

# Lifecycle Thinking and LCA in Decision-Making for Product Stewardship



**Product  
Stewardship  
Centre of  
Excellence**

Webinar, 22 August 2024

[www.stewardshipexcellence.com.au](http://www.stewardshipexcellence.com.au)



Product Stewardship Centre of Excellence

A decorative graphic on the left side of the page, consisting of a circular pattern of teal squares. The squares are arranged in concentric rings, with the innermost ring being the darkest teal and the outermost ring being the lightest teal. The pattern is partially cut off by the left edge of the page.

# Acknowledgement of Country

We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, water, sky and community. We pay respects to elders past and emerging and recognise elders as holders of knowledge and stewards for country.



# Our speakers



Timothy Grant  
Director,  
Lifecycles



Lina Goodman  
Chief Executive Officer,  
Tyre Stewardship Australia

## Centre Strategic Partners



# LCA for product stewardship

Product Stewardship Centre of Excellence

Timothy Grant  
Director  
Lifecycles

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# Benefits of using LCA

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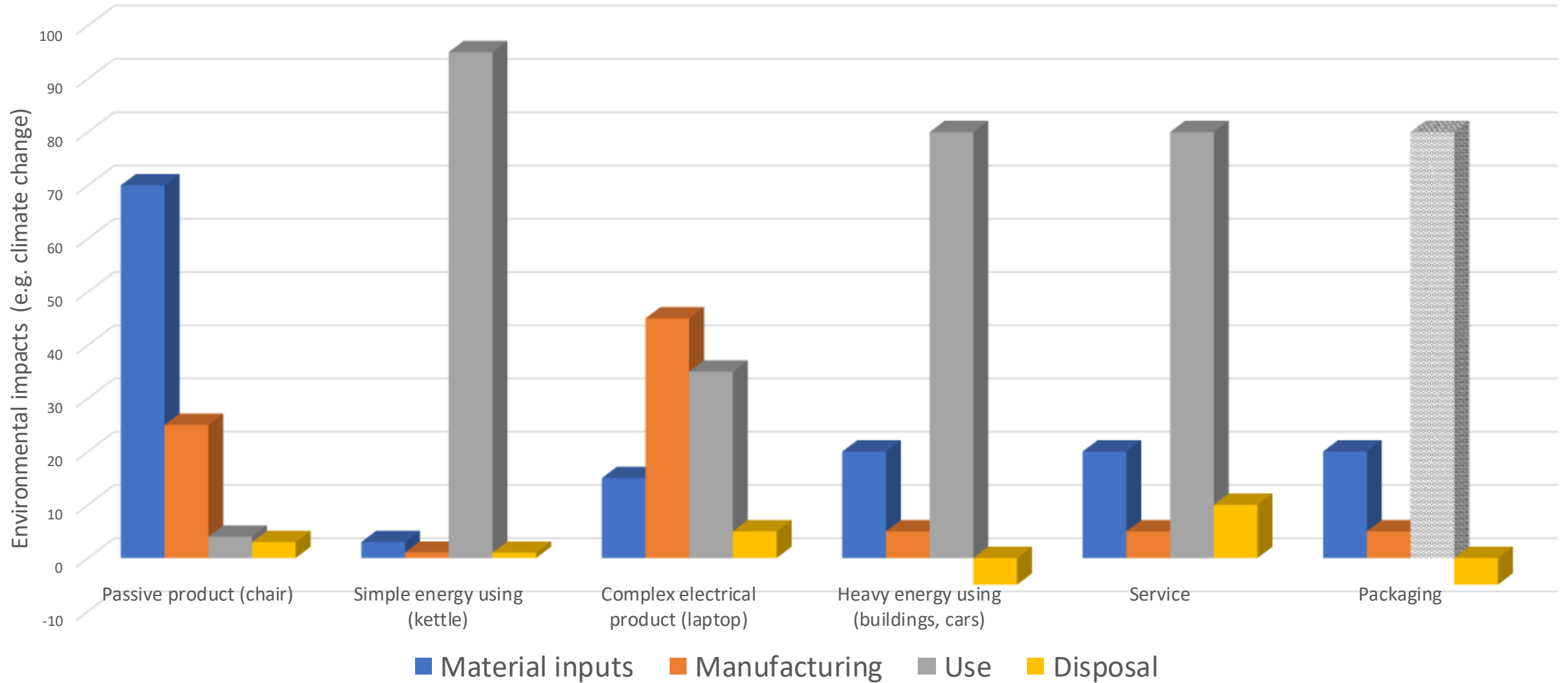
- What are your environmental impacts of concern?
- Where do they occur across the whole lifecycle?
- How are customers and stakeholders viewing your product?
  
