

## FAQs ON FOREST CARBON: The California Forest Protocols

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There's progress on the climate front. Suddenly the U.S. is waking to the reality of climate change as glaciers melt and seasons become more extreme. For California, predictions of declining snow packs and drier summers mean threats to urban water supplies and higher risk of wildfire. Across the country, states are taking the initiative to reduce greenhouse gas emissions.

Frequent questions arise about the California Climate Action Registry and its Forest Protocols. Forest landowners are starting to learn more and examine how the Registry might benefit them. Some misconceptions have developed, thus a brief overview helps in understanding how the protocols work and the potential they offer to landowners, forests and the global environment.

### ***California's Response to Climate Change***

California is a leader in the U.S. climate arena. It has pioneered ambitious targets to reduce greenhouse gases (GHG), set groundbreaking limits on auto emissions, and raised energy efficiency and renewable portfolio requirements. A new report from the Governor's Climate Action Team ("CAT") calls for wide-ranging GHG reductions and recognizes the role that forests will play in a state strategy<sup>2</sup>.

The doors of the California Climate Action Registry (CCAR) opened in 2001<sup>3</sup>. The Registry allows members to record voluntary actions taken now to reduce emissions before regulations and trading markets are in place. The Registry is not a market, but its primary purpose is to establish a credible accounting framework needed to support a market. In registering their emissions, corporations demonstrate their 'climate-consciousness' to shareholders who increasingly demand disclosure of business exposure to climate risks. Over sixty-four entities are now members of CCAR, including all the state's large electric utilities and several forest landowners.

The Forest Protocols within CCAR are pioneering<sup>4</sup>. We know that forests remove carbon dioxide through photosynthesis and counteract emissions from burning fossil fuels. But one of the most contentious debates – at the international, state and non-governmental levels -- has been whether forests should be included in a climate strategy at all. Forest projects have been perceived as too complicated and only a diversion from the main

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<sup>2</sup> Final 2006 Climate Action Team Report to the Governor and Legislature, April 2006. [http://www.climatechange.ca.gov/climate\\_action\\_team/reports/index.html](http://www.climatechange.ca.gov/climate_action_team/reports/index.html)

<sup>3</sup> California Climate Action Registry (CCAR) : <http://www.climateregistry.org>

<sup>4</sup> California Forest Protocols: <http://www.climateregistry.org/PROTOCOLS>

target of reducing fossil fuel use. Discussions on the Kyoto Protocol recognized forests as important sinks, but explicitly limited their use<sup>5</sup>.

California has leapfrogged over the reluctance of the Kyoto negotiators. The Registry not only authorizes forests to be registered, but establishes new concepts on what is eligible for reporting. Senate Bill 812 was signed in 2002 giving CCAR the authority to develop forest protocols<sup>6</sup>. Three years of workshops brought scientific, technical and practitioner stakeholders together, building on professional practices for forest inventories and management. Many Registered Professional Foresters (RPFs) participated in the development and review. Following a series of public hearings the protocols were adopted by the CCAR Board in June, 2005.

### ***Elements in California's Forest Carbon Accounting***

Accounting standards for GHG emissions have been developed by international institutions to promote compatibility across trading systems<sup>7</sup>. Any credible system for calculating whether a project is a climate benefit or a climate liability must address these standards. The key concepts for forest accounting are incorporated in the CCAR protocols:

- Baseline - forest carbon stocks at a point in time or projected into the future, assuming "business as usual" management practices and land uses
- Additionality - carbon stocks produced beyond "business as usual", i.e. forest projects designed to produce net sequestered carbon above the projected baseline
- Leakage – shifting harvest to another place that cancels out the additionality of a sequestration project
- Permanence – the length of time carbon storage lasts before it is returned to the atmosphere.

The concept of additionality is important because it represents the carbon stocks that can be traded once a market structure is established.

The California protocols also address governance and transparency, e.g. who can report, what kinds of projects are eligible, what carbon pools are included and what statistical confidence is needed for measurements. The three sections of the protocols describe the standards for 1) entity-wide reporting of emissions ("*Forest Sector*" protocol), 2) specific projects designed to create additionality ("*Forest Project*" protocol), and 3) third-party certification ("*Forest Certification*" protocol).

