

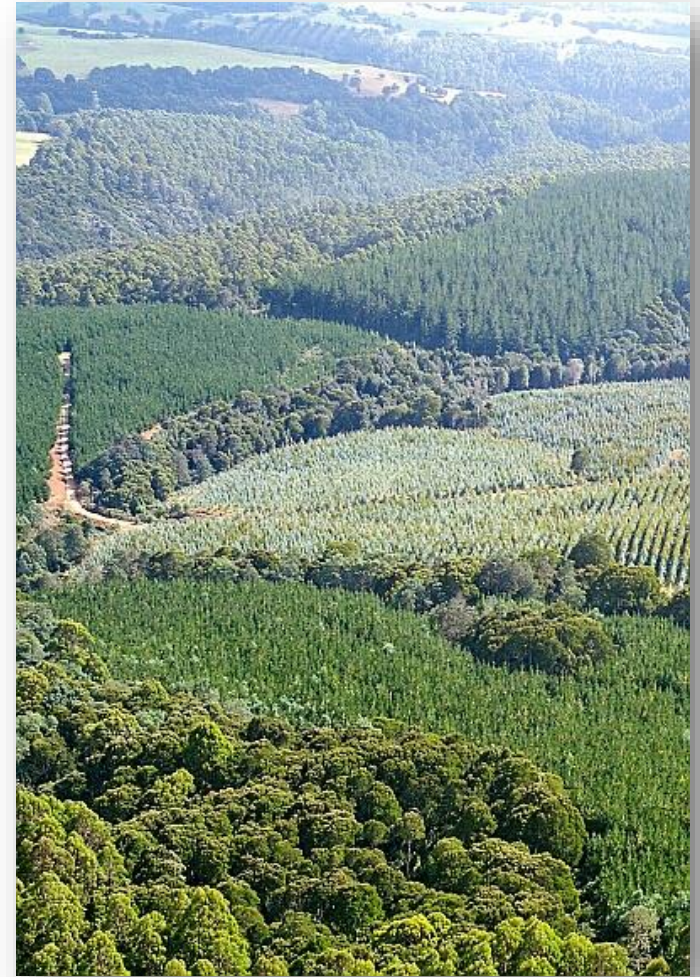
Environmental Product Declarations (EPDs) for Australian Timber Products

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thinkstep

Acknowledgements

- Project Steering Group:
 - Paul Michael, Weathertex
 - Clinton Skeoch, Boral Timber
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- Assisted:
 - Alastair Woodard, TPC Solutions
 - Fabiano Ximenes, Forest Science, Agriculture NSW
 - Lots of individual wood producers in Qld, Vic, NSW, SA, WA, Tas!
- thinkstep:
 - Jeff Vickers, Fabian Loske



What is an EPD?

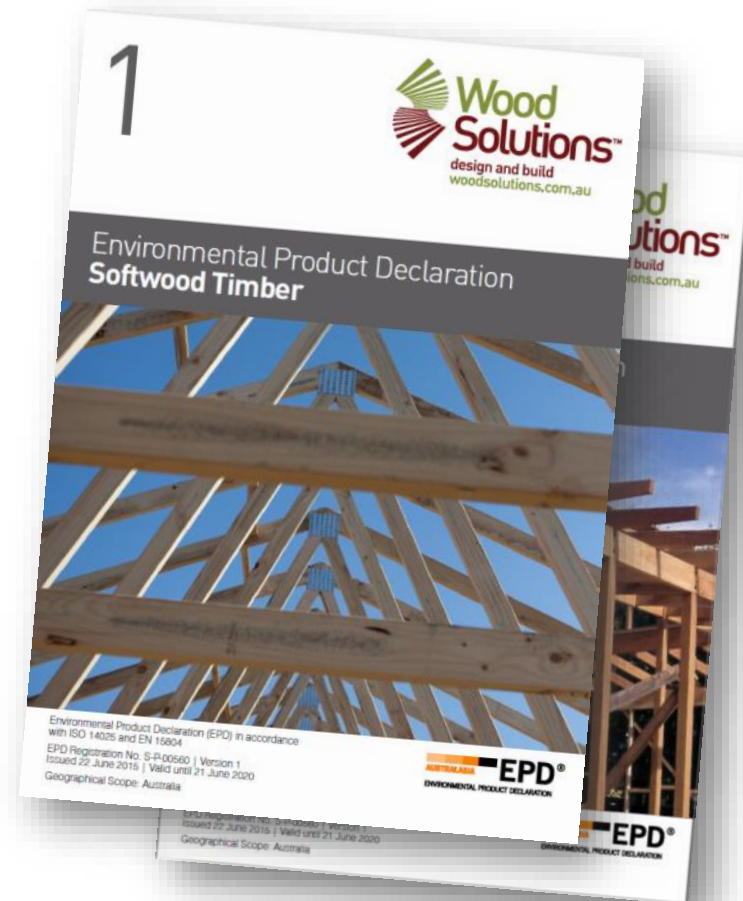
- A transparent declaration of environmental impact of a product across life cycle
- Minimum life cycle is production (cradle to factory gate)
- Credible environmental profile
- Rigorous international standard of data and presentation of data and environmental information
- Independently verified and registered publicly available.

