Institute for Energy Economics and Financial Analysis

Briefing Note

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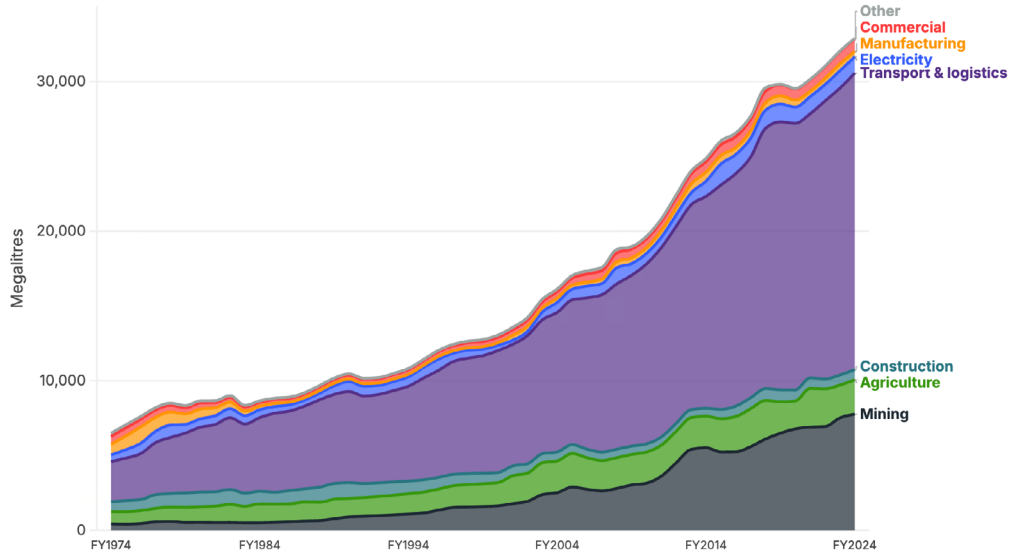
Efficiency first: How Australia's freight industry can lead on cutting diesel risk

- *Enhanced fuel efficiency could partially shield Australia's freight sector, and the broader economy, from future diesel pain.*
- *Short-term, industry-wide behaviour, process and technology improvements could reduce road freight's diesel use by 10–20%.*
- *An accompanying shift from road to rail freight is difficult but worth pursuing.*
- *Government could set and support fuel-saving targets by enhancing industry access to information, training and finance, and removing regulatory barriers.*

The Iran energy crisis has exposed Australia's acute diesel insecurity. Diesel meets a fifth of Australia's energy consumption—more than electricity—and its use has dramatically increased since 2000 (Figure 1). As well as the leading per capita consumer, Australia is the largest importer of diesel, responsible for 10% of global seaborne trade.

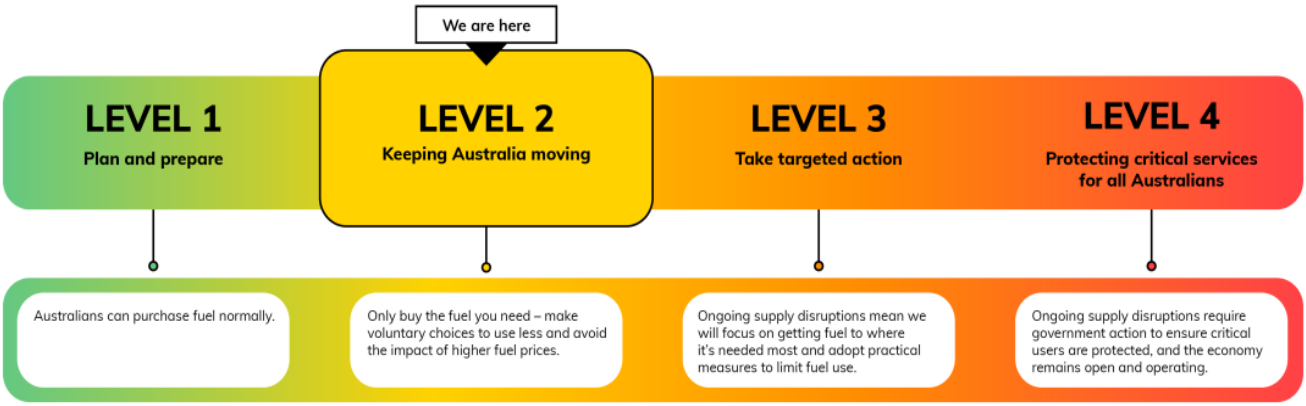
Figure 1: Australia's diesel consumption by sector, megalitres, FY1974-FY2024



Source: Australian Energy Update 2025, Table F.

