

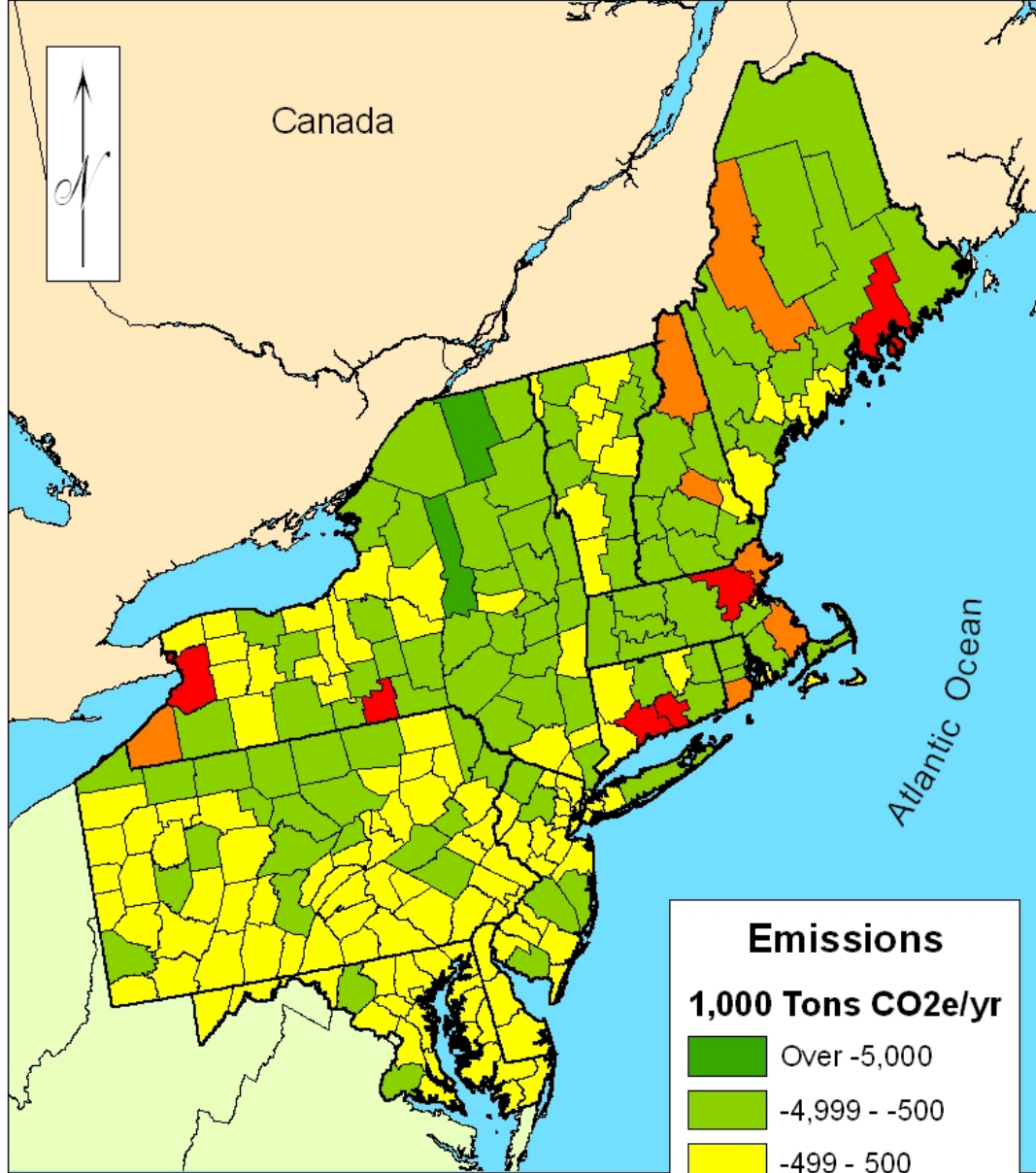
# Carbon Offset Projects and State Forests

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May 19, 2009

# Carbon Dynamic Estimates

- The FIA is the best source (maybe in the world) for making large-area (national, regional, statewide) estimates of forest (and carbon) dynamics.
- The demand, however, is often for high-resolution estimates (county or sub-county level).
  - That raises questions of statistical reliability
  - With proper quality checking and caveats about precision, some estimates are possible.



