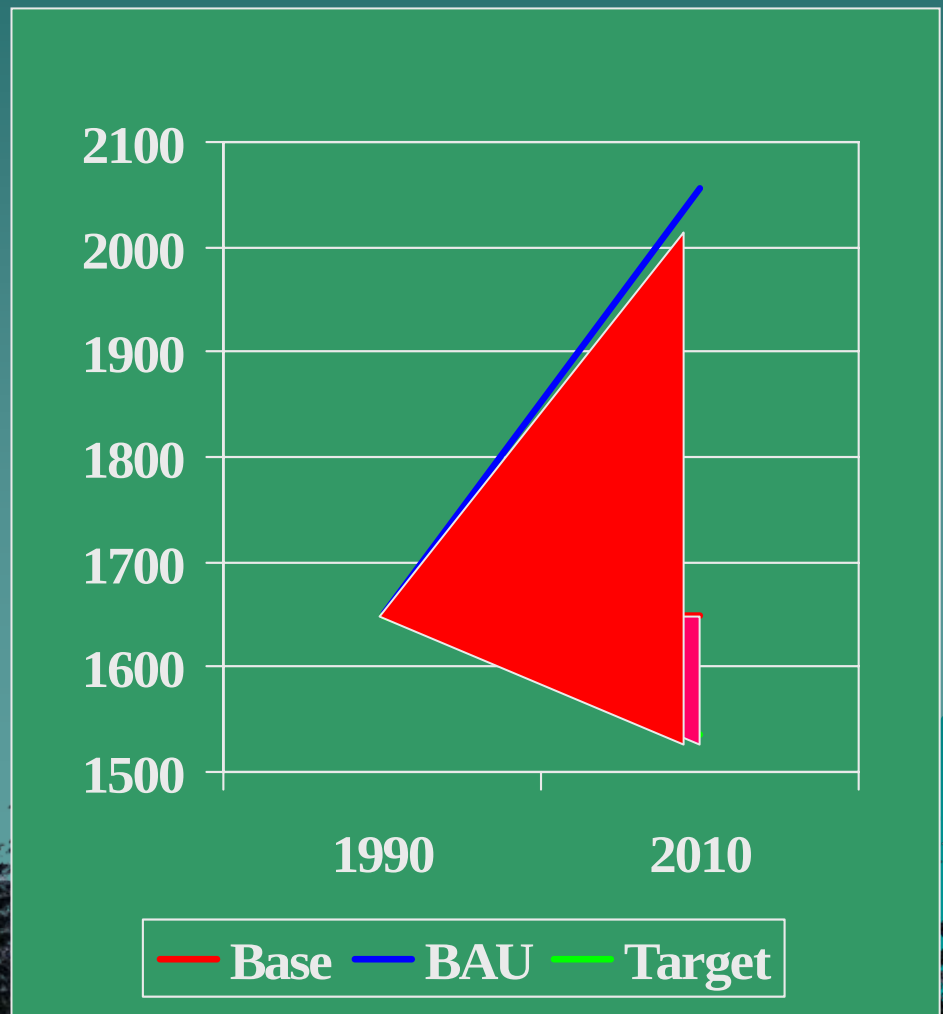


The Kyoto Protocol

- In 1997, Adopted:
  - Legally-binding targets on industrial countries
  - Specifically allows the planting of new forests (afforestation) and the replanting of forests in some cases (reforestation) as potential approaches that could be used to meet emission reduction commitments.
  - A political agreement – Left the details to be worked out later.

Kyoto Targets for U.S.

- Emissions in 1990 were 1650 MMTCE
- BAU for 2010 would be ~2055 MMTCE
- Reduction to 7% below 1990 would be a 33% reduction from 2010 BAU.

