

# Instant carbon loss from harvested wood?

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Recognition of embedded carbon in harvested wood products (HWP) was championed by New Zealand in negotiations leading up to COP 15 in Copenhagen. This recognition has potential to significantly reduce harvest carbon liabilities, and reward practices that will enhance carbon storage in wood products.

It is widely agreed that the ‘instant oxidation’ treatment of carbon at time of harvest under Kyoto Protocol rules is wrong and bears no relation to reality. The anomaly creates the spectre of carbon liabilities at time of harvest that could make timber harvesting less profitable, potentially inhibiting investment in growing forests for carbon sequestration in combination with timber production. Instant oxidation also fails to recognise existing carbon pools associated with wood product end uses, and in the absence of this recognition, removes incentives to expand wood product carbon pools.

## The New Zealand position

The New Zealand Government is acutely aware of the instant oxidation problem as its ill effects have been strongly presented by the New Zealand forestry sector as it faces commercial risks and opportunities associated with carbon emissions and sequestration under the New Zealand Emissions Trading Scheme (NZ ETS). Because of the importance of the LULUCF<sup>i</sup> sector to New Zealand’s ability to mitigate its emissions and reach its emission targets there is a strong motive to resolve the issue of instant oxidation liability. Consequently the New Zealand Government was proactive in negotiations in the lead up to COP 15, championing a proposal for a workable agreement on recognition of carbon in harvested wood products to replace the current Kyoto instant oxidation rule.

The importance of the LULUCF sector to New Zealand’s ability to mitigate its GHG<sup>ii</sup> emissions, and the experience gained from the attempt to engage the LULUCF sector through the design of the NZ ETS is instructive for forestry sectors in other jurisdictions, including the EU.

New Zealand’s GHG emission profile is unique amongst developed (Kyoto Annex B) countries. Agriculture is the cornerstone of the New Zealand economy and almost 50% of our GHG emissions are methane and nitrous oxide associated livestock farming. Emissions from livestock farming are viewed as being intractable for the foreseeable future.

<sup>i</sup> LULUCF = Land Use, Land-Use Change, and Forestry

<sup>ii</sup> GHG = Greenhouse Gases

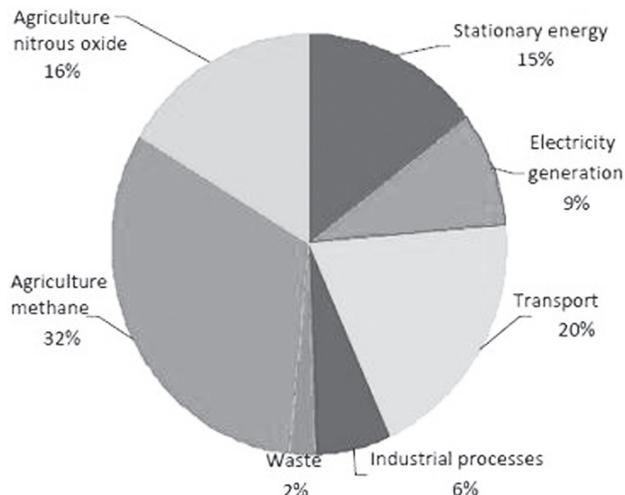


Figure 1: NZ GHG emissions by sector: 2007

The New Zealand forestry sector has greatly reduced the nation’s total net emissions by virtue of carbon sequestered in post 1989 Kyoto forests and has enabled CP1 Kyoto targets to be met. During CP1<sup>iii</sup> New Zealand’s Assigned Amount is 309.6 Mt CO<sub>2e</sub>, the current projection of gross emissions is 378.2 Mt, removals by Kyoto forests are projected at 85 Mt, leaving a net position of 16.4 Mt credit.<sup>1</sup>

