Australasian Railway Association

Securing Australia's Cleaner Fuels Industry

ARA submission on the consultation paper

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Executive Summary

The Australasian Railway Association (ARA) welcomes the opportunity to respond to the Australian Government's *Securing Australia's Cleaner Fuel Industry Consultation Paper on a Demand Mechanism.* The ARA is the peak body for the rail sector in Australia and New Zealand and represents more than 230 member organisations. Its membership includes passenger and freight operators; track owners and managers; contractors; suppliers; manufacturers; and professional service providers. The ARA brings industry and government together to support a safe, productive, sustainable and nationally connected rail system.

The ARA supports the development of a commercially viable domestic low carbon liquid fuel (LCLF) industry and the proposed use of a durable demand signal, provided the mechanism is paced against verified supply, is technology neutral and does not inadvertently shift freight from rail to higher emissions road transport.

Rail is already the lowest emissions form of land-based freight transport at scale. Freight rail produces 16 times less carbon pollution than road freight per tonne-kilometre, while rail carries more than half of Australia's national freight task. Greater use of rail can reduce transport emissions immediately using existing assets. Cleaner fuels policy should therefore complement, rather than erode, the economic case for mode shift to rail.

LCLF, particularly renewable diesel, can also materially reduce emissions from the existing diesel locomotive fleet while battery electric, hydrogen and other low and zero-emission technologies mature. Locomotives commonly operate for 25 to 30 years. The ARA's 2024 research report *The Critical Path to Decarbonise Australia's Rail Rollingstock* revealed that around half of Australia's diesel-powered rollingstock is due for replacement within eight to 13 years. However, some diesel-powered assets are likely to remain in service beyond 2050, especially across long distance freight, heavy haul and regional operations. LCLF is therefore both an immediate abatement option and a necessary transition fuel, not a substitute for investment in zero emissions technologies where those become feasible.

The ARA's key recommendations

- Adopt the proposed phased framework, beginning with volumetric requirements and moving to lifecycle carbon intensity targets, but make commencement and transition conditional on formal readiness assessments of verified supply, affordability, technical compatibility and distribution capability.
- Start initial targets conservatively, near the lower end of the proposed range, and increase them through transparent milestones tied to actual domestic production and import availability.
- Include diesel from commencement, while recognising the limited short-term alternatives for freight rail and other essential diesel users. Maintain a separate aviation requirement so sustainable aviation fuel costs and demand do not distort the renewable diesel market.
- Place obligations principally on refiners and entities that first supply fuel into Australia. Any large user opt-in must be genuinely voluntary, deliver a clear benefit and avoid duplicate reporting or liability.
- Make renewable diesel and other technically suitable, verified LCLFs eligible on a technology neutral basis. Distinguish renewable diesel from biodiesel in modelling, data

and implementation because their locomotive compatibility and blending characteristics differ.

- Provide multiple compliance pathways, including physical fuel supply, tradeable credits and a carefully calibrated buy-out mechanism with safeguards for regional shortages, technical incompatibility and exceptional price impacts.
- Permit limited credit banking in Phase 1 to reward early adoption and manage supply volatility, then broaden banking in Phase 2 subject to expiry periods, quantitative limits, a public registry and independent oversight.
- Use robust lifecycle carbon accounting, equivalent requirements for domestic and imported fuels, strong chain of custody controls and recognition of credible international schemes. A Phase 1 threshold around 50 per cent below the fossil fuel baseline is a reasonable starting point, subject to supply analysis.
- Align the mechanism with the Safeguard Mechanism, ACCU Scheme and National Greenhouse and Energy Reporting Framework so genuine LCLF abatement is recognised and cumulative costs or double counting are avoided.
- Undertake formal reviews at least every three years, including a readiness review before the proposed 2035 transition, with out of cycle triggers for supply disruption, excessive prices, project failure, major technological change or unintended modal impacts.
- Complement the demand mechanism with production support, rail fuel trials, strategic storage and refuelling infrastructure, long term offtake arrangements, national demand modelling and a credible book-and-claim framework where physical access is constrained by geography.

Rail's role in transport decarbonisation

The Australian transport sector is a large and growing source of national emissions. The ARA supports applying the Avoid–Shift–Improve hierarchy: avoid unnecessary emissions-intensive movement; shift people and freight to lower-emissions modes; and improve the energy and emissions performance of vehicles, fuels, infrastructure and operations. A cleaner fuels mechanism addresses the 'improve element', but it should sit alongside policy and investment that shifts freight from road to rail.