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<sup>5</sup> UN Framework Convention on Climate Change (UNFCCC), Land Use, Land Use Change and Forestry (LULUCF): [http://unfccc.int/methods\\_and\\_science/lulucf/items/1084.php](http://unfccc.int/methods_and_science/lulucf/items/1084.php)  
[http://unfccc.int/methods\\_and\\_science/lulucf/items/1084.php](http://unfccc.int/methods_and_science/lulucf/items/1084.php)

<sup>6</sup> SB 812 was developed and sponsored by The Pacific Forest Trust and carried by Senator Byron Sher as principal author.

<sup>7</sup> World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD). 2004. The Greenhouse Gas Protocol: A corporate accounting and reporting standard. (Revised edition.) Available at: [http://pdf.wri.org/ghg\\_protocol\\_2004.pdf](http://pdf.wri.org/ghg_protocol_2004.pdf)

Entirely new at the time the authorizing legislation was passed was allowing the registration of *managed* forests with a clear baseline. Prior international projects had dealt only with reversion of agricultural land to forests and then maintained as parks, or with afforestation of plantations outside native forests. But California's highly-prescriptive Forest Practice Rules provide a measurable floor to support carbon accounting in managed forests. The "business as usual" baseline is based on a scenario where harvesting occurs to the greatest extent allowed by law. Management activities that increase carbon stocks above the legal baseline count as additionality.

California's approach also focuses on keeping forestland in forest use. Converting forests to development is a carbon *emission*, caused by clearing and construction of buildings and roads, and from lost photosynthesis. CCAR allows land retained in forest use to be beneficially counted in your carbon account. This is calculated by comparing the carbon stock of the existing forest to that following a specific development proposal, or to that under the local land use plan's projected rate of development.

***But is there a market?*** It's coming even faster than we thought. PG&E, the major northern California utility has just petitioned the state Public Utilities Commission (CPUC) to begin a voluntary "Climate Protection" program for customers, using forest projects registered in the California registry<sup>8</sup>. Based on anticipated enrollment over the three-year project, the program is expected to reduce around two million tons of CO<sub>2</sub>, equivalent to taking about 350,000 cars off the road for a year.

RGGI, the Regional Greenhouse Gas Initiative coalition of New York and eight eastern states, recently unveiled its model agreement for a cap-and-trade system for power plants<sup>9</sup>. It permits from 3 - 20% of the emission cap obligation to be met with various offsets, including forests. RGGI discounts offsets by 50% if they come from non-RGGI member states, so California's forests are heavily discounted in this market. But the CPUC has recently announced its own intent to develop a cap-and-trade system for investor-owned utilities compatible with RGGI<sup>10</sup>, meaning California forests would receive equitable treatment.

In Europe, trading under the Kyoto Protocol offers important lessons<sup>11</sup>, and the Oregon-based Climate Trust has recently selected winning bids for \$4.3 million in domestic carbon offset projects that include forestry<sup>12</sup>.

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<sup>8</sup> Pacific Gas & Electric Climate Protection Program:  
[http://www.pge.com/customer\\_service/bill\\_inserts/#topic4](http://www.pge.com/customer_service/bill_inserts/#topic4)

<sup>9</sup> Regional Greenhouse Gas Initiative (RGGI): [www.rggi.org](http://www.rggi.org)

<sup>10</sup> California Public Utilities Commission Load-based Cap  
[http://www.cpuc.ca.gov/PUBLISHED/NEWS\\_RELEASE/53682.htm](http://www.cpuc.ca.gov/PUBLISHED/NEWS_RELEASE/53682.htm)

<sup>11</sup> European Union Emission Trading System:  
<http://europa.eu.int/comm/environment/climat/emission.htm>

<sup>12</sup> The Climate Trust: [www.climatetrust.org](http://www.climatetrust.org)

The Chicago Climate Exchange (CCX) demonstrates how a carbon trading market works<sup>13</sup>. Building on experience with other air pollutants, CCX was created to initiate trades in carbon. Early members are testing policies and helping to formulate regulations. The currency is the Carbon Financial Instrument (CFI), where 1 CFI equals 100 tonnes of CO<sub>2</sub> - and forest credits are eligible for trading. The state of New Mexico announced it was joining the Chicago Exchange and will likely need to buy credits to comply with state GHG goals, and CCX has announced formation of a New York and Northeast Climate Exchange to meet the RGGI market. The CCX price around \$2 a ton is meaningless until a real US cap-and-trade market develops, but current European prices run around \$30 per ton of CO<sub>2</sub>.

