An Introduction to Carbon Financing Opportunities for Forestlands in the United States

An Interforest White Paper
www.iforest.com

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Introduction

Forestlands are becoming increasingly valued for providing multiple services beyond pulp and paper production. The carbon sequestration and retention value of forestland is beginning to emerge as a viable revenue source for forestland owners and forestry companies as global climate change issues and policies are further clarified. The main international agreement – the Kyoto Protocol – is rapidly approaching the required number of ratifications to take effect. Although the US government continues to avoid binding commitments on CO2 reductions, several states have begun legislating mandatory reductions.

Major emitting industries will need to either reduce or offset their greenhouse gas emissions and are beginning to seek low cost ways to avoid expensive emissions reduction activities to reduce their carbon footprint. Many initiatives include cap and trade schemes that create both a hard incentive to reduce emissions and a flexible mechanism to trade "credits" to achieve the most economical reductions possible. The atmospheric carbon sequestered by forest trees and soils can offer a low cost alternative to offset industrial greenhouse gas emissions. Thus, market incentives will exist for forestland owners to participate in these emerging carbon trading opportunities. Those landowners who get involved in this market early but carefully will benefit most from carbon sequestration opportunities.

In this white paper, we address the opportunities and challenges for US forestland owners that are being created by the emerging market for carbon services.

Background

International Agreements

The first major climate change agreement was established at the Rio de Janeiro Earth Summit in the form of the United Nations Framework Convention on Climate Change (UNFCCC.) The Conference of Parties (COP) to the UNFCCC (or "FCCC") contains over 150 countries including the United States. By the mid 1990's it became clear that the completely voluntary emission reductions targets identified in the FCCC were not acting to reduce global greenhouse gas (GHG) emissions. With the aim of establishing more enforceable reductions goals, the COP began developing a set of guidelines that resulted in the Kyoto Protocol. The Kyoto Protocol, the basic framework of which was agreed upon in Kyoto, Japan in 1997, is being continually refined and solidified as we approach the first five-year commitment period of 2008-2012. During this period, the Annex I countries (developed countries and economies in transition) who have ratified the Protocol have concrete emission limits for a combination of 6 greenhouse gases. These limits are a percentage of each country's 1990 emission levels. The

overall goal is to reduce global emissions to 5% less than 1990 levels during the first commitment period. Although this level of reduction is likely to be inadequate in and of itself to prevent global warming, during the first commitment period the Kyoto Protocol will:

1) establish and test a process for enforceable emission reductions
2) promote technologies and national level policies that will enable future reductions
3) reverse the trend of continuously *increasing* emissions levels in most countries.

Each country (and in the case of Europe, the EU) will develop its own laws and policies to aid in achieving these emission goals. The Kyoto Protocol has various flexible mechanisms to facilitate economically efficient solutions to greenhouse gas reductions. These include international trading of Assigned Amount Units (AAU) or other credits. Other credits can be generated by collaborative projects between countries - Activities Implemented Jointly (AIJ) – that result in Emission Reduction Units (ERU), the generation of Certified Emission Reduction (CER) units in developing countries through the Clean Development Mechanism, and through carbon sink projects that result in Removal Units (RMU). Each class of credit has similar value in terms of use to satisfy Kyoto requirements (1 metric ton of CO2 equivalent) but each type of unit differs by its tradability, longevity, and as a result by its foreseen value.

Because the United States has currently rejected the Kyoto Protocol, options for US-based forestry projects are currently restricted. It is not possible for US forestry operations to benefit from Kyoto Protocol or any of its flexible mechanisms until the US becomes a signatory to the Protocol. It is almost certain that this will not occur during the Bush administration. As long as the US remains external to Kyoto, it is unlikely that nations that are signatories to Kyoto will accept projects and carbon credits from the US unless on speculation.

The emerging set of rules that will govern the market for the range of “carbon services” is increasingly complex. The United States has broken ideologically from the Kyoto Protocol yet is in the process of elaborating a national strategy. Whether the national strategy will be based on enforced or voluntary reductions of greenhouse gas emissions is currently being debated. The current Bush administration does not favor enforced reductions for CO2. Certain states and groups of states have begun enacting their own strategies for reducing greenhouse gas emissions in advance of the federal government. Several European countries have established national programs and the entire EU is developing a strategy to address its requirements under the Kyoto Protocol.