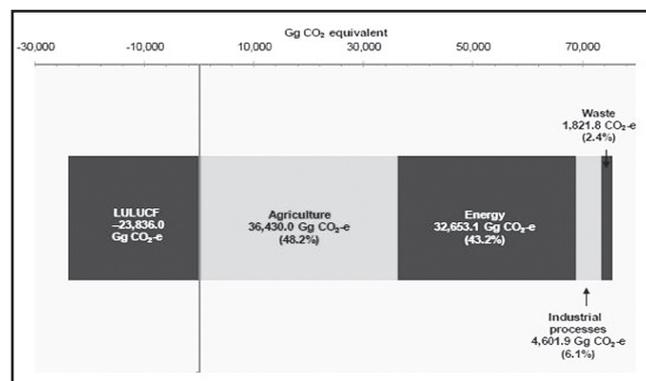


Figure 2: NZ Total GHG emissions by sector: 2007<sup>2</sup>

However trends in afforestation and deforestation have huge implications for New Zealand’s future emissions profile. The Kyoto forests that sequestered 85 Mt during CP1 are the result of a commercial timber planting boom in the 1990’s. These Kyoto eligible forests are predominantly radiata pine, a rapid growth species that has an optimal harvest age at about 30 years. These Kyoto forests will fall due for harvest after 2020. However new planting has not been maintained and in recent years it has have fallen to negligible levels while deforestation has increased. In

2008 and 2009 the total planted forest area decreased i.e. deforestation outstripped planting. If this trend continued New Zealand's net GHG emissions could increase dramatically post 2020.

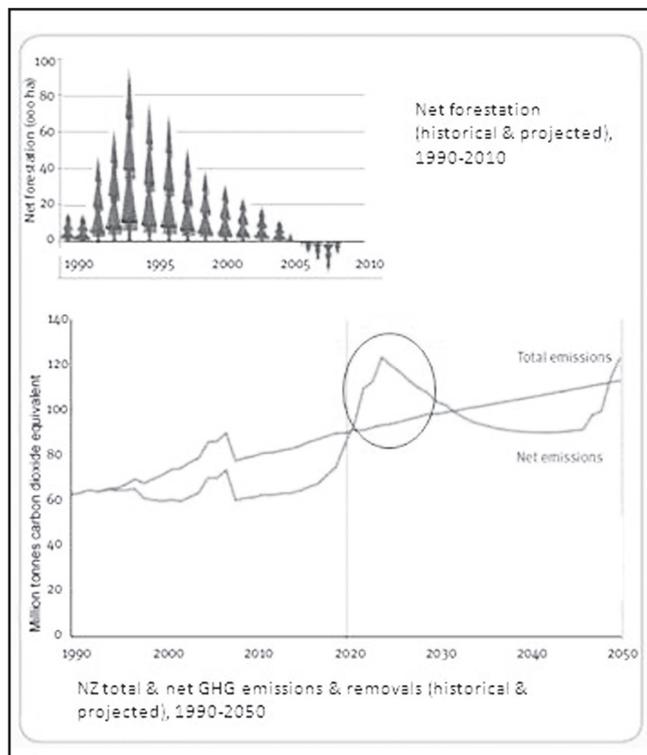


Figure 3: NZ's total and net GHG emissions & removals (historical and projected) 1990-2050<sup>3</sup>

However there is also considerable potential for low cost carbon sequestration through expansion of planted forests. If just 10% of New Zealand's pastoral lands were converted to forestry within the next two decades all agricultural emissions for the next 50 years could be offset together with the pending 2020 harvest liability. The NPV cost of carbon sequestration by rapid growing planted forests is about  $\square 10/\text{tCO}_2$  (10% Discount rate).

Because of the importance of its agriculture and forestry sectors New Zealand has focused considerable attention on LULUCF policy both within its domestic policies and in its contributions to UNFCCC<sup>iv</sup> negotiations.

### NZ emissions trading scheme 'road test'

Domestically New Zealand has designed the world's first economy wide emission trading scheme that fully encompasses the LULUCF sector. Forestry was the first sector to be engaged under the NZ ETS, effective from 01 January 2008. A major incentive for immediate participation of forestry was to put a cost on deforestation so as to curb

further conversion of forest to pasture. Another reason was to create commercial opportunities for forest owners based on growing and managing forests for carbon.

The NZ ETS legislation creates commercial opportunities for carbon forestry by enabling private ownership of post 1989 carbon credits within the Kyoto framework. New Zealand is the first country to do this. Owners of post 1989 (Kyoto compliant) forests can elect to register their forests under the NZ ETS (which allows business as usual harvesting), or register under the Permanent Forest Sink Initiative (PFSI) (which limits harvesting and requires forest structure to be maintained for a minimum of 99 years). Registered ETS or PFSI forest owners can then apply to be issued with AAU's (not RMU's)<sup>v</sup> commensurate with the measured and quantifiable sequestration during CP1. AAU's are a key 'currency' under Kyoto because they can be issued at anytime, and banked between commitment periods, whereas RMU's can only be issued during the 'true up' period at the end of CP1, and cannot be carried over.