What an EPD is not

- An EPD does not imply that the product is environmentally superior to alternative
- Not a ranking system of products
- No winners and losers
- No Platinum / Gold / Silver / Bronze rankings.

WoodSolutions™: Environmental Product Declarations (EPDs)

- Industry-wide EPDs:
 - Sawn softwood
 - Sawn hardwood
 - Particleboard
 - Medium Density Fibreboard
 - Plywood
- Green Star compliant
- Lower carbon footprint of sustainably sourced Australian wood products.
- Available via www.environdec.com & www.woodsolutions.com.au (soon)



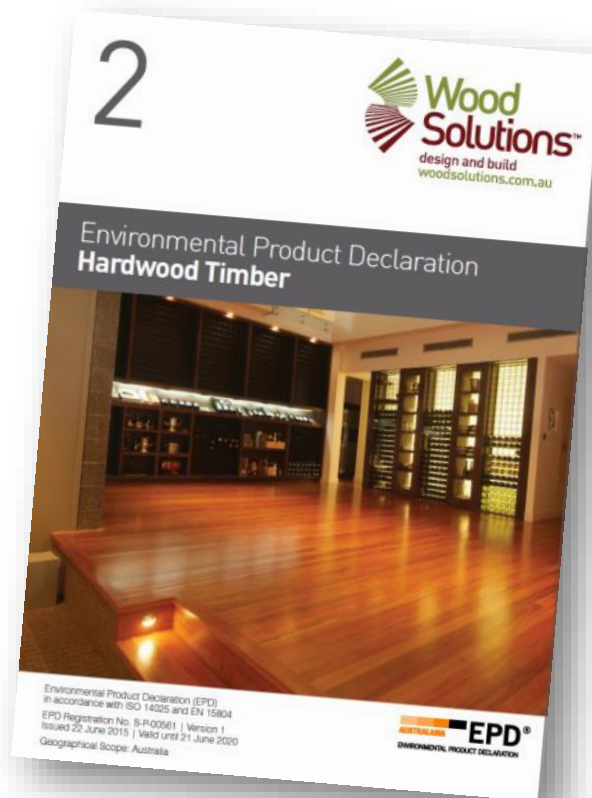
EPDs: Sawn Softwood

- Two products:
 - 1 m³ of sawn kiln-dried softwood
12% MC 550 kg/m³
 - 1 m³ of dressed kiln-dried softwood
12% MC 550 kg/m³



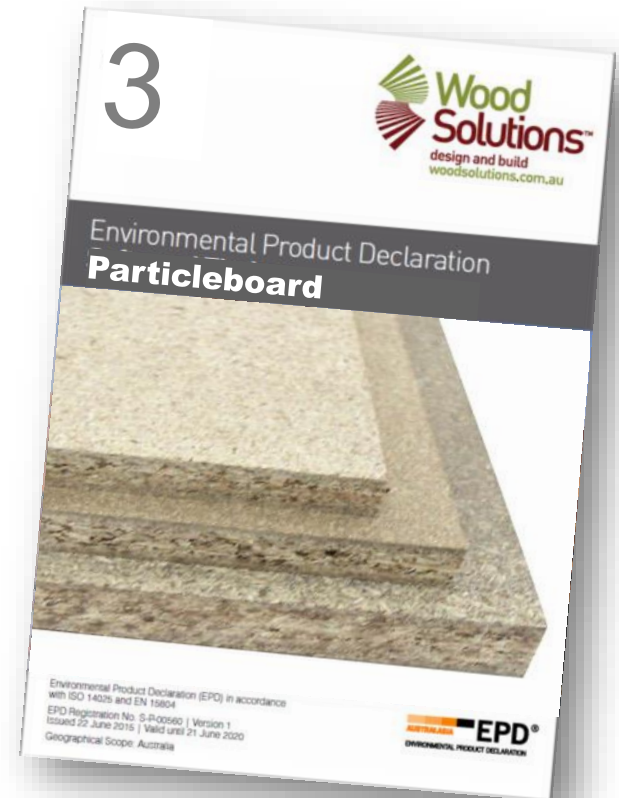
EPDs: Sawn Hardwood

- Four products:
 - 1 m³ of rough sawn kiln-dried hardwood
12% MC 784 kg/m³
 - 1 m³ of dressed kiln-dried hardwood
12% MC 784 kg/m³
 - 1 m³ of rough sawn green hardwood
30% MC 828 kg/m³
 - 1 m³ of dressed green hardwood
30% MC 828 kg/m³



EPDs: Particleboard

- Seven products:
 - 1m² of particleboard, 16,18mm E1 standard melamine coated
 - 1m² of particleboard, 16,18mm E1 moisture resistant (MR) melamine coated
 - 1m² of particleboard, 19, 22, 25mm flooring.



EPDs: Medium Density Fibreboard (MDF)

- Four products:
 - 1 m² of MDF, 18 & 25mm E1 standard melamine coated
 - 1 m² of MDF, 18 & 25mm E1 moisture resistant (MR) melamine coated.