Currently the Conference of Parties to the Kyoto Protocol with the technical support of the Inter-Governmental Panel on Climate Change (IPCC) are defining operating parameters for Land-use, Land-use Change and Forestry (LULUCF)

which include carbon sinks. The US pullout of the Protocol has resulted in increased uncertainty related to how carbon sequestration (sink) projects will be handled in the US. Being that carbon sinks are part of a flexible economic approach to reducing carbon emissions, any US national policy is likely to allow sink-based carbon offsets. Within the context of the Kyoto Protocol, forestry-based carbon offsets are accepted in the Annex I countries.

More detailed information on the Kyoto Protocol can be found at the official UNFCCC website (www.unfccc.int.) The Intergovernmental Panel on Climate Change (IPCC) has issued a comprehensive document on Land-use, Land-use Change and Forestry (LULUCF) that can be accessed over the web at: http://www.usgcrp.gov/ipcc/SRs/land_use/index.htm.

The Kyoto Protocol and LULUCF

Land-use, land-use change and forestry (LULUCF) have the potential to either be sources of emissions or "sinks" and are thus treated specially in the Kyoto Protocol. Generally, activities such as reforestation and afforestation that potentially remove GHG from the atmosphere as well as deforestation and other activities that deplete forests must be accounted for in Annex I countries during their commitment period. The use of sinks is restricted in certain ways so as to not undermine the overall environmental integrity of the Protocol. The Marrakesh Accords (COP 7) of the Kyoto Protocol recognize the following activities that can be used to meet targeted reductions (with certain constraints):

- Afforestation
- Reforestation
- Deforestation
- Forest management
- Cropland management
- Grazing land management
- Re-vegetation

Only afforestation and reforestation will be accepted as sinks for the Clean Development Mechanism (developing countries) during the first commitment period. All LULUCF activities have been strictly defined in various texts and the modalities of reporting on these activities are currently being discussed to be presented at future COP meetings. Although the details of reporting have yet to be agreed upon, there has been a large amount of work to date by the IPCC (see report noted above) and the reporting requirements can be more or less described at this time. The main elements are discussed in the Technical Issues section of this paper.

National Programs

United States - the Bush administration has pledged to reduce several greenhouse gases in its Clear Skies Initiative but no enforceable limits are planned for CO2 – the primary greenhouse gas. Some of the other pollutants that will be controlled are significant contributors to global warming and strict emission of these greenhouse gases is important.

Canada is currently debating signing the Protocol. They are moving forward with a greenhouse gas emission reduction program nationally as are certain provinces.

New Zealand – recently announced a tax of about $11.17 per ton of carbon dioxide emissions that will begin in 2007 if needed for New Zealand to meet the requirements of Kyoto. The tax is one means of generating efficient reductions of carbon emissions and it also generates funds for responding to the impacts of global warming. If the tax comes into effect, the tax may increase the price of energy by approximately 6 to 19%.[2]

Many other countries are developing national-level responses to climate change and greenhouse gases[3] including the following:

- United Kingdom – a subsidy and tax program is elaborated
- Denmark – a cap and trade program established in 2001
- European Union – has the option for a cap and trade program
- Germany- diverse mechanisms including cap and trade, subsidies and other incentives
- Netherlands – has been an early mover with joint implementation projects
- Russia – stands to benefit enormously from trading, as there are many "low hanging fruit" reductions possible
- Ireland – Pursuing diverse efficiency activities in energy and transport
- Slovakia – developing a cap and trade scheme.

In fact, most countries of the world have governmental departments and offices in place to address climate change issues.

Regional and State Programs

New England States and Canada

A group of states and Canadian provinces have been collaborating on a regional GHG emission reduction agreement. The New England governors and Eastern

[2] "New Zealand unveils new carbon tax to meet treaty" Wednesday, May 01, 2002, By Graeme Peters, Reuters

[3] Michael J. Walsh, Ph.D., Environmental Financial Products LLC, WWW.ENVIFI.COM, WWW.CHICAGOCLIMATEX.COM (unpublished)

Canadian premiers (New Brunswick, P.E.I., Nova Scotia, Newfoundland, Quebec, Maine, Vermont, New Hampshire, Connecticut, Massachusetts and Rhode Island) have signed a pact to reduce greenhouse gases to 1990 levels by 2010. They plan to reduce emissions an additional 10% below 1990 levels by 2020. Eventually, the pact aims to reduce emissions to a level that eliminates threats to the climate - 75 to 85 percent below current levels.[4]

Canada will most likely sign the Kyoto Protocol in which it has agreed to reduce its overall GHG emissions by six per cent below 1990 levels during the first commitment period (2008 through 2012.)

