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## Payments for Forest Carbon Sequestration

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In *Forests and Carbon*, (University of Idaho Extension Forestry Information Series Forest Management No. 61) we described the relationship between carbon and forest management. Here, we focus on how forest landowners can receive payments for storing carbon, and offer two cautions. First, the carbon trading market

is in its infancy. Secondly, today's rules may change tomorrow. As best we can tell only one forest landowner in Idaho has entered the market with an actual contract for payment. However, there are a lot of developing activities centering on carbon payment. The City of Moscow, Idaho has recently completed an urban forest inventory and calculated the carbon sequestration capability of its trees using a process that includes a plan to aggregate city forest's carbon storage across the U.S. and sell it on the emerging carbon market. These urban forests are poised to enter the carbon market as it develops.

Forests provide many benefits to society. Forest landowners absorb the costs of managing forests and gain direct financial benefits primarily through markets for the goods and services forests provide. Although good stewardship can be its own reward, markets exist for timber products and in some locations recreation opportunities. Markets for "ecosystem services" like clean water and wildlife habitat are developing that landowners may be able to "monetize" in the future (i.e., receive cash payments for). Currently, opportunities to obtain payments for sequestering carbon are emerging more rapidly than other ecosystem services.

How can you monetize the carbon your forest captures and stores? How much might you make? The carbon market in the United States is voluntary. Demand is created by firms that emit greenhouse gases, such as electric utilities operating coal-fired power plants. For a variety of reasons, these firms may want to reduce their carbon emissions. Instead of installing emissions-reducing technology, an emitting firm may purchase credits from owners of projects that promise to capture and store atmospheric carbon that will "offset" the firm's emissions. Such a "cap-and-trade" system was instituted in 1995 to reduce acid rain-causing sulfur dioxide emissions, and it proved quite successful.

Some firms want to reduce carbon emissions to prepare for possible mandatory regulation of carbon emissions in the U.S. Both major party candidates for the U.S. presidential election in November, 2008 have promised to institute a cap-and-trade system to reduce carbon emissions, and several bills were considered by the current Congress. Under a cap-and-trade system, firms in regulated industries that emit carbon would be required to keep emissions under a ceiling level assigned to them by a regulatory agency. To reduce excessive emissions, a firm could either install emissions-reducing technology or purchase carbon credits that offset their excessive emissions. The cap-and-trade system essentially establishes a tax on carbon, with the tax rate established not by a governmental administrative decision, but by markets. The Chicago Climate Exchange (CCX), where carbon credits are bought and sold, currently performs this function.

An "average" acre of Idaho forest can sequester approximately one metric ton of carbon per acre per year (actually, one metric ton of "CO<sub>2</sub> equivalent"). On the CCX carbon currently trades at \$3.80 per ton, and has ranged from less than \$2 to almost \$7 during

the past twelve months. At best, carbon payments, less the fees for registering and selling carbon credits, might cover annual property taxes.

Most analysts expect the value of carbon to increase after a mandatory cap-and-trade system is instituted. Consider that on the European Climate Exchange (ECX) carbon has traded for €15 to €28 (\$22 to \$42) per ton during the past six months. Why the difference? The Kyoto Protocol of the International Convention on Climate Change, ratified by 36 developed nations that have committed to greenhouse gas reductions and imposed caps on their emitting industries, has created demand for offset projects. In 2007, the ECX traded more than 900 million tons, or more than \$30 billion in carbon transactions. In addition, other markets and over-the-counter trading account for a similar amount of international trade in carbon credits. Trade on the CCX is a small fraction of trade elsewhere, but a not insignificant 20 million tons in 2007. Some analysts estimate the U.S. carbon market could be three times larger than European markets after a cap-and-trade system is instituted.

How can you receive payments for carbon sequestration? Forestry so far has a limited role on the international Kyoto-driven trading platforms, where only afforestation or reforestation projects have been considered acceptable. Besides that, the U.S. did not ratify the Kyoto Protocol agreement, so U.S. landowners are not allowed to participate in international trades. Most of the information that follows was gleaned from the CCX website <http://www.chicagoclimatex.com/>

The CCX recognizes that forest management activities may lead to additional forest carbon stocks by planting after harvest or natural disturbances, engaging in harvest systems that maintain partial forest cover, reducing soil erosion, or avoiding destructive harvesting practices. CCX rules call for robust, stringent measurement and inventory techniques and require that landowners be third-party certified for sustainable management. All projects undergo a standardized registration, verification, and crediting procedure. The basic specifications for obtaining Carbon Financial Instrument (CFI) offset credits for managed forest projects on the CCX are as follows:

- Eligible projects may earn offsets for the

additional net carbon sequestered in their forest stocks from the previous year (i.e., carbon sequestered from additional forest growth less carbon lost due to harvesting activities).

- Forest owners must provide evidence that all of their forest holdings are sustainably managed through certification from agencies or certification schemes that have been approved by the CCX Committee on Forestry; these include the Forest Stewardship Council, Sustainable Forestry Initiative, and American Tree Farm System.
- Projects must quantify sequestered carbon either using a growth-and-yield model or by calculating inventory on an annual basis.
- Projects can be registered by the offset project owner or by aggregators. Projects involving less than 10,000 metric tons of CO<sub>2</sub> equivalents per year should be registered and sold through an offset aggregator, who then must also have the project verified. The CCX maintains a list of aggregators; two that provide services for registering forestry offsets are Forecon Ecomarket Solutions, LLC <http://www.foreconinc.com/ecomarket/>, and the National Carbon Offset Coalition <http://www.ncoc.us/>. The terms of the business and legal relationships between aggregators and offset project owners are left to the discretion of those parties.
- Projects initially must be verified by an agency or organization approved by the CCX Committee on Forestry. The CCX website provides a list of these organizations. Projects are also subject to annual verification.
- The CCX Committee on Forestry must review and approve all projects on a case-by-case basis.

Want to get started? You will need to have your forest land certified by a third party as meeting their requirements for sustainability. This involves a careful inventory and some costs. Then you will need to work with an offset aggregator, as mentioned above, and pay for the registration and verification services they provide. In turn, the aggregator pays fees to the CCX for the privilege of using the CCX market platform to offer the credits from your forest carbon offset project for sale.

Have forest landowners done this in Idaho? Yes, the Nez Perce Tribe has registered some reforestation and afforestation projects for carbon credits. The tribe sold reforestation carbon credits recently and will sell

its afforestation credits when the price of carbon is higher. The rest of the forestry community seems to be in a wait-and-see mode. Here's what we foresee. In the near future, landowners can expect a cap-and-trade system at the federal level and the development of financial institutions to compete with the CCX for carbon trades. The value of carbon credits from forests will likely be higher in the future than today. The CCX offers a variety of financial instruments. If they are chosen carefully, carbon credits can be sold today at one price and then again in the future when the price may be higher. Like any other commodity market, carbon traders reap benefits along with

commodity buyers and sellers. Carbon traders will likely have more knowledge about how these financial instruments work than anyone else, so select your aggregator carefully.

#### **About the Authors:**

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