Dear Committee -- I am sending a copy of my submission on the government's National Greenhouse and Energy Reporting system. It is relevant to your terms of reference because the treatment of green' carbon (associated with living systems) in policies to reduce greenhouse gas emissions will impinge on land use and agriculture, perhaps significantly. This submission outlines some of the questions that need to be addressed. Yours sincerely, Margaret Blakers

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Green Carbon: Urgent Need for a Comprehensive Review

National Greenhouse and Energy Reporting (NGER) Comments on Technical Guidelines and Regulations

Margaret Blakers, 25 February 2008[1]

NGER is intended to create a unified national framework for reporting corporate greenhouse gas emissions and abatement action and thence for determining liabilities under an emission trading scheme. This should mean that all corporations[2] which generate greenhouse gas emissions or abatement report in a compatible manner, that the reporting is comprehensive, and that the methodology does not introduce distortions.

The reporting system as proposed does not achieve this. By treating green carbon (carbon associated with living systems) differently from brown (fossil fuel) carbon, it is building in biases which, when translated to emissions trading, will tend to result in higher overall greenhouse gas emissions and advantage some corporations relative to others. There are three main issues:

- "Non-energy" emissions from agriculture, forestry and fishing are excluded (treated as zero) but non-energy uptake can be counted as abatement. In other words, corporations can claim credits for carbon sequestration but do not have to report or pay for emission liabilities such as those created by logging or land clearing.
- Corporations are not liable for the CO_2 in logs used for energy production or for on-site logging emissions (although corporations carry out the logging and/or wood combustion which creates the CO_2 emissions).[3]
- Corporations are not liable for the CO_2 in logs used as industrial feedstock or for on-site logging emissions, even though much of the wood used is relatively quickly converted to CO_2 emissions (for example pulp production).

The translation of IPCC accounting conventions to facility level reporting is fundamentally flawed (Technical Guidelines, section 3.7 and 6.1). The IPCC default methodology for wood production is to count <u>all</u> emissions when logging takes place. That is why the IPCC recommends that fuelwood CO_2 emissions not be counted at the time of combustion (otherwise they would be double-counted). Australia's national accounts reject the IPCC approach, opting instead to account for each wood product separately. To be consistent, the

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[2] In the case of forestry, 'corporations' should include publicly owned state forestry agencies (not necessarily corporations under the Corporations Act), and the privately owned wood growing businesses (including MIS operators) selling and/or processing native forest and plantation wood.

[3] The same is true for other biomass crops but since these are mostly annual it can be assumed that CO_2 is recaptured within the accounting year.

same approach has to apply to facility level reporting, requiring emissions associated with fuelwood or wood feedstocks to be reported at the time of combustion or processing.[4]

The measurement problems cited as the reason for omitting green carbon from reporting are real but not insuperable. Reasonably reliable information is available on log volumes and plantations so there is no basis for their non-inclusion. For natural forests, there is a consistent bias which leads to under-estimation of emissions, especially for old growth and mature forests (this is because most studies from which data have been drawn were carried out in regrowth forests which have not yet reached their maximum or customary carbon carrying capacity). However, the data base is improving rapidly and corporations should be required to report estimates, with a note as to their method of calculation and reliability. The same applies to reporting of emissions from native vegetation clearing and probably from other agricultural activities.

Emissions

The implications of omitting green carbon emissions from NGER are not trivial. Collectively, they amount to around 150 Mt CO_2 per annum (table 1). Individual facilities can be responsible for very large emissions. For example, Gunns pulpmill alone, if built and if plantation based, would generate over 10 Mt CO_2 per annum (equivalent to 2% of Australia's total net emissions), none of which would be reported. If, as planned, mature and old growth native forests are used as feedstocks, its emissions will be much higher.

If green carbon emissions are not reported under NGER, there will be continuing policy blindness to their significance. If they are not included in a trading scheme, other mechanisms will be needed to address these major sources of pollution.

