Appendix E

Tyre Stewardship Australia Submission to the Inquiry into the Australian Tyre Industry Appendix E

Risk assessment

prepared for the Tyre Stewardship Australia

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Tyre Stewardship Australia - 04 PUBLIC Risk Analysis v2.xlsx Definition and lists

Risk categories

Social
Technology
Economic
Environmental
Political
Legal
Ethical

Tyre supply chain

Design and manufacturing	Tyre manufacturers
Imports	Retail importers and vehicle importers
Consumption	Tyre retailers, and consumers
Used tyre removal and collection	Tyre retailers, commercial consumer, Local Governement or private waste transfer stations
Used tyre recovery	Whole tyre reuse exports, local reuse, primary and secondary processing, TDM export and local, recycling and energy applications
Disposal	Onsite landfill, licensed landfill, on-farm, illegal dumping and stockpiling

Risks - Likelihood and Consequence - Explanatory notes

CONSEQUENCE RATING

	Consequence				
Rating	Public Health Safety/ OH&S	Financial impacts	Economy & Community	Environment	Reputation
Catastrophic	Large number of serious injuries/illnesses or loss of one or more lives	Huge financial impacts (e.g. > $10,000,000)	Regional decline leading to widespread business failure, loss of employment, and hardship	Widespread irreparable loss of habitat or environmental amenity	Serious national media outcry, extreme public outrage
Major	Isolated instances of serious injuries or illnesses	Major financial impact (e.g. $1,000,000 to $10,000,000)	Regional economic stagnation, with businesses unable to thrive	Significant irreparable loss of habitat or environmental amenity	Serious public or local media outcry, loss of community confidence and damage to reputation
Moderate	Small number of injuries or illnesses	High financial impact (e.g. $100,000 to $1,000,000)	Significant general reduction in economic performance relative to forecasts or expectations	Isolated but significant instances of habitat loss or environmental damage that might be reversed with intensive efforts	Widespread community complaints and anger, some adverse local media coverage
Minor	Minor injuries or illnesses (or serious near misses)	Medium financial impact (e.g. $10,000 to $100,000)	Individually significant but isolated areas of shortfall in economic performance	Minor loss of habitat or instances of environmental damage that can be reversed	Some community concern and complaints,limited adverse local media coverage
Insignificant	No injuries – appearance of a threat but no actual harm	Low financial impact (e.g. < $10,000)	Minor shortfall in economic performance relative to forecasts or expectations	No environmental damage	No community concern, no adverse media coverage

LIKELIHOOD RATINGS

Rating	Probablity
Almost certain	More likely than not – probability greater than 50%
Likely	As likely as not – 50/50 chance
Possible	Less likely than not but still appreciable – probability less than 50% but still quite high
Unlikely	Unlikely but not negligible – probability low but noticeably greater than zero
Rare	Negligible – probability very small, close to zero

