



PAPER MANUFACTURING INDUSTRY

PUBLIC
ECO-EFFICIENCY
REPORT UPDATE 2004

making • connections
making • connections
making • connections
making • connections
making • connections



Paper production

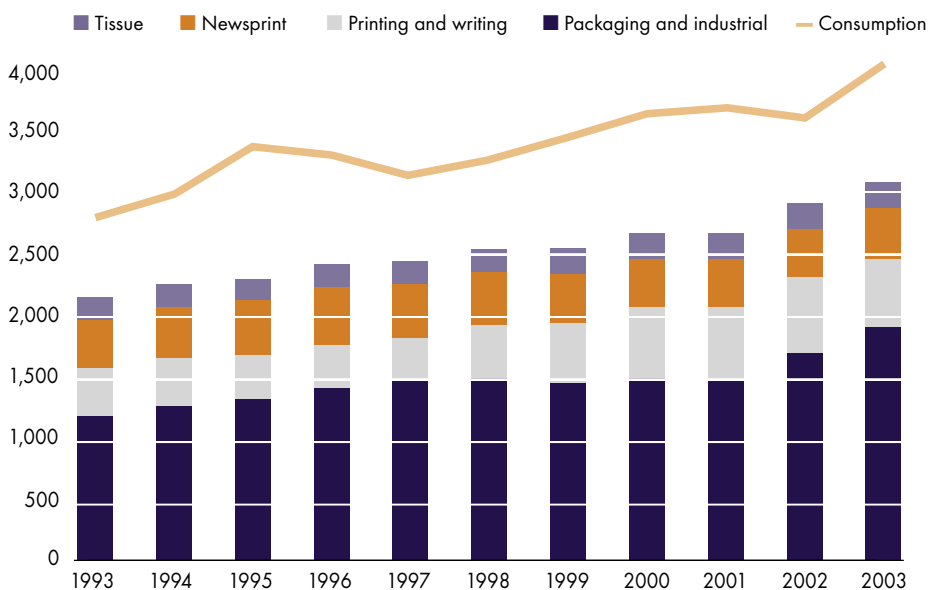
This update should be read in conjunction with the Australian Paper Industry Council (APIC) *Public Eco-efficiency Report 2003*. The update is part of the commitment made by APIC in its Eco-efficiency Agreement with the Australian Government. A3P is the product of the merger of APIC and the Plantation Timber Association of Australia.

Australia's six major paper manufacturing companies (Aurcor Australasia, Carter Holt Harvey (now SCA Hygiene Australasia), Kimberly-Clark Australia, PaperlinX, Norske Skog Australasia and Visy Industries) operate eighteen papermaking sites located across every Australian state. Approximately 6500 people are directly employed in paper manufacturing with a further 13,000 employed in fully dependent activities such as converting paper into finished products.

Paper manufacturing is one of the most capital-intensive manufacturing industries in Australia and is part of a highly competitive globalised industry. In 2002-03 the industry had capital assets worth \$4.2 billion and companies indicated an intention to invest an additional \$340 million in capital expenditure during 2003-04 and \$1.4 billion over the next five years.

Eco-efficiency is a concept that links environmental and financial performance. By implementing eco-efficiency measures, companies can achieve better environmental outcomes, reduced costs and increased competitiveness.

Australia paper production ('000 tonnes)

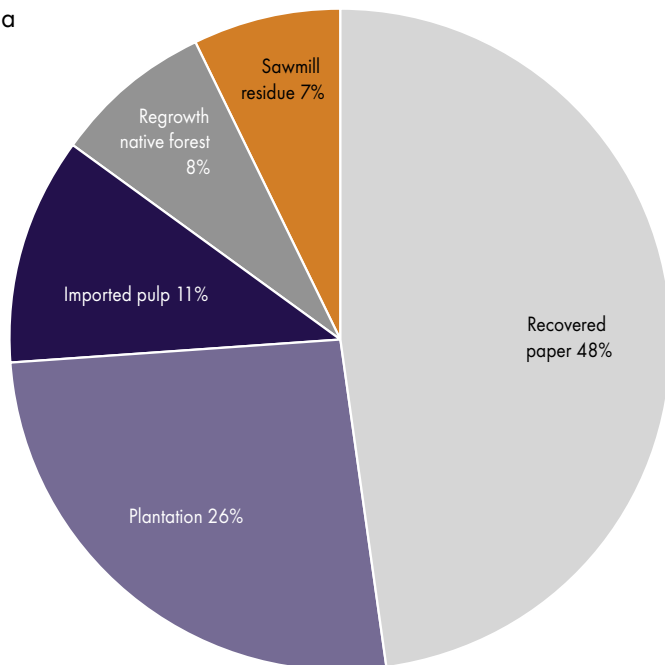


Consumption data from ABARE Australian Forest and Wood Product Statistics

Fibre inputs

Sources of fibre for paper production in Australia

Fibre is obtained from a number of different sources. Nearly half the fibre used is obtained by recycling wastepaper.