## Estimated Net Carbon Emissions from rural forests, by County, Northeast

Source: Murdock, S., S. Brown, R.N. Sampson and B. Stanley, Terrestrial Carbon Sequestration in the Northeast: Quantities and Costs, Available at

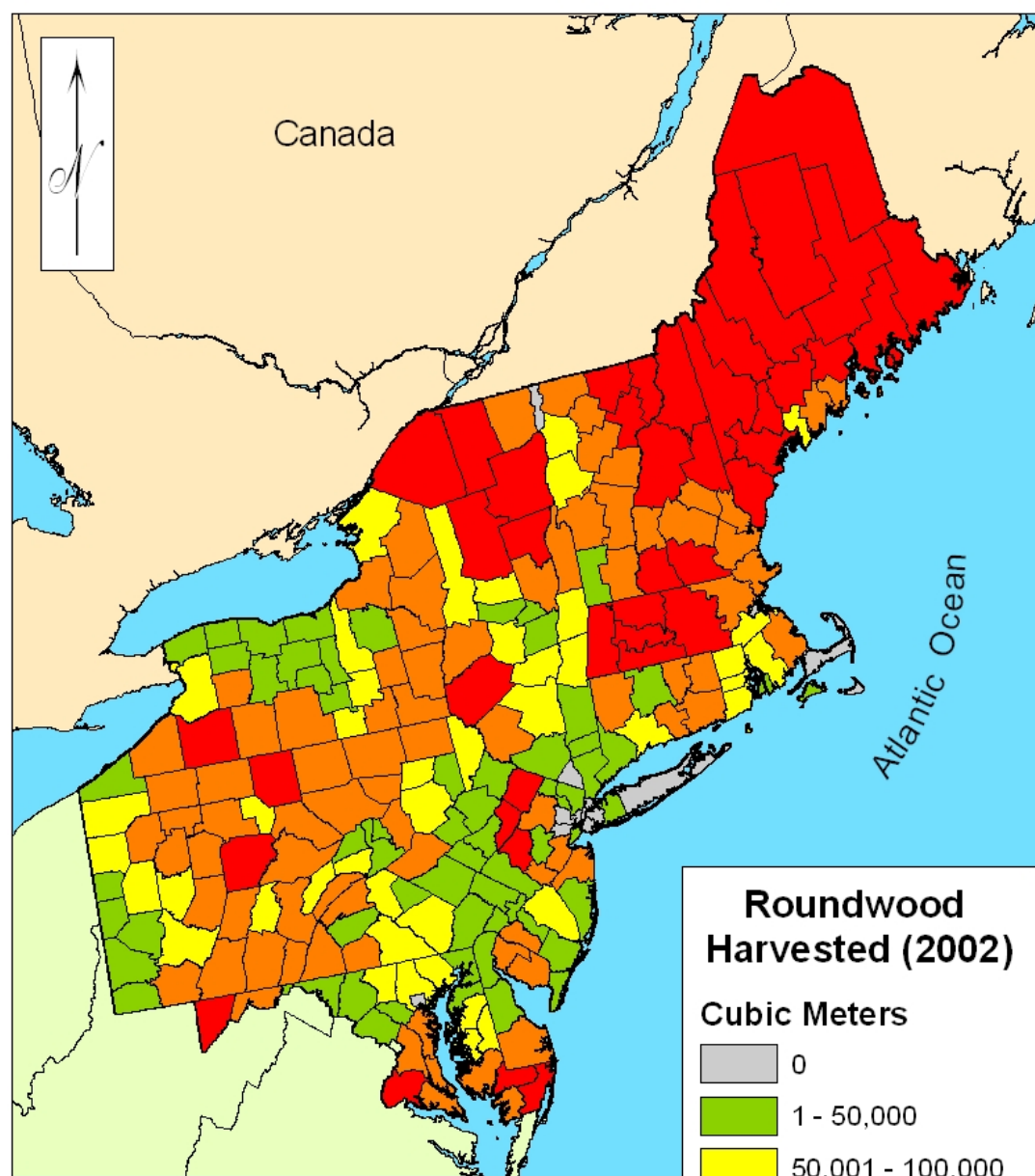
[www.sampsongroup.com](http://www.sampsongroup.com).



