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# Biomass Carbon Neutrality

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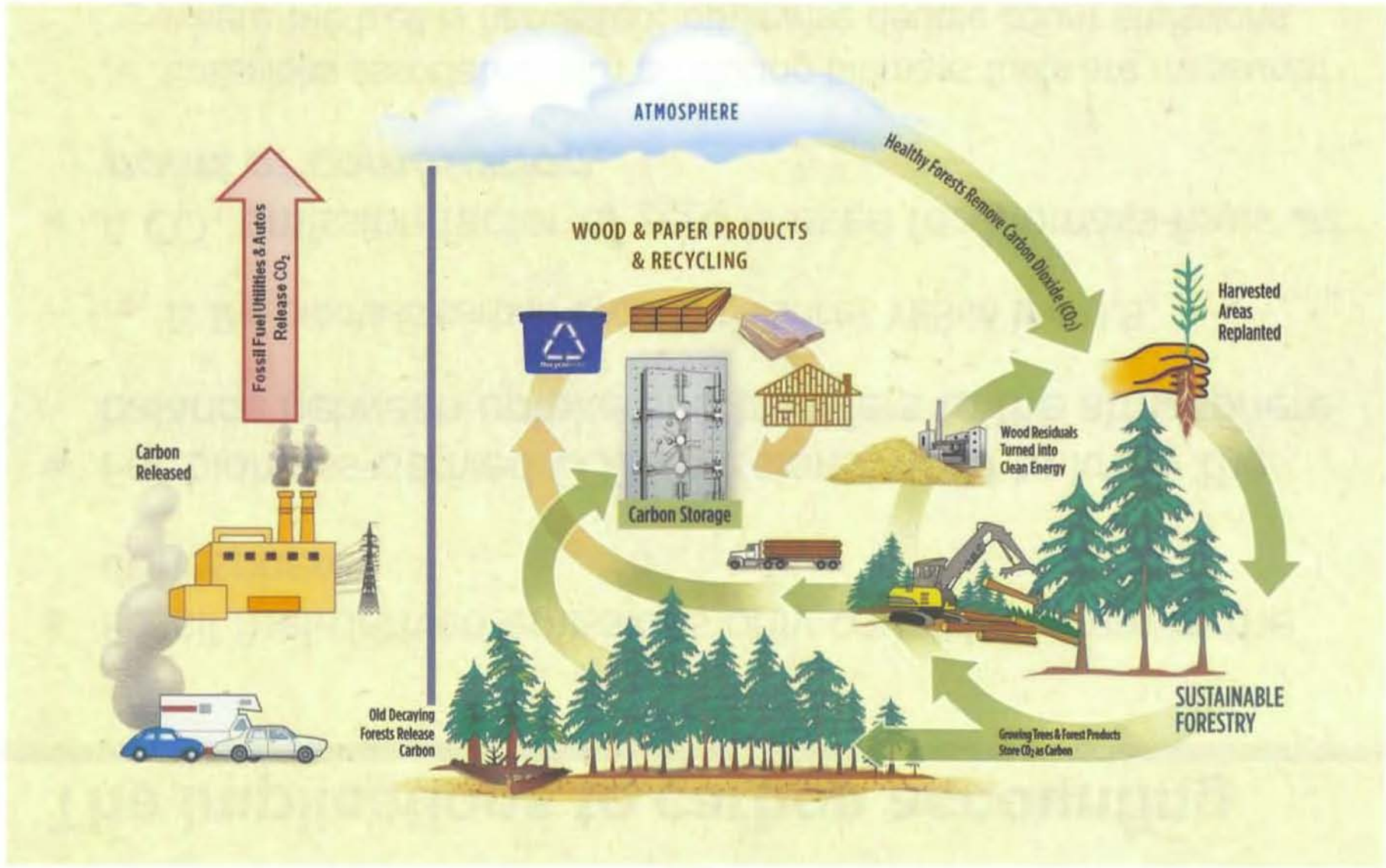
# What is Biomass Carbon Neutrality?

