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BIC
BUS INDUSTRY CONFEDERATION
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TfNSW Lithium Battery Onboard Energy Storage System Safety Submission

December 2025

Contents

The Bus Industry Confederation

The Bus Industry Confederation (BIC) is the national independent peak body for the Australian Bus and Coach Industry. We represent over 160 bus and coach operators, body, chassis and complete bus manufacturers and suppliers, parts and service providers, professional services, and state bus associations on issues of national importance.

Our membership is becoming increasingly diverse as key energy and infrastructure partners join as we transition the fleet to low and zero emissions. The BIC advocates on behalf of our members to federal, state and territory governments and associated bodies, to ensure the safe and efficient carriage of passengers, along with safe and sustainable operations and supply chains that support the industry.

BusNSW

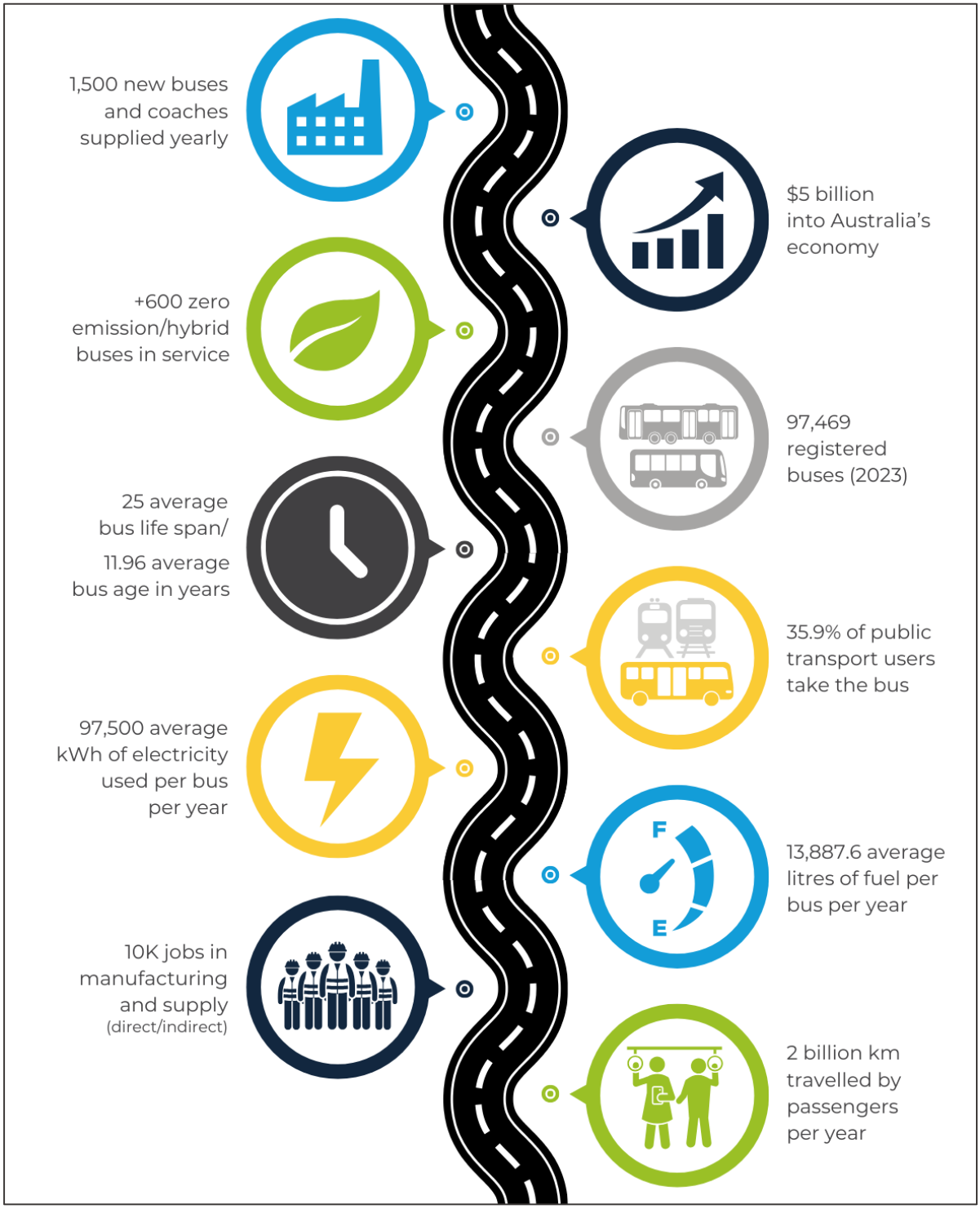
As the peak industry body representing bus and coach operators in New South Wales, BusNSW was established in 1942 and represents a diverse and broad-based membership. This includes contracted operators delivering essential public transport services under Transport for NSW contracts across metropolitan, outer-metropolitan, and rural and regional areas. BusNSW also represents non-contracted operators in the long-distance, tourist and charter sectors, as well as associate members from the manufacturing, supply and service industries that support the bus and coach sector.