- Which actions will have the greatest effect on the environmental impacts associated with your product?

## Potential for LCA in product stewardship schemes

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- Raise the quality of the debate by providing a basic understanding of the impacts at different stages.

# Why does life cycle matter to product stewardship?



Source : Author estimates



# Potential for LCA in product stewardship schemes

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- Raise the quality of the debate by providing a basic understanding of the impacts at different stages
- Avoid unintended environmental consequences arising from product stewardship activities



# Potential for LCA in product stewardship schemes

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- Raise the quality of the debate by providing a basic understanding of the impacts at different stages
- Avoid unintended environmental consequences arising from product stewardship activities
- Educate consumers around the benefits of this wholistic approach - putting different issues in context of a larger environmental picture

# Greater transparency about environmental claims

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- LCA provides an excellent vehicle for addressing environmental claims
  - Consistent datasets which are in public domain
  - ISO standard for LCA and developing environmental product declarations
  - Peer review process
- However!! We need to do much more analysis and application of LCA that we can afford to verify
  - Appropriate level of verification for the decision at hand
  - Companies can talk about the journey and the challenges without having LCA's for every decision.

# LCA's and carbon emissions - End of Life Tyres.

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PRESENTED BY

**Lina Goodman**

CEO, Tyre Stewardship Australia

August 2024



# Topics

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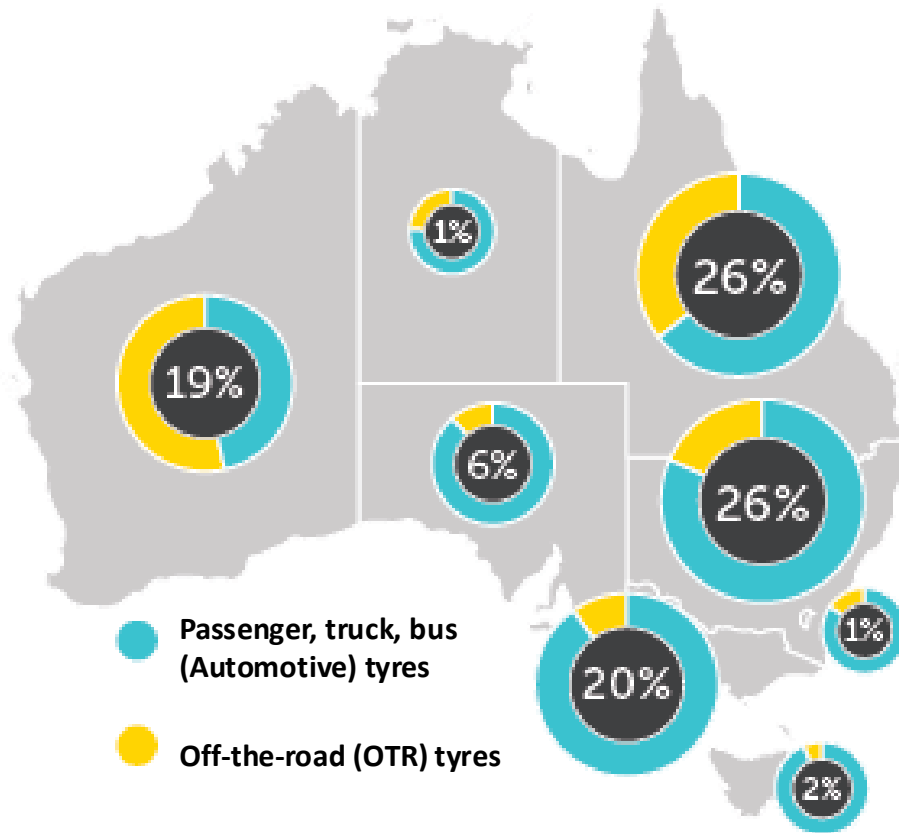
- Scale of the Issue in Australia
- Carbon Emissions and End of Life Tyres (EOLT)
- Life Cycle Assessment Project