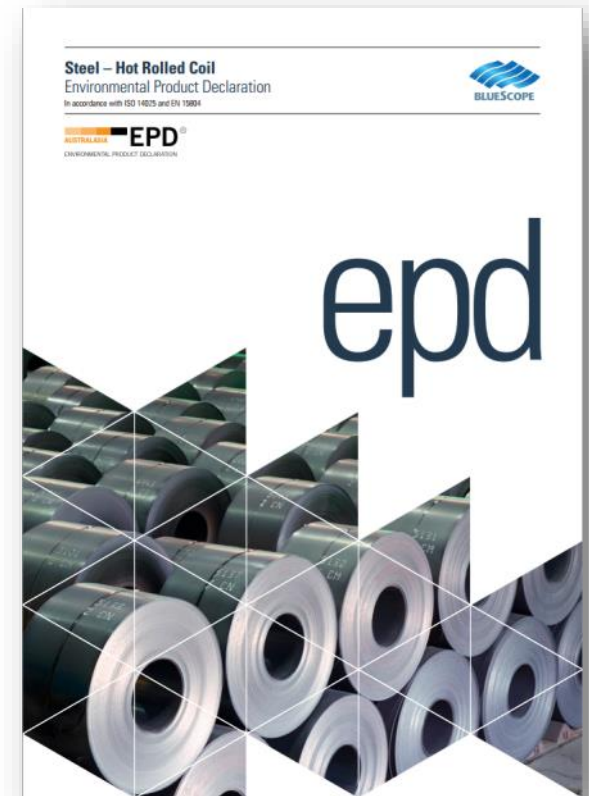
EPDs: Plywood

- Six products:
 - 1 m² of interior plywood, C-bond, 9 mm
 - 1 m² of exterior plywood, A-bond, 7 & 9mm
 - 1 m² of formply, A-bond, 17 mm
 - 1 m² of plywood flooring, tongue and groove, A-bond, 15 & 25mm.



EPDs for other products?

- Some North American and European timber imports have them
- Competing products (e.g. Vinyl flooring)
- Our Australian material competitors (e.g. BlueScope)
- More will have them soon (i.e. OneSteel)



Priority wood EPDs for users:

- E.g. Lend Lease:
 - MDF ✓
 - Particleboard ✓
 - OSB
 - Glulam and CLT
 - LVL
 - Hardwood floorboards and decking ✓
 - Softwood mouldings ✓
 - Formply ✓

Opportunities for FWPA members listed on EPD

- Used to gain recognition of more sustainable building by designers and builders of Green Star projects
- Can help members win orders in this market
- These industry-wide EPDs make it easier (and cheaper) for suppliers to create specific Australian wood product EPDs.
- Make information available for developers to undertake Life Cycle Assessments of projects.

What's in the EPDs: Industry and Product Desc.

Description of the Australian Sawn Softwood Industry

The Australian sawn softwood manufacturing industry is an important contributor to the Australian economy – particularly to the regional economies where many are based. The overall contribution of the wood products industries to the Australian GDP in 2010-11 was 0.59% (or \$8.3 billion added value) (ABARES 2013). In 2012-13 Australian softwood industry produced 3.8 million cubic metres of sawn timber products (ABARES 2014) across 61 different facilities (Gavran et al. 2014).

The distribution of softwood mills by state is included in Table 1. Production is dominated by large sawmills, 20 of which have an input capacity greater than 100,000 m³ of softwood sawlogs per year.

Table 1: Softwood sawmills by Australian state

NSW ^a	Vic.	Qld	SA	WA ^b	Tas.	Aust.
14	11	16	14	3	3	61

a Includes ACT

b includes Northern Territory. Source: Gavran et al. 2014



2 EPD for Softwood Timber

Image courtesy of Timberlink Australia

What's in the EPDs: Industry and Product Desc.

Table 3: Structural grades of seasoned sawn softwood and availability. Source: WPV 2009

Typical species	Stress grade	Supply
Radiata Pine, Hoop Pine, Slash Pine, Maritime Pine, Caribbean Pine	F5	Readily available
	F7	Available from selected suppliers
	MGP10	Readily available
	MGP12	Available from selected suppliers
	MGP14	Available from selected suppliers

Table 4: Structural seasoned softwood - available sizes. Source: WPV 2009.

Breadth (mm)	Depth (mm)							
	42	70	90	120	140	190	240	290
35	X	Y	Y	Y	Y	Y	X	X
45		Y	Y	Y	Y	Y	Y	Y
90			X					

Key: X = Available from selected suppliers; Y = Readily available



Image courtesy of Timberlink Australia



Image courtesy of Timberlink Australia

What's in the EPDs: Environmental Indicators

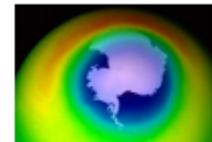
Global Warming Potential (GWP) → Climate Change

A measure of greenhouse gas emissions, such as carbon dioxide and methane. These emissions increase absorption of radiation emitted by the earth, intensifying the natural greenhouse effect. Contributions to GWP can come from either fossil or biogenic sources, e.g. burning fossil fuels or burning wood. GWP is reported both including biogenic carbon (GWPIB) and excluding biogenic carbon (GWPEB).



Ozone Depletion Potential (ODP) → Ozone Hole

A measure of air emissions that contribute to the depletion of the stratospheric ozone layer, causing higher levels of ultraviolet B (UVB) to reach the earth's surface with detrimental effects on humans, animals and plants.