More specific effects will also result. Native forest logging (and clearing) will be advantaged relative to plantation logging because the much larger on-site emissions generated by native forest logging, especially mature and old growth forests, are not penalised. Other government policies in this sector compound the economic inefficiencies and negative environmental impacts. Together they add up to large financial incentives to establish and grow new plantations (very inefficient carbon stores) and zero liability for liquidating existing large carbon stores in mature native forests. These policies include: tax deductions through Managed Investment Schemes to promote the establishment of new plantations; proposed tax deductions for planting new 'Kyoto forests'; and the ability to create carbon credits under *Greenhouse Friendly* criteria for post-1990 plantations including for MIS plantations (advice from *Greenhouse Friendly)*.

In the broader economy, fuelwood energy will enjoy an emissions 'holiday' and be cheaper than it should be relative to its competitors, including energy efficiency and renewable

[4] There are two components to the emissions: those associated with combustion or processing of logs, and the on-site emissions generated by logging (from above ground living biomass, litter, roots and soil). These could be separately reported if undertaken by different corporations, or all reported when logging takes place (as the IPCC recommends) or all reported at the time of combustion or processing. What is not acceptable is for them to be ignored, leading to the emission factors for biomass fuels being substantially less than they ought to be and not calculated on a common basis with other fuels.

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energy. It is possible also that virgin fibre feedstock for pulp and paper may end up being cheaper relative to its competitors, including recycling, and to non-wood inputs (e.g. fillers).

Abatement

On the other side of the ledger, the current level of green carbon abatement, according to the greenhouse gas accounts, is about 80 Mt CO_2 per annum, comprising uptake by 'managed' native forests, post-1990 plantations, and a small amount in durable wood products. The actual quantity of native forest uptake has never been measured (the number in the accounts has not changed since 1990) and uptake by conservation forests is not included. Biosequestration through allowing native forests to achieve their carbon carrying capacity is potentially a significant source of abatement. If avoided emissions from clearing and logging are also included, the quantity of potential green carbon abatement is large relative to Australia's brown carbon emissions.

Emissions trading and green carbon

If green carbon offsets are allowed under the emissions trading scheme, there is no logical reason, in a post-Kyoto "full carbon accounting" framework, to give preferential treatment to post-1990 plantations. Avoided clearing, avoided logging and restoring logged native forests and other native vegetation are all better options. They use less space (store more carbon per hectare), and benefit biodiversity and water as well.

The question is whether emissions trading has a useful role in managing green carbon. More precisely –

- Is emissions trading an effective way to eliminate green carbon emissions and promote abatement through biosequestration?
- Should the emissions trading scheme be confined to brown carbon or should green carbon offsets should be permitted?
- If green carbon offsets are permitted, should they be limited to new planting (on previously cleared land) or extend to avoided emissions?
- How should bio-energy be treated: is it more greenhouse-efficient to store carbon in living systems or convert it into energy to replace fossil fuel emissions (and are there better ways to reduce fossil fuel emissions at source)?

There are multiple risks in the approach currently being taken to green carbon through NGER and emissions trading proposals. They are likely to result in environmental and economic detriment. Internationally, there is alarm at the impacts of bio-energy production on natural systems, water and food production, and growing scepticism about its greenhouse effectiveness. Australia must design its reporting and trading systems to avoid similar perfectly predictable outcomes.

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Recommendations

1. There should be a comprehensive assessment of green carbon emissions and uptake, including a complete revision of the relevant parts of the Australian greenhouse gas accounts.

2. The total costs and effects of emissions trading, tax incentives, renewable energy certificates, and offset credits on land-use, carbon storage, emissions, biodiversity, water and food production should be investigated and the whole system rationalised.

3. Green carbon, including non-energy emissions and abatement, should be fully reported under NGER, if necessary with estimates of reliability.

4. Options for managing green carbon, including regulation, taxation and emissions trading, should be specifically investigated to determine the most effective ways to reduce emissions and enhance abatement.