# The scale of the issue in Australia

## Tyres Generated in Australia 2021-22 FY

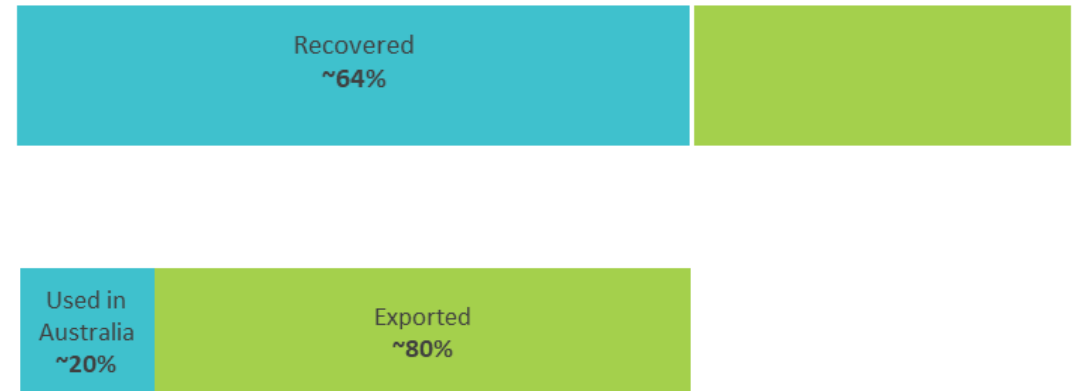


● Passenger, truck, bus (Automotive) tyres

● Off-the-road (OTR) tyres

**National Auto/OTR: ~65%/35%**

**Nationally ~506,000t of 'end-of-life' tyres generated**



# Carbon emissions and tyres

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# Providing value to the industry

