

# Performance Based Standards

Australia's PBS fleet

A joint report by the NHVR and ARTSA-i

**2020 Edition**



# FOREWORD

This is the third annual report explaining the uptake of Performance-Based Standards (PBS) vehicles in Australia. PBS is a major purchasing decision for heavy vehicle operators in this country, offering the potential to achieve greater productivity and improved safety through innovative and optimised vehicle design. Australian designed and built equipment is delivering world-leading solutions to meet the challenge of the growing freight task. There are just over 10,000 PBS-approved combinations made up of more than 20,000 individual trucks, trailers and buses operating on Australia's roads. For the last three years, PBS vehicles have achieved a 20% share of the relevant heavy vehicle market.

The benefits of more PBS vehicles on the road are well recognised. According to the National Transport Commission (NTC), PBS vehicles are involved in 46 per cent fewer crashes than conventional vehicles. The improved productivity of PBS combinations is calculated to have reduced the heavy vehicle road transport task by over 2 billion kilometres since they were introduced.

To assist the heavy vehicle market to better understand the significance and benefits of PBS, ARTSA Institute and the National Heavy Vehicle Regulator (NHVR) have prepared these statistics, matching the NHVR's data with the heavy vehicle data that ARTSA-i Data analytics sources from NEVDIS.

The ARTSA Institute, formerly known as the Australian Road Transport Suppliers Association, undertakes collaborative independent research in the domain of heavy vehicle transport. The outcomes of the research are intended to inform the development of future policies of relevance to the heavy vehicle sector.

We thank Australia's heavy vehicle industry and its operators for their support of the PBS scheme and look forward to working together to make it even more successful in the future.

Signed



**Sal Petrocchio**  
CEO  
National Heavy Vehicle Regulator  
May 2019



Signed



**Martin Toomey**  
Chair  
ARTSA Institute



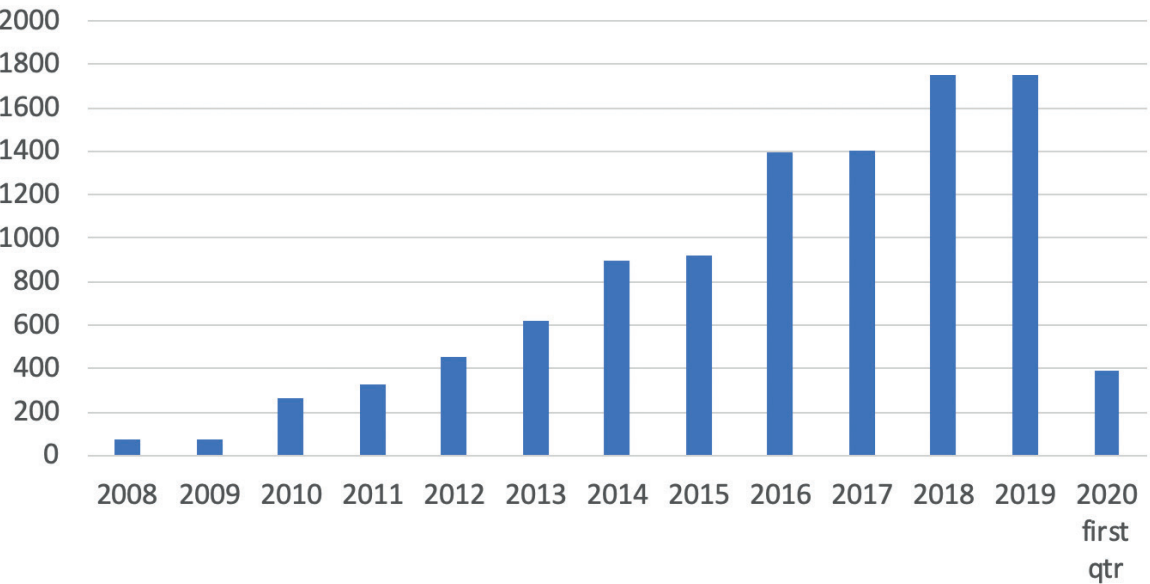
# PBS MARKET

There are over 20,000 approvals for PBS registered trucks, trailers and buses, which make up just over 10,000 PBS-approved combinations. Around 60 trailer manufacturers and 20 truck manufacturers have provided PBS-approved equipment since the inception of PBS in 2008.

