



The significant amounts of wood waste found in Australia's landfills could be diverted into making alternative useful products, including fuel. *Joely Taylor*

Could wood waste be fuels gold?

The CSIRO Energy Transformed Flagship recently completed the wood waste verification project, which aimed to identify both the volumes and types of wood waste being dumped in Australia's landfills and to determine the contribution it could make to our nation's future fuel supplies.

CSIRO researcher Dr Joely Taylor and her team conducted inspections at 30 different landfills throughout the country, excluding the Northern Territory. No study to produce a comprehensive picture of wood waste in Australia has previously been conducted at this scale.

In total, the team assessed almost 14 000 tonnes of general waste, which is equivalent to the discarded rubbish of more than 30 000 people.

'Our research showed that nearly half of the loads we inspected contained at least some wood waste. That added up to 770 tonnes – or about six per cent of the total waste by weight,' Dr Taylor explained.

Although wood made up a relatively small percentage of the total waste weight, it did in fact contribute significantly to the volume of waste – roughly 13 per cent.

'The high volume of wood waste could become an issue when you consider the implications of populating landfill sites with something that takes up a large amount

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of space and may contribute to global warming if it decomposes,' Dr Taylor said.

'Many of these wood resources could be recycled into new wood products including mulch, wood-plastic composites and particleboard. Some wood waste could even be converted into a renewable energy source.

Although wood made up a relatively small percentage of the total waste weight, it did in fact contribute significantly to the volume of waste – roughly 13 per cent.

'This finding alone shows that by removing wood waste to recycle or utilise as an alternative fuel feedstock we can potentially reduce the amount of land needed for landfills, reduce greenhouse gas emissions and reduce waste for waste's sake.'

Dr Taylor and her team categorised waste wood in the landfill and determined whether the wood is suitable for recycling, what sort and what levels of contaminants (such as timber preservatives) are present

in the wood, and which industries or markets the wood waste comes from.

CSIRO's work has now produced an accurate assessment of the quantity and type of wood waste in Australia, but what does it mean for the country's energy future?

'Using our total wood waste weight in combination with 2007 data collected by the Australian Bureau of Statistics points to a figure of around 1 781 000 tonnes of wood waste being generated in Australia each year,' Dr Taylor explained.

'If all of this was converted to fuel, it would equate to 534 megalitres or 300 litres of gasoline per tonne of wood, which is approximately 1.8 per cent of Australia's current gasoline usage.

'Although this amount is minor in terms of Australia's total fuel requirements, recovery of a concentrated resource of wood waste material from landfill could supplement other types of biomass found in a region and provide critical mass to support a biofuel conversion facility.

'In addition, wood waste could be used to generate electricity or process heat for manufacturing. For example, some European countries make wood pellets from waste wood that are used to generate electricity for the power grid.'

CSIRO's wood waste verification project will give industry and government important data about the amounts and types of current wood waste that could be recycled into new products or used for energy or biofuels.

The research results will be presented to the Australian Greenhouse Office and Forest and Wood Products Australia. Industry will be able to access the data online.

● **Linley Davis**

The project was supported by the Australian Government through its Low Emission Technology and Abatement – Renewables program, and the wood waste research element was produced in collaboration with consultants Warnken ISE.

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More information:

Renewable Energy Atlas of Australia, <http://www.environment.gov.au/settlements/renewable/atlas/index.html>

Report by J. Taylor and M. Warnken – 'Wood recovery and recycling: a source book for Australia', http://www.fwpa.com.au/Resources/RD/Reports/PN07.1060_Wood_Recycling.pdf