Net Zero Fund: Proposed Design

A Submission to the Australian Department of Industry, Science and Resources

Wednesday,15th October 2025

Table of Contents

1.Introduction

The Australian Logistics Council (ALC) is the peak industry body representing Australia's major end-to-end supply chain and logistics companies, spanning road, rail, sea, and air freight. Our members operate across all sectors of the economy — including manufacturing, retail, agriculture, and mining — and across Australia's vast geography. The efficient and reliable movement of freight is critical to economic growth, regional development, and community access to goods and services.

The freight and logistics sector is simultaneously a substantial source of emissions and a strategic enabler of broader decarbonisation objectives. Transport-related emissions constitute a significant share of Australia's total greenhouse gas emissions. Reducing emissions in freight directly lowers the embedded carbon in goods, supporting downstream industries' net-zero commitments and reinforcing Australia's broader climate objectives. Decarbonisation of freight requires a systemic, end-to-end approach. Beyond vehicles and infrastructure, success depends on integrated supply chains for low-emissions fuels, rollingstock, and precinct-level energy systems. Clean fuels and electricity must be produced, transported, stored, and delivered in a manner consistent with international standards. Without robust end-to-

end systems, investment in low-emissions technologies risks underutilisation, inefficiency, and poor returns for both private and public capital.

ALC members face multiple barriers to adopting low-emissions technologies, including high upfront costs, limited infrastructure availability, long project lead times, and commercial uncertainty for first-of-a-kind initiatives, such as hydrogen trucks, depot electrification, short-haul battery electric locomotives (BELs), or rail electrification. The Net Zero Fund (The Fund) proposed in this submission is designed to address these barriers and position transport, logistics, and rail decarbonisation at the centre of Australia's national strategy.

2. Objectives for Fund Support

The Fund's investment objective should be to unlock projects that are commercially or operationally blocked by structural market failures. These failures include high capital cost, long lead times, technology and regulatory risk, fragmented approvals, grid constraints and misaligned incentives across the supply chain. The Fund must be catalytic and time-limited, recycling returns where feasible and targeting concessional support where a clear public benefit and market additionality exist.

While the National Reconstruction Fund currently lists aircraft under its transport priorities, airports are not explicitly included. The Net Zero Fund should address this gap. Airports are critical enablers of decarbonisation across aviation and freight supply chains — providing the infrastructure for renewable fuel storage and distribution, ground-side electrification, and intermodal efficiency. Recognising airports as eligible assets will ensure the Fund supports an end-to-end system transition rather than isolated technology upgrades. Excluding airports risks leaving a material gap in Australia's capacity to decarbonise both aviation and connected freight networks.

3. Types of Projects and Capital Expenditure

The Fund should invest across all freight modes and supply chain nodes to deliver measurable decarbonisation and productivity gains. Priority areas include:

3.1 Freight and Road:

The Fund should support projects across modes and at multiple points in supply chains, with targeted investment to accelerate heavy vehicle decarbonisation and energy resilience. Heavy vehicle electrification, including battery-electric and hydrogen trucks, represents one of the most immediate opportunities to lower freight emissions. Funding should prioritise depot and fleet charging infrastructure that enables the transition of both trucks and ancillary equipment, such as forklifts and light commercial vehicles. This will ensure charging is strategically located where operational demand exists and where grid connection and network upgrades are feasible.

Investment should also extend to on-site renewable generation and battery energy storage systems (BESS) at terminals, warehouses, and logistics precincts. These facilities can support low-carbon operations, provide localised energy resilience, and reduce system-peak demand on the grid. The Fund should enable commercial and industrial (C&I) developers to utilise underused rooftop capacity and facilitate precinct-scale energy sharing arrangements that integrate solar, storage, and smart load management technologies.

Support for low-emission fuel production, storage, blending and distribution infrastructure will remain essential during the transition. This includes hydrogen refuelling, renewable diesel and renewable diesel blends, and sustainable aviation fuel (SAF) where relevant to freight operators. Such investment will help establish geographically balanced networks and provide optionality for operators adopting different fuel pathways depending on their fleet age, task, and operational environment.