A US–Iran deal in June 2026 suggested an imminent end to the fuel crisis. But this has proved tenuous, and the risk of disruption remains. With private inventories, strategic reserves and refinery supply chains stretched thin, even a return to normal in the Strait of Hormuz will not quickly restore oil market equilibrium. The CEO of Shell has warned this could take at least a year.

Figure 2: Australia's National Fuel Security Plan



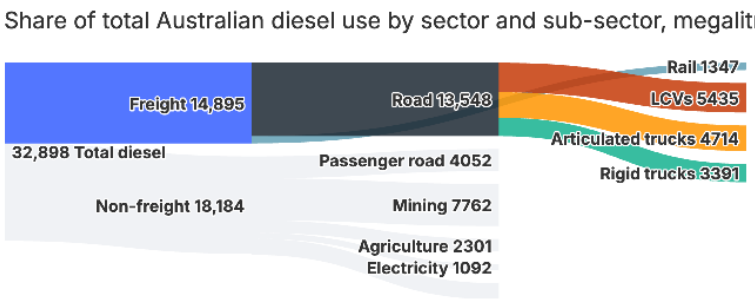
Source: Australian government.

Australia should continue to take the risk of supply shortfalls, or at least sustained, diesel-linked inflation, seriously. Limited ability to revive domestic supply means Australia must pursue structural demand decline. But the key enabler of this—electrification—is a long-term prospect.

Australia's generally inelastic diesel demand has only fallen noticeably on profound economic shocks, including depressed fuel prices. A 5% decline in the second quarter of 2020, linked to COVID-19, mostly reflected constrained social activity, although the national (bulk and non-bulk) freight task did fall slightly between FY2019 and FY2021, from 780 to 760 billion tonne kilometres.

If conditions deteriorate, profound fuel insecurity might only be relieved through reduced social and economic activity, possibly via escalated National Fuel Security Plan actions (Figure 2). Achieving short-term savings without this pain requires enhanced pursuit of the "first fuel": energy efficiency. Diesel use should be cut using largely existing technology and infrastructure stocks, ideally with minimal regulator, industry and public burden.

Figure 3: Freight comprises 45% of Australia's world-leading diesel use

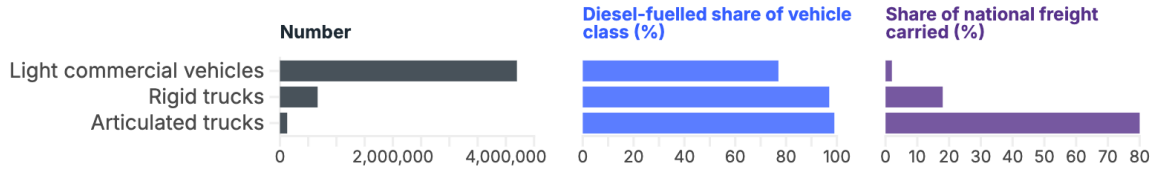


Sources: Australian Energy Update 2025, Table F; ABS Survey of Motor Vehicle Use, Australia (2020).

Freight, particularly road freight, is the priority fuel savings target. Freight consumes more than three-quarters of diesel in Australian road transport, which in turn meets 53% of demand. Including the rail sector, freight consumes 45% of Australian diesel.

Trucks are the most important diesel-using freight subsector, and a key focus of this briefing note. Australia's rigid and articulated trucks (including semi-trailers, B-doubles, and road trains) run on more than 99% diesel, consume 60% of road freight diesel (light commercial vehicles, or LCVs, including smaller trucks, vans and utes, use the remainder) and carry 96% of national road freight. Figure 3 shows freight diesel use in context. Figure 4 shows the composition and characteristics of Australia's road freight vehicle fleet.

Figure 4: Diesel-fuelled articulated trucks dominate Australian road freight



Sources: Australian Bureau of Infrastructure and Transport Research Economics (BITRE) Australian Infrastructure and Transport Statistics Yearbook and Road vehicles Australia January 2025 survey.

