

Sustainability of biomass fuels

Introduction

Many of the sustainability concerns of sourcing biomass fuels in the northern hemisphere do not arise in New Zealand and Australia.

Biomass is considered a renewable energy source based on the concept that the plant material used can be replaced through re-growth and the carbon dioxide that is emitted from burning the harvested biomass can be absorbed by the new plant growth. Forests and plant crops need to be managed sustainably to provide a continuous fuel source and a system for re-absorbing carbon dioxide that is released through burning.

There are contradicting views about how long it would take before the biomass is replenished and CO₂ emissions are absorbed. In 2010 the Manomet study suggested that it would take at least 25 to 50 years for the harvested batch of wood to be replaced by new growth.

Practices like short rotation harvesting and re-planting or coppicing are designed to be sustainable. In New Zealand and Australia the plantation forests with say 30 year rotations are essentially short rotation crops compared to northern hemisphere forests where rotations of 100 years are common. In New Zealand and in most parts of Australia long lived trees are not harvested or used as biomass fuel.

In New Zealand the forestry sector and the environmental NGO's signed the [New Zealand Forest Accord](#) in 1991. The Accord protected indigenous forest from clearance and conversion to plantations and supported plantations as legitimate land use that had economic and environmental benefits to New Zealand society. The Accord has been a good thing for both plantation forestry businesses and the environment. It supports the common view that New Zealand's economic and environmental performance are "joined at the hip". We need a pure/green New Zealand image to underpin both our safe food exports and our tourism that together make up the bulk of our export earnings.

Plantation forests are an absolutely complimentary land use on farms. All our primary commodities, including pine logs, experience cyclical swings in price. But these swings happen at different times. A mix of land use at the individual farm level provides financial resilience.

The use of biomass sourced from material that would otherwise be wasted, say to landfill, is a sustainable practice.

How can we make biomass energy more sustainable?

Biomass energy encompasses a broad range of practices and methods so it is important that we assess the viability and sustainability of using biomass on a case-by-case basis. Here are some 'must dos' for ensuring our biomass supply is as sustainable as possible.

Source locally – this is important not only for reducing transportation emissions but also for supporting local businesses

Research the extraction process – where has the biomass fuel come from? What has been involved in its production? How energy-intensive are the processes?

Make the most of waste – the best biomass systems make use of waste that would have otherwise been sent to landfill where their decomposition releases potent greenhouse gases like methane

Support sustainable land management – avoid energy crops that are damaging the local ecosystems or taking up valuable space for growing food. Show your support for those that encourage the healthy management of biodiversity and forests.

See also Bioenergy Technical Note [TNBB18](#) Bioenergy carbon neutral.