BusNSW's mission is to advocate for the efficient and sustainable growth of public transport in NSW and to promote bus and coach travel as a safe, reliable, and accessible means of connecting people and communities. The Association's governance framework is designed to ensure fair and balanced representation across the industry, encompassing small and large businesses, family-owned enterprises, private companies, and multinationals.

The NSW bus and coach industry is a vital component of the state's transport network, with approximately 950 accredited operators providing public passenger services. The industry employs around 26,000 authorised drivers, ensuring communities throughout New South Wales have access to education, employment, health services and leisure activities across the state.

The scale of operations is reflected in the industry's fleet, which includes approximately 8,500 buses registered for regular passenger services, including school bus operations, and a further 2,700 buses and coaches dedicated to long-distance, tourist and charter services. Bus is the largest mode of public transport in NSW, accounting for around 42 per cent of mode share and carrying more than 345 million passengers annually.

Industry Snapshot | 2025



Executive Summary

BIC and BusNSW acknowledge the intent of TfNSW wanting to ensure ESS technology is safe and to standards through TS 00034, and the considerable level of work that has been invested into developing the standard. However, the current proposal does not acknowledge the stringent standards in place for buses at a national regulatory level such as Australian Design Rules (ADRs). It only acknowledges them for road-rail vehicles. Buses are already subject to the same stringent safety requirements as other road-going vehicles (cars, trucks, and buses). Standalone standards not aligned with existing stringent national safety legislation, standards and TfNSW accreditation schemes already in place, will result in regulatory duplication and conflict without any safety benefit.

introducing new competencies or whole-of-life assurance expectations without transition time, guidance, or support pathways would impose significant burdens during the ZEB transition.

Its implication on other road vehicles such as non TfNSW buses and other TfNSW owned road going assets such as cars is unclear.

We cannot support the proposal in its current form without significant further refinement, simplification or to remove buses completely.

This submission provides high-level constructive recommendations, and BIC and BusNSW are ready to work closely and with TfNSW to achieve this.

If buses are not removed completely from the standard, we believe the intent of the TfNSW standard can be achieved far more simply and safely by simplifying and aligning its requirements with existing, proven regulations. This would for buses, avoid duplication and potential regulatory conflict. These include:

- Australian Design Rule ADR 109/01 – Electric Power Train Safety Requirements
- Australian Standard AS 5732:2022 – Electric Vehicle Operations, Maintenance and Repair
- TfNSW - NSW Bus Operator Accreditation Scheme (BOAS)
- National Heavy Vehicle Regulator (NHVR) – Chain of responsibility risk management requirements.

These existing frameworks already align with international best practice and deliver strong safety outcomes that TfNSW are aiming to achieve. Aligning with them will prevent unnecessary costs, complexity, and regulation conflict. The current standard needs significant simplification to be workable in practice.

Response

Bus NSW and the Bus Industry Confederation (BIC) welcome the opportunity to provide input to Transport for New South Wales (TfNSW) consultation on the proposed new Technical Standard (TS) 00034 for Lithium Battery Onboard Energy Storage System Safety.

Industry feedback

BusNSW and BIC conducted a joint survey of our members. The TS 00034 standard received mixed feedback from more than 20 operators and suppliers.