Growth in PBS combinations has been consistent since 2008, with 2018 and 2019 achieving around 1750 approvals for new PBS combinations.

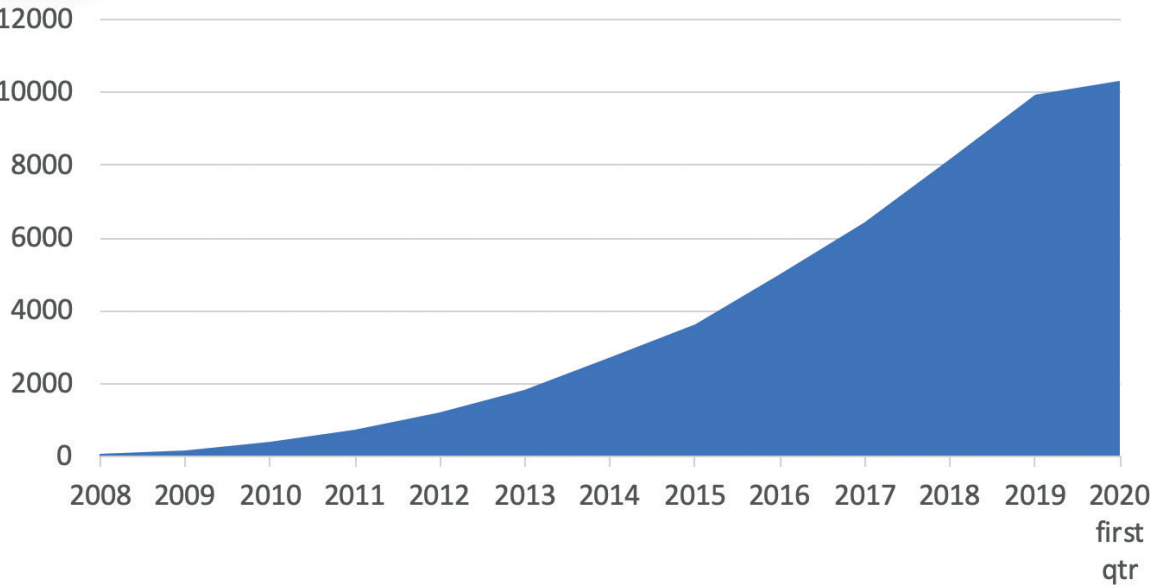
PBS growth contrasts with the overall growth of new registrations for heavy vehicles. In the last five years total new PBS combination approvals have doubled, whereas the heavy vehicle market has only grown by 20% over the same period.

PBS combinations - annual new approvals



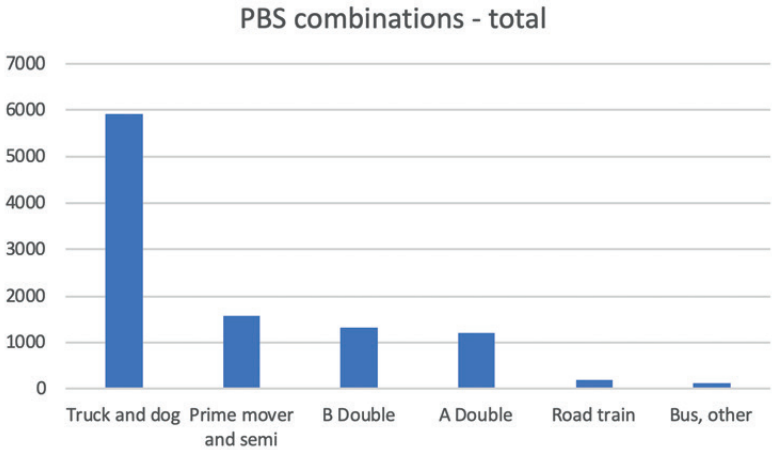
The cumulative number of total approvals since 2008 is shown in the graph below. It demonstrates the strong acceptance of the PBS scheme.

