# Everything we do counts

Notes on sustainability and the paper you print on

Norske Skog

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This booklet explains the work by Norske Skog to ensure sustainability of our products and to achieve continuous improvement in our environmental performance.

# Sustainability and the paper you print on

**Norske Skog is one of the world's largest suppliers of newspaper grades and also supplies magazine and directory paper.**

**We are also one of the world's largest recycler of newspapers and magazines to produce publication papers.**

**Using Norske Skog paper you can be confident:**

- All wood originates from sustainably managed forests or waste sources
- All mills utilise the Chain of Custody system to verify fibre source
- End products can be recycled back into newspaper grades or packaging
- All mills are ISO 14001 certified
- Australasian mills have achieved a 25% reduction in greenhouse gas emissions per tonne of production since 1990
- Australasian mills will as a minimum reduce total greenhouse emissions by 25% by 2020 compared to 2006

# Our current performance demonstrates our environmental commitment and creates the basis for a sustainable future

**Norske Skog's commitment**

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*Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs*

**Brundtland Commission (Established by UN General Assembly)**

## Sustainability arises from many actions

**Everything we do counts towards a sustainable future.**

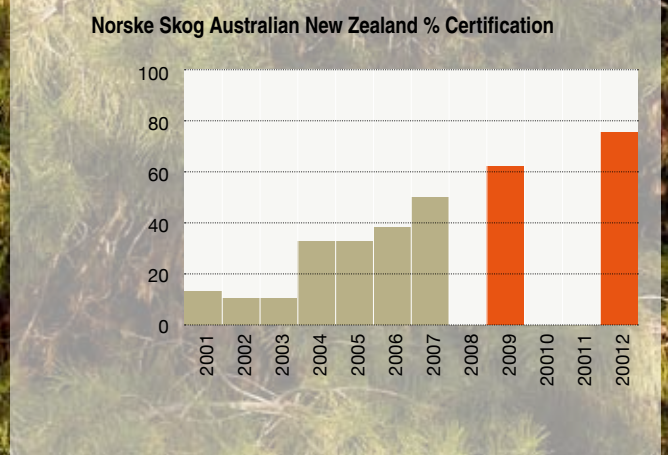
- Environmentally responsible forest practices
- Reducing energy use and our carbon footprint
- Responsible water use
- Best practice manufacturing
- Recycling what we produce
- Modifying existing products and developing new products with lower environmental impact.

We are committed to continuously improving our performance across all these activities.

**Sustainability is about working closely with key stakeholders.**

- Working with our customers and suppliers to identify emerging issues and set new performance goals
- Working with Government and the broader community to provide innovative solutions
- Openly communicating:
  - The challenges we face
  - Our achievements
  - What we are doing to ensure the sustainability of our industry
- Listening to stakeholders' feedback and learning from them.

# Forest management certification for 75% of Australasian wood supply within four years




## Sustainable forest practices

**All wood used by Norske Skog originates from sustainably managed forest resources or from waste sources including recycled fibre.**

Sustainable forest management means maintaining their biodiversity, productivity, regeneration capacity and vitality to fulfil long term ecological, economic and social functions.

### Certification

Forest management certification and Chain of Custody support the achievement of sustainable forestry.

There are two major global certification systems

> FSC (Forest Stewardship Council)
> PEFC (Programme for the Endorsement of Forest Certification). The Australian Forest Standard (AFS) is part of PEFC.

Norske Skog and our suppliers use both these systems to provide transparency and ensure good stewardship. Over 50% of Norske Skog's wood supplies are already certified.

There is an ongoing program to increase certification and within 4 years the aim is to achieve 75% certification.

However all suppliers meet State and National laws and practices and therefore all wood comes from sustainably managed forests.

## Chain of custody certification is in place at all mills



**Chain of Custody (CoC) is the process for tracking wood fibre from the forest to the consumer.**

- It is proof that the finished paper originated from a responsibly managed forest
- It reinforces transparency along the supply chain and provides public credibility
- Albury, Boyer and Tasman mills all have the CoC certification system in operation.

