

DOMESTIC FOREST

Carbon Offsets: Is There a Path to Market?

Connecting America's forest landowners with carbon finance

DYLAN JENKINS, CF, AND MATTHEW S. SMITH, ACF, CF

In J.R.R. Tolkien's *The Lord of the Rings*, a memorable scene places the weary Fellowship struggling beyond exhaustion along a narrow and icy mountain ledge. Deep into their epic journey, the weather turns unbearably foul, forcing the band to retrace their steps and to forge their way along a different and equally grueling path, but one that ultimately leads to their destination and mission success.

For the community of foresters and landowners involved with domestic forest carbon markets, the last decade has followed a similarly unmarked, winding, and sometimes backtracking path. Hope of obtaining the prize—connecting America's forest landowners to forest carbon payments—has motivated a now seasoned fellowship within the forestry community to remain engaged with forest carbon offset markets even when success seemed elusive and distant. A long strange trip it's been, but it appears the trailblazers are finally reaching their goal. We share our firm's experience here with the conviction that consulting foresters are a crucial partner in making forest carbon a more feasible proposition for America's forest landowners.

WHY LANDOWNERS (SHOULD) CARE ABOUT CARBON

Sustainable forestry is a significant financial commitment for landowners of any size. The promise of payments for ecosystem services (PES) has long been known to the forestry community as a potential means to promote sustainable forest management by compensating landowners for the many public goods they provide at little or no cost to consumers. As we've witnessed over the last five years, while conventional wood products are more stable than many commodities, they are no less subject to the vagaries of national and global market turbulence. Ecosystem payments can serve to diversify and complement a landowners' portfolio of forest assets and therefore stabilize and even increase long term timberland ROI.

As both an asset and management strategy, forest carbon can be well aligned with active forest management if applied by knowledgeable practitioners in the right situation. However, several challenges have prevented forest landowners from realizing



Downeast Lakes Land Trust Farm Cove Project.
Photo by Matt Smith.

the promise of carbon markets including high development costs, dynamic standards, fickle buyers, ephemeral voluntary markets, and nascent compliance markets. While the forest carbon development process is beyond the experience of most landowners and foresters, many of the barriers to market access are being overcome. The first significant wave of forest carbon projects is now reaching shore and demonstrates there is indeed a path for some landowners to access forest carbon markets, with the potential for many more to follow.

WHAT IS A FOREST CARBON OFFSET?

Measured in metric tons of carbon dioxide equivalent (tCO₂e), a carbon offset is created when an entity takes a voluntary action that results in the sequestration or the prevention of carbon dioxide or other greenhouse gas (GHG) released into the atmosphere. Currently, there are nearly two dozen offset project types including landfill gas destruction, agricultural methane destruction, organic waste digestion, waste heat recovery, wind turbines, fuel efficient stoves, and forestry. Forest offset types include avoided conversion (AC) of forestland to a non-forest use, afforestation/reforestation (AR), and improved forest management (IFM). As the names of these project types imply, forest carbon projects are designed to incent landowners to manage their forests in a manner that increases and maintains forest stocking at or above a “business as usual” level. That is, a level higher than they could or would have maintained had they not been compensated for committing to the carbon project.

Under modern forest carbon standards, actions that qualify forests for offset projects include commitments to maintain forest in forestland use (e.g., conservation easements), enrolling in forest certification programs, extending rotations, managing

for long lived wood products, and reduced harvesting in special areas or across entire ownerships. Ultimately, from the landowner’s perspective, a carbon offset is fundamentally a forest product and a forest carbon project might best be thought of as a supply agreement where the landowner is compensated to maintain a minimum stocking level for a specified period of time. From the buyer’s perspective, a forest carbon offset is a cost containment mechanism, as alternative options to reduce a company’s carbon footprint can exceed the price of an offset tenfold.

U.S. CARBON MARKET PRIMER

Only a few years ago it appeared there were several viable pathways for landowners to create and sell forest carbon offsets. However, one program has emerged as the leading economically feasible option for AC and IFM carbon projects: the California GHG emissions trading program as administered under the California Air Resources Board (ARB). To understand how we arrived at this point, we provide the following primer on domestic carbon markets.

