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# Clocking up carbon credits

*The forestry industry is uniquely positioned to play a key role in the evolution of global and domestic policies on climate change and the emerging “carbon-constrained economy”, according to **Greg Arnold**, a Managing Partner with CE2 Capital Partners\*. This is the first of two articles on forestry-related carbon markets Greg has written for **International Forest Industries** with the second to appear in the April edition*



Greg Arnold

**W**hile much has been written about the forestry sector’s emerging role in bioenergy projects, forestry carbon sequestration projects also have the potential to play a pivotal role in combating global warming. By serving as ‘carbon sinks’, forests can sequester greenhouse gas emissions, which contribute to global warming. Forest assets, when managed to sequester carbon in accordance with specific scientific, environmental and technical requirements, can generate carbon credits that can be monetised to provide meaningful revenues for forest owners.

### **What is the Carbon Market? What is a Carbon Credit?**

Recent legislation passed by the US House of Representatives (The American Clean Energy & Security Act of 2009) estimates that cumulatively 115 billion t of greenhouse gas emissions reductions will be required between 2012-2050 in order to meet the goal of a 17% reduction in emissions by 2020 and an 83% reduction by 2050. The pending Senate Bill (The Clean Energy Jobs and American Power Act of 2009)

currently under review seeks an even greater reduction in the short-to-medium-term. These proposed policies focus on regulating emissions of greenhouse gases such as methane, carbon dioxide, nitrous oxide, and others, all measured in carbon dioxide equivalents (CO<sub>2</sub>e), through a market-based mechanism known as ‘cap and trade’.

Under this system, regulators enforce a cap on total emissions for all emitters within a sector, while assigning specific emissions targets to individual companies in that sector. Emitters of greenhouse gases with differing marginal costs of compliance can purchase credits or sell their excess in a tradable market as a flexible approach to managing their cap on emissions. Emissions reductions from sectors not directly regulated like forestry are allowed to sell credits into the market under properly structured, verified and contractually sound long-term arrangements as a means of increasing the supply of credits, also known as ‘cost-containment’. Carbon credits or offsets represent the sequestration, reduction or destruction of 1 t of CO<sub>2</sub>e and can be used to ‘offset’ an equivalent amount of carbon emissions.

*Carbon trading encourages sustainable harvesting practices*



Cap and trade and the use of offsets is being used internationally under the Kyoto Protocol and is likely to continue under the successor program to that treaty that is under discussion in the United Nation's sponsored treaty-making process known as the United Nations Framework Convention on Climate Change. Similar market-based mechanisms have also been used successfully in the US since the mid-1990s to reduce acid rain (SO<sub>2</sub>) and smog (NO<sub>x</sub>) emissions from electricity generation facilities and regionally to control other pollutants like reactive organic gases, particulate matter and to create more renewable energy generation through state-based 'renewable portfolio standards'.

Currently, carbon credits are being sold in the US in 'pre-compliance' markets that seek to take early action in anticipation of a mandatory federal cap and trade system like the ones described above. Participants in this emerging market include large industrial companies and utilities that are likely to be capped under such a program, as well as financial institutions and private sector investors that are positioning themselves to provide liquidity and supply to these markets and facilitate the commercialisation of carbon credits. Voluntary markets also exist where companies purchase and retire these credits to mitigate their environmental impact or 'green' themselves.

### **How can forestry projects generate carbon credits?**

If properly implemented and verified, forestry projects that reduce carbon dioxide emissions or increase its sequestration over time can access new revenue sources through the generation and monetisation of carbon credits. These projects are generally grouped into categories that relate to the management practices implemented on the property. For example, afforestation/reforestation projects plant native species on land that has been previously converted to non-forest use; avoided conversion projects prevent the removal of existing timber stands and preserve them over

the long-term; and improved forest management projects increase the carbon sequestration capacity of the land by changing to sustainable forestry practices like extending harvest rotation. In international markets, Reduced Emissions from Degradation and Deforestation referred to as REDD projects,



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which reduce the conversion of forest lands to non-forest use, are gaining attention as a significant source of carbon credits, as well.

For a forestry carbon project to be capable of generating carbon credits it must demonstrate that the achieved environmental benefits are additional relative to the activities that would have otherwise taken place on the land and ensure that the achieved benefits last over a sufficient time period to be deemed permanent. The confirmation of this 'additionality' and 'permanence' and the quantification of the carbon credit generating capacity of a project encompass a multi-step process that involves industry professionals, a certifying agency (such as the American Carbon Registry, the Climate Action Reserve, or the Chicago Climate Exchange) and technical experts specialising in forestry carbon projects. The plan for meeting these requirements, along with the overall



**By serving as 'carbon sinks', forests can sequester greenhouse gas emissions, which contribute to global warming**



project design and commitments from the landowner(s) are presented in a project summary document to a certifying organisation, as well an independent third-party expert. Once approved by the certifying body and third-party expert, the project can begin generating carbon credits. The projects are then audited and verified annually to ensure long-term compliance with the approved project plan.

Projects are typically multi-decade in nature and represent a significant long-term commitment to a specific management practice on the land. As more clarity around a US federal cap and trade program emerges, the differing requirements of various certification bodies and their positions on project specifics – such as term, the use of conservation easements or other restrictive covenants on land, and qualifying management practices, etc – will likely converge to a Federal standard. Currently, those projects that follow the most rigorous of approaches have the potential to command the greatest value in the market and be well positioned to qualify under a US Federal compliance program.