BOX 1 Oregon's "The Climate Trust"

Previously named The Oregon Climate Trust, "The Climate Trust" is a non-profit organization created by the State of Oregon to help promote "climate change solutions by providing high quality greenhouse gas offset projects and advancing sound offset policy." It was created in 1997, following a proactive state law, House Bill 3283, the first significant act in the United States to control carbon dioxide. The law requires new energy facilities built in the state to avoid, sequester, or displace part of previously unregulated CO2 emissions.

The law established emission reduction targets for new gas-fired power plants of 0.675 pounds of CO2 per kilowatt-hour –17% less polluting (CO2) than the least-polluting such plant operating in the United States. The reduction mechanism is flexible and the plant developer can meet its reduction target by paying mitigation funds to a "qualified nonprofit." The non-profit must carry out projects that avoid, sequester, or displace the carbon dioxide the plant will emit in excess of the required standard. The Climate Trust currently acts as such an organization and has implemented projects in the US and in developing countries.

Source http://www.climatetrust.org/aboutus.html

New Hampshire

New Hampshire recently enacted the first concrete greenhouse gas reduction program for any US state. The new Clean Power Act engages PSNH to take steps to reduce emissions of carbon dioxide, sulfur dioxide, nitrogen oxides and mercury. Under the Act, carbon dioxide emissions are to be cut by about three percent (1990 levels.) Additionally, the legislation provides for future requirements that emissions be cut by an additional seven percent below 1990 levels.

[4] Concord Monitor and New Hampshire Patriot, Region's governors in accord on warming, August 28, 2001, JIM GRAHAM

California

California legislators recently passed a law, signed by Governor Davis, empowering the state to regulate CO2 emissions from cars and other sources. The Air Resources Board will have until January 2004 to adopt new regulations and the legislature will have the opportunity to review and accept or reject the provisions. The objective is to achieve "maximum feasible and cost-effective reduction" of CO2 from cars and trucks. California creates about 7% of global CO2 emissions and 57% of the state's emissions come from motor vehicles.[5]

Emerging Markets and Brokers

CO2e.com

CO2e[6] is an online market and resource for all elements of the emerging carbon markets. Cantor-Fitzgerald and PriceWaterhouse-Coopers have partnered to provide what they call "The Global Hub for Carbon Commerce." The website allows individuals and organizations to gain experience trading carbon and also provides a step by step guide to the carbon trading process from project design through international trades. The site also contains links to numerous service providers in the emerging industry.

The Chicago Climate Exchange

The Chicago Climate Exchange (CCX[7]) is a greenhouse gas marketplace that is being developed based on the success of a similar market for SO_2. Richard Sandor is the leading instigator of this emerging market that will be based out of the Chicago Board of Trade. The CCX includes seven Midwest states (Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio and Wisconsin), various national and international energy companies, and will accept carbon sequestration projects from Brazil. This is a test marketplace aimed to achieve the following goals:

- Proof of concept for a cap and trade GHG system (with project offsets)
- Develop market infrastructure and allow participants to develop trading skills
- Price discovery for currently non-traded substances (CO2)
- Reduce some GHG through a predictable schedule
- Act as a model – grow over time.

Natsource

Natsource is similar to CO2e.com in that they provide support and a market for trading various environmental products including greenhouse gases. They work with their clients to facilitate an understanding of current market conditions and transaction requirements. Due to the still emerging nature of the carbon market,

[5] "California to be first state to regulate carbon dioxide emission" Steve Lawrence, Associated Press, February 01 2002.
[6] www.co2e.com
[7] www.chicagoclimatex.com/

Natsource emphasizes risk management approaches that "assist market participants in capturing opportunity and hedging exposure to GHG emission constraints."[8]

EcoSecurities
EcoSecurities is based in the UK and has been at the forefront of carbon offset and emission reduction brokering. They are also pursuing services related to forestry called "EDGE Forestry" (Enterprise Dimensions of Greenhouse gas Emissions.) EcoSecurities has conducted a few international carbon trades and will continue to be a significant broker in the future.