Recovered paper

In 2002-03 the industry collected 1,924,000 tonnes of recovered paper. Of this, 1,654,000 tonnes was used for the production of new paper products in 2002-03.

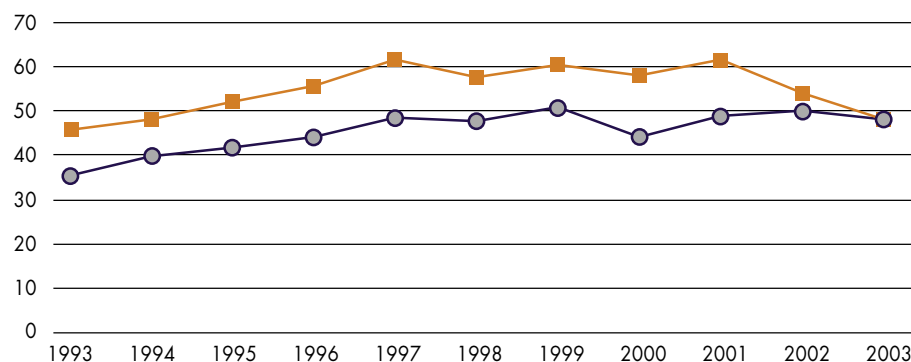
Despite absolute increase in collections and utilisation of wastepaper both the recovery and utilisation rates fell on the previous year.

The recovery rate was impacted by the significant increase in total paper consumption and is probably an underestimate because of increased volumes of wastepaper being recovered by other users and exporters.

Increased production at the Visy Tumut Mill, which draws its fibre primarily from plantation

Paper recycling measures (%)

■ Utilisation rate—amount of wastepaper used in paper production as a percentage of the total Australian paper production.
 ● Recovery rate—amount of wastepaper collected as a percentage of the total domestic consumption of paper.



softwood logs and mill residues, contributed to the decline in the utilisation rate. The utilisation rate may also have been impacted by collection, usage and export of recovered paper

by other parties. As Australian paper manufacturers continue to increase paper production and use of recovered paper, economically accessible recovered paper supplies are becoming limited.

Solid waste

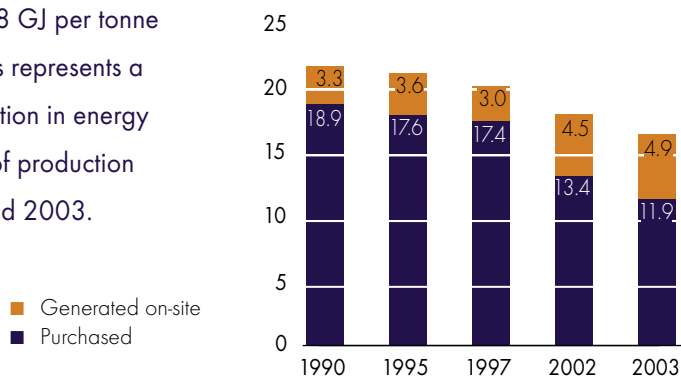
In 2002-03 Australian paper manufacturers generated some 589,000 tonnes of waste or 193kg per tonne of production. Of this more than half, or 298,000 tonnes, was reused, recycled or reprocessed.

It is notable that the volume of waste disposed of (290,000 tonnes) is significantly less than the volume of paper which is recovered from the waste stream by the paper industry (1.9 million tonnes).

Energy use

In 2002-03 the industry consumed 51,391 TJ of energy in paper production or 16.8 GJ per tonne of production. This represents a 24 per cent reduction in energy usage per tonne of production between 1990 and 2003.

Energy consumed (GJ/tonne of production)

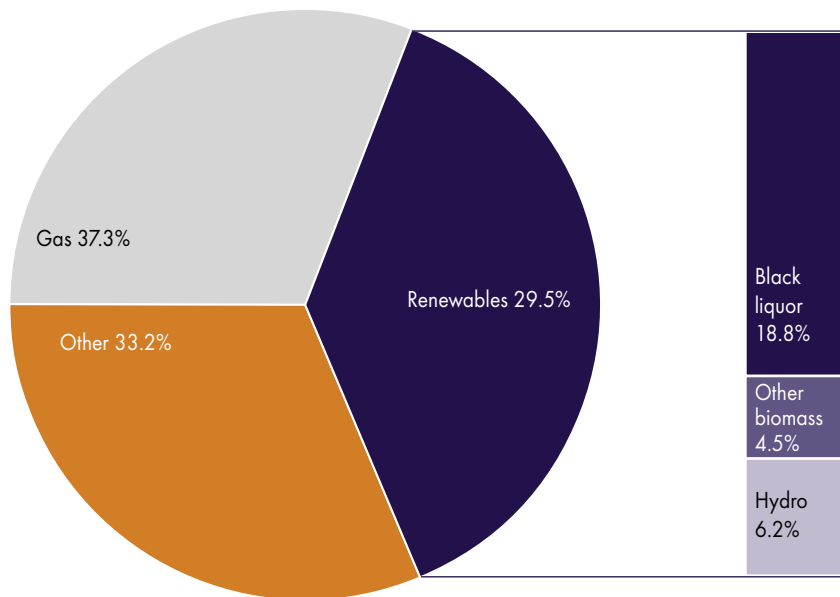




Renewable energy production and consumption

Almost one third of the Australian paper industry's energy consumption is obtained from renewable sources.