Efficiency is an underexplored opportunity

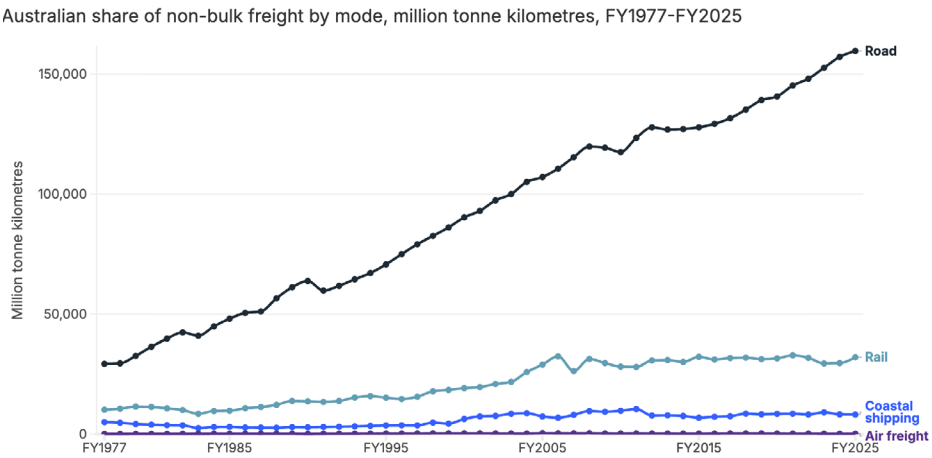
The Australian government has encouraged fuel efficiency in response to the Iran crisis. However, this has mainly occurred through a public awareness campaign ("Every Little Bit Helps"), which has sought fuel saving in sectors other than freight.

The government's more substantial crisis-linked freight policy has lowered industry exposure to high diesel prices, including suspending the heavy vehicle Road User Charge (RUC) and halving diesel excise. These arrangements were due to expire on 31 June 2026, but were partially extended. Several FY2027 federal budget commitments also have fuel-saving potential, while some could either increase or decrease use. These are explored in more detail below.

Reducing energy price pain is an understandable priority. Fuel accounts for 30% or more of road freight operating costs, and trucking operates on thin profit margins of 4–5%. Road transport, which accounts for about 75% of Australia's total non-bulk freight (Figure 4), delivers essential goods and employs close to 200,000 drivers. The total freight and logistics sector generates 8.6% of GDP.

Still, successful energy efficiency, by its very definition, protects and even enhances economic competitiveness. It should thus attract more support.

Figure 5: Road dominates non-bulk freight



Source: Australian Infrastructure and Transport Statistics—Yearbook 2025, 'Freight'.

Fuel efficiency might even reduce industry-specific catastrophic risk. The Iran crisis has already produced many insolvencies, and pending RUC restoration could bring renewed pain.

Historical crises have shown the danger of failing to address underlying energy vulnerabilities. German heavy industry maintained strong Russian gas exposure in the lead-up to Moscow's expanded invasion of Ukraine in 2022, and the ensuing energy crisis. When supply chains collapsed, many German companies suffered under mandated outages, before entering structural decline.

European policymakers have since legislated "energy efficiency first" as an organising policy principle, recognising fuel savings as a frontline defence against energy shocks, and a doorway to broader productivity and resilience.

How road freight operators can significantly reduce diesel use

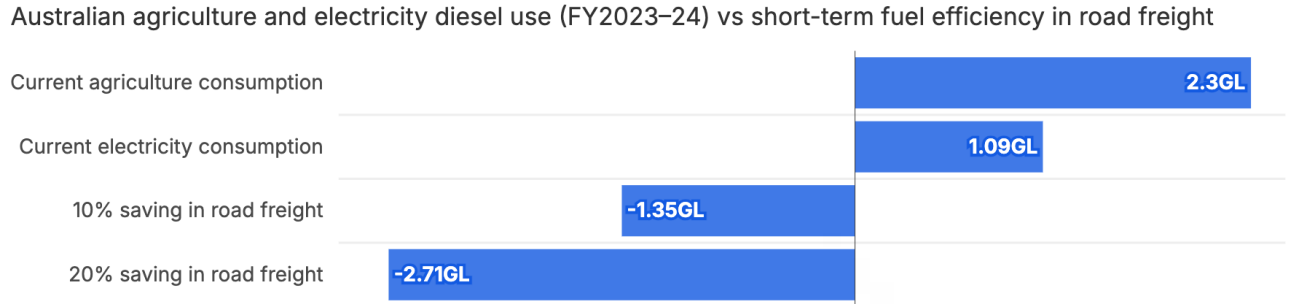
Short-term options for significantly reducing Australian road freight's diesel use include:

- **Driver behaviour change**, including **eco-driving practices** such as steady acceleration, cruising at constant speed, slow deceleration without active braking, moderate braking to stop, and minimising idling. These can deliver fuel savings as high as 20–30%. Reducing average speed from 110 to 90km/h can achieve fuel savings of 10–23% alone.
- **Improved maintenance**. Correct tyre pressure, lubrication, wheel alignment, filter cleaning and minimised risk of malfunction can deliver combined 10% savings. More regular, comprehensive and predictive servicing is key.
- **Vehicle modifications.** Low-rolling resistance tyres can save 7–8% of fuel. Aerodynamic features such as roof spoilers (5% saving), side fairings and side skirts (1% each) also have high impact. Each 10% drop in vehicle weight (e.g., through lighter trailers, wheels and tyres, and reduced fuel loads) can save 5–10% fuel. Removing non-aerodynamic features, including lights, bull bars and horns, can each save 1% in diesel.
- **Payload optimisation.** An estimated 40% of truck space is underutilised, while a quarter of trips run empty. Load consolidation and backhauling can improve outcomes. Fuel savings of 25% are possible with technology assistance, including AI management and online matching platforms that improve cross-industry visibility and co-operation.
- **Improved planning and logistics.** Aggregate fuel savings of 10–20% are possible through better route planning, delivery scheduling and customer integration, including matching jobs to vehicle, type and configuration. "Telematics" systems gather data through GPS-enabled monitoring and telecommunications, and allow benchmarking of improvement through analysis of driver behaviour, vehicle performance and road conditions. Business innovation can also help; building supplier BC Sands offers a higher fee urgent delivery service to aid consolidation, contributing to an 18% cut in fuel use.
- **Prioritising fuel-efficient vehicles**. Euro VI standard trucks use 10% less fuel than Euro V trucks. Larger dimension, high-productivity vehicles (HPVs) might save 20% fuel through load consolidation. Battery electric vehicles (BEV) eliminate diesel use (although fewer than 1,000 BEV trucks operate in Australia). Bringing new, more efficient vehicles into fleets is a long-term option. But taking less efficient equivalents off the road can produce immediate savings if replacements exist.

The upper limit of all possible efficiency gains is difficult to achieve in real-world conditions. Gains are frequently also not "stackable", e.g. driver behaviour change might deliver some fuel savings that will not be subsequently available through aerodynamics.

Still, the wide range of available high-impact solutions suggests a **10–20% industry-wide fuel reduction** is possible in a reasonably short time. Noticeable improvements could begin within six months, but realising their full potential could take a year or more. A consistent **10–20%** saving would translate to **1.3–2.7 gigalitres (GL) of diesel avoided over a year** – close to the range of diesel used for Australian electricity and agriculture. This represents up to AU$6 billion in retail fuel costs.

Figure 6: Short-term efficiency gains in road freight can deliver big diesel savings



Source: Calculated from Australian Energy Update 2025, Table F; ABS Survey of Motor Vehicle Use, Australia (2020).

Experts consulted for this analysis confirmed the potential of fuel-saving solutions was mostly proven, but implementation was lacking despite the many potentially high-impact, affordable and easily delivered options available. Industry experts reported aerodynamics were widely but not universally used, for example. Some key enablers can also advance several solutions:

- **Enhanced technology adoption and use**, led by telematics, can help improve driver and manager decision-making. At 75% for commercial vehicles, Australian telematics adoption is high but not exhausted. Even where installed, full functionality is rarely utilised. Increased industry-government data-sharing could multiply benefits.
- **Enhanced training** can deliver wide-ranging benefits. Improved driver training, and logistics planning and maintenance by management, are ripe for improvement, and were the top industry priorities for fuel (and emissions) savings in a 2023 survey.

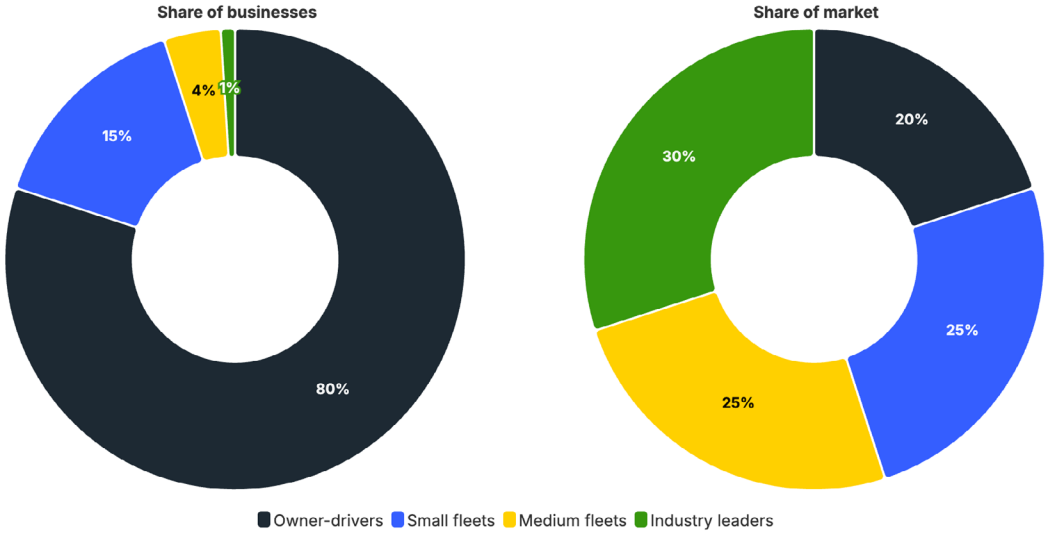
Aerodynamics, telematics and training can all be quickly implemented, and typically cost several hundred to several thousand dollars per unit. This compares with a typical AU$1,000+ diesel bill for a single B-double interstate trip. The payback period could thus be very short, particularly under elevated fuel prices.