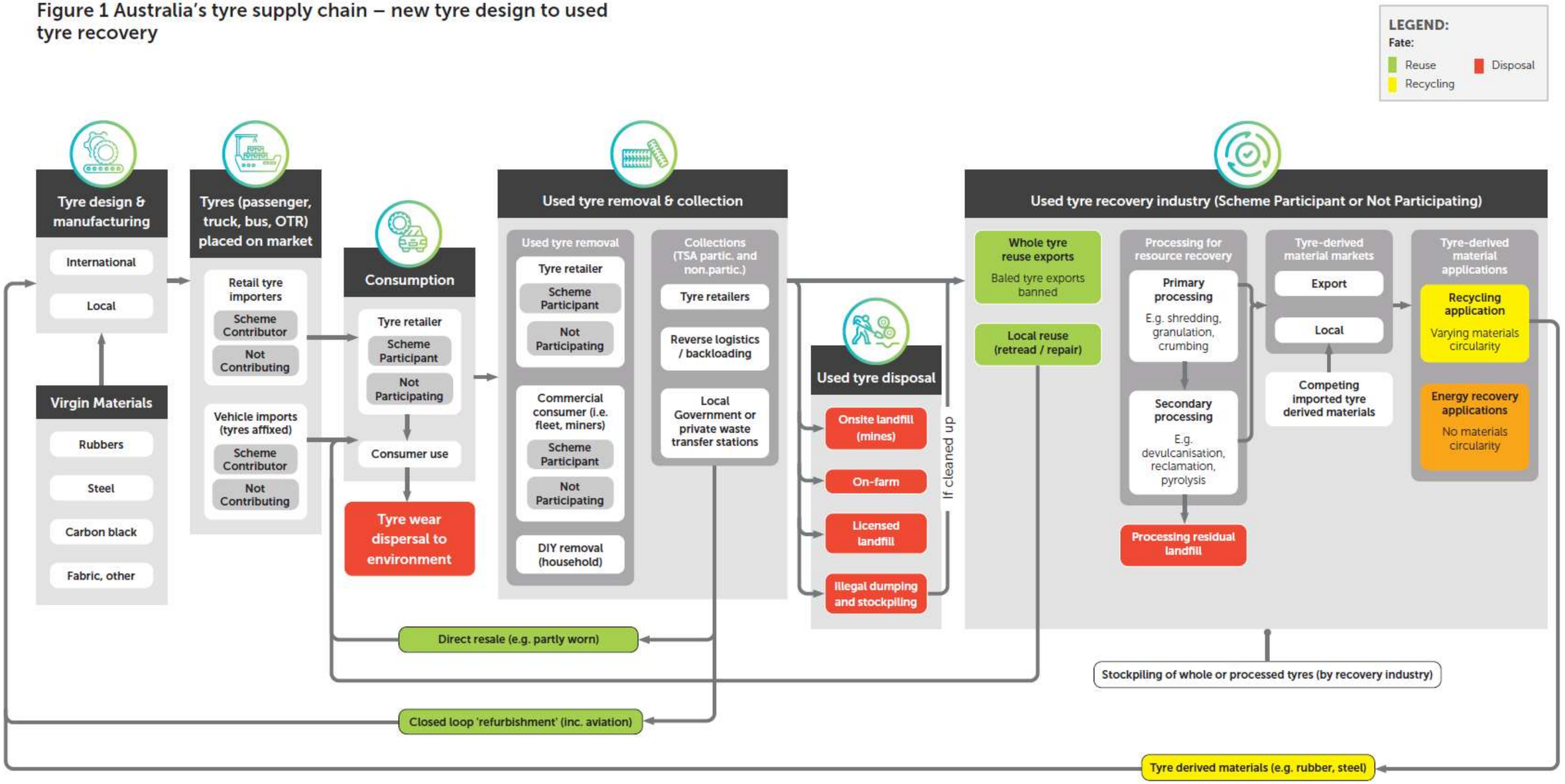
Likelihood \ Consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High (11)	High (16)	Extreme (20)	Extreme (23)	Extreme (25)
Likely	Moderate (7)	High (12)	High (17)	Extreme (21)	Extreme (24)
Possible	Low (4)	Moderate (8)	High (13)	Extreme (18)	Extreme (22)
Unlikely	Low (2)	Low (5)	Moderate (9)	High (14)	Extreme (19)
Rare	Low (1)	Low (3)	Moderate (6)	High (10)	High (15)

Tyre supply chain
Design and manufacturing
Imports
Consumption
Used tyre removal and collection
Used tyre recovery
Disposal

Risk categories
Social
Technology
Economic
Environmental
Political
Legal
Ethical

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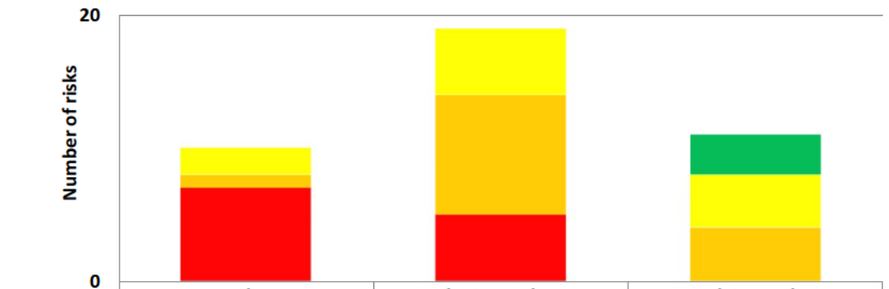
Figure 1 Australia's tyre supply chain – new tyre design to used tyre recovery