## Boyer moves to plantation only pulp

**The Boyer Mill has started a $50m capital project that will increase supply of softwood (radiata pine) pulp and close down regrowth eucalypt pulping.**

When this project is complete at the end of 2009

- Regrowth eucalypt will no longer be used at Boyer
- Plantation radiata pine will be the sole wood fibre used.

**Closing the eucalypt pulping operation has a number of flow-on benefits for the environment:**

- The volume of organic matter requiring oxygen for breakdown is significantly reduced
- Reduced effluent flow
- Reduced colour impact on effluent
- Reduced mill wide chemical usage
- Reduction in direct greenhouse gas emissions.


# Best practice makes good sense environmentally and financially

**To maintain competitiveness we must continuously improve performance and adopt best practice solutions. Best practice manufacturing also provides improved environmental outcomes.**

ISO 14001 is a certifiable and internationally acknowledged system

> Certification means our management systems are independently audited against a formal standard
> All stakeholders can have confidence that we are meeting an internationally recognised standard
> A key element of the system is a commitment to continuous improvement.

## Environment Index

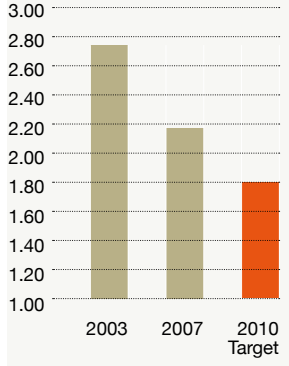
Norske Skog has developed its own environment index to drive performance and focus our activity on key environmental areas.

It is additional to any statutory operating licence conditions.

## The 'Norske Skog E-Index'

> Relates present performance to Best Available Technology, BAT
> Covers the following key areas of environmental performance and impact:
  - Water consumption
  - Quality of treated effluent discharges
  - Air emissions of nitrogen oxides
  - Waste to landfill
  - Total energy use
> A further 25% reduction in the E-index is targeted by 2010.

## Regional E-Index




## We Reduce, Reuse and Recycle

**The efficient use of resources and careful waste management are very important to our business.**

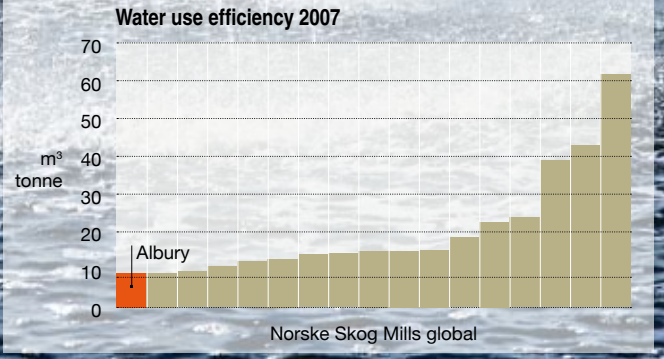
- All waste streams are tracked
- There is a documented procedure to address all areas of waste management
- We recycle scrap metal, cores etc.
- Biosolids from the effluent treatment plant at Albury are used as a soil conditioner
- Wood waste is used as compost
- Very little material goes to landfill.

### Boyer Effluent Treatment Upgrade

The Boyer Mill has recently installed a new state of the art effluent treatment plant at a cost of A$14m.

Any organic material requires oxygen if it is to decay. The Secondary Effluent Treatment mimics the natural process using live bacteria that eat the organic material. By careful selection of the bacteria and sophisticated monitoring of their habitat the process accelerates the natural biological process – and all this in a continuously operating controlled environment before the treated water goes back into the river.