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Table 1. Green carbon emissions and uptake, Australia, 2005

(a) Emissions. All figures except the native forest logging emissions are derived from the Australian Greenhouse Emissions Information System (2005 UNFCCC accounts). Non-forest native vegetation is excluded, except for savanna burning, although clearing of shrublands, wetlands, native grasslands and savannas is likely to be a significant unreported source of emissions.

Source	Emissions	Comment
Clearing of forests	57 Mt CO_2	This is a net figure where emissions from forest clearing are partially offset by the CO_2 uptake of vegetation regrowing on previously cleared land
Native forest logging	38 Mt CO_2	Estimate of total emissions including logs, other above ground living biomass, litter, roots and soil carbon, using the default IPCC recommendation that all emissions should be accounted for at the time of logging. [5] In Australia's accounts, emissions are partitioned into several components and the CO_2 content of exported wood (primarily native forest woodchips) is omitted.
Pre-1990 plantations	19 Mt CO_2	Includes 2 Mt CO_2 net on-site emissions and up to 17 Mt CO_2 in logs; a minor portion of the log volume may be double-counted as fuelwood consumption and storage in durable wood products
Burning	1 Mt CO_2	Includes wildfire and prescribed burns; since 1990 maximum emissions were 5 Mt CO_2
Fuelwood consumption	10 Mt CO_2	Fuelwood consumption is estimated logs for processing but there may be some element of double-counting
Agricultural land management	26 Mt CO_2	Includes rice cultivation, agricultural soils, prescribed burning of savannas, field burning of residues (presumably these are all net figures). Excludes animal husbandry.
TOTAL	151 Mt CO_2	

(b) Uptake. Excludes CO_2 uptake by conservation forests (approximately 147 million ha) or by non-forest native vegetation.

Source	Uptake	Comment
Post-1990 plantations	-21 Mt CO_2	This represents the growth of about 800 000 ha of tax-driven new plantations which have not yet been logged (rotation length approx 15 years for the majority). When logged, emissions will substantially reduce the net uptake.
'Managed' native forests	-57 Mt CO_2	An 'estimate' of CO_2 uptake by 15 million ha of native forests available for logging. Note that this figure has remained unchanged in the accounts since 1990. It is not based on empirical data.
Durable wood products	-5 Mt CO_2	Includes all domestically processed wood, locally-grown plus imports
TOTAL	-83 Mt CO_2	

[5] For the derivation of this estimate, see Margaret Blakers, 2007, *Forests: vital for climate protection*, Green Institute Working Paper 2, www.greeninstitute.com.au. Using the NCAS methodology, emissions would be estimated at 28 Mt CO_2 per annum (12 Mt CO_2 in the logs, 16 Mt CO_2 on-site).

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Table 2. Summary of proposed reporting and liability requirements for green carbon under NGER

	Source	**Reporting**	**Emissions trading liability/abatement credit**
Emissions	Logging/clearing: on-site emissions	Not required	Zero
	Consumption of biomass energy (wood. wood waste)	CO_2: memo only Non CO_2: required	CO_2: zero Non- CO_2: as measured
	Consumption of biomass feedstock for non-energy purposes (e.g. pulp production)	Not required	Zero
Uptake	Native forests	Not required	Zero
	Pre-1990 plantations	Not required	Zero
	Post-1990 plantations	Not required unless claimed for credits	Abatement credits can be claimed

Table 3. Application of government policies

	Eligible for MIS tax deductions	**Able to create abatement credits (meet *Greenhouse Friendly* criteria)**	**Eligible to generate Renewable Energy Certificates**
Native forests	No	No	Yes
Pre 1990 plantations	No	No	Yes
Post 1990 plantations	Yes	Yes	Yes

Growers of post-1990 plantations can

a) claim MIS tax deductions for establishment and management costs

b) generate RECs if they choose for biomass energy

c) claim abatement credits under *Greenhouse Friendly* criteria by growing plantations for longer than originally specified in the MIS prospectus

By contrast, government policies actively support the destruction of carbon stores in mature and old growth forests (through Regional Forestry Agreements) and little support is available for carbon sequestration.

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