There are a growing number of greenhouse gas brokerage and consulting services.

Carbon Sequestration Activities

There are various activities that can increase the carbon sequestration value of forestland. It is important to remember that forests both sequester and emit carbon; forest management activities will affect the magnitude (and perhaps direction of the flux). Forest management affects the overall size of several direct and indirect pools of stored carbon. The magnitude and direction of the flux will depend on how much the size of each of these pools change.

Forest and forest management activities can be described using five pools of carbon. The major direct pools are: (1) the standing biomass, (2) the dead material – both standing and on the forest floor, and (3) the soil. The major indirect pools are (4) wooden products made from harvested material, and (5) petroleum - either not used because of forest management activities or used because of the forest management activities.

The main activity options include:

- Afforestation – increasing the area of forestland being managed.
- Reforestation – returning a forest more rapidly than would otherwise occur to an area where a forest has been eliminated.
- Improved Forestland Management – e.g. increasing productivity on existing forestland, reduction of fires, control of losses from insects and diseases.
- Increased Use of Biomass Fuels
- Increased Resource Efficiency in the Forestry and Wood Products Industry
- Forestland Conservation – avoiding the loss of forestland

[8] www.natsource.com

Afforestation

This has been the most common activity used in lesser-developed nations. The most practical application is the planting of trees in areas that were deforested for agriculture or grazing generations ago. After the loss of trees, the areas became either occupied by grasses or shrubs that currently exclude the natural regeneration of trees or the area suffered such severe erosion that trees are unable to regenerate naturally. These lands would not return to forests for many years if left to themselves. Afforestation has the potential benefit of increasing all five pools of carbon.

Reforestation

Many areas where forests have been destroyed either from natural disturbances such as fire or anthropogenic disturbances would naturally return to forests eventually, but the time necessary for full occupancy by tree species could take decades. Planting and early tending can restore these forests more quickly. Reforestation will increase the carbon pools on site and by shortening rotation time, lead to increases in the product pools as well.

Improved Forest Management

These types of activities have the greatest potential for increased sequestration of carbon through forestry because they encompass so many actions that could take place over such a large area of the landscape. The activities fall into three types: (1) those that increase growth of the standing crop of trees, (2) those that decrease the release of carbon through mortality from insect and diseases as well as forest fires, and (3) those that reduce the total time period when sequestration per hectare is reduced after harvests because of less than full site occupancy.

The first type includes treatments such as the addition of fertilizer and changing the water regime either through drainage or irrigation. These treatments may have a dramatic effect on the pool of standing biomass and will indirectly affect all other pools of carbon.

Forest fires and mortality from insect attacks and diseases release very large amounts of carbon into the atmosphere. Treatments to reduce these releases must be assessed over entire landscapes to be sure that protecting carbon stocks in some stands does not just shift these disturbances to other stands. Also, because these disturbances are so important over large areas,

consequences on other attributes of the forest such as wildlife habitat, biodiversity, and hydrology must be assessed.

The third group of activities includes practices more sophisticated than simple reforestation to reduce times when the growing space is vacant after harvest. These practices include multi-age management including shelterwood harvests that encourage rotation overlapping advance regeneration, greater use of retention trees and areas left for more than one rotation period, and simple lengthening of rotation periods. All these activities have to be carefully planned to be sure that increasing the standing biomass pool is not more than offset by reductions in other pools, particularly the product pool. In situations where the product pool must be debited from the carbon account upon removal, these practices will have a greater impact on the carbon budget.

Increased Use of Biomass Fuels

Wood energy power plants have very little economy of scale. This means that it is possible to build small, decentralized plants in rural areas. If the new energy reduces the amount of petroleum products that would otherwise be used, significant carbon sequestration effects can be gained not only by direct reduction in petroleum combustion but also by decreased carbon emissions caused by refinement and transportation of the petroleum products. Benefitting from increased use of biomass fuels depends upon the assumption that the feul wood is being harvested in a sustainable manner and the harvests would not have been used for semi-permanent product pools.