# The Albury Mill is at World's Best Practice for water use




## Responsible water use

**Less water used means less process water requiring treatment.**

> Less water used also means more highly concentrated process water
> Our effluent treatment systems have been upgraded to handle the smaller volume of more highly concentrated process water
> The end result is a win-win:
  - Lower water use
  - Better quality of treated water discharged.

Although both Boyer and Tasman mills are located in regions where the volume of water used has not been an issue both mills have been active in reducing it's use. Between 1985 and 2008 both mills reduced their water use by approximately 60%.

## The challenge of the Murray

**Over recent years inflows to the Murray Catchment have been at record low levels.**

> High Security water allocations (including the Albury Mill) were cut by 50% in 2006
> The Albury Mill is at World's Best Practice in terms of water use per tonne of paper produced – less than 10 ML per day
> The Albury Mill is the lowest water user within Norske Skog globally
> We are working closely with the NSW Government on a range of options including third party reuse of treated process water and green offsets.

*We will reduce our energy use and greenhouse emissions through a mix of continuous improvement, new technology and 'step change' investments*

## 25% greenhouse gas reduction goal by 2020

**Norske Skog's global greenhouse gas reduction goal is to reduce total emissions by 25% by 2020 compared to 2006.**

This Includes

- Direct emissions from the production of pulp and paper
- Indirect emissions from purchased energy

The goal represents a global reduction of 850,000 tonnes by 2020.

**CO2 Emissions Intensity**

Australasian mills have achieved a 25% reduction in greenhouse gases emissions per tonne since 1990

| Tonnes CO2 / tonne paper | |
|---|---|
| 1990 | 2007 |
| 1.6 | 1.2 |

**25% reduction target in Australasia**

- Australasia will as a minimum target the 25% global reduction
- This is a significant challenge because Australia is a 'high' emitter of greenhouse gases due to its reliance on coal as a major energy source
- Nearly 70% of our Australasian emissions result from using purchased energy. The Albury Mill uses electricity from the NSW grid which is heavily reliant on coal
- The Boyer and Tasman mills have access to hydro electricity and in the case of Tasman, geothermal steam as well. These are renewable energy sources with low carbon emissions.

## Maximising our environmental dollars globally

**Norske Skog will spend its environmental dollars where they will achieve the greatest impact on a global basis.**

Greenhouse gas emission targets and reduction initiatives will vary between mills due to differences in

- Energy sources
- Raw materials
- Product mix
- Historical investments
- New investment opportunities.

## Kawerau geothermal power station

**The $300 million Kawerau project is the largest geothermal development in New Zealand in more than 20 years. Output significantly increases national generation capacity and meets one-third of residential and industrial demand in the Eastern Bay of Plenty – enough power for 90,000 homes.**

- The Tasman Mill is unique in the world with 100% of steam used to produce pulp and dry the paper coming from geothermal steam
- Kawerau geothermal field is considered world class. The Kawerau steam field also supplies steam for industrial use and some small scale generation
- The new power station is sited on Norske Skog Tasman land
- The Tasman Mill is the largest electricity user in the region, the scheme will supply 85% of power used by Tasman, replacing power currently drawn from the New Zealand grid.

*Norske Skog is one of the world's largest recyclers of newspapers and magazines to produce publication papers*

## Recovered paper

**Australia and New Zealand are major collectors and recyclers of old newspapers and magazines.**

- Australia's recovery rate of 76% is at world's best practice. The New Zealand recovery rate is estimated to be over 70%
- Norske Skog and it's Australian publisher customers have worked together through the Publisher's National Environment Bureau (PNEB) for many years to maximise newspaper and magazine recycling
- Norske Skog's recycling plant at Albury recycles 160,000 tonnes of old newspapers and magazines each year

- Packaging in Australia and New Zealand is another major user of recovered paper
- In both Australia and New Zealand some of the old newspapers and magazines that are collected are exported to Asia. Exporting recovered paper from Australia and New Zealand is environmentally sensible as some countries do not have plantations or other sources of fibre

- The desire to recycle fibre back into it's original end-use may not always be the most sensible environmental solution – particularly when a 'local' paper mill is sourcing waste or by-products from a sustainably managed forest. For example transporting recovered paper long distances generates it's own carbon emissions.