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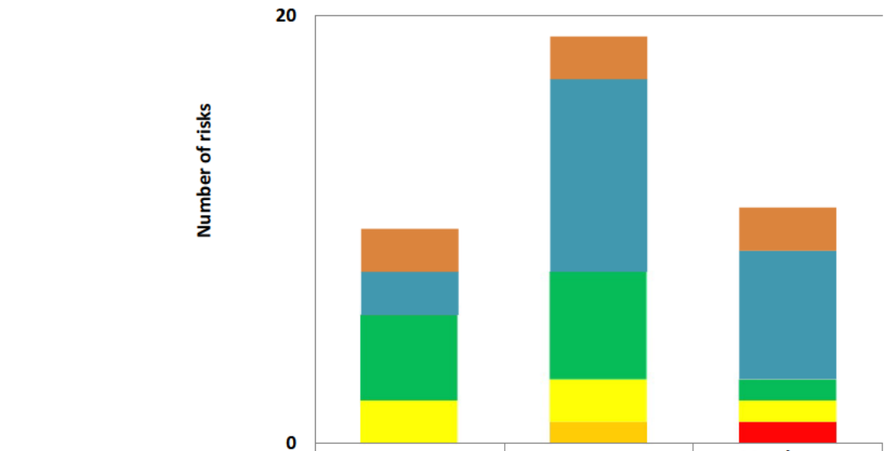
Comparative risk analysis

Summary of risks	No Scheme	Voluntary Scheme	Mandatory Scheme	%	%	%
Extreme	7	5	0	70%	26%	0%
High	1	9	4	10%	47%	36%
Moderate	2	5	4	20%	26%	36%
Low	0	0	3	0%	0%	27%
Total	**10**	**19**	**11**	**100%**	**100%**	**100%**



	No Scheme	Voluntary Scheme	Mandatory Scheme
Low	0	0	3
Moderate	2	5	4
High	1	9	4
Extreme	7	5	0

Summary of risks by tyre supply chain	No Scheme	Voluntary Scheme	Mandatory Scheme	%	%	%
Design and manufacturing	0	0	1	0%	0%	9%
Imports	0	1	0	0%	5%	0%
Consumption	2	2	1	20%	11%	9%
Used tyre removal and collection	4	5	1	40%	26%	9%
Used tyre recovery	2	9	6	20%	47%	55%
Disposal	2	2	2	20%	11%	18%
Total	**10**	**19**	**11**	**100%**	**100%**	**100%**



	No Scheme	Voluntary Scheme	Mandatory Scheme
Disposal	2	2	2
Used tyre recovery	2	9	6
Used tyre removal and collection	4	5	1
Consumption	2	2	1
Imports	0	1	0
Design and manufacturing	0	0	1

