



Q: What is CarbonTree?

A: CarbonTree is a Limited Liability Corporation established by the Empire State Forest Products Association (ESFPA) in partnership with the American Forest Foundation (AFF) to aggregate and trade sequestered carbon credits from managed forest lands.

Q: What is “sequestered carbon”?

A: Carbon that has been removed from the atmosphere and stored long-term. Trees capture carbon naturally through photosynthesis; managed forests grow more efficiently and therefore sequester more carbon than unmanaged forests. By removing carbon dioxide and other “greenhouse gasses” from the atmosphere, trees help to reduce or reverse global warming.

Q: So, I can get paid for growing trees?

A: Yes; the Chicago Carbon Exchange (CCX) recognizes certified managed forests as a legitimate method for long-term storage of carbon. CarbonTree pools forest owners and trades the carbon credits on the open market. Carbon credits are accrued annually; you are selling the annual increase in carbon sequestered by your forest, and guaranteeing that this amount will remain sequestered for 15 years.

Q: How much?

A: The CCX is an open market exchange that trades carbon just like any other commodity; the market sets the price. In 2008 carbon credits traded on the CCX ranged from a high of \$7.50 to a low of \$1.20 per ton. A similar project in Michigan returned forest owners an average of \$8 per acre.

Q: How often?

A: Credits are accrued annually, and are based on the calendar year. As they are commodities they might not be sold immediately, but held until market conditions are more favorable. CarbonTree pays the Landowner within 32 days of when credits are traded.

Q: How many tons of carbon will my forest sequester?

A: On average the northern forests will sequester 1 to 2 tons per acre per year; the exact number will come from the data generated by your inventory.

Q: So I can trade up to 2 tons per acre per year?

A: Not exactly. You can realistically trade up to 70% of the sequestered carbon annually.

100%	Actual amount of carbon removed from atmosphere annually by forest
- 10%	minimum error calculated into the inventory (could be more based on data)
- 20%	mandatory reserve against catastrophic loss (can be recaptured at end of contract)
70%	Maximum Sequestered Carbon available to trade

Q: Can I enroll just a portion of my forest to start with?

A: No. CCX requires all eligible properties of an ownership must be enrolled. This ensures that the market isn't artificially inflated by enrolling only the best growing stands or areas that are not to be harvested for many years.

Q: Can I still sell timber and cut firewood?

A: CarbonTree aggregates Managed forest credits, so cutting activities are required for participation. Harvests do not need to take place every year, and as long as growth exceeds harvest levels you can sell credits annually. Any removals (either commercial or non-commercial) have to be accounted for and affected stands re-inventoried to ensure that the carbon has been accounted for. You will also want to retain the rights to the carbon in any products sold. This can be done by a simple stipulation in your timber sales contract.

Q: What if I change my mind after I enroll?

A: You will have a contract with CarbonTree in order to enroll in the program. The contract contains specific penalties for non-compliance. This includes willful breach of contract, failure to adhere to a management plan, non-conformance to certification standards, and changing to non-forest use.

Q: What if insects, disease, or natural disaster decimates the stand and kills the trees?

A: Each pool of carbon sold represents 70% of the total amount sequestered, 20% is insurance against catastrophic loss. As long as the loss is in no way due to deliberate actions or negligence on your part, the liability for loss is limited to that 20% reserve. If the reserve is not used at the end of the market period, it becomes part of the pool and it can be sold outright.

Q: What do I need to get started?

A: An accurate, recent inventory (no more than 2 years old with no removals having taken place since the inventory was completed) of the entire property including trees down to the 2 inch diameter class; a forest management plan that meets the standard for and enrollment in the American Tree Farm System; membership in the Empire State Forest Products Association or the equivalent industry trade association for the state the property is located; and willingness to adhere to a 15 year management commitment for each vintage of carbon sold.

Q: What does it cost to get started?

A: Most likely you will need to re-inventory your entire property to meet the standards for enrollment; CarbonTree has a revolving loan fund available to help cover this cost, and can deduct the amount from your shares of carbon sales leaving minimal or no out of pocket expenses. If you are a Certified Tree Farm or your forest management plan meets the standards of the American Tree Farm System, there are no costs associated with certification. ESFPA membership for forest owners is a sliding scale based on acres owned; the current annual dues for a landowner with 1,000 acres is \$120, with those owning less than 500 acres paying \$60.

Q: Why should I trade with CarbonTree rather than doing it myself?

