



# TreeSmart News

## It's not always that easy Being Green

While the general community and business are becoming more aware of the need to care for the environment, particularly with respect to climate change, some, it seems, are going too far (or perhaps not far enough!).

The Australian Competition and Consumer Commission (ACCC) has recently stated that it will "vigorously pursue" businesses that breach the Trade Practices Act through fraudulent or deceptive claims of the "greenness" of their products or services. While ACCC is concerned with claims on several environmental dimensions, claims of "carbon neutrality" are certain to attract special attention.

ACCC has recently released a booklet on "Green Marketing and the Trade Practices Act", and an Issues Paper on "The Trade Practices Act and Carbon Offset Claims". They called for submissions on this Issues Paper, and **TreeSmart** submitted such a submission (downloadable from the **TreeSmart** website).

**TreeSmart** applauds the ACCC for their action in this emerging area, where there are few established rules. However, while ensuring that clearly fraudulent behaviour is detected and punished, one hopes that the ACCC realises that the carbon offset industry is still in its infancy and developing. ♻️

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The purpose of the **TreeSmart Newsletter** is to keep **TreeSmart** subscribers and farm foresters aware of some recent developments in carbon offsetting in Australia.

## The Garnaut Review

In April 2007, the Federal Opposition of the day appointed Professor Ross Garnaut to undertake a review of climate change issues, and to report back to the States and, if invited, to the Prime Minister. With the change of Federal Government in November 2007, this Review will now be a major force in shaping the Australian Government's policy positions on climate change, and the forthcoming Emissions Trading Scheme.

*Australia must now put in place effective policies to achieve major reductions in emissions. The emissions trading scheme (ETS) is the centre-piece of a domestic mitigation policy.*

The Review has three major objectives, namely to report on:

- The likely effect of climate change on Australia's economy and environment.;
- The costs and benefits of various policy interventions on Australian economic activity; and
- The role that Australia can play in the development of international climate change policies.

In the light of these findings, the Review will then recommend medium to long-term policy options for Australia, and the time path for their implementation.

The Review has been holding Forums around Australia on various aspects of the problem, including:

- Land Use – Agriculture and Forestry
- Financial Services for Managing Risk in Carbon Trading
- The Science of Climate Change
- Low Emissions Energy Technologies
- Transport, Planning and the Built Environment

Following the Forums, the Review has compiled Issues Papers on which they have invited public submissions. **TreeSmart Australia** has made a submission on the Forestry Issues Paper, which can be downloaded from the **TreeSmart** website. In the next month, **TreeSmart** will also be making a submission on the Transport and Land-Use Issues Paper.

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On February 21, The Garnaut Review released its Interim Report. It made many important recommendations which surprised some observers. Importantly, it stated that "Australia would need to go considerably further in reduction of emissions as part of an effective global agreement, with full participation by major developing countries, designed to reduce risks of dangerous climate change to acceptable levels".

It re-emphasised the need to take immediate action, by making firm commitments, in 2008, to 2020 and 2050 emissions targets, and stated that "Australia must now put in place effective policies to achieve major reductions in emissions. The emissions trading scheme (ETS) is the centre-piece of a domestic mitigation policy".

It also stressed that effective mitigation would need to occur at the lowest possible cost. The combination of the need for short-term action at the lowest possible cost highlights the need for carbon offsets based on forestry, which are one of the few proven methods of carbon sequestration. ☼

## Transport and Greenhouse Emissions

### - Using The MAORI Model

A few days before the release of the Garnaut Review Interim Report, *TreeSmart* was represented at the Garnaut Review Forum 5 in Perth, on Transport, Planning and the Built Environment. While the Interim Report was to call for significant short-term action, most of the speakers at the Forum spoke about medium-term and long-term changes in the transport and land-use systems that might eventually bring about reductions in Greenhouse Gas emissions. Even when discussing the proposed AETS, they were of the opinion that the relatively small changes in fuel price that would be brought about by the AETS would be too small to be of much use.

However, as noted in the last edition of *TreeSmart News*, it is important to view emissions management strategies within a broader context of short-term and long-term actions, such as that provided by the MAORI Model:



Measure

Avoid

Offset

Reduce

Iterate

### Measure

Measuring the transport greenhouse emissions in Australia is fairly straightforward, with many different speakers getting broadly similar results with total emissions of around 80 million tonnes CO2 per year, with about 60% being due to passenger vehicles, and 40% due to freight vehicles. Given these proportions, some of the speakers noted that most attention has been given to passenger transport, especially the role of public transport. Very little attention has focussed on the potentially more difficult issue of freight transport and climate change.