3.2 Freight Rail and Short-Haul Operations:

Freight rail and short-haul operations face unique decarbonisation challenges due to the capital-intensive nature of infrastructure, long asset lives of rollingstock, and exposure to Safeguard Mechanism obligations. Projects in this sector deliver network-level benefits across multiple operators and users, supporting the use of blended public–private finance to share cost and risk. A coordinated investment approach should therefore prioritise measures that enhance system efficiency, reduce operational emissions, and build domestic capability in low emission rollingstock and materials.

In the near term, the Net Zero Fund should focus on ensuring the availability of low-carbon liquid fuels at commercially viable costs for freight operations. Drop-in fuels — such as renewable diesel and certified biofuels — can achieve meaningful emissions reductions in existing diesel rollingstock without requiring asset replacement or major infrastructure modification. Concessional investment to accelerate domestic production and distribution of these fuels will support affordability and supply security while longer-term electrification and hydrogen pathways mature. Beyond

2030, funding should target the deployment of battery-electric and hydrogen fuel cell locomotives, including associated charging and refuelling infrastructure, as well as pilots to validate long-distance operational feasibility. Electrification of rail corridors should be advanced where technically and economically viable, particularly when paired with renewable-powered traction systems. For shorter routes and intermodal operations, battery-electric locomotives (BELs) and shunters offer immediate decarbonisation opportunities, with international evidence[1] demonstrating reductions in emissions, fuel use, local air pollution, and congestion from parallel road freight movements. Support should include accreditation, cost-effective leasing, and deployment of these technologies.

Complementary investments in energy-efficient signalling, digital train control systems such as the European Train Control System (ETCS) and upgraded maintenance facilities can improve operational efficiency and reduce fuel consumption. Similarly, hybrid or hydrogen-powered maintenance fleets and low-emission shunting solutions should be supported to minimise non-traction emissions. Climate resilience measures will further reduce the energy and operational costs associated with disruptions, while green procurement requirements — including green steel and low-carbon concrete — can catalyse low-emission supply chains and accelerate sustainable construction markets.

3.3 Industrial and Manufacturing Measures:

The Fund should apply a performance-based investment framework to ensure public resources deliver the highest impact. Projects should be prioritised based on their measurable emissions reduction per dollar invested, their capacity to unlock additional private sector capital, and their potential to alleviate systemic constraints such as grid limitations, regulatory approvals, or refuelling network gaps. The framework should also favour scalable projects that strengthen Australia's sovereign manufacturing and energy capability, and those demonstrating operational compatibility across modes — for example, shared fuel storage or distribution systems serving both road and rail fleets.

To ensure risk-appropriate funding and market progression, a tiered maturity model should be applied. Early-stage demonstration projects should be supported through grants and pilot funding to prove technology performance and viability. As technologies mature, concessional or blended finance can accelerate commercial scale-up by reducing capital costs and improving investor confidence. For enabling infrastructure — such as energy hubs, refuelling networks, and grid augmentation — co-investment and loan guarantees should be used to attract long-term institutional and private capital. This staged approach ensures that funding instruments align with technology readiness, market maturity, and system-wide decarbonisation objectives.

4. Project Sequencing and Investment Criteria

The Fund should apply a performance-based investment framework that prioritises projects delivering the greatest measurable emissions reduction per dollar invested. Funding should focus on initiatives that leverage wider private capital ("crowd-in"), address systemic bottlenecks such as grid constraints, lengthy approvals, or inadequate refuelling networks, and build scalable or sovereign low-carbon capability within Australia. Preference should also be given to projects that demonstrate operational compatibility across modes — for example, fuels or technologies that can be stored, distributed, and used across both road and rail fleets — to maximise efficiency and return on public investment. A tiered maturity framework should guide funding allocation, aligning financial instruments to project risk: grants for early demonstration, concessional or blended finance for commercial scale-up, and co-investment for enabling infrastructure. This ensures resources are directed where they can most effectively accelerate market development and long-term decarbonisation of freight.