Map Produced:  
3/07  
MHK/RNS

## 2002 Roundwood harvests, by county, Northeast

Source: Murdock, S., S. Brown, R.N. Sampson and B. Stanley, Terrestrial Carbon Sequestration in the Northeast: Quantities and Costs, Available at [www.sampsongroup.com](http://www.sampsongroup.com).



Map Produced:  
2/06  
MHK/RNS

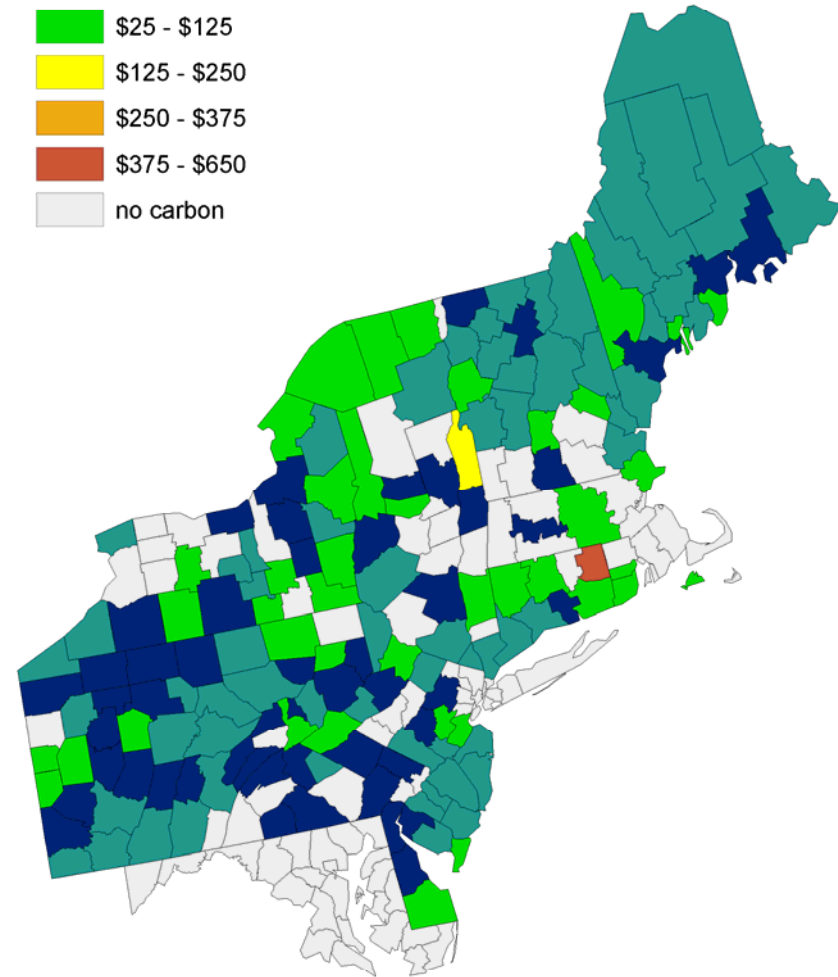
Data Source:  
Timber Products Output Mapmaker  
USDA Forest Service

Average cost of carbon sequestration, by county, from improving stocking conditions in poorly stocked forests.

Source: Murdock, S., S. Brown, R.N. Sampson and B. Stanley, Terrestrial Carbon Sequestration in the Northeast: Quantities and Costs, Available at