### Avoid

Some of the policies described at the Forum clearly related to the "low-hanging fruit", where relatively quick results can potentially be obtained. The main examples in the context of personal travel were the various TravelSmart programs, which aim to reduce vehicle-kilometres of travel. However, even with the fairly optimistic results quoted at the Forum, the impact of TravelSmart is relatively small.

### Offset

None of the speakers at the Forum mentioned offsetting, despite the need to do something about past and present emissions until the long-term actions take effect.

### Reduce

Most of the speakers concentrated on long-term actions, such as vehicle and fuel technology changes, major investments in public transport, and long-term changes in the structure of cities.

### Iterate

None of the speakers seemed to consider climate change policies as an ongoing process with a variety of actions. Most were concentrating on a single solution.

One common, but mistaken, conclusion was that the effect of the AETS on fuel prices would be too small. With a probable increase in fuel price, due to the AETS, of 3-10 cents per litre, most speakers considered it too small to bring about any change in behaviour. However, this conclusion is erroneous. The aim of a cap-and-trade AETS is to reduce atmospheric CO2. It can do this by reducing emissions or by offsetting emissions, and does not need to bring about massive behavioural change in order to do this (although in the long-term, behaviour change is desirable for a variety of reasons). An increase of 3-10 cents per litre, if applied fully to offsetting could make land transport carbon neutral, while having virtually no effect on travel behaviour. To change travel behaviour sufficiently, given the very low elasticity with respect to fuel price, would probably require an increase of more like \$3-\$10 per litre. But that is not the point! The objective of the AETS is to cap the emissions, and offsetting is a more immediate and cost-effective method of doing this in the transport sector than huge long-term investments in infrastructure. ☼

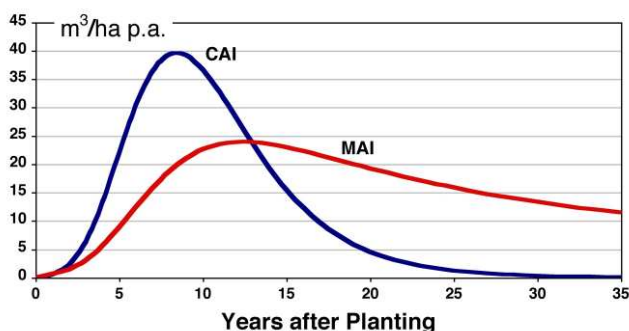
## Monitoring Farm Forestry Plantation Growth and Carbon Sequestration

One of the critical tasks in the management of a farm forestry plantation that has been established for carbon sequestration purposes is to measure the rate at which the trees grow, and as a consequence the rate at which the plantation is absorbing carbon dioxide from the atmosphere and storing it as carbon in the wood of the tree.

This is one of the inherent advantages of using farm forestry plantations for carbon sequestration, in that farm foresters are normally already measuring the rate of tree growth for other purposes such as determining when to thin the plantation for optimal sawlog growth. This measurement process is often not performed on trees that have been planted for re-vegetation purposes.

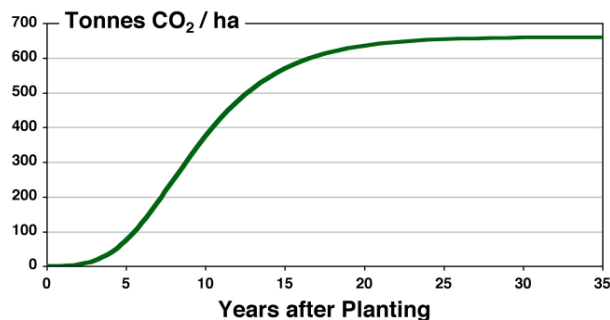
While one might be measuring individual trees, the real purpose is to measure the rate of growth of the plantation as a whole, since there is a trade-off between the density of trees (stems per hectare), the size of individual trees (as measured by height and diameter at breast height, DBH), and the total growth rate of the plantation (as measured by changes in the volume of wood per hectare).

Two common measures of plantation growth are the Current Annual Increment (CAI) which is the increase in plantation wood volume in any given year and the Mean Annual Increment (MAI) which measures the average annual increase in wood volume up to a specified year (both being measured in cubic metres per hectare per year). Typical CAI and MAI curves are shown below.