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- Differentiates between biomass-derived carbon from fossil-fuel carbon – highlights role in the global carbon cycle.
- Part of a relatively rapid natural cycle that neither adds nor subtracts carbon to/from the atmosphere when in balance.
- The carbon dioxide (CO<sub>2</sub>) removed from the atmosphere during photosynthesis is converted into organic carbon and stored in biomass, such as trees and crops.
- When harvested and combusted, or during decay, the carbon in the biomass is released as CO<sub>2</sub>, thus completing the carbon cycle.

# Fossil Fuel Releases

# Biomass Carbon Cycle

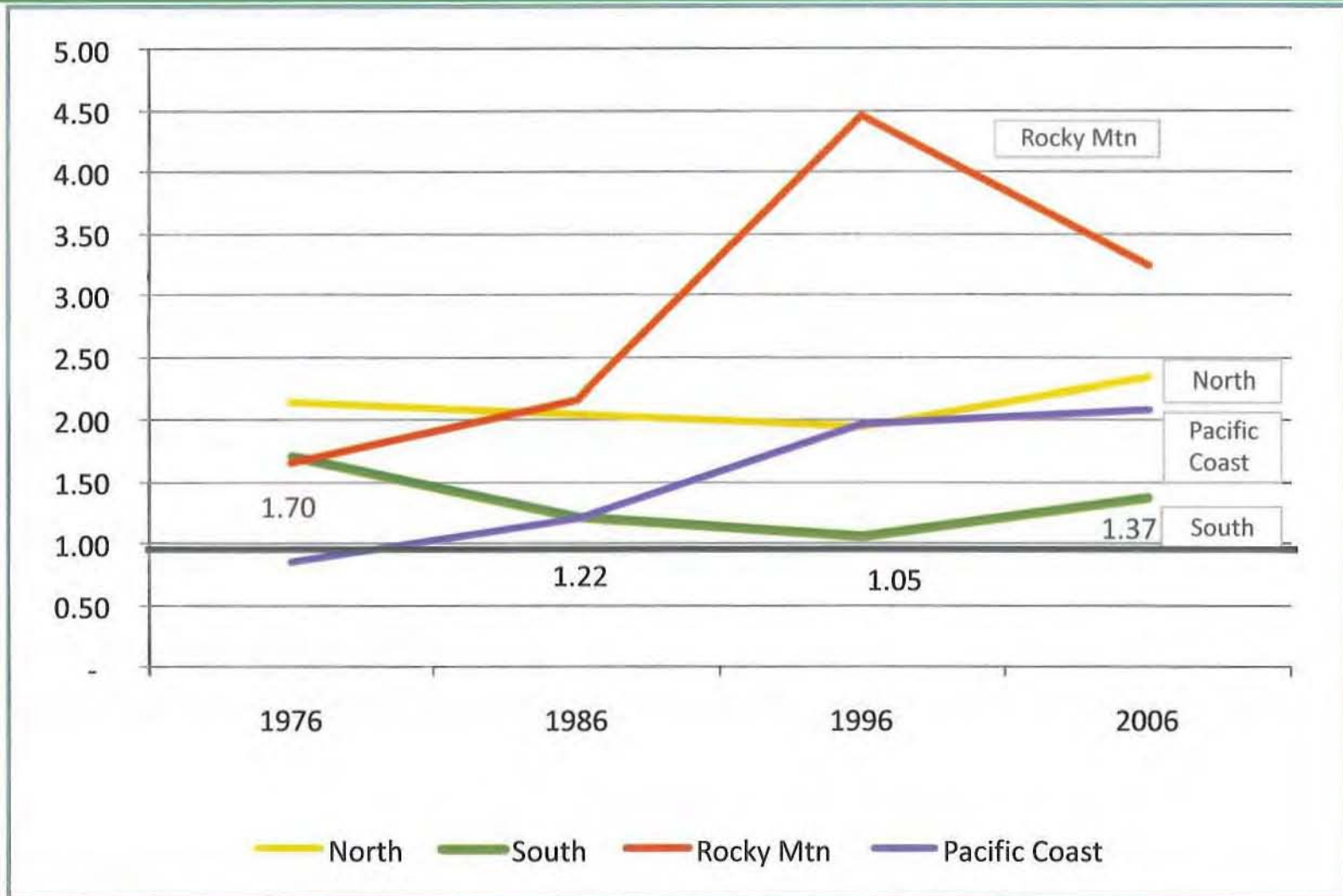


# The implications to carbon accounting

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- Fossil fuel-derived emissions only count transfers to the atmosphere
- For biomass-derived CO<sub>2</sub> emissions, need to know the balance between uptake and transfers to the atmosphere
  - Is the biomass carbon cycle in balance? YES in the U.S.
- A CO<sub>2</sub> emission factor of zero is used for biomass fuels ***at point of combustion.***
  - Emissions associated with producing biomass fuels are measured where the tree is harvested; otherwise double count emissions.

# Timberland Growth/Removal Ratio By Region



• Growth-removal ratio is calculated based on annual growth on timberland divided by annual removal as of reported years. No specific data for growth and removal in between reported years.

Source: Forest Resources of the United States, 2007 – Table 36

# Longstanding and Widely Established Principle

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Organizations recognizing the carbon neutrality of biomass emissions include:

1. UN Intergovernmental Panel on Climate Change
2. European Union Emission Trading System
3. U.S. Environmental Protection Agency (RFS and GHG Reporting Rule)
4. EPA National GHG Inventory
  - Does not count emissions from combustion of biomass
  - Rather, counts biogenic emissions as part of land use change
  - Shows land use in U.S. to be significant net carbon sink

# Unintended Negative Consequences

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1. Would need to redesign Cap and Trade legislation and programs (all based on fossil fuel emissions only)