5. Funding Scale and Structure

Large-scale rail and precinct decarbonisation projects typically require multi-hundred-million-dollar investments and long horizons. Market capacity pressures, skills constraints and material cost volatility mean private financiers alone are unlikely to underwrite the earliest, highest-risk investments without concessional support or guarantees. Recent reviews and market outlooks indicate a substantial pipeline of rail and infrastructure projects that will compete for capital and skilled labour[2].

Recommended blended funding mix:

- **Concessional debt (10–25-year tenor)** for enabling infrastructure and proven technologies. Grace periods of 3–5 years may be appropriate for long lead projects.

[1] https://locomotivehub.com/electric-locomotives-efficiency-and-environmental-benefits-explained

[2] https://www.infrastructureaustralia.gov.au/sites/default/files/2023-12/IA23_Market%20Capacity%20Report.pdf

- **Subordinated or concessional loans / guarantees** for first-of-a-kind pilots and enabling infrastructure to lower cost of capital and attract senior lenders.
- **Equity or convertible instruments** for early-stage manufacturing and novel rollingstock technologies, with defined withdrawal plans.
- **Grants or milestone-linked funding** for demonstrators and regulatory accreditation costs (for example, accreditation and trials for international BELs[3]).
- **Guarantees** to mobilise wider private capital for large and mid-sized projects.

6. Aligning Financing Mechanisms with Risk

- **Proven, low-risk investments** (energy efficiency, some electrification of terminals, ETCS deployments where scope and benefits are clear) are suited to concessional debt. Debt preserves control and enables recycling.
- **Emerging vehicle and fuel technologies** (hydrogen heavy-haul locomotives, early BEL programmes, new electrolyser plants) require equity-style instruments because returns are uncertain and technology risk is significant. Convertible structures preserve upside while allowing government to limit permanent ownership.
- **Guarantees** are efficient where public policy benefits are large but private lenders need comfort on specific political, regulatory, or long-term demand risks.

7. Commercial Barriers and Practical Constraints

Key barriers the Fund must address:

- **High upfront capital and long payback periods** for electrification, BELs, and hydrogen systems.
- **Uncertain technology readiness**, especially for heavy-haul hydrogen solutions and emerging low-carbon steel supply chains.
- **Long asset lives (30–50 years)** that complicate retrofit economics and investor willingness.
- **Revenue volatility** in freight markets that limits pass-through of new costs.
- **Grid access and connection constraints** in regional corridors.
- **Complex and slow approval processes** that add cost and deter proponents.

8. How the Net Zero Fund Should Address Barriers

As outlined earlier, high capital costs, long project lead times, and emerging Safeguard Mechanism compliance obligations present significant barriers to low-emissions investment across freight modes. These pressures have the potential to raise freight supply chain costs and flow through to higher consumer prices if not managed through targeted financial support.

To address these barriers, the Net Zero Fund should:

- **Support near-term decarbonisation through renewable diesel and other low carbon liquid fuels**, providing concessional finance and grants for domestic production, blending, and distribution infrastructure. Given their ability to be deployed as “drop-in” fuels without extensive asset modification, these fuels offer an immediate pathway to emissions reduction while longer-term technologies mature.
- **Align concessionality** to project maturity — grants or subordinated instruments for demonstrations and pilots, and concessional or blended finance for commercial scale-up and enabling infrastructure. This approach will reduce risk, crowd-in private capital, and accelerate deployment.
- **Mitigate transitional cost pressures** by offsetting early compliance and investment costs associated with low-emission technologies, ensuring that decarbonisation does not compromise freight affordability or competitiveness.