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Risk assessment
No Scheme

ID	Brief Risk Description	Detailed Risk Description	Risk category 1	Risk category 2	Tyre supply chain	Mitigation	Likelihood	Consequence	Risk Rating
1	Illegal stockpiling of used tyres	Increase in illegal stockpiling of used and end of life tyres is observed due to lack of incentives for appropriate and	Environmental		Used tyre removal and collection		Possible	Minor	Moderate (8)
2	Improper disposal of tyres affecting human health and environment	Increased occurences of accidents and unacceptable environmental impacts related to improper disposal of tyres (such as tyre fires, diseases affecting human health)	Environmental	Social	Disposal		Likely	Major	Extreme (21)
3	Used tyre disposal	Disposal of used tyres to landfills resulting in environmental externalities (leachate, fires, rapid consumpiton of landfill space, etc.,)	Environmental	Social	Disposal		Likely	Major	Extreme (21)
4	Import of low-quality tyres - consumers	Increasing import of low-quality passenger, bus, and truck tyres may result in high tyre-wear, high release of tyre-wear particles to the environment, and reduced value for consumers from reduced tyre life	Social	Environmental	Consumption		Likely	Major	Extreme (21)
5	Lack of innovation in circular economy	Lack of innovation in circular economy initiatives for tyres due to regulatory uncertainty, which reduces incentives for investment in reuse and recycling technologies. Unclear rules or inconsistent enforcement make it harder	Technology		Used tyre recovery		Rare	Moderate	Moderate (6)
6	Progress towards circular economy outcomes	Insufficent progress in R&D can hinder development of suitable tyre-derived materials for uses in higher order value outcomes and inhibits progress towards circular economy outcomes	Technology	Economic	Used tyre recovery		Almost Certain	Catastrophic	Extreme (25)
7	Lack of compliance	If regulatory burden to comply with exisitng waste regulations is seen as excessive, lack of compliance across the supply chain becomes a possibility	Legal	Environmental	Used tyre removal and collection		Likely	Catastrophic	Extreme (24)
8	Additional regulatory effort required to mitigate illegal stockpiling and dumping	Additonal regulatory effort in terms of added compliance and enforcement measures will be required to mitigate poor environmental and health outcomes arising from illegal stockpiling and improper tyre disposal	Legal	Economic	Consumption		Almost Certain	Major	Extreme (23)
9	Presence of rogue collectors	Rogue collectors undercutting accredited collections by offering cheaper collections resulting in illegal dumping (and significant subsequent impacts) and also in significant financial and economic costs	Environmental	Social	Used tyre removal and collection		Possible	Major	Extreme (18)
10	Continuation of on-site burial for OTR tyres	Continuation of on site burial of off-the-road tyres in mine sites will result in a reduced supply of end-of-life tyres to processors to reuse and recycle tyres and additional potential cultural and heritage impacts associated with on site burial risks' additional management activities	Social	Economic	Used tyre removal and collection		Almost Certain	Minor	High (16)

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Risk assessment
Voluntary scheme

ID	Brief Risk Description	Detailed Risk Description	Risk category 1	Risk category 2	Tyre supply chain	Mitigation	Likelihood	Consequence	Risk Rating
1	Illegal stockpiling of used tyres	Increase in illegal stockpiling of used and end-of-life tyres is observed due to lack of incentives for appropriate and safe disposal, which may lead to clean up costs for local government and state government agencies	Environmental		Used tyre removal and collection		Unlikely	Major	High (14)
2	Stockpile of processed tyres	Increase in stockpiles of processed tyres or tyre-derived materials (such as tyre crumbs, shredded tyres, etc.,) may arise due to a lack of end markets (locally and/or internationally)	Environmental		Disposal		Rare	Moderate	Moderate (6)
3	Improper disposal of tyres affecting human health and environment	Increased occurences of accidents and unacceptable environmental impacts related to improper disposal of tyres (such as tyre fires, diseases affecting human health) may be seen due to illegal stockpiling of end of life tyres	Environmental	Social	Disposal		Unlikely	Major	High (14)
4	Import of low-quality tyres - consumers	Increasing import of low-quality passenger, bus, and truck tyres may result in high tyre-wear, high release of tyre-wear particles to the environment, and reduced value for consumers from reduced tyre life	Social	Environmental	Consumption		Rare	Moderate	Moderate (6)
5	Differing road standard requirements render tyre-derived materials unsuitable for use in road constructions	Differing road Standards across Australia may limit the potential end use of tyre crumbs or other tyre-derived materials	Technology	Economic	Used tyre recovery		Unlikely	Moderate	Moderate (9)
6	Information asymmetries	Under a voluntary Scheme, accredited participants face one set of rules and non-acccredited participants face a different set of rules Non-participants or rogue operators are not required to disclose information about their recycling activities, creating information asymmetries that allow them to avoid compliance costs and regulatory oversight, thereby gaining an unfair competitive advantage over compliant operators (market distortion and inequity).	Economic		Used tyre removal and collection		Possible	Moderate	High (13)
7	Lack of innovation in circular economy	Lack of innovation in circular economy initiatives for tyres due to regulatory uncertainty, which reduces incentives for investment in reuse and recycling technologies. Unclear rules or inconsistent enforcement make it harder for companies to justify R&D and capital expenditure, slowing the development of innovative solutions.	Technology		Used tyre recovery		Possible	Major	Extreme (18)
8	Lack of compliance	If regulatory burden to comply with existing waste regulations and the voluntary scheme is seen as excessive, lack of compliance across the supply chain becomes a possibility	Legal	Environmental	Used tyre removal and collection		Unlikely	Moderate	Moderate (9)
9	Additional regulatory effort required to mitigate illegal stockpiling and dumping	Additional regulatory effort in terms of added compliance and enforcement measures will be requrired to mitigate poor environmental and health outcomes arising from illegal stockpiling and improper tyre disposal	Legal	Economic	Consumption		Likely	Moderate	High (17)
10	Lack of diversion of tyre-derived materials to higher order outcomes	Due to immature end markets locally and internationally, tyre-derived materials are not effectively utilised and are diverted to lower value outcomes (such as tyre-derived fuel)	Economic	Technology	Used tyre recovery		Possible	Moderate	High (13)