2. Eliminates CO<sub>2</sub> emission reduction strategies
3. Unlevel playing field and uncertainty for users
4. Re-examine Renewable Electricity/Fuels Standards
5. Increased environmental impact of fossil fuel use
6. Lack of biomass markets promotes land use change to non-forest uses
7. Renewable energy markets will be deterred

Bottom line: Economic and job dislocation will occur

# Biomass CO<sub>2</sub> Neutrality and Climate Regulation

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- Clean Air Act – wrong tool for controlling GHGs
- Endangerment Finding and Tailpipe rule
  - AF&PA comments supported carbon neutrality of biomass combustion in U.S.
- Tailoring Rule
  - EPA should exclude biogenic emissions from major source threshold and significance test - regardless of the level
  - 150 additional wood product mills could be regulated
  - Hundreds of biomass projects at pulp and paper mills
  - Support delayed implementation of BACT to smooth transition



# Biomass CO<sub>2</sub> Neutrality and Climate Regulation and Policy

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- Biofuels should be considered clean fuels in BACT – avoid review
- EPA has distinguished different pollutants within a class before so has legal basis for biomass carbon neutrality
  - VOCs based on reactivity or particulates based on size
- No consensus in BACT workgroup – alternative is an unworkable case by case life cycle assessment to demonstrate neutrality
- In RFS, forest residual cellulosic biofuel meets advanced biofuel criteria – expect the same for other woody biomass
- RES - Biomass qualifies as “Renewable Energy”
- Renewable energy mandate should balance supply and demand – if out of balance, explore policies that encourage supply responses

# Summary

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- Reaffirm biomass neutrality for Tailoring rule
  - Biomass CO<sub>2</sub> Global Warming Potential = zero
- Reinforce efforts to increase biomass supply and sustainable use of the resource without negating carbon neutrality
- Support higher cutoffs (100K) to help with transition to GHG BACT permitting but the more time the better