The majority of this renewable energy is produced on site by the industry by combustion of biomass (black liquor, wood waste, poppy seed waste).



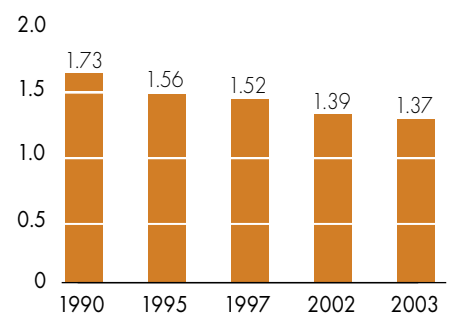
Greenhouse gas emissions

In 2002-03, the paper industry was responsible for the emission of 4.3 million tonnes CO₂ equivalent or 1.41 tonnes of CO_{2e} per tonne of production.

Emission source	%
Indirect	
Purchased electricity	53.8
Direct	
Natural gas combustion	29.4
Coal combustion	13.2
Waste to landfill (methane)	4.5

Based on data which excludes methane emissions associated with waste to landfill, CO₂ emissions per tonne of production have decreased by an estimated 21 per cent since 1990 (see right).

CO₂ emissions—excluding methane
(tonnes CO₂ per tonne of production)



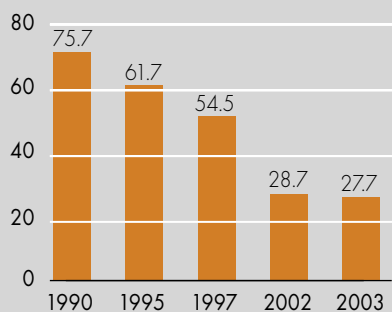


Water use Water quality

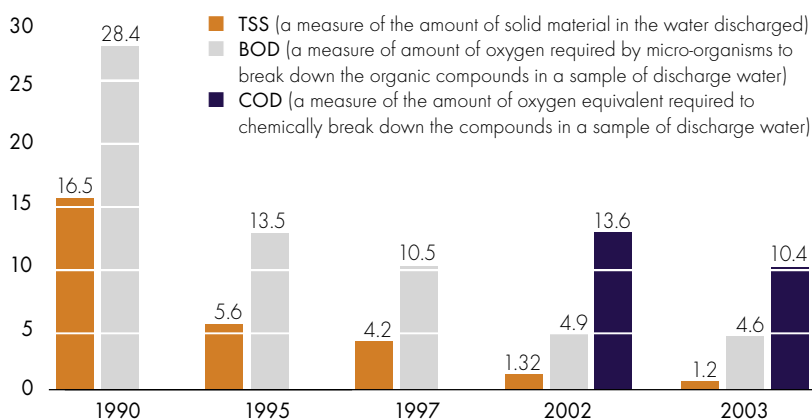
In 2002-03 the industry used an average of 27.7 kilolitres of water per tonne of paper produced. This suggests a 63 per cent improvement in water use efficiency since 1990 as shown in the graph below.

Water use

(kl per tonne of production)



Water quality measures (kg per tonne of production)



The quality of water discharged by Australian paper manufacturers has also improved significantly. Total Suspended Solids (TSS) discharged to surface waters per tonne of production has been reduced by 93 per cent since 1990. Biochemical Oxygen Demand (BOD) discharge to surface waters per tonne of production has been reduced by 84 per cent since 1990.

Air quality

Thirteen out of eighteen papermaking sites reported PCDD/PCDF (dioxin and furan) emissions to air in 2002-03. These emissions totalled 3.2 g for the entire year or approximately one microgram per tonne of production (data obtained from the 2002 National Pollutant Inventory Database).

Paper manufacturer's NO_x (oxides of nitrogen) discharge equates to 0.94 kg per tonne of production. NO_x play a role in the formation of photochemical smog.

Environmental management

All six Australian paper manufacturing companies operate an ISO14001 based Environmental Management System (EMS) covering all of their papermaking operations. Thirteen of Australia's eighteen papermaking sites are covered by an ISO14001 based EMS that has been certified by an independent third party certification body.

making • connections

The publication of this update is part of the commitment made by the Australian Paper Industry Council in its Eco-efficiency Agreement with the Australian Government, represented by the Department of the Environment and Heritage, signed in October 2002.

Unless otherwise stated all data in this report was provided by Australia's six major paper manufacturing companies and refers to the 2002-03 financial year.

making • connections
connections • making • connections
g • connections • making
making • connections
making

www.a3p.asn.au



LEVEL 3, TOURISM HOUSE
40 BLACKALL STREET, BARTON
ACT 2600 AUSTRALIA

T +61 2 6273 8111
F +61 2 6273 8011