Market sectors. The U.S. carbon market is divided into voluntary and compliance sectors. Voluntary buyers are those who purchase offsets for corporate social responsibility or marketing reasons. Compliance buyers purchase offsets which can ultimately be used to satisfy a legal obligation to reduce their GHG emissions.

The market for voluntary offsets is small at roughly 15 percent of the U.S. carbon market. While the voluntary market saw explosive growth between 2005 and 2008, the recession and political uncertainty caused it to scale back significantly. The voluntary market has recovered somewhat recently, but growth has been relatively even over the past two years and is not expected to increase substantially. Conversely, the market for compliance offsets is growing rapidly. To date, more than 9 million offsets which qualify for compliance use in California have been issued. However, the California program is anticipated to need roughly 230 million offsets between now and 2020.

Offset pricing. Compliance offsets are in high demand and currently fetch prices between \$10.50 and \$12.00. Projections performed by Barclays, Reuters, and Bloomberg anticipate an average California compliance offset price of \$35 (2012 to 2020) and could approach \$70 by 2020. Notwithstanding the significant management and financial commitments a landowner must adopt to develop and maintain a carbon project, ton for ton compliance grade carbon offset prices are now competitive on a per unit basis with some conventional wood product values.

THE CALIFORNIA PRECEDENT

For all of these reasons, California’s cap and trade program has emerged as the most important opportunity today for American forest landowners to connect to the forest carbon market. Voluntary markets have served as an important laboratory for protocol innovation, market testing, and for several reasons may be the best option for reforestation projects. However, unless a firm buyer is identified and makes a contractual commitment



New England Forestry Foundation’s Hersey Mountain Forest Carbon Project in southern New Hampshire.

to purchase enough offsets to cover the costs of developing and maintaining a project, voluntary carbon project development of any type is a very risky proposition.

As the world's ninth largest economy, second largest GHG compliance trading program, and the only program that allows AC and IFM projects, all eyes are on California and the ARB program both for possible linkage to other developing state and foreign GHG trading programs, and for setting precedents for the potential development of a domestic federal emissions trading program. While a full examination of ARB program requirements is beyond the scope of this article, it is prudent to note major eligibility and forest management requirements:

- **Ownership.** The primary opportunity is on private forestlands including most tribal forests. Opportunities can exist on non-federal public forests that were acquired post-2007.
- **Start date.** Under ARB, a project must commence on or after January 1, 2007. Actions that trigger the start of a project include a change in ownership, placement of conservation easement, change in management (e.g., adoption of certification), or most common, committing to the carbon project itself.
- **Location.** Forest projects may be developed anywhere in the continental U.S., Alaska, and Hawaii.
- **Project commitment.** Also known as "permanence," ARB requires that a project maintain carbon stocks credited to the project as offsets for 100 years. Periodic inventories and verifications are required to demonstrate to the registry that offset stocks and other commitments are being met.
- **Forest use protection.** AC projects require a qualified conservation easement naming ARB as a third party with standing. IFM projects do not require an easement but may receive more offsets if an easement is present due to the additional layer of protection from land use conversion.
- **Forest management.** Major requirements include maintaining a management plan that is certified under SFI, ATFS, or FCS, or prepared and enrolled under a state or federal forestry program (e.g., Stewardship Program or land use taxation program). Forests must be managed for native vegetation species meaning that projects are required to establish and/or maintain forest types that are native to the project ecoregion and utilize practices that promote and maintain native forests of multiple ages and mixed native species.

THE PROJECT DEVELOPMENT PROCESS

At 40,000 feet, the forest carbon project development process appears clear and intuitive. However, as one drills down into the specific project steps and requirements, end-to-end project development becomes a complex exercise requiring the sophistication and knowledge of inventory design and implementation, harvest modeling, economic analysis, GIS, verification management, marketing, and brokerage. The cost to develop a forest carbon project under today's standards can easily exceed \$125,000-250,000 and long term project maintenance and operations costs even for smaller projects are \$200,000 in today's dollars. Therefore, before diving into project development it is important that a landowner work with a project partner who

has the skill to determine if a project is feasible, and who can guide the project from start to finish.