[3] $5 billion Net Zero fund - Climate Control News

- **Provide regulatory and pre-development support**, including financed packages for planning, grid connection, accreditation, and safety-case work, to shorten lead times and reduce permitting risk.
- **Establish dedicated sector streams** (for example, a Rail and Heavy Industry Stream) with embedded technical and financial advisory capability to strengthen project appraisal and delivery.
- **Apply milestone-linked disbursements** to protect public capital while incentivising progress and delivery.
- **Use co-investment mandates** in partnership with experienced clean finance agencies such as the CEFC to leverage market expertise, scale, and investor confidence.

9. Complementarity with the Clean Energy Finance Corporation (CEFC) and other Agencies

The Net Zero Fund should explicitly complement rather than duplicate the Clean Energy Finance Corporation (CEFC). The CEFC has deep experience in structuring concessional finance and crowding in capital across the energy transition. The Fund should:

- Work with the CEFC on origination, due diligence and co-lending for projects that straddle energy and transport (for example, precinct BESS coupled with depot electrification). CEFC's history in mobilising co-investment is a comparative advantage[4].
- Use the Fund where the primary market failure relates to industrial or transport sector readiness (for example, rollingstock accreditation, green steel facility financing, or hydrogen refuelling networks), and CEFC where the key gap is grid and renewable integration.
- Share technical frameworks and emissions accounting methodologies to ensure consistent assessment of emissions impact and financial viability.

10. Parameters for Concessional Support

- **Interest rates:** materially below commercial benchmarks where public-good outcomes justify subsidy.
- **Tenor:** aligned to asset lives (commonly 20–30 years for rollingstock and major infrastructure).
- **Repayments:** milestone-linked where technology or market risk is material. Grace periods for construction and commissioning.
- **Forgiveness:** strictly limited, performance-linked and applied only for demonstrator projects with clearly defined public benefit and credible knowledge transfer.
- **Conditionality:** emissions outcomes, co-investment thresholds and Australian workforce utilisation to be explicit conditions of support.

11. Fund Governance and Delivery

- **Dedicated technical streams** (rail and heavy industrial) with embedded advisory teams. This addresses the National Reconstruction Fund's (NRF)[5] current weakness where sector expertise can be limited. The NRFC's toolkit (debt, equity, guarantees) is appropriate — the Fund should adopt it but apply sector-specific appraisal criteria.
- **CEFC co-management or tranche management** for parts of the pipeline to leverage CEFC origination and portfolio management experience.
- **Milestone reporting and independent verification** of emissions outcomes to support transparency and enable return recycling.
- **Streamlined application and fast-track approvals** for projects that align with national decarbonisation pathways and meet clear investment criteria.

[4] Home - Clean Energy Finance Corporation

[5] Home page | National Reconstruction Fund Corporation

12. Implementation Sequencing and Success Metrics

12.1 Initial tranche (years 0–3):

- **Fund demonstrator pilots:** BEL accreditation and leasing pilots, hydrogen refuelling pilots for short-haul rail, C&I rooftop + BESS pilots in logistics precincts.
- **Pre-development packages** for priority electrification corridors and ETCS digital train control pilots.

12.2 Scale phase (years 3–8):

- **Co-investment** in manufacturing capacity (electrolysers, batteries, rollingstock components).
- **Major enabling infrastructure**: corridor electrification where economic and grid-supported; regional hydrogen distribution links; precinct-level energy-sharing deployments.

12.3 Success metrics:

- Tonnes CO_2e avoided (direct and embedded).
- Private capital mobilised per public dollar.
- Number of accredited BELs/shunters deployed, and terminals electrified.
- Reduced truck-km in capital city corridors (mode shift where measurable).
- Jobs created in domestic manufacturing and maintenance.

13. Summary Position

The Net Zero Fund should function as a catalytic, targeted mechanism to remove market and financing barriers to freight and rail decarbonisation. Priority should be given to transitional solutions such as renewable diesel that can be deployed rapidly at scale, delivering immediate emissions reductions without major asset replacement. By supporting a domestic, affordable renewable fuel industry alongside long-term investments in electrification, hydrogen and digitalisation, the Fund can enable a faster, more balanced transition — safeguarding affordability while positioning Australia's freight sector for a low-carbon future.