## Australian National Greenhouse Accounts and End-Of-Life Tyre Combustion Emission Factor

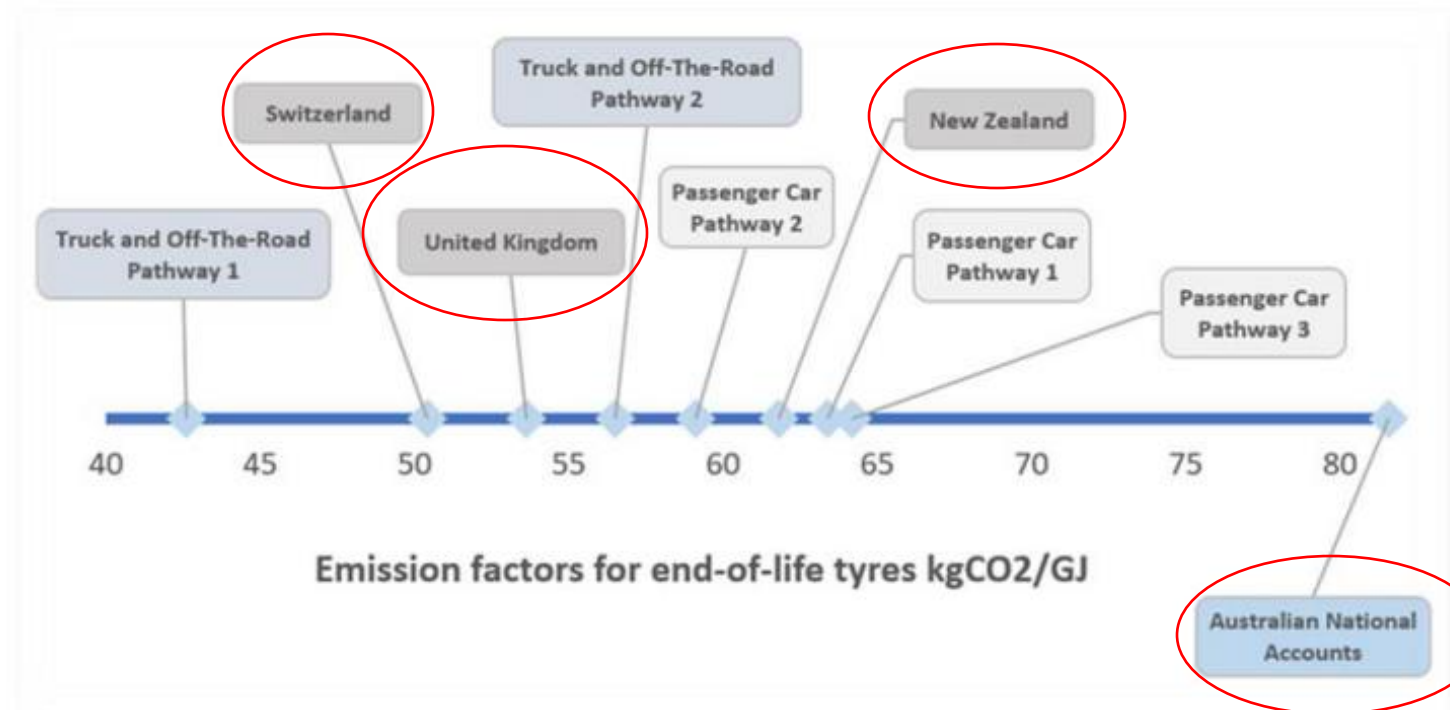
TYRE STEWARDSHIP AUSTRALIA

Final Report - July 2021

Prepared for Tyre Stewardship Australia by  
Brian McGrath, OLM Technical Service Pty Ltd



