

**Submission**

**To**

**Senate Rural and Regional Affairs and Transport References  
Committee**

**into**

**The State of Australia's Rail Industry**

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## Purpose

This document is a submission to the Australian Government Senate Enquiry into the *State of Australia's Rail Industry*.

## Submission by

This submission is from the Rail Industry Safety and Standards Board (RISSB).

## Focus of Submission

The submission specifically addresses item (c) of the Senate Committee's terms of reference (refer Attachment 1).

It seeks to inform the Senators and the Senate Committee Enquiry of RISSB's role and activity in the area of standards development and harmonisation of the rail industry in Australia.

## About RISSB

RISSB is a not for profit company owned by its Members.

RISSB Members are companies and organisations who are rail freight and passenger operators, track managers, suppliers and contractors.

RISSB was established in 2004 under the ownership of the Australasian Railways Association (ARA) with that ownership recently transferred to the organisations who provide its funding - its Members.

RISSB's Objects are defined in its Company Constitution and are:

*The objects for which the Company is established are to:*

*(a) develop, manage and promote a suite of standards, rules, guidance materials and other documents, including the ACOP and ANRP, to assist the rail industry to manage rail safety, improve efficiency and achieve safety outcomes through standardisation, interoperability and harmonisation;*

*(b) develop a risk model for the Australian rail operating environment that is based on data and other inputs that will help drive safety improvements by guiding prioritisation of standards development and regulatory activity; and for use by the rail industry participants in directing their approach to safety management;*

*(c) provide independent technical advice; and*

*(d) undertake initiatives to support the rail industry's role in the co-regulatory model for rail safety in Australia.*

Note the acronyms are defined in the Constitution and have the following meanings:

*(e) "Australian Code of Practice (ACOP)" means the term used to describe Company Products, namely standards, codes of practice, rules and guidelines;*

*(f) "Australian Network Rules & Procedures (ANRP)" means the master set of rules and procedures that define how Rail Transport Operators operate safely on the Australian Rail Network;*



RISSB is funded by its Members and also receives funding of \$1.5m pa from the Australian and State Governments to assist with its work. Considerable 'in kind' resources are also provided by RISSB members who provide the staff who develop and review the standards and other documents developed by RISSB.

RISSB is accredited by Standards Australia and RISSB standards are issued as Australian Standards. RISSB is the single body accredited by Standards Australia to develop national rail standards in Australia.

Rail Industry companies also acknowledge and support RISSB in the role as the setter of standards for the rail industry through their funding of RISSB and support of and contribution to this standards development.

More detailed information about RISSB and its activities can be found on its website at <http://www.rissb.com.au/>

## Background to RISSB's Formation

Senators would be aware that the railway networks in Australia were developed under the auspices of State Governments with development of most of the major rail networks commenced well before federation.

This resulted in many differing network standards and operational practices being adopted by these State based rail organisations.

The most obvious difference in these State based rail networks is the difference in rail gauge (the distance between the rails) however there are many, many other differences in operations, standards and practices.

While it is not practical or economically feasible\* to standardise all rail gauge across Australia, we do have a national standard gauge network connecting all capital city ports and every state in Australia. This standard gauge network caters for the majority of the interstate rail traffic and there exist interchange facilities for transshipping the relatively low volume of freight traffic that moves between areas serviced by differing gauges.

\* Clarifying note: Queensland has around 9000km of narrow gauge track. Around 2500 km of this track in Central Queensland (CQ) caters for in excess of 200 million tonnes of coal freight annually and that transport is from mines in CQ to adjacent ports. The cost of changing gauge for this network would be in the many 10s of billions of dollars with negligible change in rail productivity arising from any reconstruction to standard gauge.

RISSB was created by the rail industry to take on the task of developing a set of standards, codes, common rules and practices with a view to improving the safety and efficiency of rail traffic tasks. This is referred to by industry as harmonisation.

## Standards, Safety, Efficiency and Productivity

RISSB and its Members in the rail industry recognise that there are major inefficiencies that result from the proliferation and use of differing standards across the industry and it is for this reason that the Industry saw the need for an organisation like RISSB to focus and coordinate the industries approach to standards development.