Feasibility. Foresters' eyes are calibrated for conventional wood product markets. While forest carbon is a forest product, few foresters have the ability to walk through a property and determine how many carbon offsets may be produced under planned management and today's carbon standards. Because of the cost and risk associated with project development, it is imperative that a landowner receive a realistic and accurate appraisal of potential carbon offset delivery and project feasibility before spending resources on full project development. Having evaluated over 3 million acres of US timberlands for project feasibility, our firm has learned that feasibility is much more than simple project eligibility, but also a function of viability as measured against the realities of forest carbon supply and demand, and accurate accounting of the costs and complexity of project development.

At current prices of \$10-12 per offset, minimum feasibility requirements for an ARB IFM project are 4,000+ acres, stocking at or above regional common practice, and conservative management meaning harvest is less than growth when considered across the entire project area. This said, our firm has developed projects with high stocking and very conservative management on 2,000 acres and very low stocking and slow growth on 50,000+ acres. The punch line is that every project has its unique attributes and must be individually analyzed for project feasibility.

CONNECTING
FORESTRY
& CARBON
FINANCE

To see if your forest qualifies for a no-cost, no-obligation forest carbon feasibility study, contact Dylan Jenkins at 570.321.9090.

FiniteCarbon
www.finitecarbon.com



John McAlpine, ACF and Rusty Hardin of Kingwood Forestry collecting inventory for a Finite Carbon project in Arkansas.

Feasibility studies can be performed on a fee basis or if working with a developer, may come at no charge or obligation to the landowner. Most studies of this type are completed using the owner's current management plan, harvest schedule, inventory, and maps. As you can imagine, carbon commitments and project inception are not items to be entered into blindly. An accurate assessment of project potential is key to successful planning and decision making. Whether paying a service provider to develop some portions of a project, or working with a turnkey developer like Finite Carbon who is paid a success-based fee in offsets, it is important that terms of the relationship are transparent and that incentives are well aligned to ensure a project is developed competently and efficiently.

Developing a carbon offset project. Once project feasibility has been determined and a developer engaged, a project is listed with the carbon registry. Listing is akin to obtaining a building permit for home construction. Basic information is provided to the registry to ensure the project meets eligibility requirements, but project development has not yet begun. After the project is formally listed, true development of the project can begin. This process begins with a new inventory. Carbon inventory design is significantly different than conventional inventories in that all above and below ground standing and downed living and dead carbon stocks must be quantified. While not all of these attributes must be measured in the field, enough data must be collected to allow for the development of statistically defensible carbon stock estimates.

Following the inventory data collection and mapping stage, the modeling and project documentation phase begins. This stage of project development is analogous to home construction. Forest inventory results are analyzed and combined with the owner's forest management plan and harvest schedule. Carbon stocks are grown and compared against planned removals. The primary product is a Project Design Document (PDD) that describes all

aspects of the development process along with a carbon delivery schedule that will be asserted to the registry.

The final stages of development consist of a third-party verification and final registration. Similar to forest certification, all projects must undergo initial and periodic audits by an independent third party verification body that is approved by the carbon registry. The verifier will conduct a site visit to ensure that inventory methodologies and actual measurements match the procedures and volumes in the PDD, and will also examine the PDD to ensure all registry standards and procedures were followed.

Once a project has been successfully verified, a verification report is issued to the registry. The registry makes its final review and then registers the project. Similar to receiving an occupancy permit, registration is the final stage of project development and results in offsets being issued by the registry to the owner's account.

Selling your offsets. Compliance-grade offsets are in high demand and offset marketing generally occurs well before a project is registered. As noted earlier, there are many different buyers for compliance offsets, but ultimately these compliance offsets are retired by a regulated emitter of GHGs. As a commodity, forest offsets may be sold as they are issued by the registry, held for possible price appreciation, or a combination of the two. Offsets are sold via Verified Emissions Reduction Purchase Agreements (VERPAs) and as with any contract, it is critical that landowners work with a knowledgeable, experienced, and impartial agent to market and sell their offsets.

CASE STUDY: THE FARM COVE FOREST CARBON PROJECT

In September 2012, Finite Carbon and Downeast Lakes Land Trust (DLLT) completed and registered the Farm Cove Community Forest Carbon Project.

Owned and managed by the Downeast Lakes Land Trust (DLLT), the Farm Cove project is currently the largest U.S. example of integrated forest carbon and active timber management and provides a model for future landscape scale working forest management. Developed for California's cap-and-trade program, the 19,118 acre project in eastern Maine was registered with the Climate Action Reserve (CAR) as an improved forest management project under the CAR Forest Project Protocol 3.2.