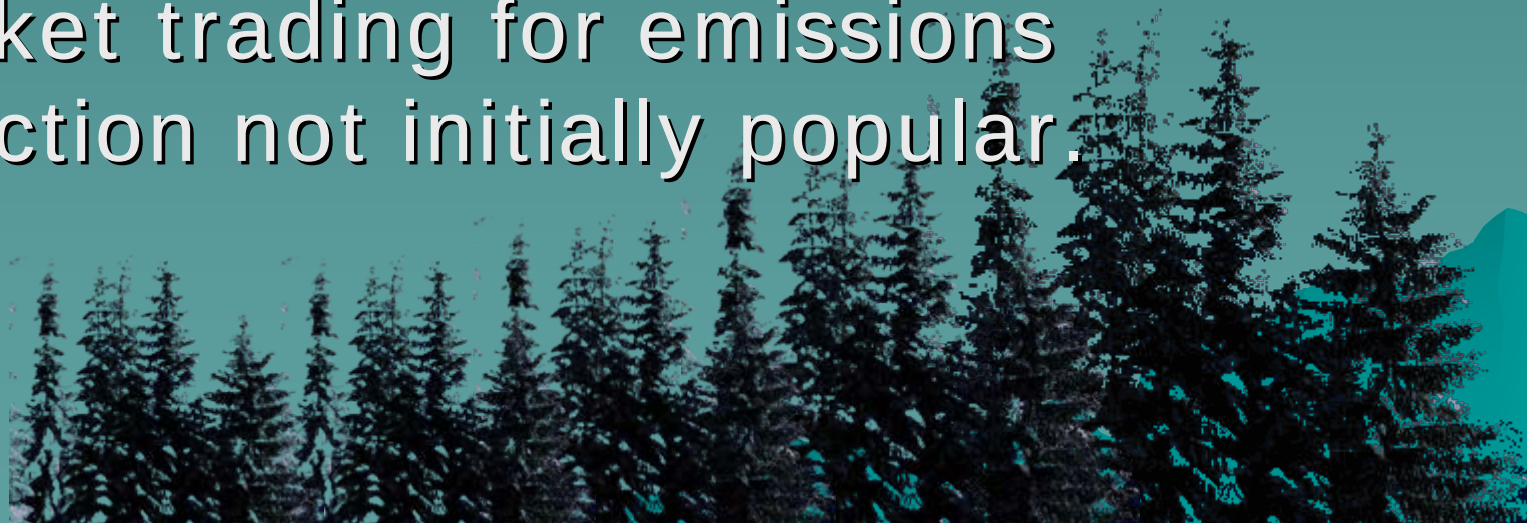


IPCC Special Report

- Requested in 1998 to examine the "scientific and technical implications of carbon sequestration strategies related to land use, land-use change, and forestry"
  - Definitions
  - Accounting Rules
  - Methods

Political Overtones

- Focused on the question of “Who gets to count what to meet their targets.”
  - Forestry seen by many as a cop-out.
  - Country differences, cultural differences
- Market trading for emissions reduction not initially popular.



Issues Raised

- **Baseline** – Where will the accounting begin, and how will it be projected into the future? Is it "Business as Usual (BAU)"?
- **Additionality** – What can be counted as being additional to the baseline due to the forestry activity?
- **Leakage** – What carbon could be lost (or gained) on other lands as a result of the project activities?
- **Duration** – How long can forest carbon be counted on to exist? Is it permanent?