However, the matter of mandating the adoption of new standards has been discussed extensively and the industry consensus is that it would be impractical and counterproductive to mandate the adoption of standards and codes of practice across the industry.

The industry recognises that there are areas where it is easy to change the standards used and other areas where there is a very significant expense in moving to a new standard. The issue of change to the rail gauge, illustrated above, demonstrates this.

Thus the industry and RISSB Members support the progressive voluntary adoption of standards and harmonised practices where individual companies consider that there is a business case for this change in their operation that takes account of the cost and benefit of such a change.

There is however a small core of issues where the industry agrees to mandate the use of a standard where there is an overwhelming safety benefit from such action. An example of this is rollingstock lighting where the standard specifies the visibility and layout of this lighting.

Further, the focus of RISSB's standards development work is to create performance based documents that avoid prescribing the way to achieve an outcome and focus rather on specifying the outcome itself. This then admits and encourages innovation and avoids entrenching specific technologies and products in the market. Again this fits with the industry's objective of having a framework that promotes efficiency, improved productivity and the industry's competitiveness in the transport sector.

## RISSB Progress

Railways are large and complex operations and the number of standards required is large. At present we have published around 46% of the standards that the industry considers necessary for harmonisation and are actively working on a further 27%. At the current rate of development we anticipate that the full suite will be complete in 2021/22. The standards previously published are also being progressively reviewed and updated on a planned cycle.

As part of its funding of RISSB, government arranged for a review of RISSB's processes and activity. The review was carried out by a specialist international consultant Tony Taig in 2012. While some improvement opportunities were identified in the review (and have been subsequently implemented) the Taig Review concluded that "*RISSB's business model is low cost, involves low financial risk and has delivered good value for money in comparison with alternative transport-focused standards development models*".

## Co Regulation

It is important to highlight that the Australian Government has adopted a coregulatory model for the regulation of Railways in Australia.

As a result, under coregulation there are distinct but complementary responsibilities:

- Governments make the law
- Industry responsible for safe railway operations and standards.

Co-Regulation recognises the varied size and scope of rail operations in Australia and promotes a co-operative approach to safety.

Thus key elements and responsibilities in this coregulatory model are:

- National Rail Safety Regulator (ONRSR) role:
  - Improving rail safety
  - Providing seamless national safety regulation
  - Enforcing regulatory compliance
  - Decreasing regulatory burden on rail industry.
- Industry role
  - To develop effective National standards and codes of practice that improve safety and efficiency in the industry.
- Individual Rail Company role
  - Each rail company is to develop and apply safety management systems (including standards) to ensure that their operations are managed to minimise risk ALARP\*.

\*ALARP: As Low As is Reasonably Practicable

As highlighted above many rail companies have standards, codes and rule books developed during their time as state based entities. The industry is seeking to progressively migrate to a suite of common standards which are developed by RISSB using industry support and input

Thus under the coregulatory system the rail industry and individual rail companies determine the appropriate standards and the regulator confirms that rail companies apply the standards in their operations to manage risk ALARP.

## The Australian Rail Environment and Harmonisation

Tony Taig assessed that the economic benefits of harmonisation might thus be measured in the range ..... "from \$100's of millions to a few \$ billion per year".

The benefits of harmonisation should be considerable in terms of

- making railways more safely interoperable
- simplifying safety management systems
- making railways more affordable and
- enhancing competitiveness of the Australian rail supply industry.

Refer to the report at:

[http://transportinfrastructurecouncil.gov.au/publications/files/RISSB\\_review\\_report.pdf](http://transportinfrastructurecouncil.gov.au/publications/files/RISSB_review_report.pdf)

## Benefits from a nationally-coordinated approach to rail manufacturing standards and rail procurement projects

Tony Taig also recognised that:

*"Lack of harmonisation has further economic impacts via the railway supply industry. In the short term some Australian rail suppliers may feel that diverse standards protect them from the harsh winds of international competition, but in the longer term their competitiveness is being eroded by the absence of decent scale market opportunities. A major driver for the establishment of European Technical Standards for Interoperability has been to increase the scale of the markets available into which European manufacturers can supply. In many ways Australia almost seems to "out-Europe Europe" in terms of how different the railways are from those in adjoining territories. While there may be short-term pain in adapting to more harmonised standards, the long-term benefit for the supply industry would be considerable."*