# Sustainability is a balance between using new fibre and recycled fibre

**Half our global raw material input is recovered paper.**

Globally approximately half our raw material inputs consist of recovered paper. The balance is a blend of on-site produced pulp (much of this being sourced from forest and industry waste) and purchased pulp.




**The key to sustainability is to ensure that paper recovery is maximised, that the paper collected is reused and that we use fibre from both sustainably managed forest resources and waste sources.**

Using recovered paper in isolation is not sustainable – the fibres eventually break down and cannot be used.

> Much of our wood fibre is by-product or from waste sources:
  - Forest thinnings
  - Tops of trees used for sawn lumber
  - Sawmill chips
> If this material was not utilised by our mills it would impact the viability of the entire forest industry – the cost of timber for housing and furniture would increase
> Australia and New Zealand have world class recovery rates and this recovered paper is recycled locally into a variety of end uses or exported to countries that have little or no wood fibre.

**Why is there no recycling plant in New Zealand?**

> The Tasman mill is strategically located to take advantage of forest waste
> Transport of this waste to the mill is highly efficient
> Around 60% of the paper produced at Tasman is exported to Australia where it eventually becomes part of the recovered paper stream
> Recovered paper volumes in New Zealand are not sufficient to support a recycling facility
> All old newspapers collected in New Zealand currently are being reused either in New Zealand or offshore.

# Decisions you make impact our carbon footprint

## Working together

### Lighter weight paper makes a difference

> Reducing the basis weight of paper is a quick win in softening our environmental footprint. That's because lighter paper requires:
  - Less fibre
  - Fewer raw materials and chemicals
  - Less energy to produce
> A lower basis weight allows us to fit more linear meters per roll and therefore transport more paper per shipment:
  - Fewer trucks on the road
  - Fewer greenhouse gas emissions

> Lower basis weights can directly help your business achieve your sustainability targets:
  - Fewer resources used during printing and distribution
  - Reduced warehouse space and handling

  And all this without compromising print quality or pressroom performance.

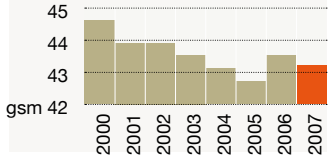
The challenge is to identify and seize other joint opportunities.

### Continuing the downward trend

Over the last 10 years over 200,000 tonnes per annum of 45gsm paper consumed in Australia and New Zealand has been converted to 42gsm. On average this represents

> 16,000 tonnes per year less C02 emitted during manufacture
> 560 less truck deliveries per year
> 13,400 less rolls to be handled, stored, moved at press sites.

**Newsprint average basis weight**







## Managing the challenges

**Environmental challenges continue to appear and evolve.**

These are important issues for the community and our business. Solutions are often complex and in turn uncover fresh challenges

> Norske Skog, with our customers, have successfully managed each of these challenges and developed solutions by working together to:

- Present a unified front to Government
- Devise innovative short term solutions while appropriate long term arrangements are put in place.

**Our aim is to continue to stay ahead of the game, identify the emerging issues and provide innovative solutions.**

> Norske Skog enjoys good relations with all spheres and levels of government and with the local communities in which it operates. We pride ourselves on:

- A proven track record of delivering positive outcomes
- A professional approach
- Meeting regularly with Government Ministers and officials
- Hosting site visits and community open days.

> We are an active participant in key industry and professional associations:

- Pacific Area Newspaper Publishers Association
- Publishers National Environment Bureau
- Newspaper Publishers Association of New Zealand
- New Zealand Paper Forum
- Australian Plantations, Products and Paper Industry Council (A3P)
- Australian Pulp and Paper Industry Technical Association (APPITA).

## Who to contact for further information

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