Operators

Operators provided a range of views on the TS 00034 standard. When asked about the practicality of the safety standard, most operators expressed uncertainty or concern, with several indicating the standard was overly prescriptive for their needs. Regarding the clarity and relevance of the scope and application sections, most operators either did not see added value or were hesitant to endorse further regulation especially in possible misalignment with existing standards and regulations.

The proposed standard is vague in that it appears to be aimed only at buses that are part of the TfNSW Asset Base, but the preface says all road vehicles (page 4). This implies that it will also apply to other buses outside the asset base and cars that are part of the TfNSW asset base.

Overall, operators' crucial issues centred on the perceived complexity and prescriptiveness of the standard, with a preference for clearer, more practical guidelines that align closely with their operational realities and the vehicle types they apply to.

Suppliers

Suppliers were generally more critical of the TS 00034 standard, with most believing the additional requirements were overly prescriptive and offered no clear safety benefits, nor did they fully align with existing regulations. Most suppliers described them as somewhat or totally impractical, citing increased costs without corresponding safety or due-diligence benefits.

Documentation requirements were also a point of contention, with most suppliers stating these were not in practical alignment with current industry processes. Providing software and firmware diagrams to aid in diagnostics encroaches sensitive intellectual property issues and the intent of the requirement is already covered by comprehensive diagnostic process and diagnostic manuals.

Regarding thermal propagation protection, most suppliers' disagreement was the misalignment to internationally recognised best practice and standards. As these standards are improved, the ability to provide those improvements is restricted by the prescriptive nature of the standards. It is already covered by ADRs.

There were no implementation timelines in the proposed standard which creates large uncertainty for industry. Stakeholders have indicated they need clear timeframes in order to allow adequate technical and commercial preparation (including contract variations), particularly given the cost and contractual implications associated with adopting such bespoke standards.

Overall operators thought the standard was misaligned and overly perspective and restrictive without any additional safety benefit.

Positives

There was, strong support for the use of the ANCAP Emergency App and the need for comprehensive maintenance manuals, and disposal plans which are already widely adopted by suppliers and operators.

Existing Regulations and Standards

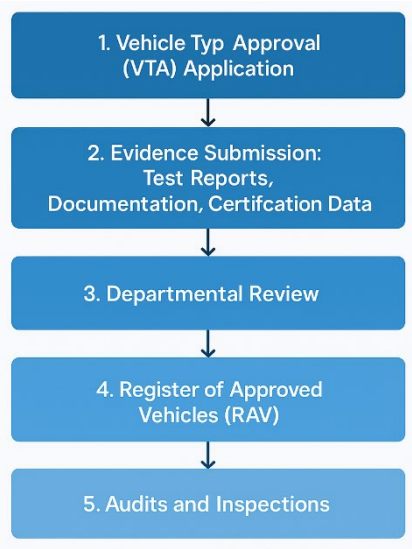
The following is to provide an overview of existing regulations and standards for automotive vehicles, which are key to understanding automotive landscape.

Australian Design Rules

Australian Design Rules (ADRs) provide a uniform safety and compliance framework for all road-going vehicles in Australia, whether a luxury car, heavy truck, or passenger bus. To operate on public roads, vehicles must demonstrate compliance with relevant ADRs, which protect road users, promote innovation, and align with international standards such as UNECE regulations. Compliance is mandatory for manufacturers and importers, ensuring consistency and avoiding bespoke requirements. ADRs set rigorous safety benchmarks for every vehicle, reinforcing public confidence and safeguarding all road users, especially critical for buses carrying large numbers of passengers. ADRs are governed by the Federal Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts (DITRDCSA). Australian Government ADR Overview link.

How a Vehicle is Certified to Comply with ADRs

Called vehicle homologation, manufacturers or importers submit evidence through the Vehicle Type Approval (VTA) process under the Road Vehicle Standards Act (RVSA). This involves providing test reports, engineering documentation, and certification data showing the vehicle meets ADR requirements for safety, emissions, and performance.