Some Conclusions

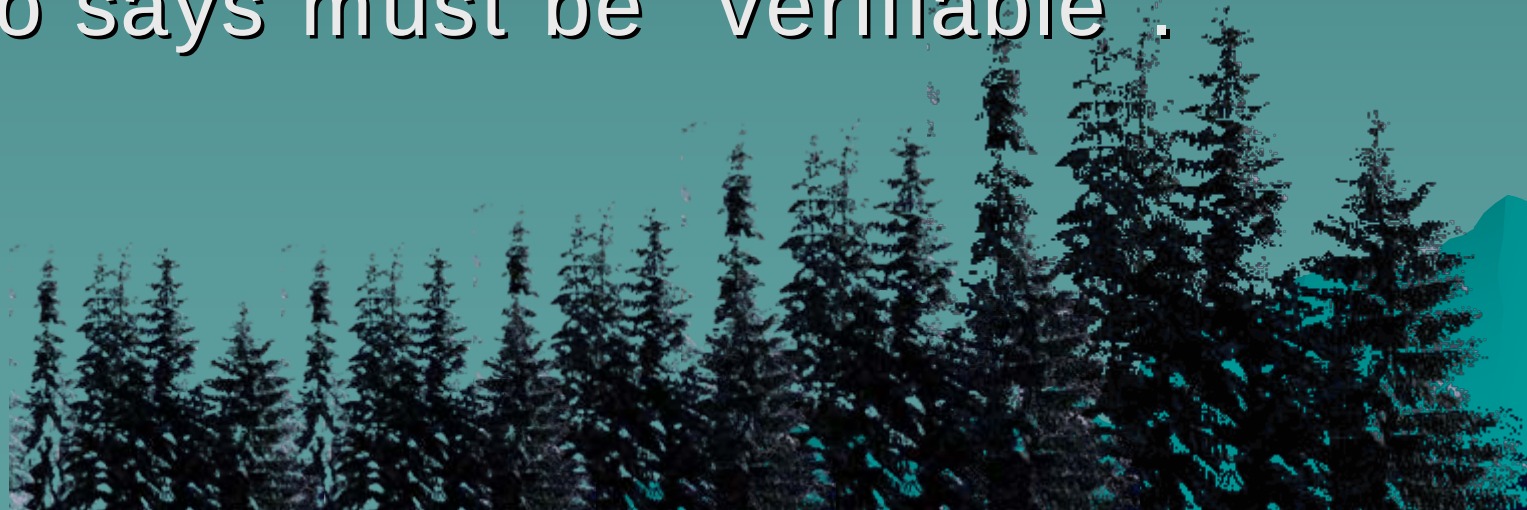
- Definitions are a big deal in carbon accounting under Kyoto.
- There is no scientific way to separate “human-induced” carbon stock change from natural change in managed forests.
- Accounting for wood products after they leave the first market stop is very difficult (without double counting).

COP 6 – Bonn – 2001

- Moved forward with agreement to allow market trading mechanisms, including credits from forestry.
- U.S. announces its withdrawal from the Kyoto process.