PBS combinations - cumulative approvals

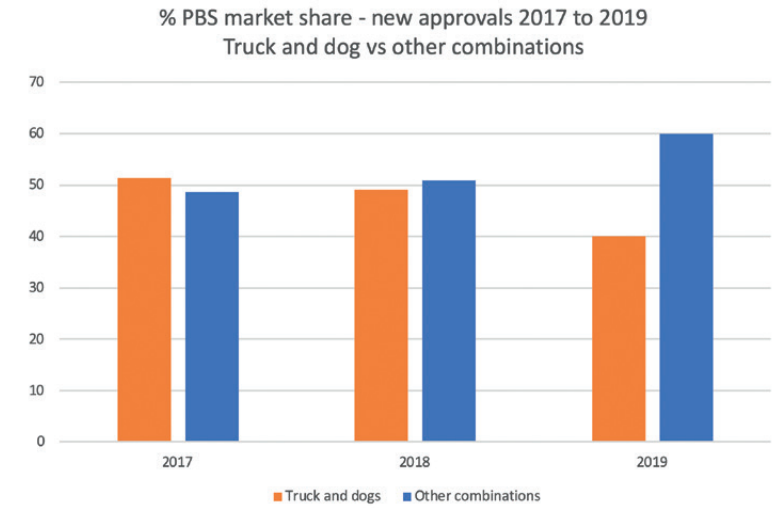


# PBS FLEET MAKE-UP

Truck and dogs continue to be the major combination type operating under PBS. However, in the last three years the proportion of these vehicles compared to the total for prime mover combinations including Semi's, B Doubles, A Doubles and Road Trains is shifting in favour of these latter combinations.

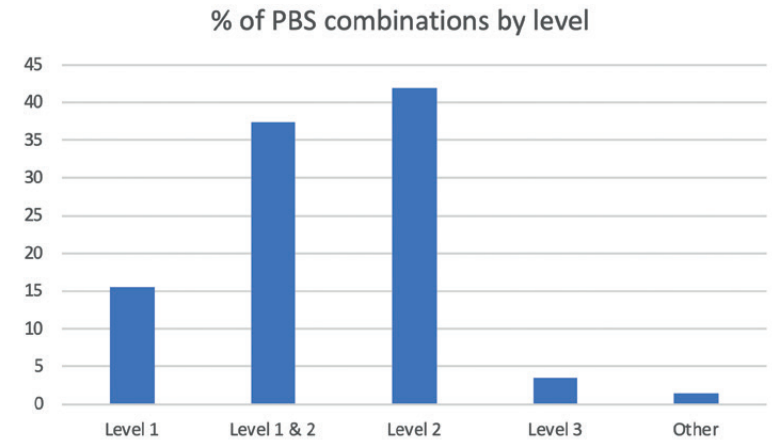


This change can be seen in the graph opposite. In 2017, just over 50% of new combinations were truck and dogs. By 2019, this has changed where 60% of new combinations are towed by prime movers. This is a significant change in a relatively short period of time.