### **Carbon projects represent an opportunity for different segments of the forestry sector**

Many parts of the forestry sector stand to benefit from the emergence of robust carbon markets. Forest-owners ranging from non-industrial forest holders to timber investment management organisations could benefit immediately from modifications to existing timber management practices and/or the implementation of restrictive covenants on timber lands that may prove uneconomic (riparian areas, steep ridges, etc). By modifying current activities and committing to maintain the new approach over the long-term, forest owners could participate in carbon projects that yield marketable credits in the short-term. Over time, the potential for carbon credit-related income should become a routine question for timber investors and landowners alike, enabling a comparison of the economic potential of a given property with and without the overlay of a carbon credit generating project.

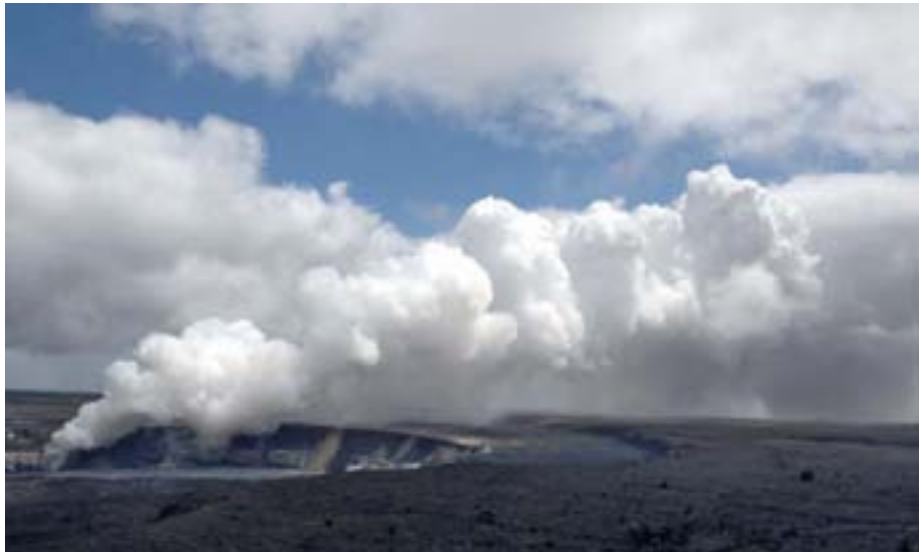
Forestry service professionals involved in the evaluation of timber stands and the implementation of management practices can enhance the value of their services by



educating themselves about the carbon sequestration potential of the regions in which they are active. Carbon accounting is complex; for a project to be successfully implemented, it must rely on sound forestry practices and rigorous yield-growth modelling. The intersection between these traditional forestry practices and carbon sequestration modelling is an attractive opportunity for forestry professionals looking to expand their service offerings. Similarly, equipment manufacturers and suppliers will play an important role in forestry carbon projects as advances in the harvesting and monitoring of existing timber stands enhance the permanence of a project by supporting long-term forest management and providing tools for annual auditing and verification.

Forestry sector stakeholders must evaluate various options when considering participation in carbon markets. Carbon consultants have begun offering services to assist forest owners in quantifying their land's carbon credit potential. Investors are offering long-term agreements, essentially hedges on production, to acquire carbon credits from projects that have been or will be verified or to develop entirely new projects. These long-term agreements can take many forms depending on the risk profile and needs of the participants.

*Greenhouse gas emissions such as carbon dioxide, methane and nitrous oxide are grouped together for the purpose of carbon markets under the heading, CO<sub>2</sub> equivalents*



Private landowners or hunt-lease clubs may be interested in a steady stream of income, while commercial forest owners may attempt to optimise the value their property by accessing carbon markets and taking price risk over the long-term. A sophisticated financial investment firm with carbon expertise should be able to assist forest owners in evaluating their land's carbon potential and structure an investment project or long-term carbon purchase

agreement. Given the early stage of the market, those forest owners willing to engage in well-structured, technically rigorous projects with a credible investor may significantly increase their ability to capture maximum value over the long-term.

*\*CEz Capital Partners ([www.cezcapital.com](http://www.cezcapital.com)) is an investment manager active in forestry carbon markets.* **FI**

## Your carbon dictionary

**Carbon Credit:** A certificate representing a tonne of carbon dioxide, or equivalent for other greenhouse gases, which is not emitted or is reduced. In order to be awarded verifiable carbon credits, a project must be approved by a certifying organisation that has designated strict methodologies in order to ensure the integrity of the credit generated over the long term.

**CO<sub>2</sub>:** Carbon dioxide is a gas in the Earth's atmosphere generated as a by-product of the combustion of fossil fuels or the burning of organic matter, among other chemical processes.

**Carbon Offset:** A certificate representing the voluntary cancellation or reduction of the effect of the greenhouse gases that business activities produce, by planting trees, supporting the production of green electricity and/or buying carbon credits, etc. They may be used interchangeably with Carbon Credit.

**Carbon Sink:** A natural or man-made reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period. For example, a forest can act as a carbon sink.

**Climate Change:** refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from: natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; natural processes within the climate system; and human activities that change the atmosphere's composition (e.g. through burning fossil fuels) and the land surface (e.g. deforestation, reforestation, urbanisation, desertification, etc).

**Global Warming:** An average increase in temperatures near the Earth's surface and in the lowest layer of the atmosphere. Increases in temperatures in our earth's atmosphere can contribute to changes in global climate patterns. Global warming can be considered part of climate change along with changes in precipitation, sea level, etc.

**Greenhouse Gases:** Gases that trap heat in the atmosphere. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g. fluorinated gases) are created and emitted solely through human

activities. The principal greenhouse gases that enter the atmosphere because of human activities are sulphur dioxide (SO<sub>2</sub>) methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Oxidation of SO<sub>2</sub>, usually in the presence of a catalyst such as NO<sub>2</sub> (nitrogen dioxide), forms H<sub>2</sub>SO<sub>4</sub>, and thus acid rain. This is one of the causes for concern over the environmental impact of the use of these fuels as power sources.