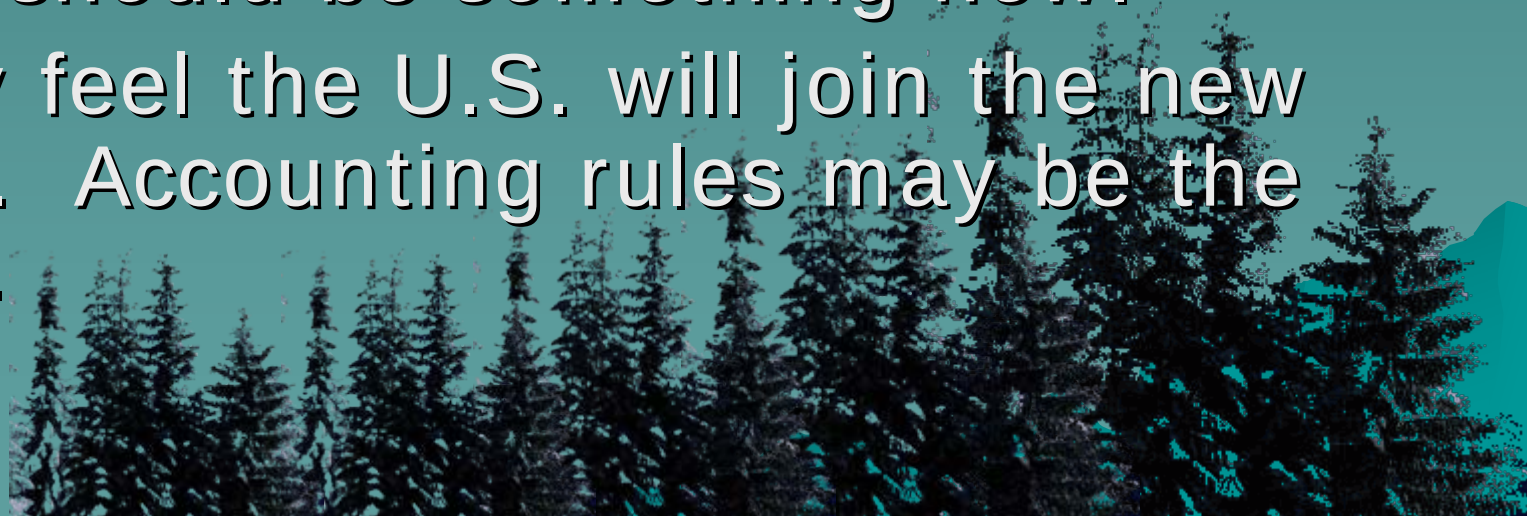
COP 7 – Marrakech – 2001

- Defined afforestation, reforestation, and forest management as eligible practices under Kyoto.
- Left out forest protection (conservation) as eligible projects. Kyoto says must be “verifiable”.



Why is Kyoto Important?

- Much of the world is working within those rules.
- Large U.S. companies want one international system, not several.
- Kyoto Accord runs thru 2012, then there should be something new.
- Many feel the U.S. will join the new effort. Accounting rules may be the same.



Sec 1605(b) – Voluntary Reporting

- U.S. Department of Energy database maintained since 1994.
- Forestry projects dominate the carbon sequestration category, but almost all the carbon reported was from large forest conservation/ preservation projects in the tropics.
- No real quality control on reports.

Revised 1605(b)

- Revised in 2006 to provide basis for eventual market system.
- Contains forest measurement and reporting methods developed by the Forest Service.
- Includes methods for measuring and reporting harvested wood products.
- Available from DOE website

Where we are Today

- The 1605(b) rules could become the basic standard for measuring forest carbon amounts in a federal program.
- The Chicago Climate Exchange will be the only market operating until at least 2009. It will rely on 1605(b).
- New federal legislation possible.

Types of Forestry Projects

- Afforestation – planting trees on land that has been in another use for some time (often 20 years).
- Reforestation – planting trees on land that has lost forest cover and is not regenerating.
- Forest Management – Increasing the standing stock on managed lands; counting harvested wood products.

Characteristics

Project Type	Base-line	Addition-ality	Leak-age	Verifi-cation
Afforestation	Easy	Easy	Easy	Easy
Reforestation	Medium	Medium	Easy	Easy
Forest Management	???	???	Easy	Easy
Harvested Wood Product	???	Easy	???	Easy
Forest Protection	Hard	???	Hard	Hard

??? Indicates “depends on the rules”