Assignment of Kyoto AAU credits creates opportunities for investment in carbon forestry in addition to commercial timber forestry, however there are liabilities, if an ETS or PFSI forest loses stored carbon as a result of harvesting (or any other cause) and the remaining carbon stocks of the forest fall below what has been issued, then the account must be balanced by repaying AAU's to the Government.

In the context of harvesting under instant oxidation rules the quantum of replacement units required for replacing lost carbon could be considerable, and with appreciating carbon prices the cost of replacement could greatly exceed the revenue gained from selling AAU's as the forest developed. The cost of AAU replacement could also exceed the net revenue from timber harvest.

The instant oxidation liability coupled with uncertainty as to future carbon pricing undermines the commercial rationale for combined timber and carbon regimes, and as a consequence inhibits investment in sustainable forest management for timber and carbon. This is a wrong outcome because we need to encourage (not inhibit) intensive management of forests for combined sequestration and wood production, and thereby achieve greater use of timber products for their embedded carbon potential, and for replacement of more energy intensive materials such as concrete and steel.

New Zealand has "road tested" commercial forestry's appetite for afforestation and reforestation investment for combined timber production and carbon sequestration under its ETS since 1 January 2008, however investment levels sank to the lowest levels in 2008 and 2009 for 50 years.

<sup>iv</sup> UNFCCC = United Nations Framework Convention on Climate Change

<sup>v</sup> AAU = Assigned Amount Unit; RMU = Removal Unit (ie less valuable).

While there are multiple reasons for this situation such as low stumpages, high land values, and the global financial crisis, prospective investors have also complained that regulatory uncertainty and harvest liabilities are important factors. A major concern is carbon prices are expected to increase in the future, and could make harvesting uneconomic if cost of purchasing replacement units becomes too costly.

## NZ's 'emissions to atmosphere' proposal

It is clear that instant oxidation rules need to be changed to promote investment in forests for combined carbon and timber production, and to encourage manufacture of longer life wood products. However there has been no significant progress in UNFCCC negotiations on this issue for almost 15 years, in part because of the underlying complexities of the issue and the desire of some parties to deliver a perfect 'fits all sizes' solution, an impossible goal.

The delay in solving the instant oxidation anomaly has become a matter of grave concern and it has become imperative an agreement on carbon in harvested wood products is achieved at successor agreements to COP 15. New Zealand believes a simple approach offered the only real prospect of success.

To this end, for reasons of simplicity and practicality, New Zealand has proposed an "Emissions to Atmosphere" (ETA) approach that would only apply to post 2012 emissions (i.e. would not cover carbon in pre-2012 wood products), and that the emissions from post 2012 harvesting would only be accounted for in the producing country on the basis of when they occur. NZ has also proposed the ETA approach would be elective; countries with access to reliable data could choose to monitor and account for emissions from harvesting and in degradation of wood products, and countries not able or wishing to engage with the ETA could in the meantime continue with instant oxidation accounting. Importantly the ETA proposal leaves the door open for improvement and would encourage data gathering and analysis for development of more comprehensive approaches in the future.

The text of New Zealand's proposal (new paragraph 22 of the Annex to Decision 16/CMP.1) on carbon emissions following harvesting is:

*'Carbon removed in wood and other biomass from forests accounted for under the Kyoto Protocol under articles 3, 6 and 12, shall be accounted for on the basis of default instantaneous oxidation or on the basis of estimates as to when emissions occur provided verifiable data is available. Such carbon, including carbon in exported wood, may be transferred to a harvested wood products pool to be accounted for by the Party producing the wood'.*

In summary, it is essential that forest industry leaders ensure their government representatives have a clear mandate and instruction for COP 15 to achieve a simple and flexible foundation agreement on carbon in harvested wood products.

## References

- <sup>1</sup> Ministry for the Environment (2009) [www.mfe.govt.nz/issues/climate/emissions-target-2020](http://www.mfe.govt.nz/issues/climate/emissions-target-2020)
- <sup>2</sup> Ministry for the Environment (2009) New Zealand's Greenhouse Gas Inventory 1990-2007, [www.mfe.govt.nz/issues/climate/greenhouse-gas-emissions/](http://www.mfe.govt.nz/issues/climate/greenhouse-gas-emissions/)
- <sup>3</sup> Ibid