It can be seen that the CAI, for this plantation, peaks at about year 10, then gradually falls away. The MAI peaks at a later year (where the CAI and MAI curves cross) and then falls away. The MAI is a commonly used measure of growth of the plantation over the length of its rotation, and should be quoted with the year to which it applies, e.g. in the above case the 13-year MAI is 24 m³/ha/year, while the 20-year MAI is only 20 m³/ha/year.

Another common way of viewing the growth of the plantation is to plot the cumulative growth of the plantation as a function of the years since planting, as shown in the next graph.



This graph shows the characteristic s-shape curve of plantation growth, with low growth in the early years, followed by a growth spurt in the “teenage” years, before entering another period of low growth, and eventual senescence, after about year 20 or 30 (depending on the species). This graph also shows the wood volume converted to carbon sequestered over time. This is possible by knowing that carbon is about half the dry weight of a tree and that for every tonne of carbon stored in the tree, 3.67 tonnes of carbon dioxide were absorbed from the atmosphere (based on the molecular weights of CO<sub>2</sub> and C).

The growth curve shown above is for an unharvested plantation. If the plantation is thinned and pruned to increase the size of individual trees for sawlogs, then there are minor changes in the volume of wood in the plantation during the early years when the thinning and pruning is taking place, but these changes are largely lost by the time the plantation matures.

The shape of these curves can be derived in two ways. Initially, the curves are estimated using plantation growth models, such as those contained in the FullCAM modelling package developed by the Australian Greenhouse Office. In time, however, these modelling estimates are replaced by ongoing measurements of actual plantation growth.

The measurement of plantation growth is performed using a sampling procedure, wherein a selection of trees within the plantation is regularly measured to determine the rate of growth of the plantation. These trees are often in Permanent Sampling Plots (PSP), which are chosen to be representative of the total plantation of trees. While traditional tree measurement used manual methods based on tapes and other physical measures, the trend these days is towards more automated procedures based on laser measuring devices. Larger plantations also use aerial photos and satellite images.

**TreeSmart** is implementing a laser-based measurement system, using PSPs, to measure plantation growth at regular intervals in order to quantify the amount of carbon sequestered in the **TreeSmart** plantations. ☼

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## All Aboard!! – offsetting tourism activities



*The Alexandra Timber Tramway's John Fowler 0-6-0T steam engine, pictured running through the trees at Taggerty which will offset the annual emissions from the Tramways operations.*

In a symbolic gesture and as a sign to other tourism operators, the Alexandra Timber Tramway has chosen local company **TreeSmart Australia** to offset the emissions produced by their tourism operations for 2006-07.

The Alexandra Timber Tramway is a steam railway and logging museum situated in the township of Alexandra in north-east Victoria. The main objectives of the ATT are to:

- Recreate the bush sawmill and tramway era of the Rubicon Forest 1900-1950
- Rescue and restore a wide range of small industrial locomotives and rolling stock
- Operate a safe and viable tourist attraction for the benefit of Alexandra and district

The ATT is very conscious of their role in the community, and of their need to be a good environmental citizen. Therefore, while realising that their greenhouse emissions were relatively small, they decided to offset them as a sign of good faith, and as an example for all tourism railway operations.

An analysis of their power and fuel consumption for 2006-07 showed that they had net emissions of about 7 tonnes CO<sub>2</sub>. This was after considering that they use solar power for lighting the locomotive shed, and they use waste timber for feeding their steam engine locos, and for heating their main display room during winter. However, they do consume fossil fuels for powering the diesel locomotives.

Their emissions were offset by **TreeSmart** for 2006-07 using a local eucalypt plantation for a total cost of \$84. While not being a major expense, they can rest assured that, combined with their own efforts at minimising emissions by the choice of power sources, they were a carbon neutral operation for 2006-07. ☼

### About TreeSmart Australia

**TreeSmart Australia** is a carbon pooling organisation which offsets emissions primarily from the transport sector by supporting the establishment and management of farm forestry plantations.

Farm foresters are paid for the carbon sequestered in their trees according to the amount sequestered each year.

**TreeSmart** uses a year-for-year carbon accounting system, whereby the emissions produced each year are offset by the amount of carbon sequestered in that, or previous, years. No forward borrowing of sequestered carbon (offsetting past or current emissions through future growth of trees) is allowed.

**TreeSmart Australia** is a private company, with all profits re-invested in growing more trees for sequestration purposes.

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