So the institutional mechanisms for carbon markets are falling into place. GHG producers are looking to markets for cost-efficient means to meet reduction obligations, and global corporations want certainty in U.S. policy so they can make investment decisions. Pressures are building for markets to develop, and many states are anxious to begin.

***Are longer rotations and growing “old growth” the only way to show additionality?*** No. This is a common misconception, but foresters know there are many ways to provide additionality in a timber stand. Three types of Forest Projects are authorized under CCAR: 1) Forest management that produces additionality; 2) Reforestation that restores native trees on lands previously forested, but out of tree cover for at least ten years; and 3) Projects that prevent the conversion of native forests to non-forest use, such as development. Figure 1 illustrates the forest projects permitted under the protocols.

A promising project for many landowners, for example, is rehabilitating degraded stands. State law does not require landowners to improve stocking on poorly stocked areas, so restoring native conifers provides additionality above the baseline scenario. Avoiding forest liquidation and continuing good stewardship into the future also provides additionality by placing the land in a working forest conservation easement.

***What about fire or other forest loss?*** Fuel management in forests can produce significant climate benefits by reducing the large CO<sub>2</sub> releases from catastrophic fires. Climate benefits are further increased when materials are processed into wood products or diverted to biomass plants to offset fossil fuel use. The CAT report highlights forest fuels reduction as an important strategy in meeting state emission-reduction goals. A WESTCARB pilot project in northeastern California will quantify linkages between fuel reduction and biomass energy production, leading to potential new CCAR protocols for such projects<sup>14</sup>.

For the carbon investor, risks of wildfire are factored into the price of the commodity, similar to any other type of transaction. The general concept is that carbon credits will be pooled, with some portion set aside as an unsold buffer to cover potential losses<sup>15</sup>.

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<sup>13</sup> The Chicago Climate Exchange: [www.chicagoclimatex.com](http://www.chicagoclimatex.com)

<sup>14</sup> WESTCARB: [www.westcarb.org](http://www.westcarb.org)

<sup>15</sup> International Panel on Climate Change (IPCC) Special Report on Land Use, Land-Use Change and Forestry: Risks [http://www.grida.no/climate/ipcc/land\\_use/269.htm](http://www.grida.no/climate/ipcc/land_use/269.htm)

Large buyers of carbon credits will not want the accounting burden of numerous individual landowners, so carbon brokers will likely step in to bundle projects and thereby spread the risks across owners and geographically.

***Once you sell your forest carbon it's gone forever.*** Sales of carbon are similar to sales of timber, since as you increase your carbon credits you can sell more. Ultimately there is an upper limit on the carbon a forest can store and on rates of photosynthesis. But potential still remains in many California forests for creating additionality through management, especially when coupled with the avoidance of land conversion.

Registering in CCAR certifies your carbon as a potential commodity. How you sell your credits and carbon rights depends on the deal between you and your buyer. Sellers need to exercise the same diligence as any transaction, with full understanding of who holds title to the credit and for what period of time the buyer “needs” your credits. The forest carbon you sell offsets an emission from someone else, so the buyer is concerned about permanence in order to meet their obligation. From your perspective as a seller, permanence is achieved through the conservation easement and your stewardship practices.

***What about the easement?*** A permanent working forest conservation easement is required for registering a specific *forest project* in CCAR, and forest projects are the basis for potential credits. An easement is not required for reporting only at the *entity-level*, but GHG reductions reported here do not receive Registry certification.

