FIA/ARB/CAR baseline for Offset Protocol

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Carbon Trading

- PNW-FIA started to work with Climate Action Reserve (CAR) in 2006.
- CAR developed a *volunteer* carbon offset protocol.
- CAR chose FIA data because:
  - Wide application
  - Objective
  - Unbiased
  - Standardized
West-Coast

• Initially CAR’s work with PNW-FIA was limited to California, Oregon and Washington.
• It later expanded to the lower 48 States.
Forest Offset Project Types

- Reforestation
- Avoided Conversion
- Improved Forest Management
Improved Forest Management

• Activities that increase forest-based sequestration and/or decrease emissions.
• Projects receive carbon credits
  1. initially, if the project is above a “common practice” and any
  2. net growth.
“Common practice”

• “Common practice” statistics:
  • “[..] average standing live carbon stocks on similar lands within the project’s Assessment Area.”
How is FIA information used?

- In this scenario, the project will generate credits for both stock retention and growth

Source: John Nickerson – FIA User’s Group presentation, 2010
USFS Ecosection

• Ecosections are spatial units that have similar physical and biological components.
• They were developed by the US Forest Service.
Assessment Areas

• CAR combined different ecossections with similar economic and regulatory drivers into “FIA Supersection.”

• Within these FIA Supersections, CAR grouped different forest types and site class groups into “assessment areas.”
State of California: Cap-and-Trade

• In 2011 California adopted the protocol developed by CAR for the regulated cap and trade market.
• Approach used by California to manage CO₂ emissions – use price as incentive for change.
• Applies to any state approved for offset projects using CA ARB protocol.
• Depends on continuous stream of reliable and verifiable information.
California Carbon Cap & Trade

Compliance Offset Protocol
U.S. Forest Projects

Adopted: October 20, 2011
ARB Protocol Update

• In 2013 ARB approached PNW-FIA about updating the common practice statistics for the lower 48 states using the most up-to-date FIA data.
Site Class

• CAR had used different site class grouping for each assessment area.
• ARB requested to fix the site class grouping to two groups:
  • High: Site class 1-4
  • Low: Site class 5-7
• If any groups contained less than 30 plots, all site classes were grouped together into one assessment area.
Example: White Mountains Mixed Hardwoods

This assessment area is comprised of

• the USFS eosection M211A (White Mountains),

• mixed hardwoods (FIA forest type 503, 505, 515, 608, 701, 702, 703, 704, 708, 904),

• all site classes.
Example:
White Mountains Mixed Hardwoods

- Original dates: 2002-2006
- Combined all plots between 2002 and 2006 to estimate total $CO_2$ and total acres within assessment area.
- Divided total $CO_2$ by total acres.
- Updated dates: 2008-2012
2002-2006

• CO₂: 5,127,758 tons
• Area: 101,660 acres

• \( \frac{5,127,758}{101,660} = 50.4 \) CO₂ tons per acre

2008-2012

• CO₂: 5,015,227 tons
• Area: 102,903 acres

• \( \frac{5,015,227}{102,903} = 48.7 \) CO₂ tons per acre
Coastal Alaska

• As part of the update, ARB included coastal Alaska in the carbon offset protocol since 2015.

• In April 2018, the Alaska native corporation Sealaska announced that they set aside 165,000 acres of timberland (out of 365,000 acres total) as carbon offset project.
CAR Hawaii Carbon Protocol

• In 2017, CAR developed a carbon offset protocol for Hawaii.
• Instead of site class, CAR used *precipitation* as an indicator for productivity.
• FIA provided baseline estimates.
• The Nature Conservancy (TNC) has started a carbon offset project under the CAR protocol in Hawaii.
• ARB is currently not including Hawaii in the Cap-and-Trade market.