A AU$1,000 solution could recoup costs over 17,000km for an articulated truck if saving 5% of fuel—about a fifth of the annual average distance travelled. (This assumes average diesel cost of $2.15/L, average 50L/100 km consumption, and 80,000km annual travel.) Calculations do not account for differences in freight volumes or other impacts on profitability.

Fragmented industry presents challenges, and opportunities

The decentralised nature, and related cultural traits, of the road freight industry are key efficiency barriers. Owner-drivers and small fleets are dominant in number of businesses, but larger firms, including sophisticated third-party logistics (3PL) operators, have an incommensurately large market share (Figure 7). This also does not account for "own account" freight-carrying (mainly rigid) truck and LCV use in non-freight companies.

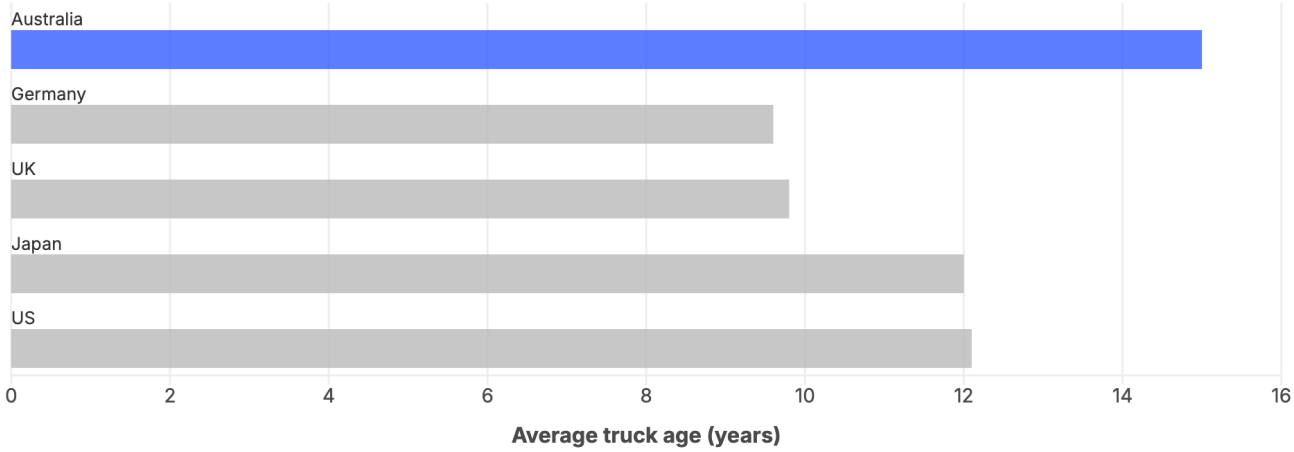
Figure 7: Decentralised trucking industry complicates policy delivery



Sources: Calculated from IBISWorld, Ofload, Mordor Intelligence, Australian Trucking Association and others.

Higher-capacity larger operators can turn over vehicles every 3–8 years, but smaller equivalents can keep trucks in operation for 20 or more years. This contributes to Australia having an older, and thus less fuel-efficient, fleet than comparable countries (Figure 8). Larger operators can also better promote driver training, maintenance and other fuel-saving measures. But, due to past success, they have less headroom for future improvement.

Figure 8: Australia's trucking fleet older, less efficient than global peers



Sources: Calculated from BITRE, European Automobile Manufacturers' Association (ACEA), US Department of Energy and Japan Automobile Manufacturers Association.