# PBS LEVELS

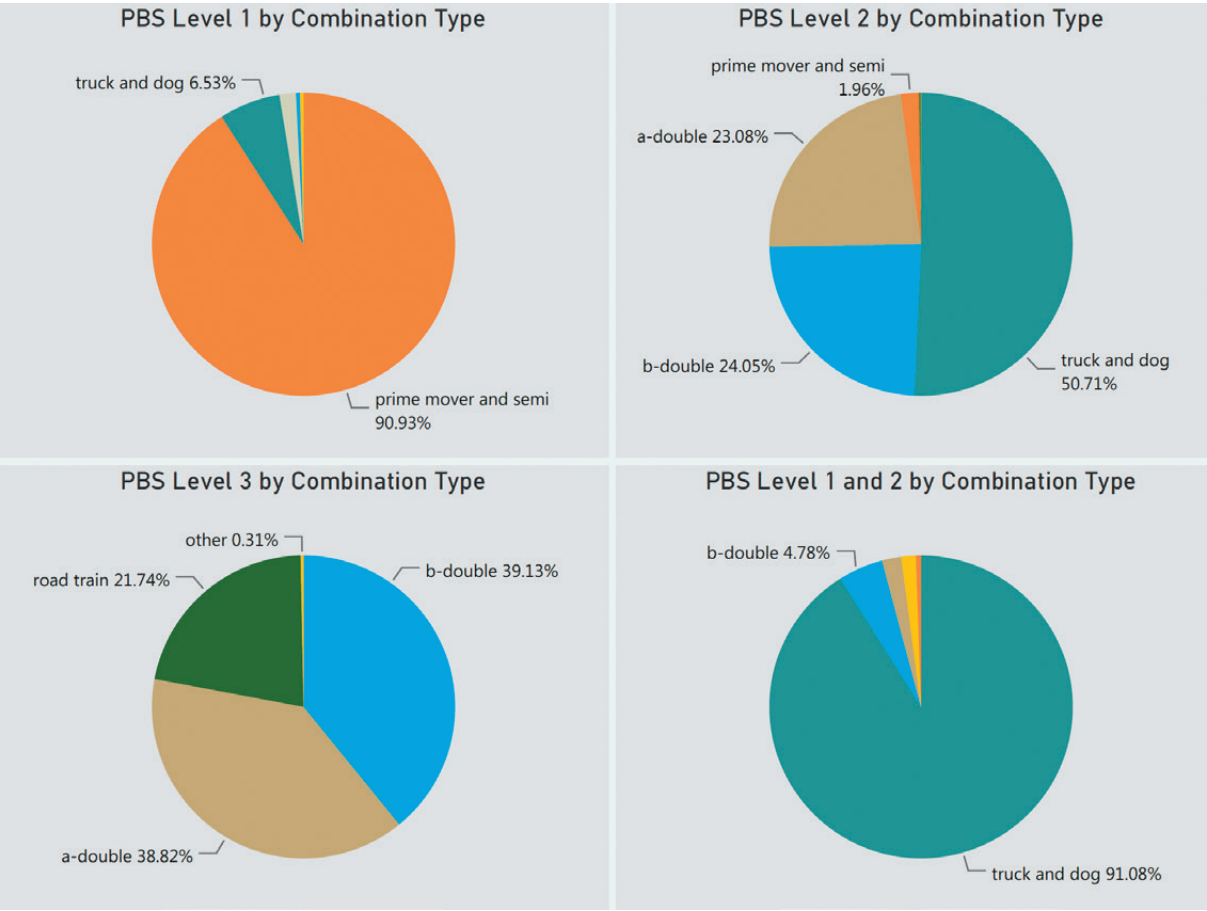
The breakdown of PBS combinations by access level shows a strong preference for Level 2 vehicles at 42% of the entire PBS fleet. Level 1 & 2 vehicles make up a further 37% of the fleet.



# PBS COMBINATIONS BY LEVELS

The charts below show the differences in vehicle type by PBS level with:

- Level 1 vehicles consisting of over 90% prime mover combinations
- Level 2 vehicles being a 50:50 split between truck and dog vs prime mover towed combinations such as A Doubles and B Doubles
- Level 1 & 2 being over 90% truck and dogs
- Level 3 being entirely prime mover combinations such as A Doubles, B Doubles and Road Trains



Heavy vehicles that only hold PBS Level 2 approvals are combinations under 19 metres in length and therefore do not need Level 1 PBS approval as they meet prescriptive requirements. Heavy vehicles with approvals for PBS Levels 1 and 2 are combinations that are longer than 19 metres and, while approved for Level 2, also need level 1 approval as they exceed the prescriptive limit of 19 metres. Over 90% of these vehicles are truck and dog combinations.