- Updated the NGER Emissions Factors for tyres as a solid fuel



Visit our website to read more



# Providing value to the industry

## Australian National Greenhouse Accounts and End-Of-Life Tyre Combustion Emission Factor

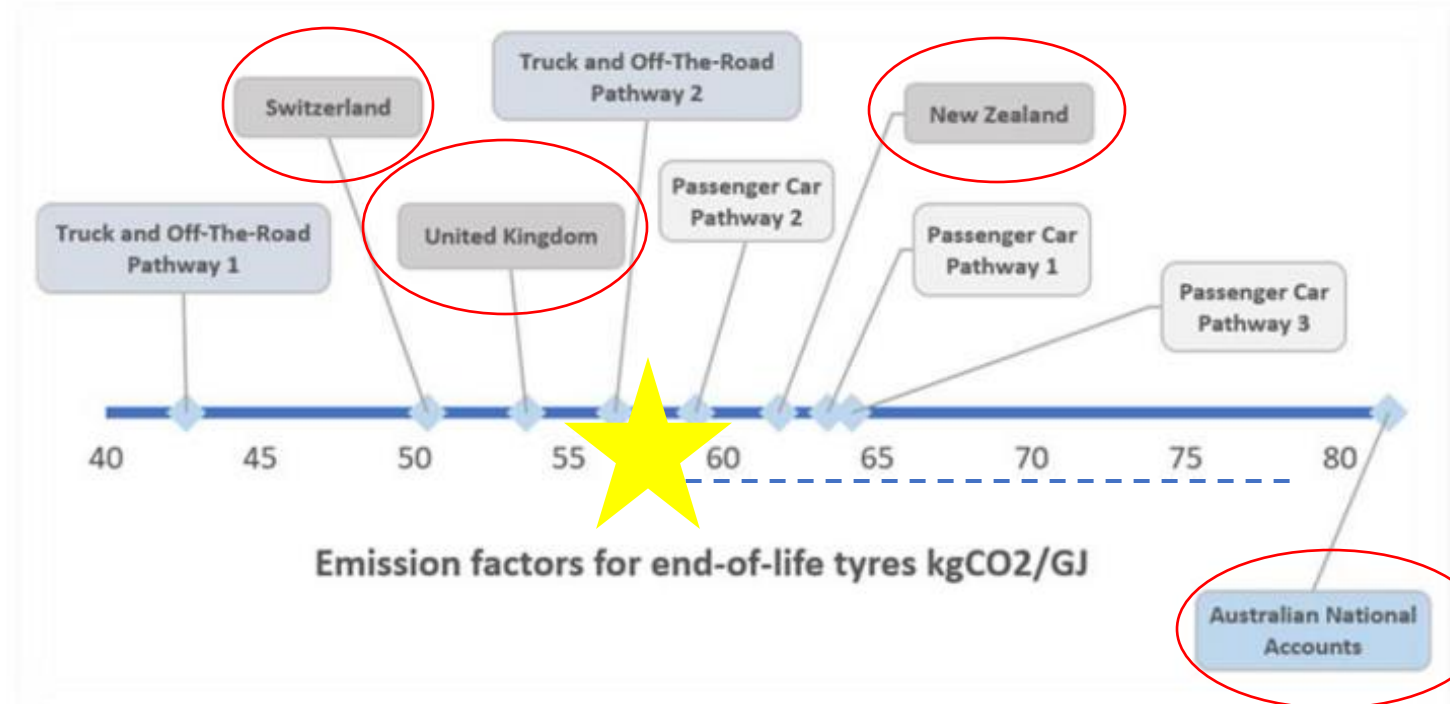
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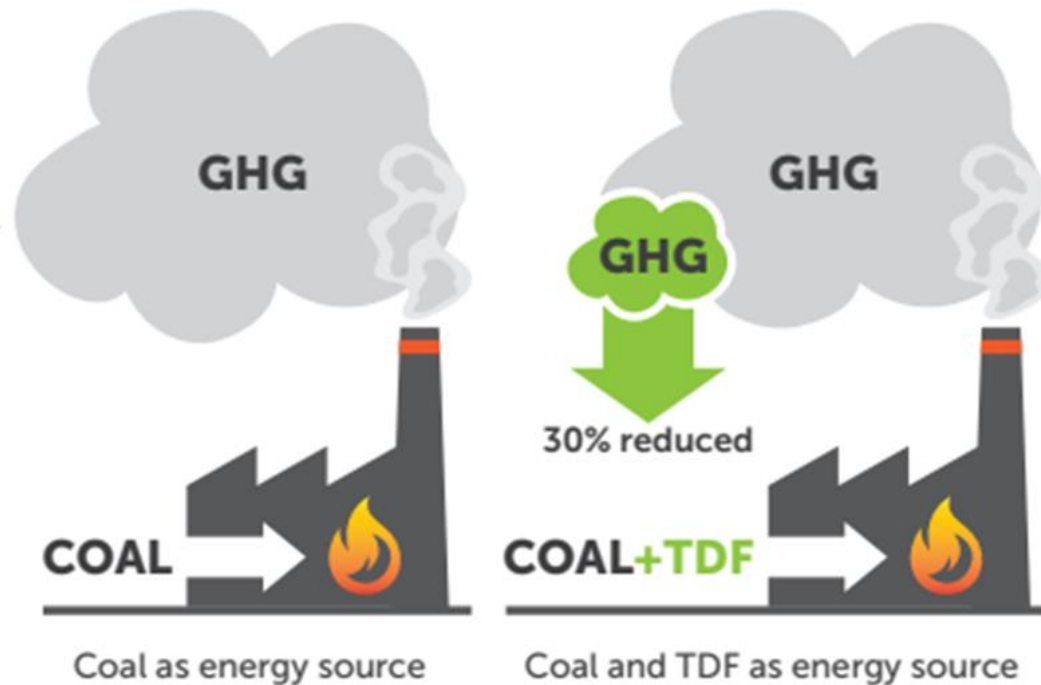
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- 100,000T of tyre derived fuel to replace coal = 87,000 T of GHG reduction.



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# Providing value to the industry