Regardless, regulatory shortcomings, led by a lack of heavy vehicle fuel efficiency standards, mean Australian trails international peers on most fuel-saving measures. Eco-driver training requirements are, for example, already embedded in European Union policy directives. And a large spread of efficiency achievement is possible even in high-performing jurisdictions; a 2018 study found a best-in-class European articulated truck could use 9% less fuel than a standard, but still Euro VI, equivalent, for example.

Smaller operators, by contrast, have more headroom but less capacity to achieve fuel savings, particularly as access to support is inevitably more centralised than industry structure.

Efficiency also competes with other priorities, particularly among smaller operators. Alongside profitability, driver shortages (estimated at 28,000) divert most attention. Australia's 47% share

of truck drivers over the age of 55 (compared with 31.6% globally) also creates resistance to new technologies or practices, and non-recoverable new investment.

Government should encourage larger freight companies to maximise remaining fuel-saving capacity. Reinforcement of process and behavioural gains, including retraining and improved driver reward programs for fuel-saving behaviour are examples.

Policymakers might also be assured of high impact if able to adequately reach smaller operators. Tying diesel savings to other industry concerns could be fruitful. Most notably, the fuel crisis has shown how high fuel costs exacerbate profitability and driver retention challenges. Policy support should promote the alternative capacity of fuel savings.

Other jurisdictions have used the fuel crisis to encourage freight fuel efficiency. This ranges from the soft obligations of New Zealand calling for industry fuel-saving plans to Pakistan lowering speed limits for both freight and passenger vehicles.

Quick policy fixes are possible

An optimal short-term policy strategy would prioritise the removal of existing regulatory obstacles to efficiency, including:

Low awareness of opportunities and implementation pathways, sustained by Australia's light-touch compliance environment for freight. Few facilities or systems are available to test the fuel consumption of vehicles, making decisions on upgrades or enhanced utilisation difficult. Industry experts also report significant underuse of technologies and services, including fuel efficiency driver training, which some original equipment manufacturers (OEMs) provide as standard.

These knowledge gaps could be filled relatively easily, including through promoting existing efforts such as the National Road Transport Association's Get Fleet Fit set of resources and the Rate Your Truck efficiency checklist and rating system.

Australia's standardised energy transport audit is also underutilised. In Europe, auditing costs 1-5% of annual energy spending but routinely identifies up to 20% cost savings.

Limited financial support: There are few obvious Australian government programs to help small operators cover the upfront capital costs of fuel-saving investments.

As part of its Iran crisis response, the government has provided access to no-interest loans from banks and the National Reconstruction Fund (NRF), to help industry manage cash-flow pressures. But there is no apparent direct link to fuel efficiency here, and industry members might use support to reinvest in less efficient, diesel-consuming practices.

Any future public financial support to efficiency could be put in the context of a AU$3.8 billion budgetary hole anticipated from the three months of RUC/fuel excise cuts offered as fuel crisis relief.

There are also opportunities for innovative policy design. Government might make assistance contingent on industry supporting concurrent retirement of old, inefficient trucks. It might seek returned subsidies where industry achieves quick payback via fuel savings. Making financial support contingent on verified efficiency could also reinforce the use of benchmarking solutions, such as telematics and energy audits.

Unfit regulations: Existing weight and curfew restrictions can limit deployment of HPV and BEV trucks, while dimension limits can restrict the use of some aerodynamic features. Cross-border inconsistency of regulation is also common.

Administrative burdens, such as certification of HPVs under the Performance Based Standards system, can also create efficiency barriers. Competition laws can preclude beneficial cross-industry and multi-customer co-operation, including backhauling, sharing of freight services, and potential bulk buying of efficiency-boosting equipment.

The fuel crisis has, however, shown how exigent circumstances allow quick reform (with quick reversion possible if necessary). At state level, New South Wales and Western Australia have improved road access for larger dimension trucks. The Australian Competition and Consumer Commission (ACCC) has sought to relax co-operation rules.

An uneven fuel price burden: Federal crisis relief to freight has also included Fair Work Commission orders for freight carriers to pass fuel cost increases through the supply chain. This tacitly recognises that, under normal circumstances, the onus to reduce diesel use overwhelmingly lies with operators over customers.

While customers are charged fuel levies separate from normal rates, industry competitiveness means many operators absorb a significant share of cost increases. Customers can penalise inefficiency, but, having no obligation to do so, typically do not incentivise fuel saving. Addressing this shortcoming would also be beneficial.