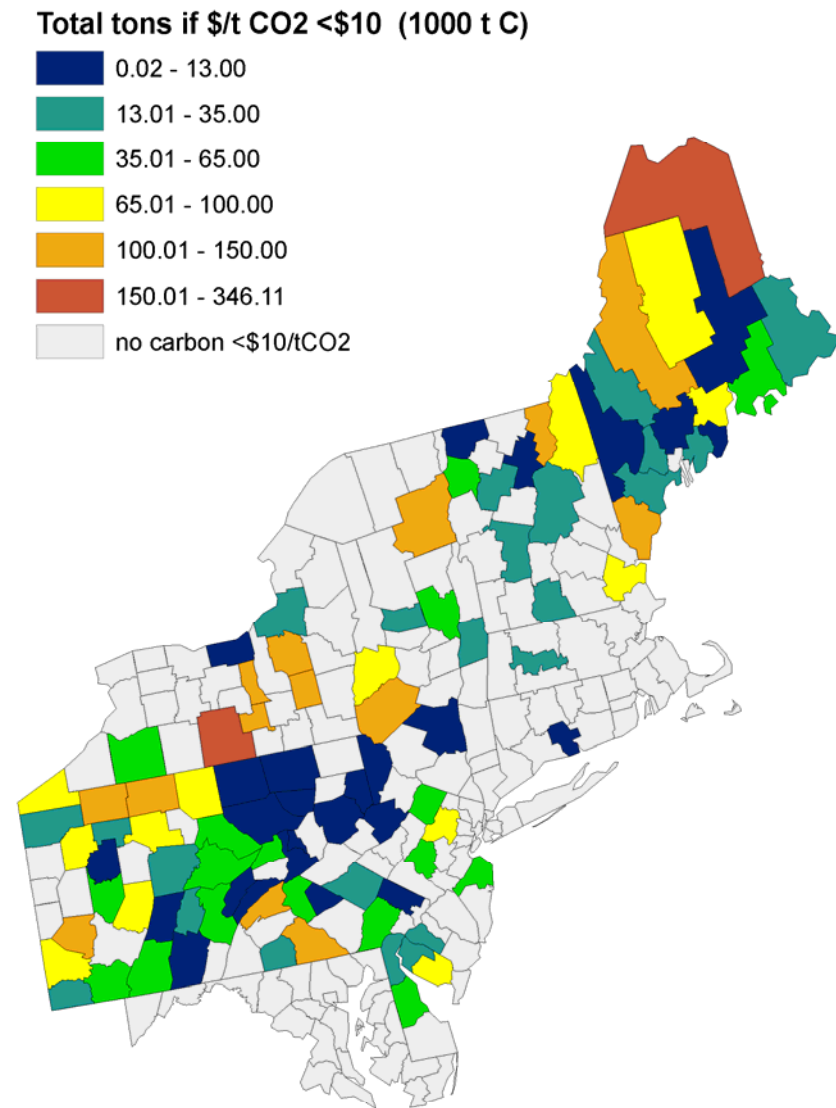
[www.sampsongroup.com](http://www.sampsongroup.com).

\$/t CO<sub>2</sub>



Total carbon potential for poorly and under-stocked stands, by county, at marginal costs of less than \$10 per tCO<sub>2</sub>e.

Source: Murdock, S., S. Brown, R.N. Sampson and B. Stanley, Terrestrial Carbon Sequestration in the Northeast: Quantities and Costs, Available at [www.sampsongroup.com](http://www.sampsongroup.com).



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# Estimates vs Projects

- Large-area estimates rely on FIA
  - National statistics for UNFCCC reporting
  - National and Statewide statistics for policy analysis
    - Birdsey, Heath, Smith et.al.
- Project Accounting for Market Trading relies on project-area inventory and change.
  - These generally will rely on traditional inventory methods
  - There appears to be an emerging role for aerial methods.

# Current Market Opportunities

- Chicago Climate Exchange (CCX)
  - Established market
  - Stable protocol requirements
  - Low prices
- Over-the-counter sales
  - Erratic market
  - Different protocol requirements
  - Better prices
- California Climate Action Registry
  - Difficult protocol
  - Some sales

# Future Carbon Markets (?)

- Regional Greenhouse Gas Initiative (RGGI)
  - Working on new protocol
    - Proposal incorporates use of FIA for average data
- CCAR
  - Updating protocol on managed forests
    - Proposal incorporates use of FIA
- Others ?
  - Western Climate Initiative
  - Midwestern Climate Initiative
  - National program
    - Duke Study – uses FIA

# Currently – Internal Focus

- For CCX and most other current markets, the focus is on the forest project area itself – its standing carbon stocks, management methods, future plans, harvest levels, and impact on carbon stocks.
- For CCX, starting point is accurate inventory data
  - +/- 10% at 90% confidence
- Increases in standing stock result in credits. Increases must be maintained for long periods, currently 15 year contractual obligation.
- Reductions below the increased level must be paid back or replaced.