Increased Resource Efficiency in the Forestry and Wood Products Industry

The industry has made major changes in the last few decades to increase utilization and reduce waste. Early actions were based on “cleaner” harvests that left less wood on the site. Many of these activities were discovered to have deleterious effects on the ecosystem. More recent activities have been based on reducing waste and breakage after the wood has left the site. These activities have made the industry more cost efficient as well as allowing more carbon to be sequestered through larger pools of carbon in products, increased use of bioenergy, or reduction in the amount of dead (rapidly decomposing) material left in the wood yards. This opportunity could be expanded to paper and wood composite industries through the increased used of secondary products such as recycled paper and waste fiber.

Forestland Conservation

Forestlands (especially working forests) can sequester significant amounts of carbon. Much can be gained by not converting forestlands to other uses (such as buildings and development). Society will keep expanding the area of developed land, but instead of converting forestland, this land can be converted from uses that are less effective in the sequestration of carbon. Specific cases of alternative lands include the use of previously degraded areas (abandoned farmland) or brownfields. Protecting forests from land conversion can take advantage of all five pools of carbon.

Carbon Accounting and Reporting Issues

Forestry projects fall under the paradigm of "Land-use, Land-use Change and Forestry (LULUCF or simply LUCF.) Land-use change and forestry projects have certain characteristics that separate them from other types of greenhouse gas projects. However, these differences boil down to the question of "permanence."[9] Growing trees could always be cut or burned (or eliminated some way) at some future date resulting in the release of CO2 and other greenhouse gases into the atmosphere. This future release would eliminate all or most of the sequestration gains achieved by growing the trees in the first place. These and other issues that impact on the value of carbon forestry projects are discussed in this section.

Additionality and Baselines

The concept of "Additionality" is extremely important in carbon financing. Additionality is the degree to which an emission or sequestration project results in an incremental change above a baseline or beyond "business as usual." There are two main types of additionality: financial and ecological.
Financial additionality requires that the project implementer show that additional funding was needed to implement the project. Specifically, the "carbon funding" itself was critical to the successful implementation of the project. If the project would have occurred with or without the carbon benefits or financing, then it is not "additional" to the baseline. This is a somewhat contentious issue. Some current market players require this (e.g. Climate Trust) while others do not (Prototype Carbon Fund.)

All potential market participants require ecological additionality. To prove ecological additionality, the project implementer must show that the project resulted in greater carbon sequestration (or emission reduction) than what would

[9] "Evaluating carbon offsets from forestry and energy projects: How do they compare?" Kenneth M. Chomitz, World Bank

have occurred without the project. This is supported by verification (often 3rd party) at the project onset or reference time (baseline establishment) and at identified intervals over the course of the project. There are issues associated with the date the baseline is established. Often the date for the baseline is pushed back to either 1990 or 2000. Establishing a baseline starting point in the past prevents the misuse of carbon financing. It avoids, for example, a landowner clear cutting a stand then seeking carbon financing to replace the stand. This is less of an issue with afforestation (generally considered to be on land that was non-forest prior to 1990). The site should have either lost its forests prior to 1990 or lost its forest cover due to a major catastrophe such as a stand replacing fire.

Permanence

This is the largest issue that separates Land Use Change and Forestry (LUCF) projects from direct energy-based emission reductions project. Unlike avoided emissions that are permanent, carbon sinks can be lost to fire, cutting, and various other changes. Acceptable projects must make the case that the sequestration of carbon will last for a certain amount of time. Currently 100 years is the target but shorter periods may be acceptable. This challenge of "permanence" has been one element limiting the use of sinks in developing countries (non Annex I) under the Kyoto Protocol's Clean Development Mechanism. The permanence requirement makes the association of carbon projects with certified sustainability programs very attractive and increases the relative value of forestry-based carbon projects in developed countries in comparison to developing countries. Clear property ownership is essential and many sequestration projects will require the establishment of long-term contracts and legal instruments such as conservation or development easements.

Leakage

In many cases, decreased emissions (or increased sequestration) from one area may lead to the opposite impact in another area. When this type of impact from a project is not accounted for, it is considered "leakage." Leakage can be defined as the inadvertent emission of CO2 (or other GHG) as an externality to the project that is not accounted for by the project. One example is in energy production: if one power plant shuts down, one or more may increase production to meet the demand – depending on the relative levels of emissions, this "leakage" would reduce the emissions impact of the first plant shutting down. In the case of afforestation, leakage may be less likely since there is simply an overall increase in planted acres – this should have little if any impact on demand and will only increase supply. Although, over time this may reduce the commodity price of timber (as supply increases relative to demand), it may also facilitate sustainable forestry by decreasing fiber demand per total area.