The easement will guide forest management and development on the land. The terms of the easement are up to you and the easement holder, and the easement value is proportional to the development and management limitations placed on the land. In the climate context the key consideration is that the easement permanently secures the increased carbon stocks. In the event of fire or other disturbance, the land will still be available to re-establish the forest. As with any long-term decisions you make about managing your forest, entering into the carbon market will take careful consideration in light of your goals.

***Can calculations be made cheaper and easier?*** Any Registered Professional Forester should have the ability to calculate what is needed for registration. Anyone dealing with an NTMP, Option A or SYP should be able to establish a “Business as Usual” baseline, compare additionality scenarios, and track them over time. The standards for inventory plots and 3<sup>rd</sup> party certification emerged during protocol negotiations to give confidence that the climate benefits would be real, durable, and of equivalent value to credits from any other sector.

The required carbon pools for reporting in CCAR are living tree biomass, standing dead tree biomass and lying dead wood. Optional reporting pools are shrubs and herbaceous understory, litter, soil and wood products. At the federal level the Department of Energy has recently released guidelines for the ‘Voluntary Reporting of Greenhouse Gases (1605(b)) Program’ providing extensive look-up tables to determine carbon stocking by forest type<sup>16</sup>. Research at the LaTour Demonstration State Forest is examining costs of

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<sup>16</sup> US Dept. Energy Final General Guidelines. April 2006. Voluntary Reporting of Greenhouse Gases (1605(b)) Program <http://www.pi.energy.gov/enhancingGHGregistry/generalguidelines.html>

protocol implementation, inventory standards and the potential for CDF inspectors to conduct certification in the course of THP inspection. Ongoing pilot work by private landowners will also highlight opportunities for protocol improvement and efficiencies, while still retaining the credibility of the credit. As new information and experience becomes available, the CCAR process provides for revision and refinement of protocols.

***What about wood products?*** Wood products are reportable under the CCAR protocols as an optional carbon pool, recognizing that carbon is stored in products for some period of time after trees are harvested. The U.S Forest Service and 1605(b) Registry guidelines provide estimates of the carbon content and decay rate of various wood products<sup>17, 18</sup>.

The challenge, however, will be in tracking ownership of the carbon credit once the log or wood product is sold. Ownership of the carbon is separate from ownership of the log, and a system for tracking title is needed to avoid double-counting. Ownership of the original credit starts with the forest landowner since the forest is where the additional carbon is protected. Downstream wood processors may capture new additionality through higher production efficiencies, but will be subject to similar tests of baselines and additionality for the carbon they claim. The protocols can be refined as experience is gained, so wood products are an area for further attention as a market develops.

***Should California's forests all become carbon parks?*** No. Converting working forests to parks may be counterproductive to attaining certain climate benefits, especially if management is constrained. As evidenced in many protected areas now, unnatural conditions of overstocking (i.e. too many trees per acre), pest outbreaks, competition for water during droughts and catastrophic fires have resulted when forests are unmanaged and fire regimes are changed. Parks provide one type of public benefits, but will need full carbon accounting like any other forest use if used in a climate context.

Continuing the production of wood products is an important component of a comprehensive climate approach. Californians are prodigious consumers of building materials, much of it imported from places with fewer environmental protections. Reducing use of wood means increases in energy-intensive substitutes, such as concrete, steel and petroleum-based building products, all of which perversely result in *increased* GHG emissions<sup>19</sup>.

Forest landowners are under tremendous pressure to liquidate forests for development. We cannot afford to purchase all of California's private forestlands for parks, nor is there a need to. The economic value of forest carbon, coupled with high forest stewardship and production of wood products will help landowners stay on their land -- while still

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Technical Guidelines for Voluntary Reporting of Greenhouse Gas Program, 1605(b) Forest Appendix [http://www.usda.gov/oce/global\\_change/gg\\_reporting.htm](http://www.usda.gov/oce/global_change/gg_reporting.htm)

<sup>17</sup> Ibid. Technical Guidelines, Appendix C and D.