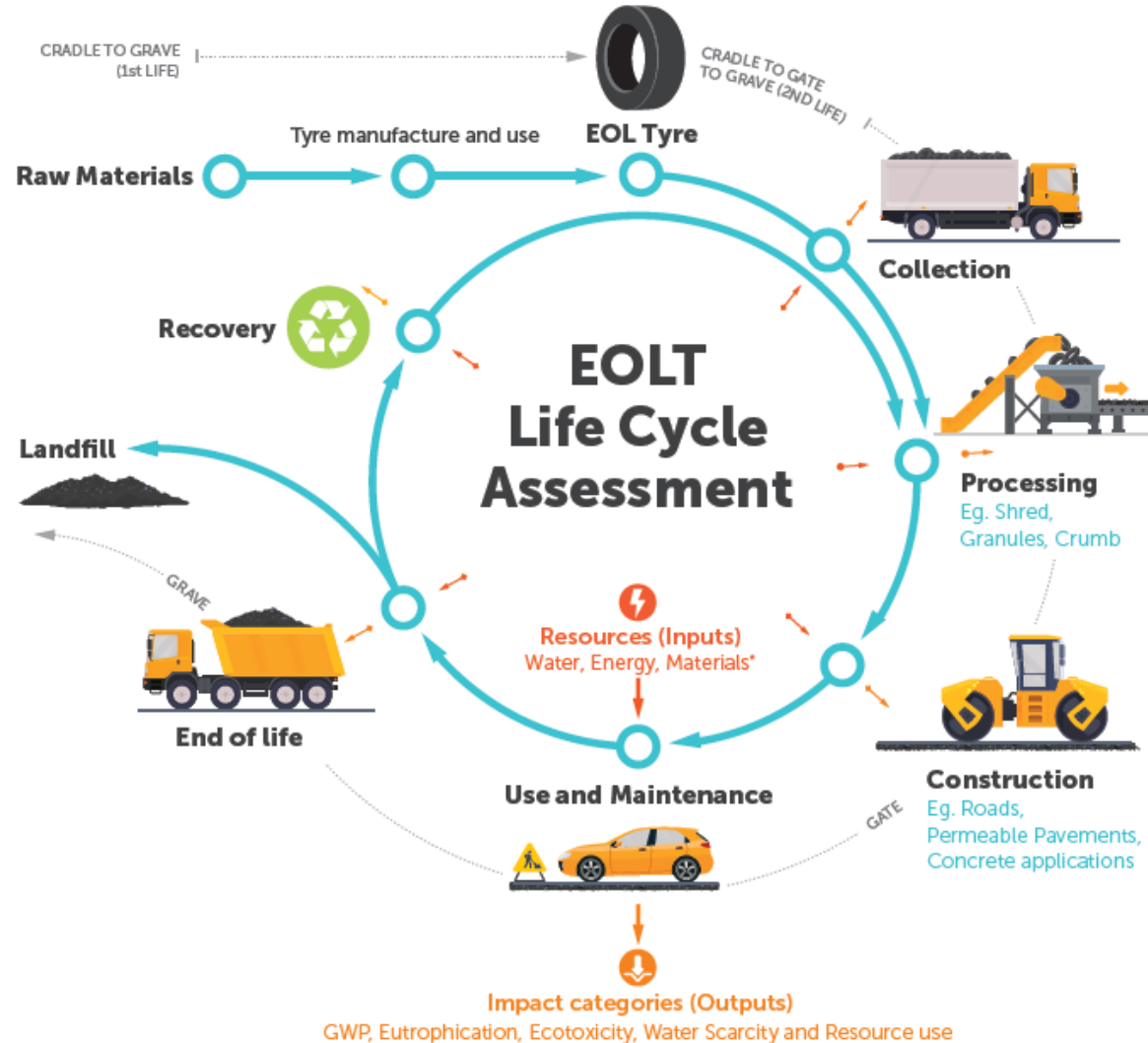
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- Providing information and data on life cycle assessment
- Providing information on scopes of emissions and reporting
- Providing information on carbon credit schemes



# TSA life cycle assessment project

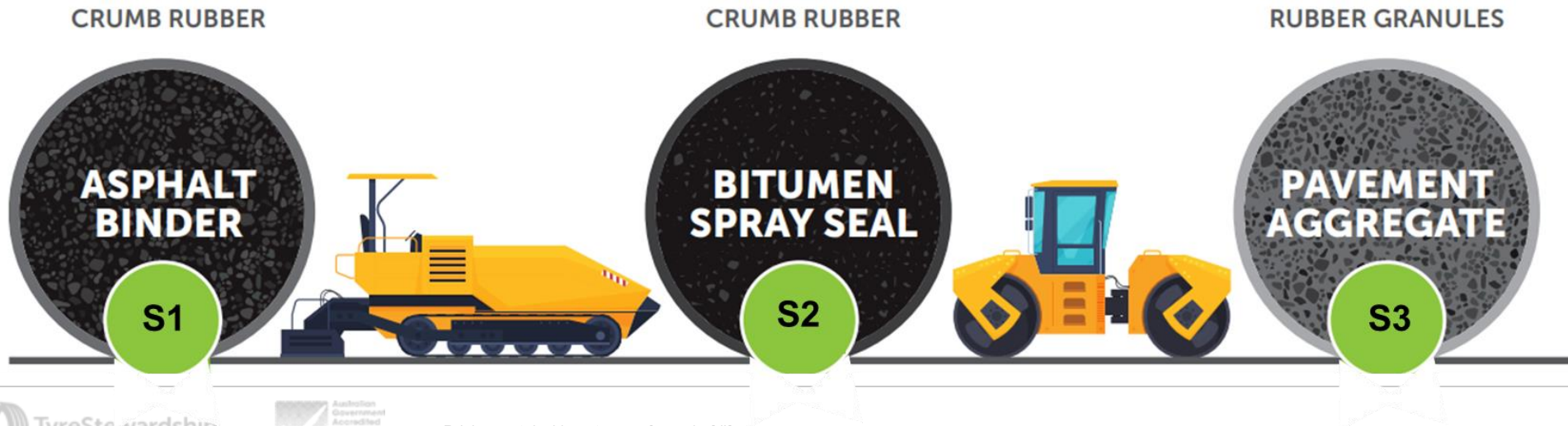
1. Build a database of transport/processing/construction data.
2. Develop emission impacts for a variety of scenarios (e.g. roads)
3. Compared them to conventional scenarios (roads) to identify any emission avoidance