Acidification Potential (AP) → Acid Rain

A measure of emissions that cause acidifying effects to the environment. Acidification potential is a measure of a molecule's capacity to increase the hydrogen ion (H^+) concentration in the presence of water, thus decreasing the pH value. Potential effects include fish mortality, forest decline and the deterioration of building materials.



Eutrophication Potential (EP) → Algal Blooms

A measure of nutrient enrichment that may cause an undesirable shift in species composition and elevated biomass production in both aquatic and terrestrial ecosystems. It includes potential impacts of excessively high levels of macronutrients, the most important of which are nitrogen (N) and phosphorus (P).



Photochemical Ozone Creation Potential (POCP) → Algal Blooms

A measure of emissions of precursors that contribute to ground level smog formation (mainly ozone O_3), produced by the reaction of VOCs and carbon monoxide in the presence of nitrogen oxides under the influence of UV light. Ground level ozone may be harmful to human and ecosystem health and may also damage crops.



Abiotic Depletion Potential → Resource Consumption

The consumption of non-renewable resources leads to a decrease in the future availability of the functions supplied by these resources. Depletion of mineral resource elements (ADPE) and non-renewable fossil energy resources (ADPF) are reported separately.



What's in the EPDs: Environmental Impacts

Table 5: Environmental impacts, 1 m³ of sawn kiln-dried softwood.

	Production	Landfill (typical)	Landfill (NGA)	Energy recovery	Recycling
Parameter [Unit]	A1-A3	C4	C4	C3	C3
GWPIB [kg CO ₂ -eq.]	-6.86E+02	6.10E+01	7.43E+02	9.04E+02	9.06E+02
GWPEB [kg CO ₂ -eq.]	2.15E+02	6.02E+01	5.41E+02	5.62E+00	5.62E+00
ODP [kg CFC11-eq.]	3.49E-09	5.26E-10	5.26E-10	1.78E-10	1.78E-10
AP [kg SO ₂ -eq.]	1.08E+00	1.82E-01	2.26E-01	8.91E-01	3.57E-02
EP [kg PO ₄ ³⁻ -eq.]	3.13E-01	2.28E-02	3.41E-02	1.79E-01	8.45E-03
POCP [kg C ₂ H ₄ -eq.]	5.63E-01	1.66E-02	1.49E-01	9.54E-02	3.78E-03
ADPE [kg Sb-eq.]	3.65E-05	1.12E-05	1.12E-05	9.40E-08	9.40E-08
ADPF [MJ]	2.49E+03	8.40E+02	8.40E+02	7.24E+01	7.24E+01

Table 6: Environmental impacts, 1 m³ of dressed kiln-dried softwood.

	Production	Landfill (typical)	Landfill (NGA)	Energy recovery	Recycling
Parameter [Unit]	A1-A3	C4	C4	C3	C3
GWPIB [kg CO ₂ -eq.]	-6.33E+02	6.10E+01	7.43E+02	9.04E+02	9.06E+02
GWPEB [kg CO ₂ -eq.]	2.68E+02	6.02E+01	5.41E+02	5.62E+00	5.62E+00
ODP [kg CFC11-eq.]	4.15E-09	5.26E-10	5.26E-10	1.78E-10	1.78E-10
AP [kg SO ₂ -eq.]	1.34E+00	1.82E-01	2.26E-01	8.91E-01	3.57E-02
EP [kg PO ₄ ³⁻ -eq.]	3.67E-01	2.28E-02	3.41E-02	1.79E-01	8.45E-03
POCP [kg C ₂ H ₄ -eq.]	5.15E-01	1.66E-02	1.49E-01	9.54E-02	3.78E-03
ADPE [kg Sb-eq.]	4.23E-05	1.12E-05	1.12E-05	9.40E-08	9.40E-08
ADPF [MJ]	3.10E+03	8.40E+02	8.40E+02	7.24E+01	7.24E+01