<sup>18</sup> Skog, Kenneth E. and Garaldine A. Nicholson "Carbon sequestration in wood and paper products" USDA Forest Service General Tech Report RMRS-GTR-59 Chapter 5, 2000. <http://www.fpl.fs.fed.us/documnts/pdf2000/skog00b.pdf>

<sup>19</sup> CORRIM: Consortium for Research on Renewable Industrial Materials [www.corrim.org](http://www.corrim.org)

retaining the rural economies and landscapes that are part of California's heritage, and continuing to produce the ecosystem benefits from their forests that we now enjoy.

**Other sources of information?** Lots! The forest carbon web pages of the U.S. Environmental Protection Agency<sup>20</sup>, the U.S. Forest Service<sup>21</sup>, the US Department of Energy<sup>22</sup>, and the UN Framework Convention on Climate Change<sup>23</sup> will get you started. The Pew Center on Global Climate Change<sup>24</sup> and a series of papers on forest sequestration from The Sampson Group<sup>25</sup> provide good introductions and overviews. Options for a U.S. trading market were discussed in recent testimony before the U.S. Senate Committee on Energy and Natural Resources<sup>26</sup>, and Winrock International provides information on sampling and monitoring standards for carbon in forests<sup>27</sup>. The Pacific Forest Trust, the Conservation Fund and The Nature Conservancy sites offer information on forests, carbon and working forest conservation easements<sup>28</sup>.

## CONCLUSIONS

Many of us dedicated to private forests are exploring ways to generate incentives for landowners so they can continue owning and managing the lands they love. The excitement in watching climate policy is seeing the creation of an entirely new forest commodity appear before your eyes. While forests by themselves will not solve the challenges of global climate change, they are an important part of the toolbox and offer tremendous environmental co-benefits.

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<sup>20</sup> U.S. Environmental Protection Agency: <http://www.epa.gov/sequestration/faq.html>

<sup>21</sup> USDA Forest Service: <http://www.fs.fed.us/ne/global/research/carbon/qanda.html>

<sup>22</sup> U.S. Dept. Energy Voluntary Reporting of Greenhouse Gases (1605(b)) Program <http://www.pi.energy.gov/enhancingGHGregistry/index.html>

<sup>23</sup> UN Framework Convention on Climate Change: [http://unfccc.int/methods\\_and\\_science/lulucf/items/1084.php](http://unfccc.int/methods_and_science/lulucf/items/1084.php)

<sup>24</sup> Pew Center on Global Climate Change: [www.pewclimate.org/](http://www.pewclimate.org/)

<sup>25</sup> The Sampson Group: <http://www.sampsongroup.com/Papers/carbon.htm>

<sup>26</sup> Domenici, P. and J. Bingaman, Feb. 2006. "Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System". White paper available at: <http://energy.senate.gov/public/>.  
Pershing, J. March, 2006. "Responses to Questions on the Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System". World Resources Institute. Available at: [http://pdf.wri.org/ghg\\_regulation\\_testimony\\_060313.pdf](http://pdf.wri.org/ghg_regulation_testimony_060313.pdf)  
Doniger, D. March, 2006. Natural Resources Defense Council comments on "Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System". Available at: [http://docs.nrdc.org/globalwarming/glo\\_06031401A.pdf](http://docs.nrdc.org/globalwarming/glo_06031401A.pdf)

<sup>27</sup> Brown, S., D. Shoch, T. Pearson, and M. Delaney. 2004. Methods for Measuring and Monitoring Forestry Carbon Projects in California. Winrock International, for the California Energy Commission, PIER Energy-Related Environmental Research. Publication Number: 500-04-072F. Available at: [http://www.energy.ca.gov/pier/final\\_project\\_reports/500-04-072F.html](http://www.energy.ca.gov/pier/final_project_reports/500-04-072F.html)

<sup>28</sup> The Pacific Forest Trust: [www.pacificforest.org/](http://www.pacificforest.org/) ; The Nature Conservancy: <http://www.nature.org/> ; The Conservation Fund: <http://www.conservationfund.org/>.

