Australasian Railway Association

SUBMISSION

PRODUCTIVITY COMMISSION – CALL FOR SUBMISSIONS

OPPORTUNITIES IN THE CIRCULAR ECONOMY

Australasian Railway Association
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ABOUT THE ARA

The ARA is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 230 member organisations across the industry.

Our membership covers every aspect of the rail industry, including the:

- passenger and freight operators that keep essential rail services moving;
- track owners, managers, and contractors that deliver a safe and efficient rail infrastructure network; and
- suppliers, manufacturers, and consultants that drive innovation, productivity, and efficiency in the rail industry.

Our members are driven to support vibrant, sustainable and connected communities through greater use of rail across Australia and New Zealand. We bring together industry and government to help achieve this ambition.

Our advocacy is informed by an extensive research program to ensure we offer solutions that are grounded in evidence and focused on delivering tangible value in our daily lives.

We believe the rail industry has a crucial role to play in Australia's journey towards net zero, and we know that the industry offers meaningful and rewarding careers for thousands of people in both cities and regional areas.

Our significant program of work is focused on supporting a strong advocacy agenda, and creating opportunities for the rail industry to network, collaborate and share information, and maximise the benefits we have to offer the wider community.

OVERVIEW

The ARA appreciates the Productivity Commission's request for information and feedback on opportunities for the circular economy in Australia. The circular economy presents an opportunity to transition away from the linear, take-make-dispose methods of consumption historically used as "business as usual" throughout Australia. As climate and ecological concerns become more prominent in the public and government focus, utilisation of the circular economy to reduce both waste and raw material consumption will form a key attribute of the multifaceted approach to global sustainability challenges.

The rail industry is already forging ahead with circular economy principles. The inherent long lifespan of rollingstock and associated infrastructure contribute to waste reduction and maximising asset use. Additionally, recent efforts in innovation have increased the amount of recycled material utilised in a range of contexts across the industry, from ballast and sleepers to platforms and supporting station infrastructure. This greatly reduces not only embodied carbon content of these components, but the volumes of raw materials required for construction. In addition to increasing recycled material inputs, opportunities to re-use and re-furbish at an asset's end of lifecycle are also increasing. For example, there are opportunities being explored to refurbish traditional deiseal locomotives into battery-electric compatible models, and used track components to be repaired and recycled onto lower traffic sections of the network.

While efforts currently underway are commendable, no industry on its own can create a circular economy. It will require collaboration, coordination and planning across sectors to develop a truly circular economy which minimises waste and maximises reuse. This will necessitate government support and facilitation to bring industries together and develop the supporting infrastructure (such as

testing facilities or recycling centres) which will be essential to future scale-up of circular economy processes.

This submission has been prepared thanks to participation and feedback from the ARA's Circular Economy Working Group. Comprised of procurement and sustainability specialists from a range of ARA member organisations, representing passenger operations, suppliers, consultants, and track owners, the Circular Economy Working Group provided the case studies and feedback which have made this submission possible.

WHAT PROGRESS IS BEING MADE IN AUSTRALIA?

Case Study 1: Yarra Trams

Yarra Trams has been looking across the tram network and operational and maintenance activities to identify areas where the generation of waste can be reduced, and sustainable and recycled materials can be incorporated. Some examples of this include working with contractor partners to ensure materials are recycled or recycled content is procured when maintenance and renewal works are being undertaken.

These efforts have built on lessons learned from Victoria's Recycled First Policy, implemented on Big Build Projects. For example:

Recycled content used in track build up:

- Class 2 crushed concrete is used instead of crushed rock in the track build up layers
- The concrete mix used in the track structure contains slag in lieu of some General Portland Cement
- The use of reclaimed asphalt pavement (RAP) is maximised as far as practical within VicRoads approval requirements

Outgoing (from site) materials:

- Concrete removed from site is recycled into crushed concrete for pavement use
- Old rail gets sorted on site into steel recycling bins
- Asphalt profiling get sent to be repurposed as RAP in new asphalt

Sustainability benefits:

- Using locally manufactured recycled content supports local suppliers and reduces transport emissions
- Recycled content helps reduce the embodied emissions associated with the works (e.g., lower carbon concrete)
- Reduced volume of waste is sent to landfill, prolonging the material's valuable life through beneficial reuse