# Application Requirements

- Landowners will need to provide the following information to apply for project status:
  - Proof of ownership of carbon credits
  - Land location and description, acres involved
  - Maps showing lands included in the project
  - Description of land condition and use before the project
  - Description of management planned under the project

# Sustainable Forest Management

- Forests must be certified through American Tree Farm System (ATFS), Sustainable Forestry Initiative (SFI) or Forest Stewardship Council (FSC).
- Earn credits on the basis of verified annual increases in above- and below-ground portions of live trees.
- Baseline is December 31 of the year prior to project initiation, based on current forest inventory.
- Approved models are used to project growth from inventory year. Model results are discounted 20%. No discount for projects with annual inventory.

# Sustainable Forest Management

- Projects must place 20% in Reserve Pool.
- If subsequent inventory reveals a decrease in forest carbon stock, project must provide additional credits to cover the loss, or use their Reserve Account in the Reserve Pool.
- In the event of catastrophic loss, owners liability is limited to the credits in the Reserve Pool.
- If forest land is sold or purchased, the allowable carbon stocks will be adjusted to the new land area.
- Landowner agrees to maintain forest certification for 15 years and keep forest stocks in the project beyond the contract period.

# Harvested Wood Products

- Must come from sustainably managed (certified) forests.
- Credits are granted for the amount of wood estimated to remain in use or in landfills 100 years after harvest.
  - Forest Service methods and tables used to calculate.
- For landowners, allowable credits are based on the weight of wood delivered to the sale point, by timber type.
  - Convert from volume measures to weight if needed.
  - Multiply by 0.5 to adjust from green to dry weight
  - Multiply by 0.5 to adjust from dry weight to carbon
  - Multiply by  $(3.67)(0.9)$  to convert to tCO<sub>2</sub>e (metric)