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Risk assessment
Voluntary scheme

11	Freeriding importers	Freeriding importers undermining import of high-quality tyres by importing low-quality tyres Increasing import of low-quality (or off-brand) tyres at a low cost may result in import of high-quality passenger, bus, and truck tyres being priced out Especially, low-quality single-use bus and truck tyres, which may undercut the use of higher quality tyres that can be retread.	Economic	Environmental	Imports		Possible	Moderate	High (13)
12	Presence of rogue collectors	Rogue collectors undercutting accredited collections by offering cheaper collections resulting in illegal dumping (and significant subsequent impacts) and also in significant financial and economic costs	Environmental	Social	Used tyre removal and collection		Likely	Moderate	High (17)
13	Lack of product and end-market development	Lack of incentives, funds, and expertise available to aid in product development of tyre-derived products, and lack of end-market development to effectively utilise tyre-derived materials	Economic	Technology	Used tyre recovery		Almost Certain	Moderate	Extreme (20)
14	Continuation of on-site burial for OTR tyres	Continuation of on-site burial of off-the-road tyres in mine sites will result in a reduced supply of end-of-life tyres to processors to reuse and recycle tyres and additional potential cultural and heritage impacts associated with on-site burial risks' additional management activities	Social	Economic	Used tyre removal and collection		Possible	Major	Extreme (18)
15	Market dynamics	Without a mandatory Scheme, there is a risk of distorted market dynamics in tyre recycling, with activity concentrated among a small number of operators, potentially creating monopolistic or duopolistic conditions. When a few recyclers gain an initial operational or logistical advantage, they capture the majority of tyres collected and recycled in Australia. The absence of a mandatory Scheme and ongoing regulatory uncertainty further limits investment in R&D and innovation, preventing other recyclers from entering the market and allowing these distortions to persist or worsen over time.	Economic	Technology	Used tyre recovery		Possible	Minor	Moderate (8)
16	Awareness of the Scheme	Awareness of the Tyre Product Stewardship Scheme objectives, processes, value proposition to different stakeholders across the supply chain, and achievements is not effectively shared with key stakeholder groups and other interested parties. This may result in plateauing of Scheme participation, and/or withdrawal from particpation in the Scheme	Environmental		Used tyre recovery		Possible	Major	Extreme (18)
17	TPSS value proposition diminishes	TSA's value proposition to each industry sector (importers, manufacturers, retailers, recyclers/collectors, etc.) and other stakeholders (e.g., the EPA) is not sufficiently clear due to Scheme plateauing and diminished performance (largely due to the voluntary nature of the Scheme) to motivate or incentivise Scheme participation and retention.	Economic	Environmental	Used tyre recovery		Almost Certain	Major	Extreme (23)

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Risk assessment
Voluntary scheme

18	Tyre importer leaves the Scheme	One, or more, levy-paying contributor departs the Scheme. The impacts will depend which importer(s) decides to leave. TSA has had some automotive brands leave the Scheme. It would be catastrophic if founding contributors left the Scheme.	Economic	Environmental	Used tyre recovery		Possible	Moderate	High (13)
19	Risk that ACCC does not re-authorise the Tyre Product Stewardship Scheme in 2027.	and review process, determines that the TPSS does not meet the net Public Benefit Test because TSA is not able to demonstrate its specific impact on EOL tyre recovery or attribution to Scheme participants (using the factors taken	Economic	Environmental	Used tyre recovery		Unlikely	Major	High (14)