Other examples of circular economy principles being adopted include:

- Rollingstock life extension works – where the useful life of existing trams is extended rather than new trams being procured. These activities are supported through the Department of Transport and Planning to maintain and extend the value of the existing assets
- Reuse of materials such as bluestone, which can be more cost effective than purchasing new products and more durable than using alternative products
- Examples of maximising value of assets, including to provide social value. For example, Middle Park, a heritage building that is no longer used for tram operations, is now used by social enterprise For Change Co

- In addition to standard office waste recycling, sites have e-waste, toner and Rescrap bins. Rescrap bins are used for recycling waste metal products at depots. A proportion of prescribed waste and waste captured from track sweeping activities is recovered or recycled

Case Study 2: Level Crossing Removals

In the rail industry, waste management is a critical challenge - particularly when it comes to materials like site-specific signage that can't be easily reused or recycled. A new collaboration between LXRP (Level Crossing Removal Project), Southern Program Alliance (SPA) and various suppliers has identified a sustainable solution.

Australia's limited recycling infrastructure meant that much of used signage material – such as gawk screens, made of PVC banner mesh - ends up in landfills. Due to signage often being site-specific, reuse at other sites is not possible. Seeing an opportunity, LXRP began storing the material, waiting for reuse opportunities.

The SPA Sustainability and Environmental Management teams connected with Stratex, a commercial supplier known for their expertise in environmental and personal protection solutions. Working together they identified an opportunity to repurpose the signage material into silt socks, a product used to control construction site erosion.

Conventional silt socks retail at $15 and have a restricted lifespan. They also incur increased labour costs from the need to frequently monitor and replace damaged socks. The teams facilitated a connection between Stratex and Assembled Threads, another social enterprise, to develop a prototype for a new silt sock utilising recycled gawk screen materials. The result was a product with a higher retail cost of $42, but a more resilient composition. This reduces the impact of wear and tear from construction environments and as a result, reduced the need for frequent replacement.

Following successful testing, Australia's first Australian-made, 100% recycled silt sock is now on the market.

The silt sock will continue to have a circular lifecycle, with Stratex looking to convert damaged and used silt socks into knee guards for gardening use. This project highlighted the ongoing innovations and contributions LXRP is involved in to ensure great and sustainable places for future generations. The 100% recycled silt sock is available from Stratex and social enterprise, Cacti Conserve.

Case Study 3: Project iTRACE

The Australian rail sector does not currently have a standard language to identify and mark material parts and components. The ARA, together with industry, launched Project iTRACE in partnership with GS1 to set a consistent industry standard for automatic data capture (barcoding and/or tagging) and support efficient management of material master data to assist the procurement process of rail components and assets.

The project offers a whole-of-industry standardised approach to lifecycle tracking of an asset or component in the supply chain to support efficient management of material master data to assist the procurement process of rail components and assets. Project iTRACE assists all stakeholders effectively identify rail components and assets, electronically capture information about them and share that information with relevant parties – operators, suppliers and maintainers. It allows national and international product identification and traceability and enables automation and digitisation.

Project i-TRACE contributes substantially to risk reduction, improving data and material quality. It also ensures regulatory compliance requirements are met and, with the ability of real-time tracking, allows the rail sector to develop a sustainable business model and speed up transition to a circular economy through the digitisation of data sharing. The project has the capability to support wider uptake of

circular economy principles and recycled input materials, by enabling transparent and consistent data management from point of origin through to eventual reuse or recycling of a product.

WHAT HURDLES AND BARRIERS EXIST?

Cost and demand

Availability of recycled products and suppliers manufacturing these products can be a limiting factor for organisations looking to increase use of recycled materials. Suppliers have indicated it can be challenging to develop "circular" products without guaranteed high levels of demand. For example, the upfront costs of manufacturing a product which requires a mould to shape recycled plastic can make that product more expensive than existing, non-recycled products already on the market. There is also a high cost to suppliers looking to generate and maintain Environmental Product Declarations (EPDs) which validate their product's sustainability credentials.

In addition to the lack of suppliers offering recycled products, there is also a general lack of businesses that are able to assist with repurposing or recycling products once they've reached end of use in their original form. This creates a barrier in "closing the loop" on the circular economy, where it remains easier and more cost effective to simply dispose of products at their end of life.

