

WARM YOUR HOME WITHOUT WARMING THE PLANET



THE FIREWOOD ASSOCIATION OF AUSTRALIA INC.

A 2003 life-cycle study conducted by CSIRO for the Australian Greenhouse Office concluded that firewood is better than all of the commonly used sources of heat energy (see chart below). The reason is that the CO₂ emitted from a wood fire is the same as the quantity of CO₂ that is released when the wood rots and breaks down naturally. And this is an intrinsic part of the natural cycle of renewal and regeneration, which sees the released CO₂ (and more) absorbed back into young trees and other vegetation. Obviously, this short cycle loop of carbon dioxide absorption and release, does not apply to the other heat sources – coal, oil and gas – where the carbon has been sequestered for millions of years.

In 2011 this study was updated to include non-CO₂ greenhouse gases such as methane and carbon monoxide. This recent review of the data found that the inclusion of methane and carbon monoxide makes only a modest difference to the previously calculated results. This new study reinforces the key point - "What is the difference between emissions due to firewood collection for home heating and those which would have occurred anyway if the wood was left in the field to decompose or be burnt?"

With the sole exception of trees in plantations that have been set up to generate firewood, the wood used to produce firewood in Australia is "recovered" from various sources of dead trees. The main sources are trees that have died naturally, trees that have been cut down as a result of farm or mine site clearing operations, residue from old sleeper cutting operations, forest management and harvesting residues and from urban tree removal.

The key point is that in almost all circumstances firewood is a secondary or residue product from operations that are conducted for other purposes. As such, the use of firewood from these residues as a substitute for fossil fuel, is a sensible and responsible utilisation of a resource that would still release its stored carbon when it is burnt in-situ, or is broken down through decay.

The CSIRO study found that firewood plantations in fact sequester more carbon than the amount that is removed during harvesting and then is released through combustion. The original CSIRO report states, "sustainable firewood production systems have the potential to reduce carbon dioxide emissions". And this positive effect is enhanced with the regrowth of successive rotations of plantations or managed forests.

Firewood is a practical, readily available, source of renewable energy. Unlike other renewable energy options, firewood does not need major capital investment or infrastructure – which

necessitates the production of more greenhouse gases. Every tonne of dry firewood contains approximately 20,000 Megajoules of stored energy. Estimates place Australia's annual firewood consumption at around 4,000,000 tonnes. This is equivalent to 80 Terajoules of energy, the annual output of six large (500 MW) coal fired power stations. Increasing the use of firewood for domestic heating will lessen the requirement to build new coal fired power stations or to drill for coal-seam gas.

Purchase your firewood from FAA members to be confident that the wood has been harvested legally from sustainable sources and that biodiversity and threatened species have been protected. Avoid disreputable firewood sellers by seeking out a FAA sustainable firewood supplier to be sure that you are actually getting the wood type and quantity that you pay for. By burning properly seasoned sustainable firewood, sold by FAA members, in a well maintained fireplace or wood heater you can enjoy your fire knowing that you are also helping the environment.

It may seem odd but it is comforting to know that our clean energy future can be based on a return to mankind's original heating and cooking fuel.

Amount of greenhouse gas from different energy sources (kg CO₂ kWh⁻¹)

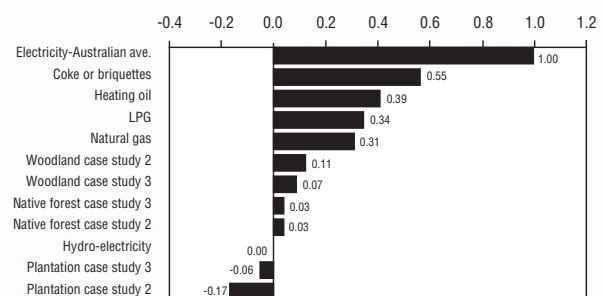


Figure 10: Comparison of CO₂ released per unit of energy produced (kg CO₂ kWh⁻¹) for different sources of domestic heating. Data on non-firewood energy sources comes from AGO (2002). Note that it is assumed that: (i) firewood is burnt at 62% efficiency, (ii) electricity is used by a radiator or fan heater at 100% efficiency (use of a reverse-cycle air conditioner could reduce emissions per unit of heat delivered by about two-thirds), (iii) greenhouse gases generated by electricity supply are averaged across Australia except for Tasmania, where hydro-electricity is used, and (iv) greenhouse gases generated during the operation and construction of power plants are not included.

Life Cycle Assessment of Greenhouse Gas Emissions from Domestic Woodheating - Prepared for The Australian Greenhouse Office and Environment Australia by CSIRO Forestry and Forest Products. Authors: Kerry Paul, Trevor Booth, Anthony Elliot, Tom Jovanovic, Philip Polglase and Miko Kirschbaum. September 2003

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