Road freight recommendations

Quick cuts to road freight diesel use could be needed if the fuel crisis worsens. Efficiency could also help industry members manage reinstated RUC/fuel price exposure or be a reserve response for any future crises. Government should promote voluntary action but offer guidance and even soft compliance requirements, particularly where tied to incentives. Policymakers could communicate an ability, but not desire, for stronger impositions if needed.

Target and plans

- **Embed an "efficiency first" principle into fuel crisis policymaking.** This could ideally apply at an economy-wide level, replicating European example.
- **Set a 10–20% diesel reduction target for road freight** and communicate that progress is expected within six months.
- **Call for diesel-saving roadmaps** from road freight operators. Requirements could be voluntary initially, but transition to compulsory if conditions deteriorate, with more leeway on timing granted to smaller freight operators.
- **Develop plans for restricted freight speeds** as an escalated response option.

Information and collaboration

- **Improve access to knowledge, education and training.** A central portal could collate best practice fuel-saving measures and case studies, and promote existing resources. The portal could also provide improved visibility and ease of access to opportunities for load consolidation and backhauling. A benchmarking program for freight fuel efficiency could also be established, using anonymised telematics data.

- **Ensure regulation allows beneficial co-operation.** ACCC rules should provide for collective buying of fuel-saving equipment and services, and sharing of technology, infrastructure, knowledge, maintenance and underutilised freight capacity.

Financial and regulatory incentives

- **Increase financial support to easily and affordably implemented fuel-saving technology**, such as telematics and aerodynamics. Support could take various forms, including direct subsidies and tax incentives. The design could seek reduced taxpayer exposure upon quicker than expected payback in fuel savings, i.e. a "contract for difference" model. This could mean the industry returns the equivalent additional value received to the Treasury if diesel prices rise to a higher than agreed level.
- **Tailor future RUC decisions to efficiency-boosting outcomes**. Differentiated charges could be beneficial, including linking fuel credits to more load consolidation.
- **Ensure road access regimes are fit for purpose.** Decisions could expedite delivery of an improved and nationally consistent road access regime for HPVs and, where available, BETs, alongside other efficiency-boosting outcomes.

Longer-term opportunities

- **Link efficiency to other industry goals.** For example, provide industry with longer-term assurance around development of a new driver pipeline to fill shortages, in exchange for short-term commitments, such as enhanced retirement of inefficient older vehicles
- **Encourage customer support for freight fuel efficiency.** Government could encourage freight customers to develop reward programs for fuel-efficient freight, resembling those freight companies offer drivers. Similarly inspired by freight operator practice, logistics intermediaries might be encouraged to develop greater price spreads between urgent and non-urgent deliveries, to encourage fuel-saving (including use of rail).

The potential for a rail modal shift should not be ignored

Reducing diesel use in road freight is vital. However, other options to lessen Australia's road transport dependence should not be ignored. Greater utilisation of the existing rail network for non-bulk freight has notable short-term potential.

Rail is historically reported to use less than a third of the diesel per tonne kilometre as road, though estimates vary. Rail offers significant load consolidation potential. Opportunities to increasingly electrify and otherwise enhance the fuel efficiency of rail itself also exist and should be seized in the longer term. But shifting freight from road to existing rail is a more important short-term priority.