RISSB recognises the work in this area by the former Rail Supplier Advocate, Mr Bruce Griffiths in prioritising where harmonisation of rollingstock standards would produce the greatest benefit for government and industry in the short to medium term. RISSB would stand exceedingly well placed, given its track record in development of standards, to carry out work on behalf of the Victorian Government (and / or other government bodies as appropriate) to undertake work to harmonise identified rollingstock standards as part of the development of a coordinated national rolling stock procurement and maintenance pipeline.

## Harmonising Manufacturing Standards

At present RISSB is working with officers of the Department of Economic Development, Jobs Transport and resources to discuss how RISSB standards might help to harmonise Australian manufacturing of rollingstock and rollingstock components.

Attachment 2 summarises this work and progress to date.

## Conclusion

The Rail Industry is very aware of the potential benefits of standardisation and harmonisation of practices to promote safety and efficiency and for that reason has created and support RISSB to coordinate this work.

Given the current diverse rail operating environment that has arisen due to the very separate development of railways in Australia over many years since before federation, the industry is adopting a process of progressive reform and standardisation where it is practical and cost effective to do this.

The industry and RISSB acknowledge and appreciate the support that has been provided by government in terms of funding since RISSB was established and consider that this is an essential element of our resourcing to achieve our goal of harmonisation to improve the safety and productivity of the rail industry to contribute to productivity and competitively in the transport sector.

## Further Input

Should it be of benefit to the Senate Committee, the Chairman and CEO of RISSB are able to make themselves available to brief the Committee and clarify any issues in respect of RISSBs role in the Rail Industry and the development and setting of standards.

Contact should be made through CEO Paul Daly



## **Terms of Reference of Senate Enquiry**

## **Attachment 1**

On 16 March 2016, the Senate moved that the following matters be referred to the Rural and Regional Affairs and Transport References Committee for inquiry and report by 25 August 2016.

State of Australia's rail industry and how government procurement, including through the Australian Rail Track Corporation, and other policy levers can improve the value for money, competitiveness, stability of work and capability of the rail manufacturing industry, with specific reference to:

- a. the importance of the national rail industry as a regional employer and activity generator, and the potential costs of further decline of rail manufacturing on the national and relevant regional economies;
- b. the state of the rail industry, barriers to growth and improved productivity, and the potential of Australia's rail industry as a skills and technology incubator, supplier of domestic rail needs as well as potential exports;
- c. the potential for Australia to benefit from a nationally-coordinated approach to rail manufacturing standards and rail procurement projects given the size of the Australian rail industry; and
- d. any other related matters.

Source: Australian Government website:

[http://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Rural\\_and\\_Regional\\_Affairs\\_and\\_Transport/Australias\\_rail\\_industry/Terms\\_of\\_Reference](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/Australias_rail_industry/Terms_of_Reference)



**Australian Government Senate Enquiry: State of Australia's Rail Industry.**

**Rail Industry Safety and Standards Board (RISSB) submission.**

**RISSB standards harmonising Australian rollingstock manufacturing**

**Attachment 2**

## RISSB standards harmonising Australian rollingstock manufacturing

On the 3rd Feb 2016 Paul Daly (CEO RISSB) met with Mark Wild, Lachlan McDonald, Liz Campbell, and Tristen Walker (Department of Economic Development, Jobs Transport and resources) to discuss how RISSB standards might help to harmonise Australian manufacturing of rollingstock and rollingstock components. The following is RISSB's first pass response.

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### Caveats

As mentioned, this paper is a 'first pass' - the items discussed would warrant more rigorous research. A useful next step might be a broader workshop type session with some carefully chosen people in the room.

This paper relates to standardising to harmonising domestic manufacturing, as opposed to driving out cost for the railway.