The project received an initial issuance of nearly 200,000 Calif. compliance-eligible carbon offsets, generates an additional 20,000 carbon offsets per year under planned management, and will maintain and increase forest carbon stocks above the level expected under typical commercial forest management. Initial and ongoing offset delivery for the Farm Cove project is not atypical and is on par with other IFM projects that our firm is developing throughout New England, the Southeast, and Great Lakes regions. DLLT staff as well as ACF member consulting foresters from Fountains Forestry served essential functions in project development, notably implementation of the forest carbon inventory.

The forest carbon project was timely as DLLT pursues the opportunity to conserve the neighboring West Grand Lake

Community Forest. This property has been identified as one of the best forest conservation opportunities in the nation, and carbon offset revenues will be a significant component of conservation funding for this property. DLLT's board and staff carefully evaluated the new commitment to maintain increased timber stocking and carbon storage and concluded that participating in the carbon market was a significant opportunity to advance their mission and benefit their community. Development of the forest carbon project will provide a very strong incentive and reward for continued sustainable forestry practice over the carbon project period and is expected to support DLLT in their work for the economic and environmental well-being of the Downeast Lakes region of Maine.

THE CONSULTING FORESTER'S ROLE

Our experience across the country has reinforced the key role consulting foresters, and in our case ACF foresters exclusively, play in ultimate success. Consulting foresters have a deep understanding of their clients' property, ownership goals, and management approach. As the landowner's trusted advisor, the consulting forester is in the best position to assist the landowner in evaluating carbon opportunities, identifying an experienced and competent carbon project service provider, and serving as the landowner's liaison during the development process. While many consulting foresters lack forest carbon development experience per se, they are well-acquainted with the individual components of carbon projects and are able to provide essential development services, specifically initial and periodic forest carbon inventories, integration of carbon into forest management plans, and ongoing inventory support. While our firm designs, oversees, and pays for carbon inventories, we contract with local consultants for all of these stages, preferably the landowner's forester, to implement our carbon inventories.

THE CASE FOR FOREST CARBON

Given the volatility and uncertainty of domestic forest carbon markets over the last decade, many foresters and landowners understandably reached a point of fatigue, concluding that forest carbon was and is not a viable option for their forestlands. However, with the development and growing support of the California compliance market and the seasoning of high quality project developers, landowners who meet the basic eligibility and project viability requirements may now want to take another look. As they do, consulting foresters will play a key role by being familiar with current market standards and assisting landowners in asking the right questions to identify competent developers from "carbon cowboys." Evaluating a service provider's credentials, forestry expertise, project development experience, team, and proposition is fundamental to ensuring project success.

Current forest carbon standards set a high bar for development of forest carbon projects. The result is that forest carbon projects are very well aligned with wildlife, conservation, and aesthetic objectives and can be highly compatible with long term sustainable wood product management. Ferreting out an IFM



Milliken Forestry's Trip Chavis, ACF on Norfolk Southern's Brosnan Plantation inventory.

forest carbon project that is well aligned with a landowner's goals in today's market requires a high degree of sophistication and expertise in many specialized disciplines of forestry and finance.

Our efforts to tear down the barriers for forest carbon projects in the U.S. have led us to develop many core strategies that assist landowners and their service providers in identifying and characterizing forest carbon projects designed to fit and complement a landowner's management approach. These strategies include helping landowners understand if and where carbon makes sense on their ownership, recognizing and treating forest carbon as an untapped asset class (versus a landowner having to adjust their management approach from conventional product to carbon management), finding and maximizing forest carbon volumes on special lands where harvest volumes are voluntarily below growth, and optimizing annual growth and returns between conventional product and forest carbon.

Armed with thoughtful carbon development strategies, consistent and growing demand for compliance-grade offsets, offset prices that are now on par with conventional wood products, and consulting foresters who are now re-acquainted with modern carbon opportunities, a group of America's landowners is now realizing the benefits of forest carbon as an asset and management strategy and blazing a path to carbon markets for others to follow. ©

Dylan Jenkins (djenkins@finitecarbon.com) and Matt Smith (msmith@finitecarbon.com) are, respectively, VP Portfolio Development and VP



Forest Operations for Finite Carbon, which focuses exclusively on the development of forest carbon offset projects.