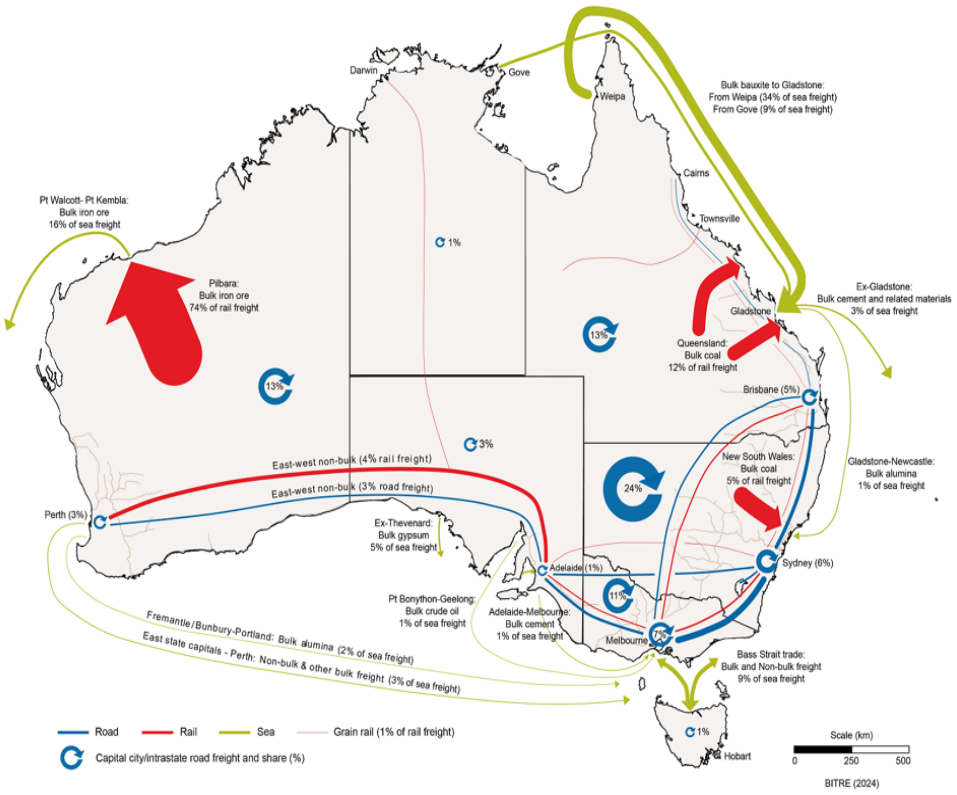
Coastal shipping uses heavy fuel oil over diesel, and is even more fuel-efficient than rail. But shipping has had consistently small (~6%) and recently declining non-bulk freight share for two decades. Non-easily resolved structural factors limit its short-term recovery potential, including a lack of available, particularly Australian-flagged, ships, and labour regulations that escalate costs.

Rail's share of non-bulk freight in the high-volume east coast corridor has cratered since the 1970s—from 40% to just 2% for Melbourne–Sydney. But rail remains competitive for long-distance, high-volume, non-time-critical freight. On the east-west non-bulk route, it carries a higher proportional share of overall modal freight than road (Figure 9).

A rail revival faces formidable obstacles, including a lack of affordability in many locations, competition with east coast passenger services, poor reliability and transparency of services, and a lack of "last mile" flexibility. Should some barriers be at least partially lowered, there is theoretical headroom for short-term recovery using existing infrastructure and rolling stock.

Rail's immediate additional carrying potential is difficult to quantify. But the upper bound is likely a 1-2% shift of non-bulk volumes, which would occur in high-volume freight corridors and be limited to competition with articulated trucks. The potential saving is approximately **43–86ML of diesel a year** if assuming rail's two-thirds diesel saving.

Figure 9: Australia's freight flows



Source: BITRE.

A sizeable modal shift requires sizeable policy support

The Iran crisis should have improved the financial and policy appeal of rail. But crisis responses disproportionately lowered road freight's diesel costs and muted some effect.

Resolving the factors that have sustained road freight growth at the expense of rail, including long-observed flaws in the RUC regime, is again a long-term challenge. But it is still useful that support for reform was well established prior to the Iran crisis, and has only increased in response to it. The Australian Logistics Council expanded its Freight Rail Taskforce in April 2026, for example, aiming to quickly lower operational, commercial and regulatory barriers.

The AU$55 million Transport Resilience and Capacity Kickstart pilot in the FY2027 federal budget promised new rail support, but it appears a longer-term prospect. A budget commitment to "progress improvements to interstate rail operations and connectivity" might have nearer-term potential.

Western Australia's record suggests public finance can help incentivise modal shift, particularly for metropolitan and port connections. The state government reported 23.5% of twenty-foot equivalent unit (TEU) freight containers transiting through Fremantle's Inner Harbour travelled by rail in FY2025 – the highest figure since a subsidy, now AU$50/TEU, was introduced in 2007. The result also exceeded the 20% diversion target.

Evidence from Victoria, by contrast, shows the need for comprehensive policy design. State support for rail transiting the Port of Melbourne has been assessed as insufficiently effective, due to a delayed shuttle service limiting necessary connectivity.

Other potential rail support might include better scheduling of competing passenger services, facilitating customer sharing of capacity, enhancing service visibility and reliability, and promoting use of intermodal terminals such as Sydney's Moorebank Logistics Park.

Rail freight recommendations

Government should introduce rail modal shift policies alongside road freight commitments:

- **Set a target of 1–2% modal shift from road to rail**, with results also expected to be visible within six months.
- **Ensure road-specific policies incentivise rail**, e.g. future RUC decisions related to inter-capital routes, where road competes with rail, could impose costs on fuel consumption-related externalities, such as emissions and congestion levels.
- **Provide targeted financial and regulatory support to rail operators**, primarily to freight customers, to maximise short-term utilisation of rail over road.

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