Using forests for climate mitigation is fundamentally a job of accounting. A range of management styles will produce real climate benefits, and no single management style offers a complete solution. The key is credibility of the carbon credit in the marketplace, which is the explicit goal of California's registry standards. Buyers of credits demand credibility in order to meet their obligations, and climate advocates insist upon it for ensuring climate mitigation. The market already knows how to trade the currency once the rules are established. What remains are actions to drive GHG emitters to the market through some mix of caps, incentives, taxes and regulations – and these are actively in discussion, even at the federal level.

It is important to get started, and allow for flexibility and improvements as experience is gained. Even if your personal decision is not to register until a market is in place, I encourage landowners to follow this story and consider the possibilities. Since timing is key in financial decisions, those best prepared have the most options.

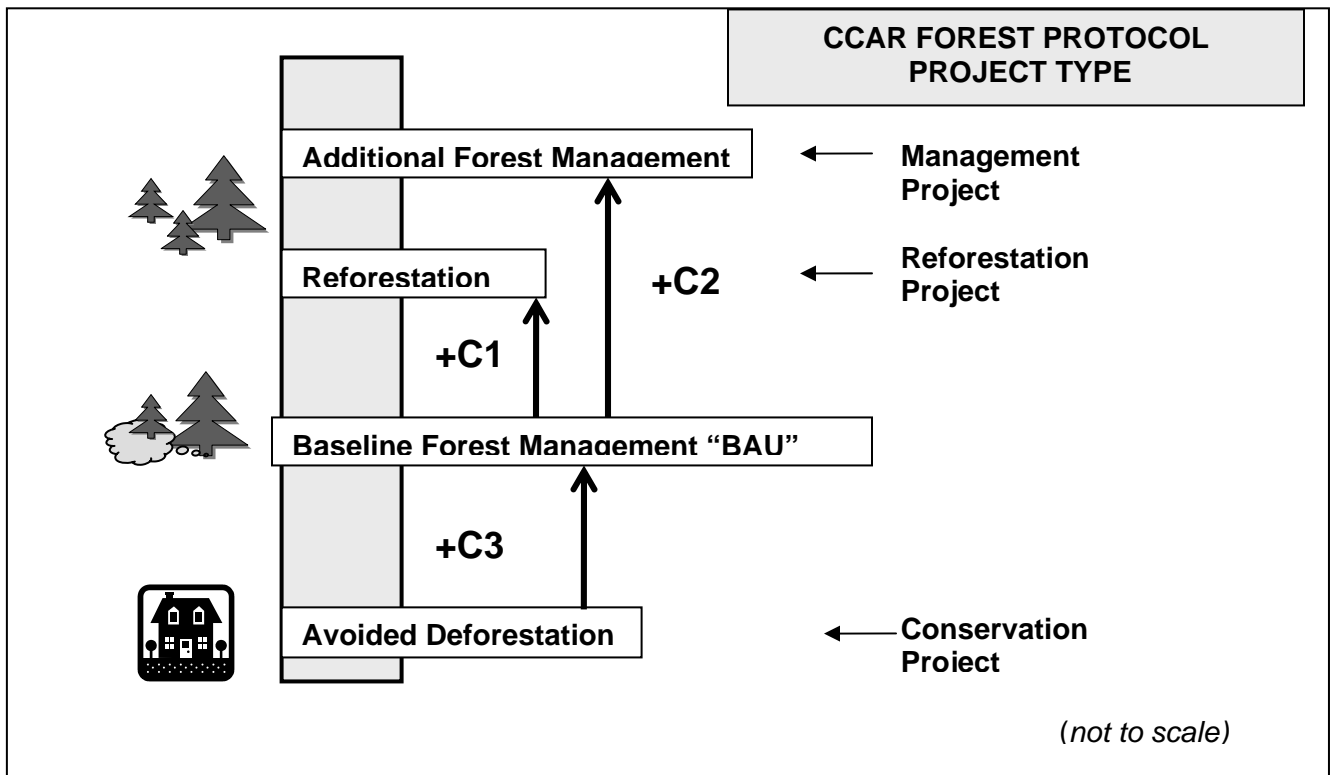


Figure 1: Forest carbon projects credited in the California Forest Protocols. C1, C2 and C3 are additional carbon stocks that result from forest carbon projects above the “business-as-usual” (BAU) regulatory baseline.