A common approach to examining leakage is to include the entire company in the analysis even if the project will only appear to influence one part of the landowner's forestry operations. As well, the project implementers should attempt to predict the projects' impact on the next one or two interlocutors in the market. For example, a forestry company could consider the project's impact on the mills and the mill's clients. If the mill will be forced to purchase wood from another source as a substitute for decreased wood coming from the project implementer, then carbon leakage is involved. Leakage may either decrease the amount of carbon credits or invalidate the entire project. Accounting for leakage from the beginning (internalizing) strengthens the project by reducing risks.

All projects will have to determine an appropriate area of impact and be able to define and monitor potential leakage issues.

Documentation, Verification, Registration and Certification

Documentation, verification, registration and ultimately certification play a major role in the commercialization and the commoditization of carbon sequestration. Most buyers of carbon credits will require registration or third party certification for carbon sequestration projects. To facilitate certification, adequate documentation must be maintained. The carbon credits (regardless of their nature) will be issued and tradable only upon certification or registration. Although, the certification process is not presently standardized it is possible to find both third-party certifiers and registries. The criteria for sequestration projects are not well defined for the existing registries and most are currently working on appropriate language to cover sequestration projects.

There are a few organizations that could play a role of registrar or standard setting body for carbon offsets. Ultimately the US government will set up a clearing body for carbon credits but this will only follow the establishment of overall GHG legislation. The US government currently has a registry for carbon projects (1605B at the DOE that currently contains carbon projects for some 200 companies) but it is perceived as requiring only minimal criteria. Some states have made steps towards registering projects including California, Wisconsin and New England together with eastern Canada. The California registry requires 3rd party certification and they have opened up their registry to corporations operating nationally. Emerging markets for GHG will establish their own minimum criteria and registration protocols.

Due to the complex nature of the emerging markets and the varied criteria for different registries, there are no universally accepted criteria or standards against which all carbon sequestration projects can be assessed. As a result, most third party certifiers are taking a conservative approach to verification and will seek comprehensive documentation and field verification of actual levels of carbon

sequestration. Because of the thorough nature of certification approaches, third party verification can be an expensive element to a carbon sequestration project and implies the potential for economies of scale. With the competitive advantage of forestry-based carbon offset projects being their low cost, it is essential to minimize expenditure on verification and certification services. Where possible, certification costs can be transferred to the buyer since it guarantees (or at minimum, decreases risks to) the value of the credits being purchased. On the other hand, if registration or certification is conducted prior to the sale, it will increase the value of the carbon credits and could easily pay for itself as long as the seller is careful to negotiate a higher price. The approach will depend on the willingness of the forestland owner to spend the money up front.

To minimize costs of certification, the forestland owner can maintain clear documentation of historic treatments and other reflections of past management procedures as well as management plans prior to the decision to implement the carbon sequestration project. This documentation will help to establish and support the baseline scenario.

Registries

Carbon credit registries are essential to establish the validity of whatever credit is claimed. Each registry has an established set of rules and regulations that govern the acceptance of a credit into the registry. There are a relatively large number and diversity of registries. Governments that are signatories to the Kyoto Protocol are required to establish national registries. The flexible mechanisms of the Protocol will maintain their own registries that will track credits from AIJ, CDM, and emission trading. States within the US have also established registries for intrastate greenhouse gas emission reduction projects. In addition to the governmental registries, there are independent registries that are attempting to create fungible credits based on rigorous accreditation protocols. Some of the emerging marketplaces for carbon trading have their own registries.

Because there is no national standard, the registry is one part of the overall emission reduction program for most state or regional programs.

The degree of rigor associated with the specific registry depends upon the purpose of the registry. The most well respected registries use very rigorous criteria for acceptance and verification of credits. These rigorous registries also require third-party verification. Because the Kyoto Protocol's flexible trading mechanism will ultimately become a standard for quality of greenhouse gas credits, the highest quality registries will match or exceed the requirements being established by the Kyoto Protocol process. The criteria being established and negotiated as part of the Kyoto Protocol are based on extensive scientific analysis provided primarily by the IPCC. The COP rigorously negotiates the accreditation criteria resulting in well-balanced rules.