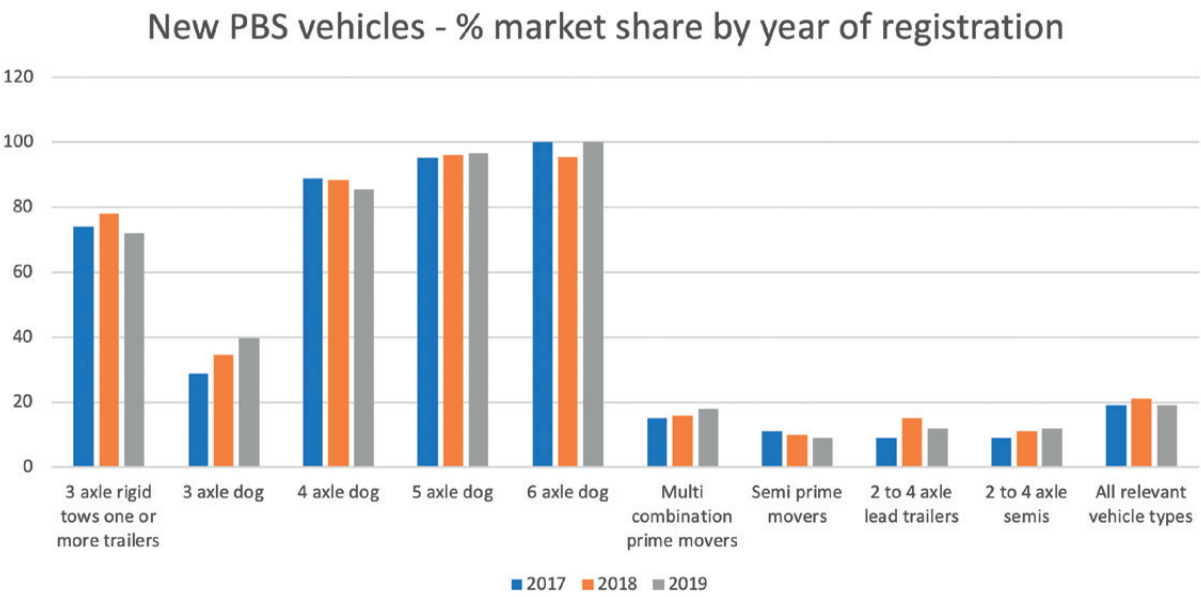
For details on the recognised PBS configurations see <https://www.nhvr.gov.au/files/201810-0923-pbs-vehicle-configurations.pdf>

For an explanation of the guidelines and rules for PBS including PBS Levels see <https://www.nhvr.gov.au/road-access/performance-based-standards/guidelines-and-rules>