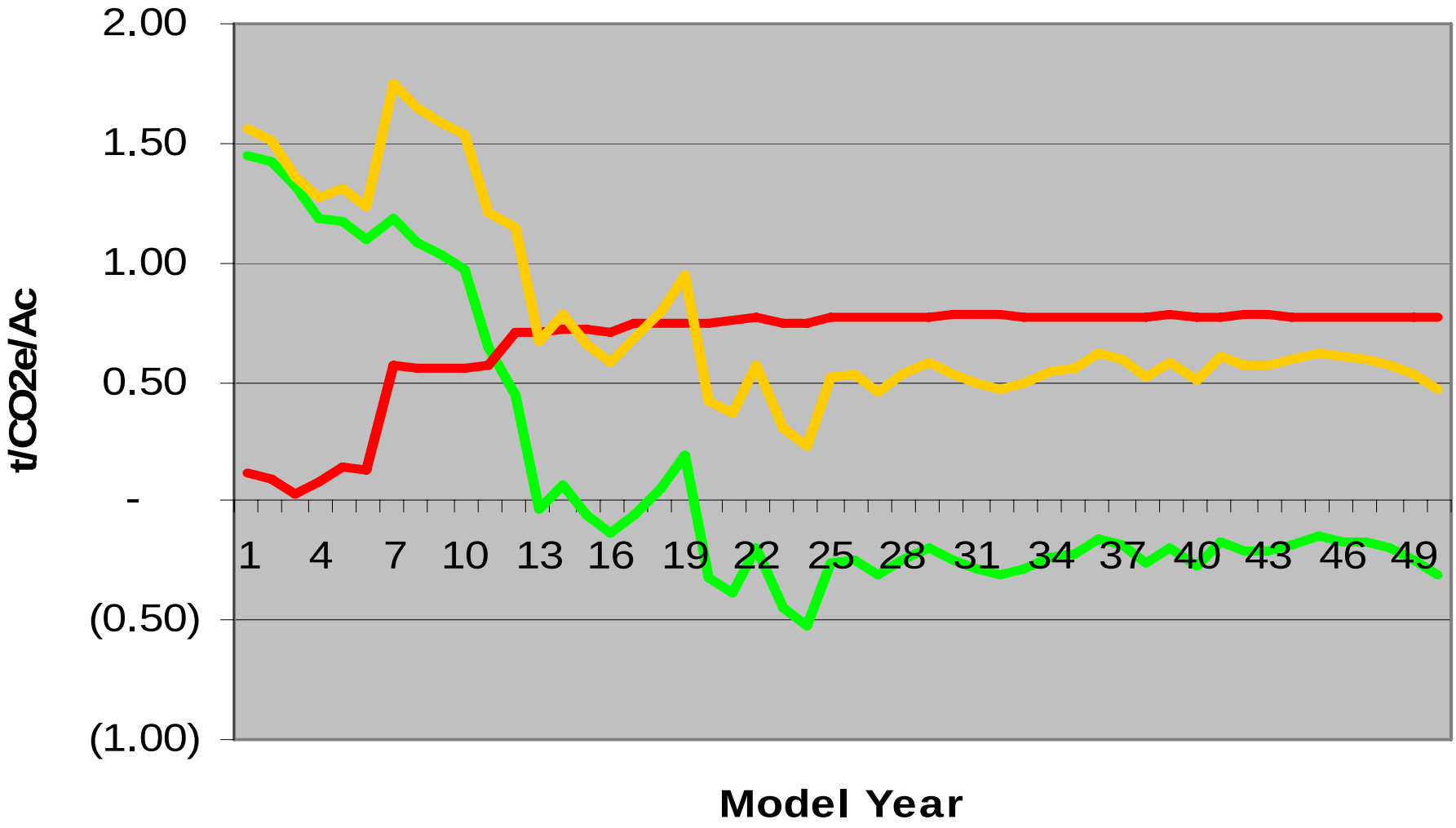
Forest Management

- If the rules use “base year,” and count standing stock change as additional, normal forestry methods work well.
- If the rules use BAU and require calculation of additional as “human induced change,” this is difficult.
- If HWP are not included, forest management projects may not be feasible.
- On all projects, transaction costs are the difference between feasible and infeasible.

Annual Change is fairly small

- Foresters can change annual growth patterns, but not much.
- Not all sustainable management strategies produce steady growth in standing biomass.
- Measurement, monitoring and verification rules can make carbon payments infeasible.
- Wood Products can be critical.

Chesapeake Forest



Final Thoughts

- In offsets, it is the rules that will dominate both feasibility and eventual value. Without established rules, we speculate.
- CCX has rules and practical experience. Lots of talk elsewhere. U.S. House joined CCX and will purchase 24,000 tons soon.
- CCX will look to 1605(b) for guidance. Federal policy could drift toward CCX.