The simplest registries are those associated with voluntary programs such as the US 1605b Climate Challenge registry established by the DOE. As the 1605b registry is completely voluntary, it is considered below the level of criteria that would be adequate for future certification by international standards (Kyoto). The 1605b registry was established under the 1992 Energy Policy Act to encourage electric utilities to make voluntary commitments to reduce global warming pollution. As of 1998, electric power generators claimed that they reduced 45.2 MMTCE, of which 42.4 MMTCE were domestic emission reductions.[10]

One example of and independent GHG registry at the national level is the GHG Registry[SM] of the Environmental Resources Trust (see box.)

California has established a registry for carbon emissions, emission reduction projects and carbon offsets. The California Climate Action Registry is being developed by the California Energy Commission (www.energy.ca.gov). There are two aspects of the CA registry that are notable: the registry accepts out of state claimants and the registry seeks to be of a high enough standard to meet future international and national trading conditions. Additionally, the California legislation has recently passed a law that will empower a state organization to impose strict CO2 emission limits on automobiles.

BOX 2 Environmental Resources Trust Greenhouse Gas Registry

Environmental Resources Trust (ERT) in in the process of developing the GHG Registry[SM] along with related services to support a GHG trading market. The Registry wil help to: define the nature of the commodity, accounting language and protocols and providing third-party validation of performance, including individually serialized records. ERT is a non-profit organization seeking to foment ambitious GHG reductions at low costs. The organization believes that technical credibility and high quality of GHG reductions and sequestration will greatly assist market development. Not only will the GHG Registry[SM] provides a system that ensure the credits are real but allows ongoing tracking as credits are created and traded. The Registry provides yearly tracking of changes and project tracking and recording.

ERT's GHG Registry can be found at www.ecoregistry.org.

Source http://www.ert.net/ghg/full.html#3

[10] NRDC website

Financing

There are multiple ways carbon projects are receiving financing. Two common approaches are that the sale of the credits finances part or all of the project and the second approach is that there is a sale of forward options on the future carbon credits. The forward option would be a promise to sell the credits at a certain price in the future. In many cases the carbon financing will only be a part of the total project cost. The remainder of the financing will either be internal or standard project financing with a payoff by other means. In the forestry sector, a reforestation project could pay off in both carbon sequestration credits and in wood production. An additional option that will eventually predominate is the use of the spot market. This is the sale of small quantities of carbon credits on one of the existing marketplaces with active trades. Because there are only a few such markets currently emerging, the use of spot markets for sales is currently minimal but will grow. This option is excellent for landowners seeking to make their own investments in creating carbon credits since it allows them to benefit from increasing prices as the market matures.

Most sales do not include all expected carbon benefits of a project. The percentage sold will depend upon potential risks and keeping some options for future sales of additional credits. In general the seller is liable for credits sold – if production is less than what had been sold, the seller must complete the difference financially or with alternative carbon credits. There will be various insurance instruments that will be developed to help both the buyer and the seller manage their risks.