DITRDCSA review the application to ensure the vehicle demonstrates compliance to the ADRs, and once approved, the vehicle is listed on the Register of Approved Vehicles (RAV). **Only then can the vehicle type be allowed to operate on the road.** Compliance may be verified through audits and inspections to ensure ongoing adherence.

ADR 109/01

ADR 109/01 which mirrors UN ECE regulation R100.3 (mentioned in the proposed TfNSW standard), covers requirements for Electric Power Train Safety Requirements. The ADR applies equally across all vehicle categories (car, truck, and bus), requiring robust measures to prevent thermal runaway, electrical hazards, and fire risks in energy storage systems (ESS).

Compliance with ADR 109 not only safeguards passengers and operators but also aligns Australia with global best practices, supporting the safe adoption of advanced battery technologies across the entire transport sector.

AS5732

Is the Australian Standard for Electric Vehicle Operations: Maintenance and Repair, published by Standards Australia. It provides requirements and guidance for safely servicing and repairing electric vehicles (EVs) or hybrids. This is regardless of the vehicle type, car, truck, or bus.

AS 5732 ensures technician safety, industry readiness, and consistent standards for workshops handling advanced propulsion technologies. It also helps prevent electrical hazards and supports compliance for both OEM and aftermarket repairers.

In addition to this, NSW Fair-Trading are currently undertaking a licensing in relation to motor trades qualifications and certification for EVs. This will go even further at a state level than the already comprehensive AS5732.

BOAS

The Bus Operator Accreditation Scheme (BOAS) ensures NSW bus operators meet safety and compliance standards before providing passenger services. It applies to buses seating more than 12 adults and requires operators to demonstrate good repute, complete online training, and implement systems for safety management, robust vehicle maintenance, safety management systems, and information management. Accredited operators must submit annual self-assessment reports, undergo independent audits, and ensure safety-critical repairs are carried out by licensed professionals. BOAS provides a consistent framework that guarantees buses are maintained to high standards, risks are managed proactively, and public confidence in safe, reliable bus services is upheld.

NHVR Chain of Responsibility

Chain of Responsibility (CoR) under the Heavy Vehicle National Law (HVNL) ensures safety is managed across all levels of a bus operation. Operators, managers, and executives share legal responsibility to implement systems that prevent unsafe practices and protect workers, drivers, and passengers. The goal is proactive risk management and accountability throughout the organisation.

Recommendations

We wish to support TfNSW in attaining safety, traceability, and due diligence. To achieve a practical outcome that meets these objectives, we recommend further refinement and simplification for buses, given existing safe practices already in place. The regulation can achieve the same safety outcome with traceability and due diligence requirements of TfNSW by adhering to the following industry accepted safety practices.

1. Suppliers refined requirements.
    a. Comply with requirements of the vehicle under existing Australian Design Rules such as ADR 109/01. This aligns with UN ECE R100.3. This includes the areas of safety and thermal propagation mitigation.
    b. For due Diligence and traceability, the same technical certification and testing data submitted to the federal government for ADR 109/01 homologation approval should be the same data that is accepted by TfNSW.
    c. Provide an accessible emergency isolation switch under a tamperproof panel to avoid misuse. This is in alignment with Zero Emission Bus harmonisation group TfNSW are leading.
    d. Follow the requirements of ISO 17840-3 for emergency response information as published in the ANCAP rescue App. No further requirements.
    e. Provide comprehensive fault diagnostics, maintenance manuals *noting refurbishment and 'in-battery' repair are normally carried out by the battery OEM*. Already a requirement of procurement contracts.
    f. Have a disposal, transport plans and State of Health (SoH) as suggested.

2. Operators refined requirements
    a. Uphold the safety and operational requirements of vehicles equipped with onboard ESS over the whole-of-life in accordance with recognised industry standards such as AS5732:2022.
    b. Follow process already existing under the Bus Operator Accreditation Scheme (BOAS) regarding Safety management systems and risk management.
    c. Adhere also to existing requirements under the National Heavy Vehicle Regulator on Chain of Responsibilities.

3. Further collaboration
    Most importantly, arrange for further direct collaboration with BusNSW and BIC industry experts to further refine the document for practical safety outcomes.

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