# Role of Aggregator

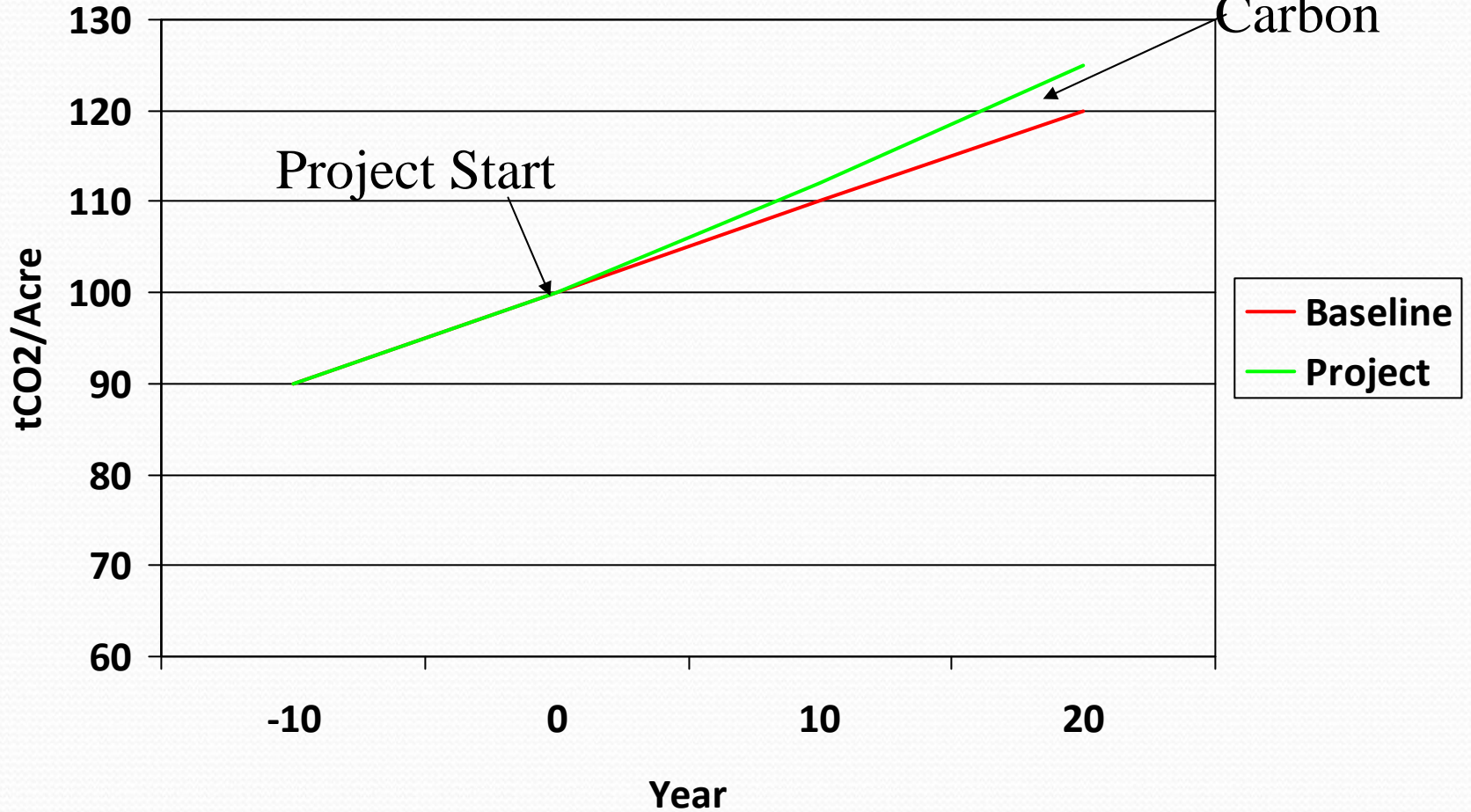
- Maintain a database of all projects at the stand level that reflects management activities, growth and yield, and other forest details.
- Arrange for verification of project records and lands.
- Manage the Reserve Accounts for Projects
- Obtain CCX-required reports from landowners; submit summary reports to CCX.
- Assure CCX that all projects continue to meet CCX rules.
- Trade offset pools on the CCX trading floor; pay net receipts to project owners.

# Potential for State Forests

- Depends on definitions of Baselines and Additionality
- Example: If the baseline is determined to be an extension of the past 10-15 years of forest growth and change, and the only growth you can claim as “additional” is what you can achieve in the future through changed management, what would result?

# BAU Example

Additional  
Carbon



Project Start

- Baseline
- Project

# Questions:

- What can you do, in a practical way on your State Forests, to change growth patterns and maintain that extra growth over time?
- How big would the difference be?
- What would the economic trade-offs look like?
  - Reduced harvest levels?
  - Increased certification costs if required?
  - Increased inventory costs?
  - New revenues from carbon offset sales?

# Potential for State Forests

- Example: If the forest carbon reported can be the stock change in the forest (as proposed in the DOE 1605(b) technical guidelines and done by CCX), then:
- You need a good inventory to establish the current baseline level.
- You model future growth for a few years.
- You claim increased carbon stocks annually.
- You inventory again in 5-10 years to “true up” the model estimates.

# Questions:

- Is constant growth sustainable?
- For how long?
- Increased inventory costs?
- Increased certification costs, if required?

# Current Uncertainty

- Markey-Waxman Bill in U.S. House
  - Very difficult process for offset projects
  - Run by EPA, it appears
  - May not recognize CCX or other voluntary efforts as valid
  - Does not recognize 1605(b) or Forest Service expertise
  - Probably puts all forestry projects on marginal basis
  - Time will tell!!

# Bottom Line

- This is a very uncertain situation at the moment
- Forest carbon projects as a new ecosystem market for landowners is at great risk in the House Bill.
- Currently, carbon prices on the voluntary market are very low, largely based on the uncertain future of these and other programs.
- Not an immediate source of significant new revenue for state forests.

# Current Strategies

- Develop tracking methods for carbon stock change on state forests
- Report carbon stock changes in state discussions of carbon opportunities and challenges
- Watch how national policy deals with forest carbon project opportunities
- Understand where (if) state forest management opportunities may emerge.