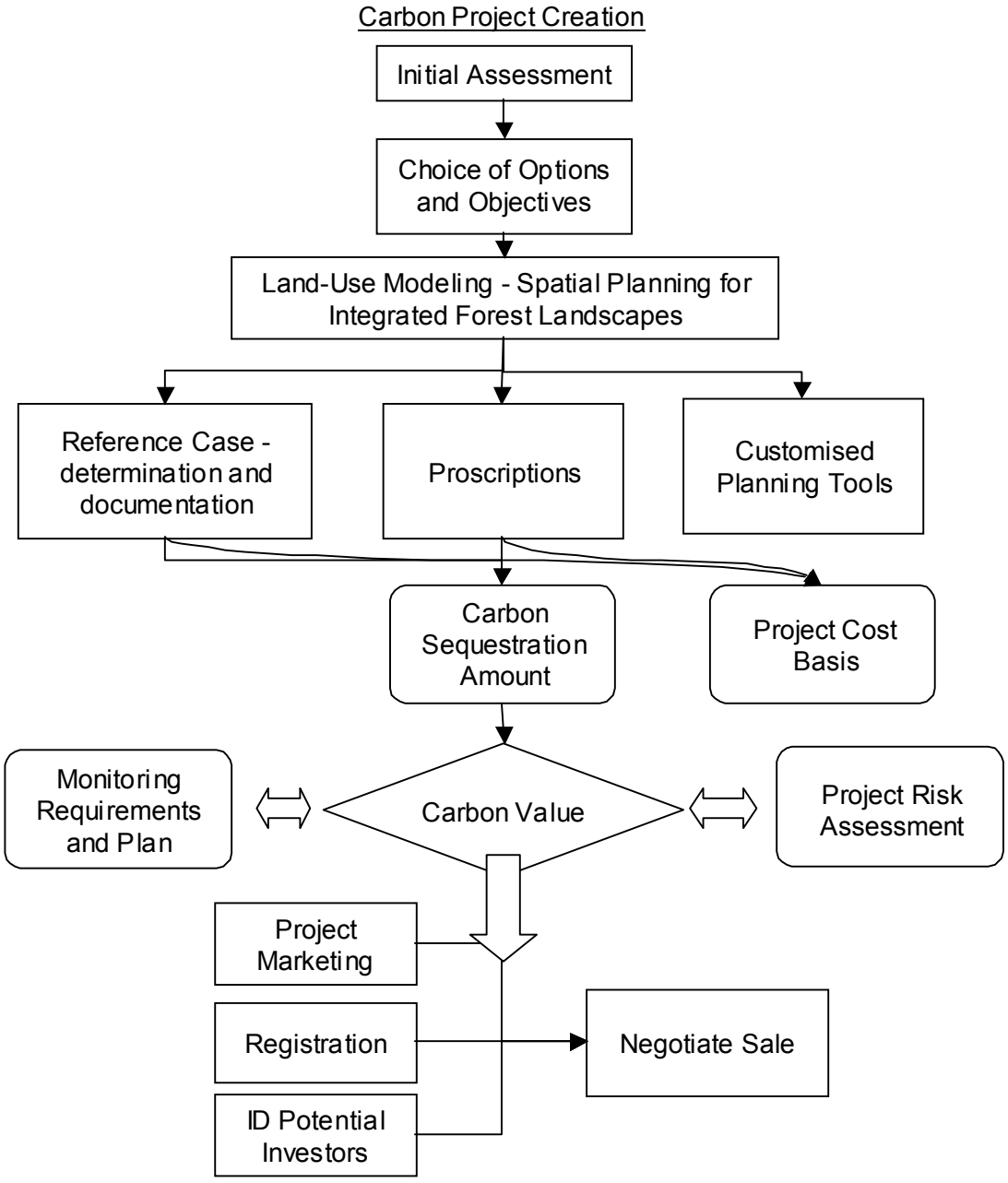
The financial impact of the early nature of the carbon market in the US is such that prices for carbon credits are currently low and buyers are seeking to invest in very solid projects with low risks. This does not imply that a forestland owner should wait until the market develops fully. There are mechanisms in the Kyoto Protocol and likely in a future US system that limits the total amount of emission reductions that can be offset by sequestration activities – especially “live” sinks such as forests or agricultural lands. Thus an early mover that is very careful with the activity, the documentation and the pricing of any credit sales will be at a strong advantage over landowners who wait too long. The potentially low cost of forestry-based carbon sequestration projects provides a major advantage over other CO2 reduction activities.

Carbon Project Development Schematic

The following flow diagram is a schematic representation of the main steps in elaborating a forestry-based carbon sequestration project.

Please contact Interforest for more information on our Carbon Services:

info@iforest.com
www.iforest.com



Carbon Acronyms

AAU - Assigned Amount Units

AIJ - Activities Implemented Jointly

CCX - Chicago Climate Exchange

CER - Certified Emission Reduction units - Clean Development Mechanism

CO2 – also CO_2, Carbon Dioxide

COP - The Conference of Parties to the UNFCCC

ERT - Environmental Resources Trust

ERU - Emission Reduction Units

EU – European Union

GHG – Greenhouse Gas

IPCC - Inter-Governmental Panel on Climate Change

LULUCF - Land-use, Land-use Change and Forestry

PSNH – Public Service of New Hampshire

RMU - Removal Units from carbon sink projects

UNFCCC (or “FCCC”) - United Nations Framework Convention on Climate Change