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Risk assessment
Mandatory/co-regulatory Scheme

ID	Brief Risk Description	Detailed Risk Description	Risk category 1	Risk category 2	Tyre supply chain	Mitigation	Likelihood	Consequence	Risk Rating
1	Stockpile of processed tyres	Increase in stockpiles of processed tyres or tyre-derived materials (such as tyre crumbs, shredded tyres etc) may arise due to a lack of end markets (locally and/or internationally)	Environmental		Disposal		Rare	Insignificant	Low (1)
2	Disposal of processed tyres instead of reuse or recycling affecting human health and environment	Increased occurences of accidents and environmental impacts related to illegal dumping of processed tyres or tyre-derived materials (such as fires, disease propagation)	Environmental	Social	Disposal		Possible	Minor	Moderate (8)
3	Import of low-quality tyres - consumers	Increasing import of low-quality passenger, bus, and truck tyres may result in high tyre-wear, high release of tyre-wear particles to the environment, and reduced value for consumers from reduced tyre life	Social	Environmental	Consumption		Possible	Minor	Moderate (8)
4	Design standards for tyres	Lack of comprehensive design standards (or alignment with existing Standards) creates the potential for unregulated practices in the market, which may pose safety and environmental risks.	Legal	Environmental	Design and manufacturing		Unlikely	Minor	Low (5)
5	Differing road Standard requirements render tyre-derived materials unsuitable for use in road constructions	Differing road Standards across Australia may limit the potential end-use of tyre crumbs or other tyre-derived materials	Technology	Economic	Used tyre recovery		Unlikely	Minor	Low (5)
6	Unsatisfactory performance of tyre-derived materials in end-uses	Unforeseen performance shortfalls of tyre-derived materials in end-uses (such as roads) may result in increased maintenance and/or replacement costs and limiting the end-market	Technology	Economic	Used tyre recovery		Unlikely	Major	High (14)
7	Lack of compliance	If regulatory burden to comply with a mandatory scheme is seen as excessive, lack of compliance across the supply chain becomes a possibility	Legal	Environmental	Used tyre removal and collection		Unlikely	Moderate	Moderate (9)
8	Lack of diversion of tyre-derived materials to higher order outcomes	Due to immature end-markets locally and internationally, tyre-derived materials are not effectively utilised and are diverted to lower-value outcomes (such as tyre-derived fuel)	Economic	Technology	Used tyre recovery		Unlikely	Major	High (14)
9	Lack of product and end-market development	Lack of incentives, funds, and expertise available to aid in product development of tyre-derived products, and lack of end-market development to effectively utilise tyre-derived materials	Economic	Technology	Used tyre recovery		Unlikely	Moderate	Moderate (9)
10	End-market development for tyre-derived materials	Lack or immature development of suitable high circularity end-markets (such as use of tyre crumbs in roads, playgrounds, etc.,) can pose a barrier to uses related to higher-order outcomes for tyre-derived materials	Economic	Technology	Used tyre recovery		Possible	Moderate	High (13)
####	Risk that ACCC does not re-authorise the Tyre Product Stewardship Scheme in 2027.	ACCC in 2027, following its re-authorisation consultation and review process, determines that the TPSS does not meet the net Public Benefit Test because TSA is not able to demonstrate its specific impact on EOL tyre recovery or attribution to Scheme participants (using the factors taken into consideration by the ACCC (including data and participant contributions or other evidence).	Economic	Environmental	Used tyre recovery		Unlikely	Major	High (14)

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Risk Matrix					
Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High 11	High 16	Extreme 20	Extreme 23	Extreme 25
Likely	Moderate 7	High 12	High 17	Extreme 21	Extreme 24
Possible	Low 4	Moderate 8	High 13	Extreme 18	Extreme 22
Unlikely	Low 2	Low 5	Moderate 9	High 14	Extreme 19
Rare	Low 1	Low 3	Moderate 6	High 10	High 15

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