



## Fire Science: Quick Takes

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### The Role of Forest Carbon in Climate Change Policy

The centerpiece of President Obama's climate change program is a proposal to establish an economy-wide cap and trade system that would dramatically cut greenhouse gas emissions by 2050. Under the Obama plan, the government would set annual reduction targets that would require that overall emissions be reduced to 1990 levels by 2020 and 80% below 1990 levels by 2050.

Under a cap-and-trade plan, companies that produce carbon dioxide and other greenhouse gases buy credits in an initial auction that give them the right to emit a certain amount. Companies that emit less carbon than their credits allow can profit by selling any excess credits on the open market, while those that exceed their emission allowance have to make up the difference or face heavy fines.

Part of making up the difference is through the concept of "carbon offsets." Carbon offsets are payments made by individuals, corporations, or organizations to support projects that reduce the level of greenhouse gases in the atmosphere, usually represented by renewable energy programs such as wind farms and biomass energy, or reforestation or sustainable forestry projects.

There are currently a number of regional voluntary systems and registries for reducing carbon emissions, including the California Climate Action Registry and the Regional Greenhouse Gas Initiative in the Northeast. In addition, the Chicago Climate Exchange is a legally binding carbon trading system. If a national emissions cap was established these types of programs would likely multiply and expand rapidly.

Each of these programs includes forestry among their range of carbon offset options. In these programs, forest owners sell carbon credits as a product of their reforestation, afforestation, and sustainable management efforts that result in net increases in carbon sequestration. The forest owners have to ensure that their carbon storage is real and verifiable, commit to store the carbon for 100 years, and ensure that they are storing more carbon than "business as usual" - so offset buyers won't end up paying for trees that would have been left standing anyway.

#### **Chicago Climate Exchange Specifications for Forestry Offset Projects:**

- Forestation, conservation, and forest enrichment projects initiated on or after January 1, 1990 on unforested or degraded forest land. Forest owners earn credits at a rate based on the annual increase in the carbon stocks of above-ground, living biomass.
- Demonstration that entity-wide forest holdings are sustainably managed with Independent third-party verification of carbon stocks.

- Demonstration of long-term commitment to maintain carbon stocks in forestry. Options for demonstrating this include establishment of long-term conservation easements for forest maintenance, legal protection through transfer of ownership to recognized conservation entities.
- Quantification of carbon stock accumulation in small and medium forestation projects is achieved through carbon accumulation tables or use of direct in-field sampling and measurement. Carbon accumulation in large forestation projects is done through direct measurement or properly parameterized growth models. Included carbon pools are limited to above-ground living biomass on the project land.
- Carbon credits are sold at market prices on the Chicago Climate Exchange. Prices have ranged from \$1 to \$5 per metric ton of CO<sub>2</sub>, and reached a high near \$7.50 in May, 2008.

#### **More Resources:**

- McDaniel (2009). Wildfire and the Carbon Leakage Problem. Advances in Fire Practice website. <http://www.wildfirelessons.net/Additional.aspx?Page=151>
- McDaniel. (2009) Wildfire and the Global Carbon Cycle. Advances in Fire Practice website. <http://www.wildfirelessons.net/Additional.aspx?Page=145>
- Chicago Climate Exchange – [www.chicagoclimatex.com](http://www.chicagoclimatex.com)
- California Climate Action Registry – [www.climateregistry.org](http://www.climateregistry.org)
- Carbon Trading: A Primer for Landowners – <http://carbon.sref.info>

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**The Wildland Fire Lessons Learned Center** actively promotes a learning culture for the purpose of enhancing safe and effective work practices in the entire U.S. wildland Fire community. It is located at the National Advanced Fire & Resource Institute in Tucson, Arizona.