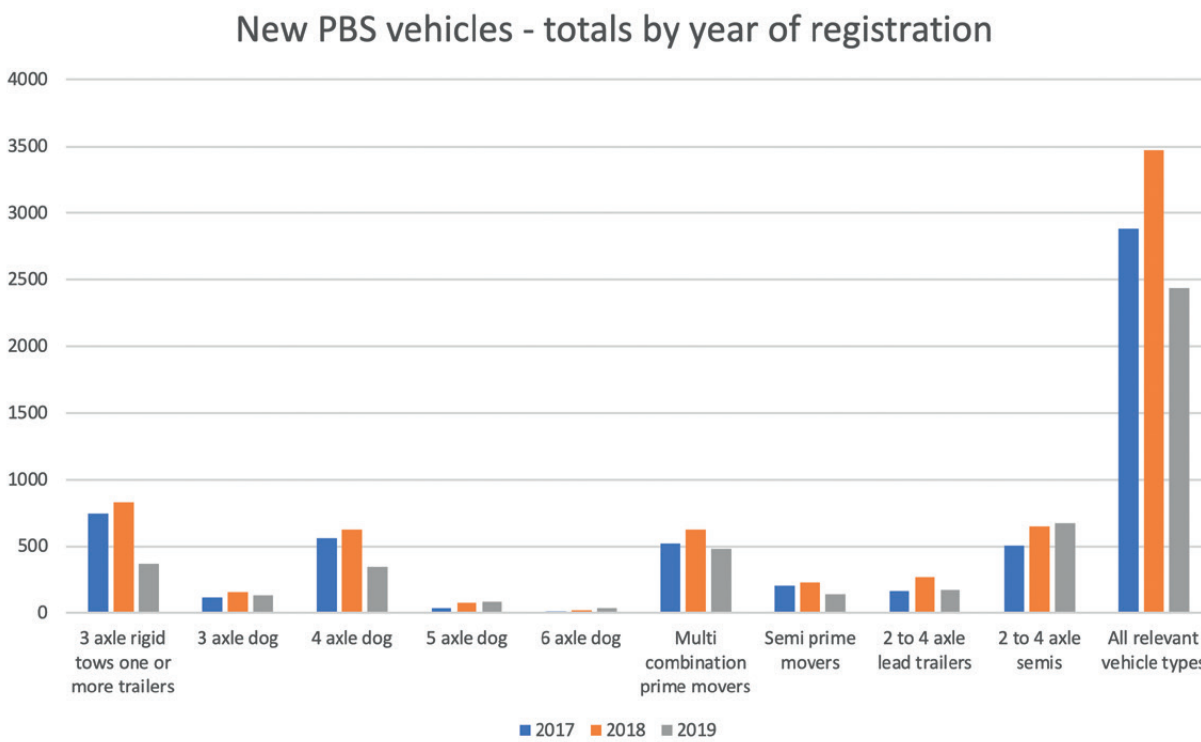


# PBS MARKET SHARE

The following graphs compare the percentage and total vehicle share of the market for newly registered PBS vehicles over the last three years. It shows that in percentage terms the 3 axle rigid and the dog trailer market is dominant, with up to 100% market share in some dog trailer segments. By comparison the prime mover and trailer segments generally hold around 10% market share. Total new PBS registrations have held a 20% market share for relevant heavy vehicle categories<sup>1</sup> over the last three years.



When total new PBS vehicle numbers are compared, they show the growing importance of the prime mover and trailer segment with the largest number of new PBS registrations in 2019 being 2 to 4 axle semi trailers.



<sup>1</sup> "Relevant heavy vehicle categories" refers to market segments where PBS is a significant player such as 3 axle rigids pulling dog trailers and prime mover combinations including A and B Double and Road Trains. There are other heavy vehicle segments where PBS has not found a market, and these have not been considered in this analysis.

# PBS PRODUCTIVITY AND SAFETY BENEFITS

One of the major benefits of the PBS scheme has been to accelerate the renewal of the heavy vehicle fleet. The median age of the heavy vehicle fleet at the end March 2020 is:

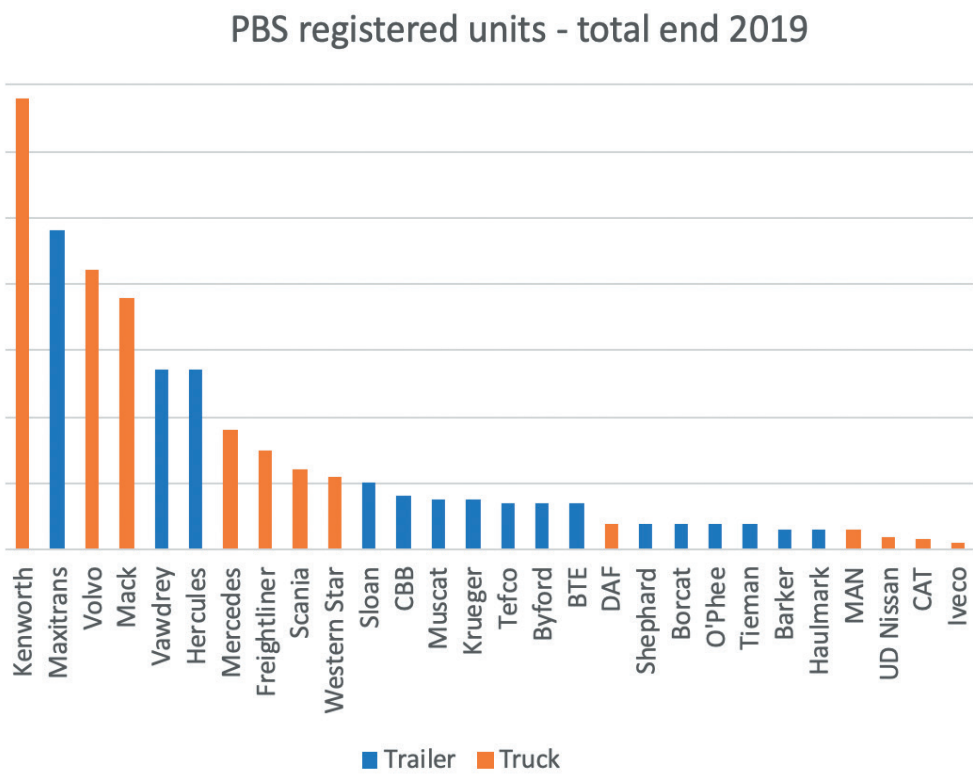
	Median age (years)	
	2018	2019
PBS vehicles	4.0	4.3
Prime movers	10.9	10.7
Trailers	12.2	12.8
Heavy rigids	13.7	13.7

Newer vehicles not only have access to more modern braking and safety technology and cleaner engines, but also have less maintenance issues compared to older vehicles.

The NHVR has calculated that the net impact of the PBS fleet has resulted in a reduction of over two billion heavy vehicle kilometres travelled compared with using a conventional fleet. The NTC attributes a 46% reduced crash rate to PBS vehicles.

# LOCAL MANUFACTURE

The introduction of the PBS scheme has led to a growth in Australian-based accreditation and certification services as well as in-house design by local manufacturers. The result has been a strengthening of local content through purpose-built PBS combinations. While many other manufacturing sectors are losing share to imports, the Australian heavy vehicle sector is a stand out in terms of its high quality, purpose designed and built equipment. A good proportion of this comes from the PBS initiative.



# PBS OVERVIEW

The Performance Based Standards (PBS) scheme is a world-leading program that allows Australia's heavy vehicle industry to match the right vehicles to the right tasks. The scheme gives industry the opportunity to innovate with vehicle design to improve productivity for a given freight task, achieve safer performance and make the least possible impacts on road infrastructure.

PBS vehicles are designed to perform their tasks as productively, safely and sustainably as possible, and to operate on networks that are appropriate for their level of performance. The PBS scheme is all about stretching the boundaries of heavy vehicle design and innovation by testing what's possible and what's not.

ARTSA-i and the NHVR believe that if a vehicle has been assessed against the strict PBS scheme's safety and infrastructure standards and there is evidence that it passes all of them, it should be allowed to operate on the road, subject to individual route assessment if required.

The National Transport Commission (NTC) implemented the current PBS scheme in 2008. Now 12 years later, the scheme is delivering on the opportunity that was recognised back in 2008 to unlock productivity gains and improve safety outcomes. With the growing freight task, PBS will be required to help facilitate this growth in the safest, most productive and efficient manner possible.

## THE FUTURE

The success of the PBS scheme over the past decade is a clear statement of Australia's heavy vehicle industry's desire to innovate and be smarter.

ARTSA Institute and the NHVR want to see further barriers removed that potentially limit this innovation to ensure future generations of PBS vehicles are safer, cleaner and even more productive. To achieve that goal the current scheme framework needs to be continuously improved and hurdles to the use of PBS equipment need to be tackled to ensure Australia continues to lead the world in innovative regulation of heavy vehicles.

## MORE INFORMATION

Go to:

National Transport Commission  
National Heavy Vehicle Regulator  
ARTSA Institute

<https://www.ntc.gov.au>

<https://www.nhvr.gov.au>

<http://www.artsa.com.au>