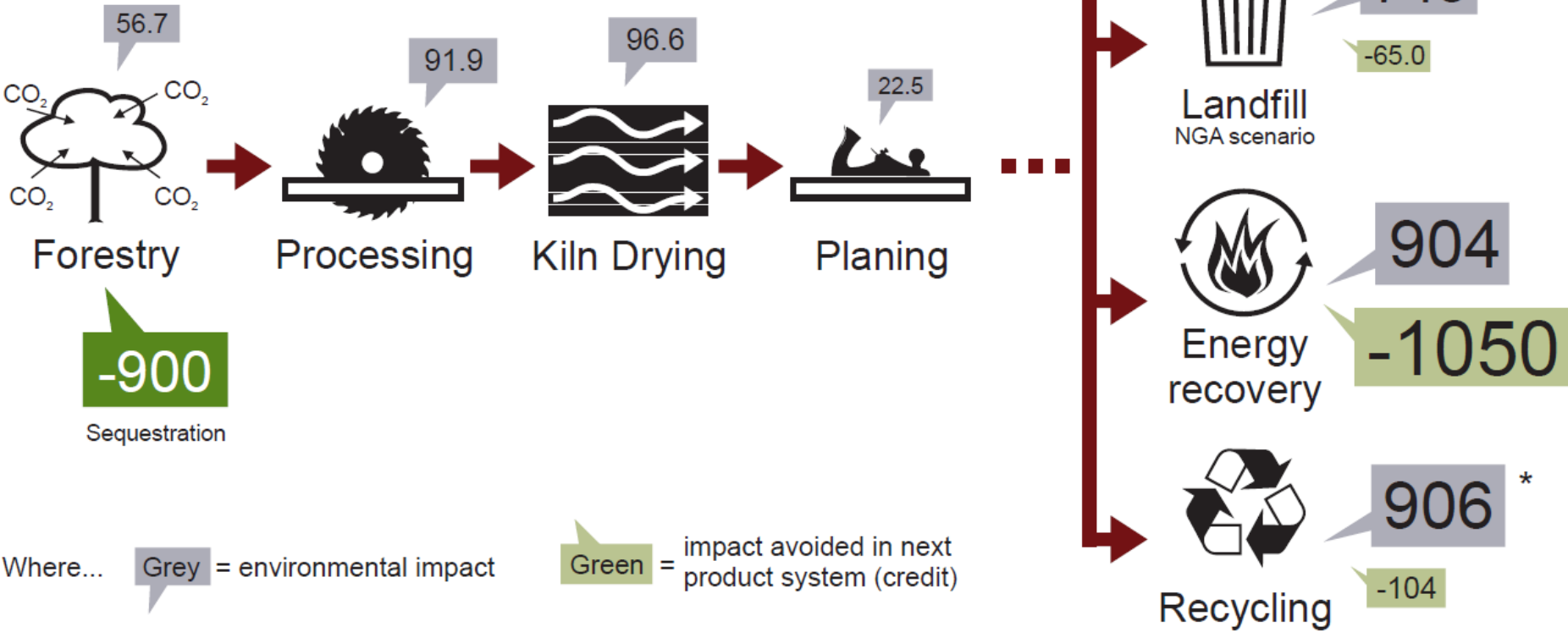
What's in the EPDs: Green Star compliance

- Conformance to ISO 14025 or EN 15804 ✓
- Independently verified ✓
- Cradle-to-gate scope (at least) ✓
- Industry-wide EPD → manufacturer listed on EPD ✓

Note: Manufacturers who are FWPA members are listed.

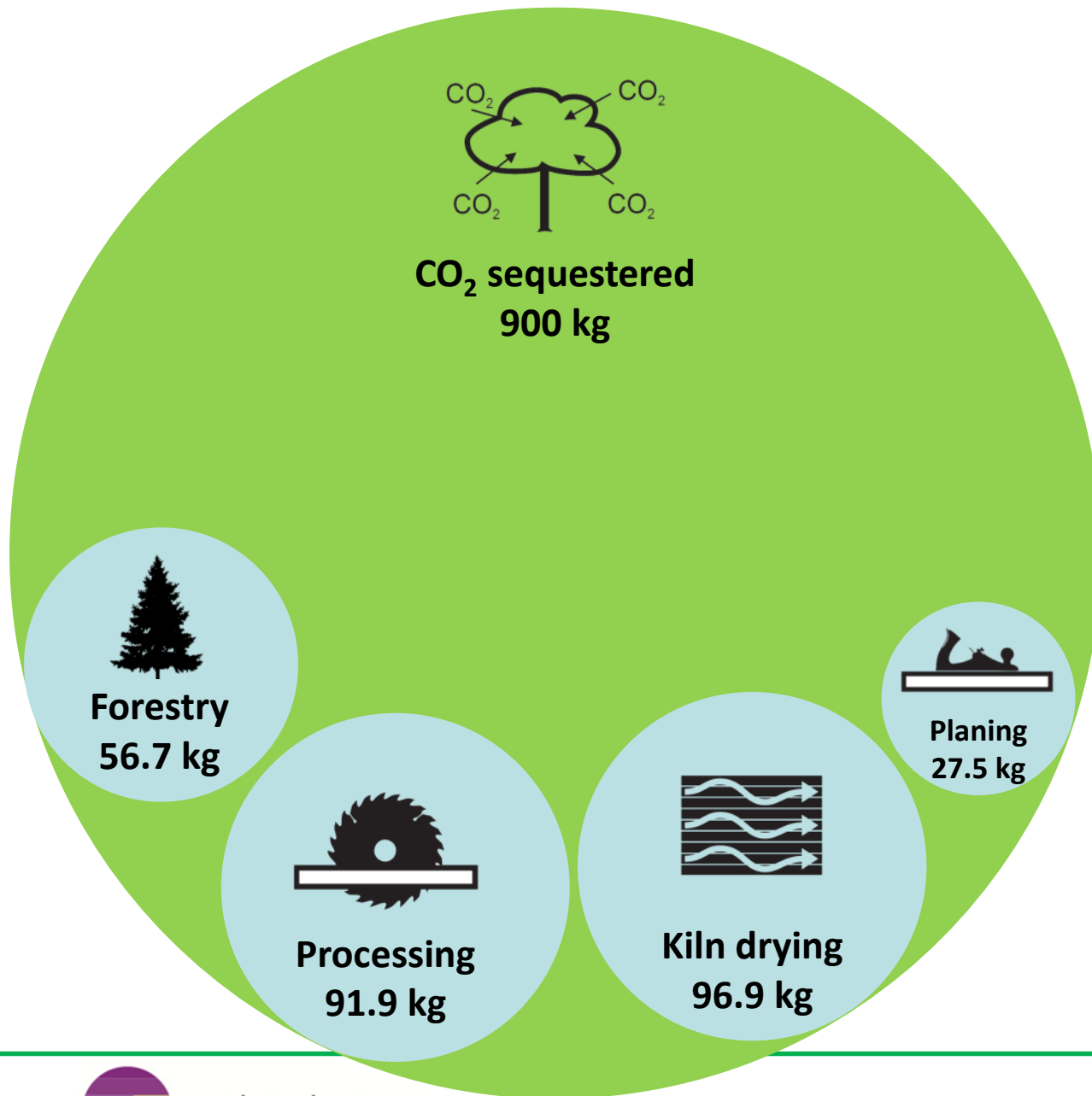
Life cycle of dressed kiln-dried softwood