Traction energy accounts for around 90 per cent of rail's Scope 1 and 2 operational emissions. Metropolitan passenger networks are generally electrified, but freight, heavy haul and regional passenger services remain substantially dependent on diesel. The ARA's rollingstock critical path identified a portfolio of pathways: operational efficiency, renewable electricity, LCLF, bi-mode solutions, batteries, hydrogen and selective electrification. The right solution varies by duty cycle, route, network, asset age, energy access and supporting infrastructure.

Renewable diesel has particular near- to medium-term value because it may operate as a drop-in fuel in compatible locomotives and existing refuelling systems. Adoption nevertheless depends on original equipment manufacturer (OEM) approval, fuel specifications, storage and handling, demonstrated performance, delivered price and reliable access across a geographically dispersed network. Policy assumptions must not treat all biofuels as technically interchangeable or assume uniform national access.

Responses to relevant consultation matters

3.3.1 Targets

The ARA supports the conceptual sequence of minimum volumetric requirements during market formation followed by progressively declining lifecycle carbon-intensity requirements. A volume-based first phase can provide a bankable demand signal for producers. A carbon-intensity framework can later reward deeper abatement and greater flexibility once production, certification and credit markets are sufficiently mature.

The proposed 2029 commencement should proceed only where adequate quantities of affordable, specification-compliant LCLF are demonstrably available. Initial requirements should be set near the lower end of the consultation range and rise through published, evidence-based milestones. Targets should be informed by verified project commissioning, sustainable feedstock availability, import exposure, distribution capacity, regional access, technical compatibility and delivered cost to users.

Long-term direction beyond 2035 is important for investment, procurement and fleet planning. It should be expressed through indicative carbon-intensity trajectories and longer-term objectives, with transparent adjustment mechanisms where supply, price or technology materially diverge from forecasts. A formal readiness review should occur before the mechanism moves to carbon-intensity compliance in 2035.

The ARA supports a separate jet fuel requirement. Aviation and land-based diesel have different production pathways, price structures, policy support and technology alternatives. Separate requirements would reduce the risk that demand for higher-cost sustainable aviation fuel distorts renewable diesel supply or compliance costs for rail and other land-freight users.

3.3.2 Obligation fuels

Diesel, petrol and jet fuel may be covered from commencement, provided the mechanism accounts for their different markets and decarbonisation pathways. Diesel coverage is directly relevant to rail. Its design must recognise diesel's critical role in freight, mining, agriculture, regional services and emergency response, and the limited commercially mature alternatives available for long-distance and heavy rail operations in the near term.

Eligible substitutes should be assessed on verified lifecycle emissions, sustainability, technical standards and fitness for purpose. Government analysis should distinguish renewable diesel — such as hydrotreated vegetable oil — from conventional biodiesel because blending limits, cold weather performance, storage stability, maintenance implications and locomotive approvals may differ.

Future expansion should depend on evidence of fuel availability, lifecycle abatement, equipment compatibility, infrastructure readiness, fuel-security value and sectoral cost impacts. Maritime fuels may warrant consideration at a future review, following dedicated analysis and consultation.

3.3.3 Obligated entities

Obligations should principally rest with refiners, importers and other entities first supplying covered fuel into the Australian market. This point-of-supply approach would minimise the number of obligated entities, build on existing reporting arrangements and spread compliance across the fuel market without imposing complex regulatory functions on rail operators, infrastructure owners, project proponents and contractors.

A large user opt-in should be genuinely voluntary and limited to organisations with the capability and commercial reason to manage obligations. It should allow an operator, for example, to contract directly for renewable diesel or manage credits where this delivers value. The rules must prevent double counting, preserve supplier accountability and ensure non-participating users acquire no additional reporting or compliance liability.

3.3.4 Compliance pathways

The ARA supports multiple compliance pathways comprising physical LCLF supply, credits and a buy-out mechanism. Flexibility is essential during early market development, when fuel may be unavailable at certain rail locations, incompatible with some equipment or disproportionately expensive.