### Key difficulties for domestic manufacturing

Some of the key difficulties for domestic manufacturers of rollingstock and rollingstock components is that volumes here are very low and the cost of manufacturing is comparatively high. There are things we could potentially do to help with that (discussed below in "possible strategic opportunities" below). There are also obvious problems associated with our railway having "grown-up" from several disparate, disconnected railways. To a large extent Australian rail is still a very disaggregated railway (meaning platforms, bridges, OLE, track etc are all different – subsequently we build trains to fit into the hole they need to go down).

## Stimulating domestic manufacturing – possible tactical opportunities

Of the areas where there might be opportunities in standardisation, the benefits seem to fall into 3 main categories:

1. Drive out cost/inefficiency for domestic manufacturers (as long as we don't fall into the trap described above – those companies probably make a lot of money out of the variation/s).
2. Stimulate new/innovative domestic markets.
3. Encourage domestic manufacturers to build to international standards to enable them to sell their wares in international markets. However, these could be tough, well established markets that could be difficult to enter.

Some ideas (top 6 in no particular order):

Name of Standard	Divergence	National or International divergence	Reason for Anomaly	Cost to Industry
Seating	There are differences between operators, and some operators even have different seating within their own fleets.	Both.	There aren't the contractual/ procurement drivers (but there are economic ones)	High. But standardisation could even happen across busses and ferries etc
HVAC	There <u>are</u> differences between HVAC in cabs and HVAC in carriages (but for good reason). Some HVAC is made overseas and modified for Australia, but some is made here. If it were made to international spec it could be sold overseas.	Both.	Difference climatic conditions around the country, and compared to overseas.	High.
Bogies	Notwithstanding the different gauges / axle tonnages there is still variation around the	National.	Disaggregated railway	Very high

	country. There are already efforts in trying to reduce this.			
Internal passenger information/ communication systems	There is significant variation in digital voice / information displays / Wi-Fi / portable charging etc.	Both.	Disaggregated railway	Medium
Innovative energy storage	There is a lot of research going in to energy storage media (batteries, smart batteries, other power systems) for traction and other purposes. There is also a lot of research going in to the control systems for those energy storage media. At the moment they are largely happening independently.	Both.	New technology – in front of standards	Low at present but could be high in the future
CAN bus	A controller area network (CAN bus) is a vehicle bus standard designed to allow microcontrollers and devices to communicate with each other in applications without a host computer. It is a message-based protocol, designed originally for multiplex electrical wiring within automobiles, but is also used in many other contexts.	Both.	New technology – in front of standards	Low at present but could be high in the future

While any attempt to harmonise will have its challenges, the following 2 would have great benefit but would be extremely difficult to implement:

- AS7507 identifies 34 reference vehicles for definitions of rolling stock outlines (covering static, basic kinematic, swept kinematic, and vertical swept outlines). If we could harmonise these (easy to say) then we could have fewer types of vehicles out there (more cost effective, fewer manufacturing variations). There are obvious impacts on fixed structures, passing trains and OLE (incl pantographs).
- AS7505 reviews 14 Australasian networks and identifies those areas of commonality, and differentiation, for rolling stock compatibility with signalling detection systems. At a national level it would be good to have this number of differences down as well.

Other, less 'exciting' possibilities:

- Doors – doorway heights, skins, mechanisms
- Power supply
- Traction
- Flooring
- Window glass
- Braking systems
- External communications (voice/data) radios – comms based train control, getting data on off train
- Couplers and draw gear
- Train management systems
- Integrated ticketing systems (1 ticket for travel nationally)

### Stimulating domestic manufacturing – possible strategic opportunities

For more “big picture” type solutions I would draw attention to the “on track to 2040” roadmap document produced by the Department of Industry Innovation and Science. See:

<http://www.industry.gov.au/industry/IndustryInitiatives/AustralianIndustryParticipation/SupplierAdvocates/Pages/Library%20Card/OnTrackTo2040-Roadmap.aspx>

The document offers a long term pathway across various strategic and technological areas for rail – including “materials and manufacturing”. Within this area it describes opportunities in:

- Advanced design
- Low cost manufacturing systems
- High performance materials for heavy haul
- Advanced manufacturing
- Advanced materials for lightweighting
- Simulation for materials and manufacturing