Standards and specifications

Current standard requirements in the rail environment create challenges with proving product suitability and compliance when introducing new products, such as those with increased recycled material content or other sustainability innovations. There is limited capacity to test and trial these new products due to a high cost and low risk appetite. Strict standards and specifications result in a high burden of proof for products containing recycled content compared to the historically utilised products. Additionally, there is seen to be limited benefit to undertaking the level of work required to update the standards and specifications to enable circular practices for franchise operators who don't necessarily receive the long-term benefits of that work.

Type Approvals require new and/or novel technologies to pass through discrete due diligence testing prior to being adopted by railway operators. ARA research has identified that the lack of consistent and equivalent Type Approval processes between jurisdictions and customers costs the rail industry $230 million per year.

Currently, new technology, products, and construction and maintenance processes must pass through each Rail Infrastructure Manager's (RIM) specific approval process prior to being rolled out, regardless of whether the technology, product or process has been approved or applied elsewhere. Type Approval with one RIM does not serve as a 'trust marker' to another RIM. This adds a further hurdle to those developing innovative technology or integrating recycled materials to build scale by implementing their solution across multiple networks.

There is opportunity to develop a more harmonised approach to Type Approval processes applied through cooperative agreement, on a set of standardised principles and approaches. Addressing the weaknesses of the current Type Approval processes will ensure more resilient supply chains and support the growth of the domestic economy.

WHAT ACTION SHOULD GOVERNMENTS TAKE?

Policy

The Recycled First Policy in Victoria, with the wrapround support of EcologiQ, has been immeasurably helpful in supporting suppliers and the industry to consider recycled materials. This

policy has been particularly valuable in generating demand for recycled content, which incentivises suppliers to innovate and helps overcome some of the hurdles associated with unknown demand levels discussed above.

There is also an opportunity to balance local content policy with the availability of recycled materials. Local content policies stipulate certain quantities of materials to be sourced from within-state, while currently, supplier limitations mean that circular economy products may not be offered at that local level. This policy fragmentation affects industry further because historically the market for new rail projects in Australian jurisdictions has been characterised by one-off orders, with no national coordination. Uncoordinated procurement and inconsistent application of local content policies results in duplicated investment and restricts the ability to establish economies of scale in domestic rail products.

The ARA has advocated for a National Local Content Policy, to replace the current series of state-based policies. A national-level policy would unlock the benefits of scale, componentry harmonisation and design efficiencies. The rail supply chain is spread throughout Australia, however, much of the supply chain is concentrated in New South Wales and Victoria. Any artificial barriers that may be preventing transfer of skills or innovations between states should be reviewed, enabling easier adoption of innovative products and recycled materials for organisations which operate across borders.

Regulatory

National standards and consistency across states – such as acceptance of products used by other rail operators, can support economies of scale for suppliers, amongst other efficiencies.

Transport for New South Wales, Queensland Rail, and Victoria's Department of Transport and Planning have signed a Memorandum of Understanding and launched a strategic initiative to standardise the Type Approval process across transport and asset classes. This will be done through the implementation of a consistent Type Approval assessment procedure between the states. Learnings from this trial should be shared with industry and government, to inform measures to accelerate progress on type approval harmonisation within Victoria, and across jurisdictions and RIMs.

Recent ARA research has highlighted the benefits to be achieved through harmonisation of standards. By adopting a national approach to procurement and harmonising standards, and improving interoperability, we will have a more competitive and innovative rail industry, ensuring more value for taxpayers in government procurement outcomes. This will have flow-on effects which will improve the feasibility of adopting circular economy principles in Australia, including supplier capacity for scale-up and ease of integrating new technologies.

Funding

Financial support for trials and testing of circular economy enabling products is essential to reduce the barriers associated with development and scale-up of new, innovative products, and enable pricing competitive with current business-as-usual products.

Education

More information and guidance on the topic of circular economy and how this can be implemented at all stages of a project would be beneficial to suppliers and project owners alike. A better understanding of opportunities and options for circular materials, as well as how to achieve any contractual requirements and expectations would empower suppliers to be more innovative and confident with pursuing circular economy principles and integrating recycled materials.