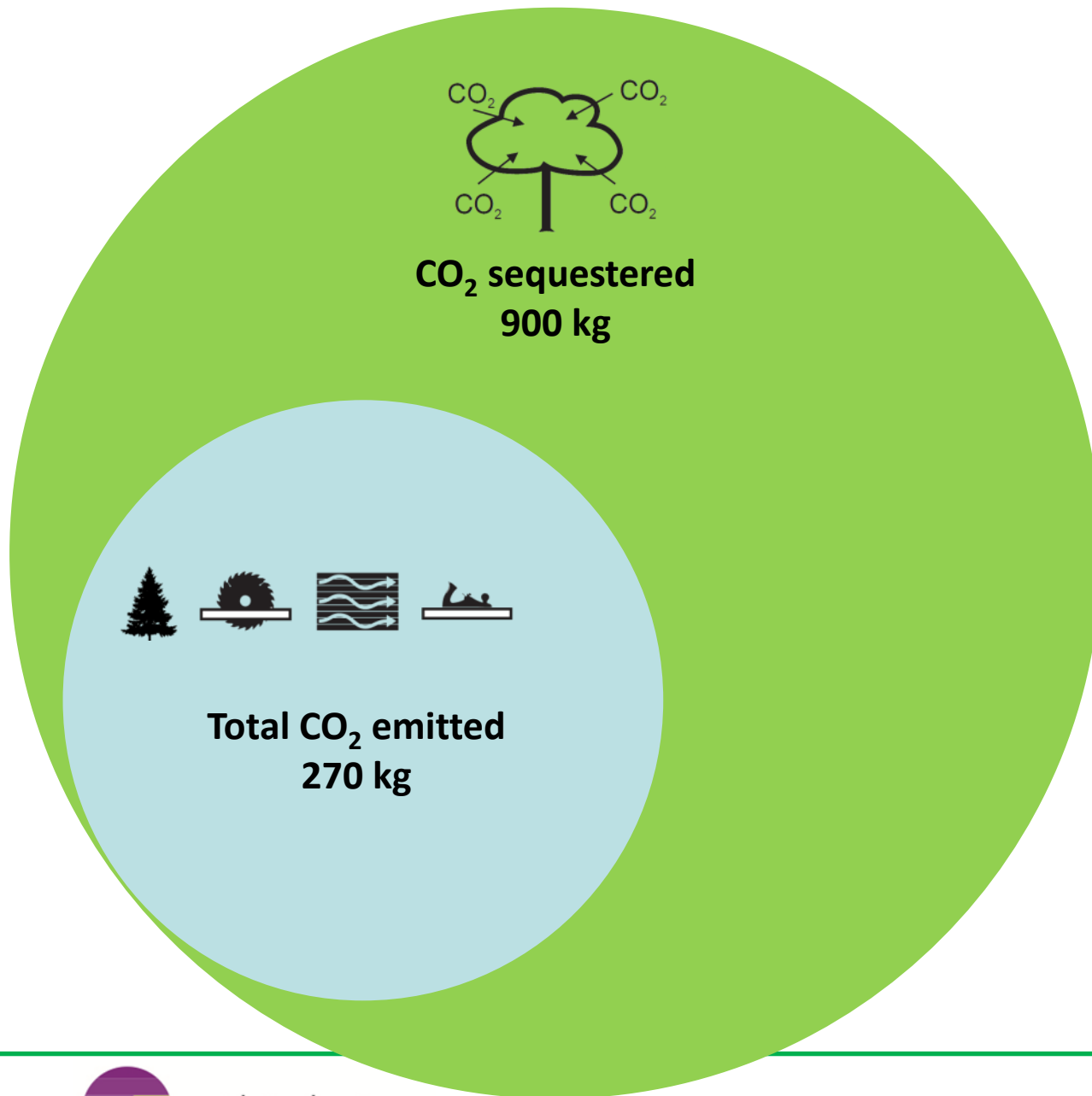
Life cycle carbon footprint in kg CO₂-equivalent per m³ kiln-dried softwood (12% moisture content), including both biogenic and fossil carbon