A: Much like Tree Farm is the most economical way to certify family forests, CarbonTree plays the role of an aggregator to make economies of scale work for the CCX accounting and auditing requirements. By pooling resources we are able to employ experts in the fields of forestry and commodity trading, putting us in the best position to succeed in generating additional income for forest landowners.

Q: How much does CarbonTree charge for services?

A: CarbonTree's 12% commission on sales includes all accounting, auditing, and trading fees. The landowner may be responsible for additional costs for verification and registration.



The Chicago Carbon Exchange (CCX) Protocol for Sustainably Managed Forests states “growth and yield model estimates of net annual changes in carbon from forestry projects will be discounted to account for variance in model estimates by the minimum of 20%, or two times the reported statistical error of the baseline inventory data. Forest inventories that will be input into the growth-and-yield model to estimate annual carbon sequestration must have a 90% confidence interval at a minimum for the estimated wood volume.” The inventory should be designed with good statistical metrics (+-10% at 90% c.i.) to keep the CCX discount to a minimum. In order to ensure the uniformity of inventories across many diverse ownerships, the following standards must apply:

Timber Inventory Design

Inventory method must be consistent across the entire ownership; there can be no mixing of cruise methods. Field data collection should be done using:

- 10 or 20 BAF Variable radius plots
- 1/10 or 1/5 acre Fixed radius plots
- 100% tally

Timber Inventory Sample Points

- lay out on a systematic random sample
- have plots numbered uniquely and consecutively
- correspond directly to inventory data taken at that location
- available in ArcView shape file format, or drawn on a clean topographic or orthophoto paper map with recognizable scale.
- have cruise grid spacing identified on the title block or header of a paper map
- located/marked in the field using GPS (see below)

Stand Delineation

- All stands will be numbered, delineated and available in an ArcView shape file or on a clean topographic or orthophoto paper map with recognizable scale.
- Minimum stand size is 20 ac. unless;
 - The stand is less than 20 ac. but represents 10% or more of the ownership; (for example a 5 acre red pine plantation on a 40 acre parcel would represent 12% of the ownership and would be delineated as a unique stand)
 - Minimum size for non-forest areas is 2 ac.

Stand Level Data

The following information should be provided at the stand or compartment level:

- Site Index – determined from core samples or soil survey, average site index is sufficient for compartments.

Number of Inventory Plots

- Properties from 10 to 100 acres – 1 plot per 2.5 acres; at least 2 plots/stand.
- Properties from 101 to 1,000 acres - 1 plot per 5 acres; at least 2 plots/stand.
- Properties from 1,001 to 5,000 acres - 1 plot per 10 acres; at least 2 plots/stand.
- Properties 5,000 + acres - 1 plot per 20 acres; at least 2 plots/stand.

Location

- Plots will be established in the field with reference to cruise maps and GPS coordinates (“waypoints”) when/where possible. GPS, compass and pace, as well as general orientation to mapped topographic and/or photo features will be used to locate field points as closely as possible to the mapped locations.
- Plot centers will be marked and identified on the ground with the plot number, cruisers initials, and date written on an easily recognizable marker or flagging.
- The plot is to be taken where compass and pacing and/or GPS prescribes exceptions are:
 - Sample points that fall on or near a property line. Trees which fall outside the ownership cannot be included.
 - Plots falling on mapped non-forest features (roads, well sites, power lines etc).
 - In these circumstances move the plot a cardinal direction until it falls at least 1 chain (66 feet) from the boundary or feature. Any plot location adjustments must be documented and clearly marked on the final paper map and moved accordingly in the shape file.
 - Plots falling on Unmapped non-forest areas will be taken as empty plots unless the unmapped area meets the 2 acre minimum mapping unit as described previously.

Carbon Inventory and Data Guidelines

Plot Data & Recording

Plot data should be recorded and/or provided digitally by either;

- Utilizing digital data collection software from Foresters Inc. Pocket Dog. If using this software a predefined Two Dog method set will be identified, or
- Record the plot/tree inventory data in a common database program such as Access or Excel. If using this method use the template/style below.

Plot Card Each plot card should have the following information completed.