A buy-out price should operate as a safety valve, not the routine compliance pathway. It should be calibrated and reviewed against observed LCLF price premiums, supply availability and the consequences for critical users. Regional shortage and technical-compatibility provisions should be explicit. Obligated entities and voluntary participants will also require clear calculation methods, stable data requirements and adequate lead time to adapt procurement, reporting and assurance systems.

3.3.5 Credit eligible activities

Renewable diesel, sustainable aviation fuel, biodiesel, ethanol, e-fuels and future LCLF pathways should be eligible where they achieve verified lifecycle emissions reductions and satisfy technical and sustainability requirements. Eligibility should be technology neutral and updated regularly so the mechanism can respond to innovation without repeatedly requiring primary legislative change.

A future review should consider crediting non-fuel activities that directly displace mineral diesel, including electrification, batteries, hydrogen and bi-mode deployment. This would align the mechanism with the broader objective of reducing liquid fuel dependence and could support rail investment where zero-emissions options become feasible. Any expansion must preserve the mechanism’s fuel security purpose and prevent double counting with the Safeguard Mechanism, ACCU Scheme or other programmes.

3.3.6 Credit Market

A transparent, regulated credit market would improve flexibility, help contain costs and support efficient abatement. The ARA supports limited banking in Phase 1 to reward early adoption and manage genuine fluctuations in supply. Broader banking may be introduced in Phase 2, subject to expiry periods and quantitative limits so accumulated credits do not suppress future physical demand or weaken production investment.

The market should include a public registry, timely price and volume information, independent oversight, clear rules for creation, transfer, surrender and retirement, and controls against manipulation and double counting. LCLF credits should remain separate from ACCUs unless and until equivalence of the represented emissions reductions and accounting treatment is established.

3.3.7 Carbon intensity and certification requirements

The ARA strongly supports lifecycle assessment as the basis for carbon intensity accounting. A consistent national methodology should align with credible international approaches and existing Australian reporting frameworks wherever practical. This will support investment, trade and integrity while limiting duplicate reporting for fuel suppliers and users.

A Phase 1 minimum threshold must deliver meaningful abatement without unnecessarily excluding supply during market formation. A reduction around 50 per cent below the relevant fossil-fuel baseline is a reasonable starting point within the Government's proposed 40–70 per cent range, subject to testing against expected fuel availability and cost.

Certification should address feedstock provenance, direct and indirect land use impacts, biodiversity, water, food competition, labour standards, product quality and chain of custody. Domestic and imported fuels should face equivalent requirements. Credible international certification schemes should be recognised where they provide outcomes equivalent to Australian requirements, with proportionate assurance and audit arrangements.

3.3.8 Policy reviews

Formal reviews should occur at least every three years, with a specific readiness review before the proposed transition to carbon intensity targets in 2035. Reviews should assess:

- verified domestic and imported supply, sustainable feedstock availability and project delivery
- delivered fuel prices, regional access and distribution infrastructure
- technical compatibility, operational performance and technology readiness
- lifecycle emissions performance and certification integrity
- credit-market liquidity, prices and behaviour
- compliance and administrative costs, including interactions with other policies
- impacts on freight costs, rail–road competitiveness, mode share and regional supply chains
- progress in electrification, battery, hydrogen and other zero-emissions pathways.

Out-of-cycle reviews should be triggered by material supply disruption, excessive or sustained price increases, failure or delay of major production projects, significant technological change, market-integrity concerns or evidence of unintended outcomes such as freight shifting from rail to road. Reviews should preserve the long-term policy direction while allowing transparent adjustment of targets and operational settings.

Impacts, risks and evidence relevant to rail

Affordability and competitive neutrality

LCLF price and supply remain the principal barriers to rail uptake. Previous member evidence indicated renewable diesel in Australia could cost two to four times conventional diesel, and sometimes more. The final impact analysis should update and test this evidence rather than assume rapid convergence. It should separately model renewable diesel and biodiesel prices, volumes, regional availability, infrastructure needs and likely premiums.

Rail freight competes directly with road in many markets. Higher rail fuel costs can flow through to customers and essential supply chains. If costs rise disproportionately for rail, the mechanism could discourage mode shift and increase total transport emissions. The impact analysis should therefore test effects on freight rates, modal competitiveness and freight volumes, not only direct fuel-sector impacts. Competitive neutrality does not require identical rules; it requires policy settings that recognise different emissions intensity, infrastructure charging and ability to pass through or avoid costs.