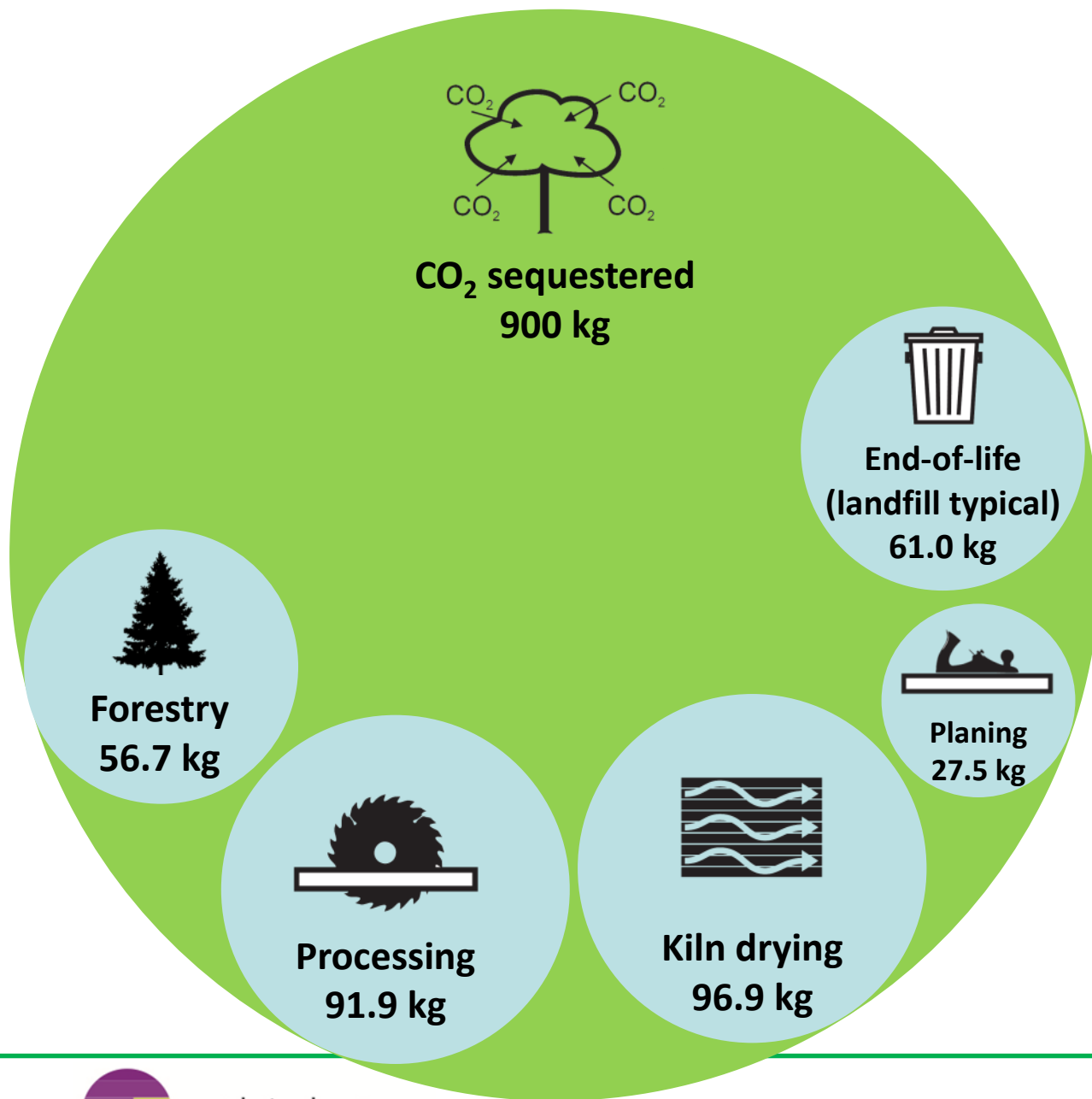
* While carbon may not be released through recycling, it is passed to another product system and is therefore counted as being released