# What were the results?

SCENARIO	GHG emissions avoidance potential (%)	GHG avoidance savings (per functional unit)	GHG avoidance per tonne of tyre derived product
Road Scenario 1 (asphalt – wet process)	7%	1105 kg CO <sub>2</sub> eq per km of road	585 kg CO <sub>2</sub> eq (crumb)
Road Scenario 2 (sprayed seal)	9%	69 kg CO <sub>2</sub> eq per tonne seal	460 kg CO <sub>2</sub> eq (crumb)
Pavement Scenario 3 (permeable pavement)	5%	0.8 kg CO <sub>2</sub> eq per m <sup>2</sup> pavement	53 kg CO <sub>2</sub> eq (granules)



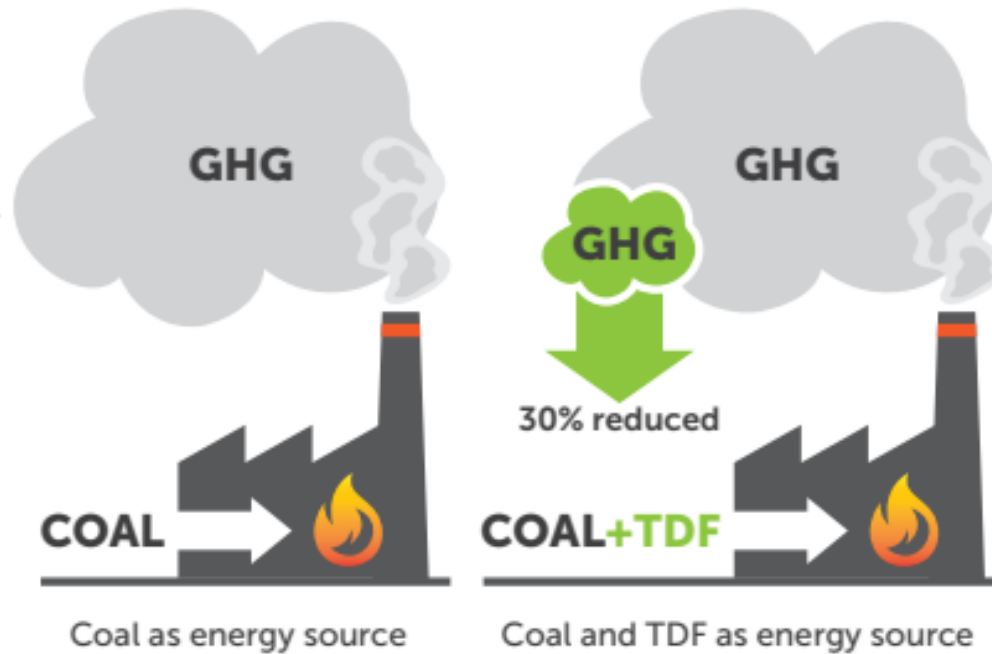


# What were the results?

Example reductions include <sup>14</sup>:

## TDF used in combustion processes

➔ TDF has a higher calorific value than coal, so when partially substituted for coal as an energy source, GHG emissions would be around **30% less** than for the same energy input.



LCA can indeed  
be the paradigm  
shift we are  
looking for





# Thank you

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**Product  
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**Thank you**