Supply, geography and infrastructure

Rail refuelling is geographically dispersed and often occurs in regional or remote locations. National headline supply does not demonstrate that suitable fuel will be available at the time, volume and location required. The Government should map production, terminals, storage, blending, transport and rail refuelling locations, and assess resilience under disruption. Targets should be based on verified deliverable supply rather than announced project capacity.

The mechanism may require new or modified storage, handling and refuelling infrastructure at depots, terminals and projects. These costs and lead times should be included in the impact analysis, including implications for government-funded infrastructure delivery and contractor pricing. Compatibility trials and original equipment manufacturer approvals should be supported before broad operational assumptions are made.

Interaction with the Safeguard Mechanism and other policies

The Cleaner Fuels framework and Safeguard Mechanism should be complementary. Verified reductions from LCLF use must be appropriately recognised in facility level accounting, while the combined framework should avoid imposing higher fuel costs alongside Safeguard compliance costs where practical abatement options remain constrained. Rules must also prevent the same abatement being credited under the LCLF mechanism, ACCU Scheme and voluntary claims.

The Government should publish a policy interaction statement before commencement explaining accounting treatment, liability, credit ownership and claims across the LCLF mechanism, NGER, Safeguard Mechanism, ACCU Scheme, Guarantee of Origin arrangements and relevant state schemes.

Complimentary measures

A demand mechanism alone will not ensure that affordable, technically suitable fuel reaches rail users. The ARA recommends complementary action to:

- support domestic renewable diesel production alongside sustainable aviation fuel, avoiding an imbalance in policy support between transport modes
- use grants, production incentives, contracts for difference and long-term offtake support to close the early cost gap and bring projects to final investment decision
- co-fund rail trials covering emissions performance, fuel consumption, reliability, maintenance, storage, materials compatibility and operation under Australian climatic and duty-cycle conditions
- develop strategic storage, distribution and refuelling capability at nationally significant freight locations, including regional sites
- complete a national rollingstock and energy-demand inventory to forecast rail demand by fuel, technology, geography and timeframe
- establish a credible book and claim framework for cases where physical LCLF access is constrained by geography, with strong chain of custody and anti-double counting rules
- continue investment in electrification, battery, hydrogen, bi-mode and efficiency technologies so LCLF supports rather than delays the transition to near-zero-emissions operations
- embed mode shift to rail in national freight, infrastructure and decarbonisation policy, consistent with the Avoid–Shift–Improve framework

The ARA does not express a view on the detailed design of an aviation levy. If one is pursued, it should remain clearly separate and should not raise costs for non-aviation fuel users.

Evaluation

Evaluation should go beyond aggregate LCLF volumes. Rail-relevant indicators should include:

- domestic production commissioned and delivered, distinguished from announced capacity
- renewable diesel and biodiesel volumes, prices and geographic availability
- fuel delivered to freight rail and regional passenger rail locations
- verified lifecycle emissions reductions and certification compliance
- fuel-security and supply-resilience outcomes
- operator trial completion, technical approvals and fleet compatibility
- storage and refuelling infrastructure readiness
- compliance costs and interaction with Safeguard obligations
- rail freight costs, mode share and any shift between rail and road
- investment in and deployment of zero-emissions rail technologies

Data should be collected in a proportionate way, protect commercially sensitive information and build on existing reporting wherever possible. Government should publish an annual

market report and a regular transport sector scorecard to support transparency and timely course correction.

Conclusion

Australia has an opportunity to establish a cleaner fuels industry that strengthens fuel security, creates domestic economic opportunity and reduces emissions in hard to abate transport. Rail can contribute twice: immediately, by carrying more freight at far lower emissions intensity than road; and progressively, by reducing the emissions of its remaining diesel operations through LCLF and new traction technologies.

The proposed phased framework is a credible starting point if it is grounded in actual supply, protects affordability and freight competitiveness, recognises geographic and technical constraints, and is integrated with wider climate and transport policy. The ARA looks forward to working with the Australian Government and industry on the detailed design, rail demand modelling, trials and implementation arrangements. Please contact Roz Chivers, General Manager Rail Operations on 0478 683 843 or rchivers@ara.net.au if you wish to discuss any aspect of our feedback.