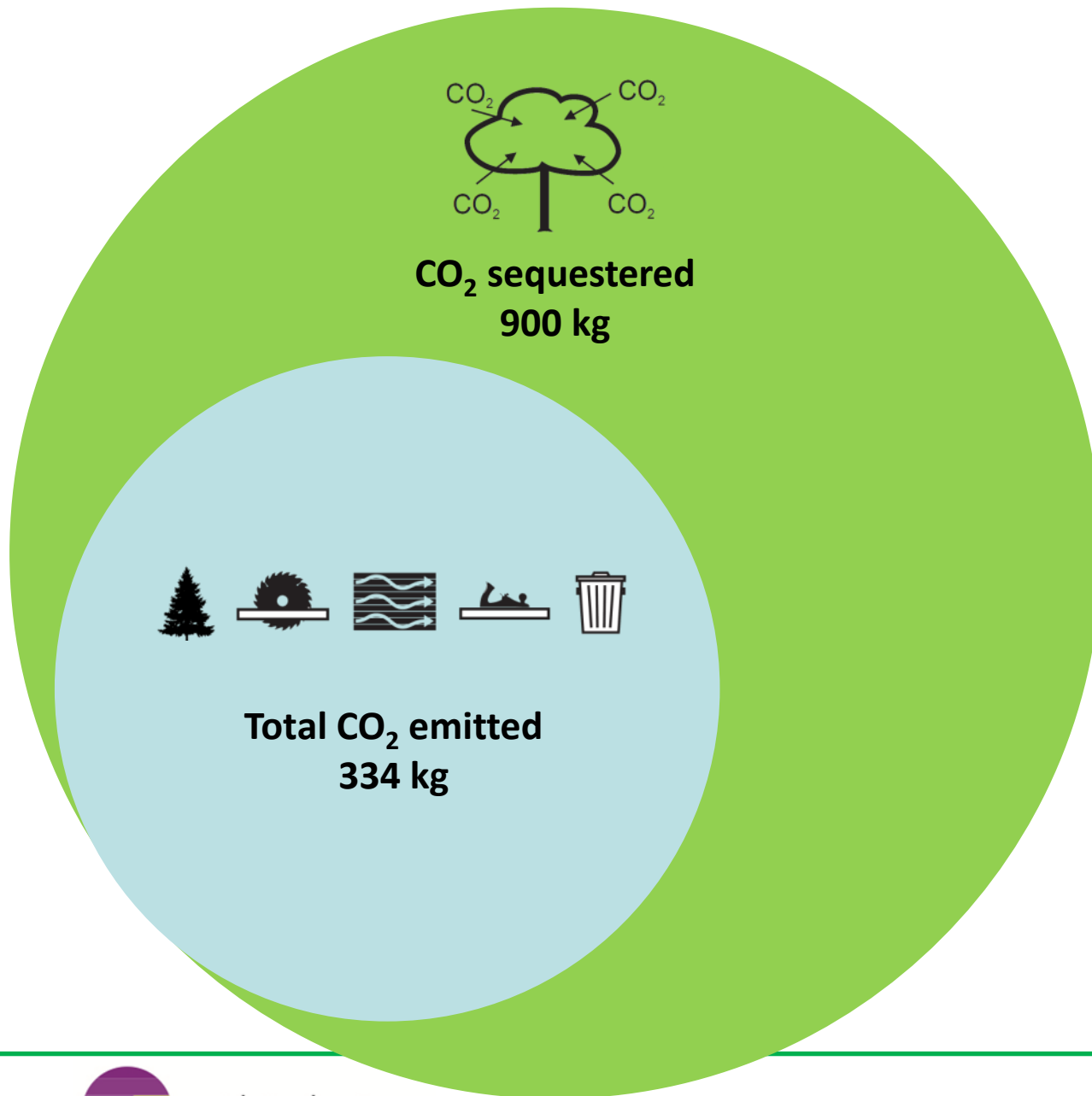
Carbon footprint (CO₂) per 1 m³ of Australian sawn kiln-dried & planed softwood





Carbon footprint (CO₂) per 1 m³ of Australian sawn kiln-dried & planed softwood





What's in the EPDs: Other env. information

- All EPDs
 - FSC / AFS Certification & Green Star
 - Land Use & Biodiversity statement
- Sawn Timber EPDs
 - Preservative treatment guidance
- Particleboard, MDF and Plywood EPDs
 - Formaldehyde & Green Star.

Green Star: Ratings

Score	Rating	Category
45-59	Four Star	Best Practice
60-74	Five Star	Australian Excellence
75+	Six Star	World Leadership

Green Star: Ratings and Timber

Green Star Rating Tool	Maximum total no. of points available	CATEGORY - Credit (Criteria) – maximum points available			
		<i>*INDOOR ENVIRONMENT QUALITY - Indoor Pollutants (100% of wood panels, has none or very little formaldehyde)</i>	<i>*MATERIALS - Responsible Building Materials (more than 95% by \$ value of timber product is FSC or PEFC/AFS CoC certified)</i>	<i>#MATERIALS - Sustainable Products (eligible products include those with EPDs)</i>	<i>All other (e.g. PROJECT MANAGEMENT, ENERGY, TRANSPORT, WATER, MATERIALS - additional credits)</i>
<i>Interiors</i>	100	2 (Super E0)	1	19	79
<i>Design & As Built</i>	110	1 (Super E0, E0 or E1)	1	3	105

*These credits only apply to wood products

#This credit applies to all materials – including wood products

Green Star: Five Star 10 Storey Cross-laminated Timber Building Forte, Melbourne



1,400 tonnes fewer GHG emissions compared to standard reference building (20% reduction).

Green Star: EPD credit

- Two EPD types are recognised:
 - Industry-wide EPD
 - product specific EPD
- When accounting for % of contract value industry wide EPD products counted as half the actual cost.

Australian Timber EPDs



Australasian EPD Programme www.epd-australasia.com

International EPD® System www.environdec.com

WoodSolutions www.woodsolutions.com.au

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The Australasian EPD Programme is a platform for environmental information operating in alignment with our partners The International EPD® System

An Environmental Product Declaration, EPD®, is a registered document that provides relevant, verified and comparable information about the environmental impact of goods and services.

Latest EPDs



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Australia Ltd

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All EPD®s registered by the Australasian EPD Programme are publically available, published within the International EPD® System for global alignment and market visibility.

Thank you – Questions?



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