- Cruiser's Initials;
- Date of fieldwork;
- Owner and description or code;
- BAF or plot radius used
- Point number
- Tree number – sample all trees 2 inches DBH and larger
- Species; Tree species code (provide codes used)
- Product: (01 or Sawlog, 02 or Pulp – includes cull; provide codes used)
- DBH (Diameter Breast Height) to nearest 2-inch class
- MHT (Merchantable Height)
 - Sawlog: Number of 16' sawlogs to a minimum 10" dib, rounded to the nearest 0.5 log and recorded as follows;
 - .5logs-5
 - 1 logs-10
 - 1.5 logs-15
 - 2 logs-20
 - Pulp: Number of 16' sections to a minimum 4" dib, rounded to the nearest 0.5 log and recorded as follows;
 - .5logs-5
 - 1 logs-10
 - 1.5 logs-15
 - 2 logs-20
- Defect- Recorded in increments of 10 from 10-90% on the tally card. (This is not a measurement of soundness)

Cruisers Initials	Date	Tract	Cruise Type	Point Number	Tree Number	Species	Product	DBH	MHT	Defect
TK	6/26/2008	Jones	10BAF	1	1	BLC	01	12	10	
TK	6/26/2008	Jones	10BAF	1	2	HAM	01	14	15	
MD	6/26/2008	Jones	10BAF	2	1	NRO	01	16	20	
MD	6/26/2008	Jones	10BAF	2	2	REM	01	22	25	10

Participant Eligibility and Responsibilities



CarbonTree, LLC

Providing Market Access for Family and Working Forests

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Eligibility Requirements

The land to be enrolled must be capable of sequestering sufficient amounts of carbon to generate gross revenues in excess of start up and participation costs; parcels of limited size and/or unproductive lands may not be eligible. CarbonTree will accept applications from any size of certified forest; however properties of less than 100 acres are not likely to be economical at current market prices.

The forest owner must have sufficient ownership control to have influence over carbon stocks and sequestration levels for the future. That is, family ownerships should have a process for making decisions that recognizes the need to sequester carbon as a part of their management plan. One person should be authorized to make decisions and enter into agreements for the sequestering of carbon.

The forest owner must be enrolled in the American Tree Farm System and maintain Tree Farm Certification for the contract period.

The forest owner must be a member in good standing of the Empire State Forest Products Association, or an equivalent forestry trade association in the state the property is located, and maintain that membership for the contract period.

The forest owners and/or their agent must provide carbon inventory data that meet or exceed the standards of the Chicago Climate Exchange, and provide data in the specified format (see CarbonTree Carbon Inventory and Data Guidelines).

The forest owner agrees to a commitment period of 15 years for each sale of carbon credits, and will maintain the above eligibility during that time period.

The forest owner must enroll the entire certified forested ownership. No eligible forestland can be withheld from participation.

Participating Forest Owner Responsibilities

The participating forest owner must integrate the sequestering of carbon into their forest management plan; planned harvests and/or removals shall not exceed annual growth. In the event that a harvest does exceed growth, the Landowner is responsible for purchasing sufficient Carbon Credits to make up the difference. Additionally, timber sales contracts need to include a stipulation retaining ownership of the sequestered carbon.

The forest owner must maintain the commitment to sequester carbon for 15 years from the date of sale of contract.

The forest must be sustainably managed and certified by an independent third party such as the American Tree Farm System (ATFS), Sustainable Forestry Initiative (SFI), the Programme for Endorsement of Forest Certifications (PEFC), Canadian Standards Association (CSA), or Forest Stewardship Council (FSC).

Participating forest owners must provide CarbonTree with an annual accounting of all TSI removals, timber harvests, firewood cuttings, and give immediate notification of extensive mortality as a result of insect, disease, blowdown, fire, or other catastrophic natural event.

Participating forest owners must provide access to their property for the purpose of a compliance audit. Audits are an infrequent but integral method of verifying participants and CarbonTree meet program standards.

Any applicant owning or having an interest in a manufacturing facility or similar business, must disclose any significant emissions sources from those sources.

CarbonTree LLC Responsibilities

CarbonTree will aggregate forest owners in various pools to achieve the scale necessary for a positive economic return to participants. This is CarbonTree's chief role as smaller landowners would not otherwise have access to this market. Large owners will also find it cost effective to participate in CarbonTree as opposed to trading and recordkeeping on their own.

CarbonTree will provide data and technical services for participating forestowners. A detailed parcel map, computerized inventory and growth model will be maintained and available to the forest owner and his or her agent. CarbonTree will provide information on forest certification and sustainable forestry.

CarbonTree will provide for the brokerage and sale of the sequestered carbon on the Chicago Climate Exchange, through private purchase, and other markets that may become available.

CarbonTree will undergo periodic audits by qualified verifiers to assure program standards are being maintained.

CarbonTree has established a revolving loan fund to support the initial costs of developing a baseline inventory. Loans will be repaid from the proceeds of the sale of carbon credits and deducted from the funds paid out to the participant.