AUSTRALIAN
ALUMINIUM
COUNCIL LTD

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Net Zero Fund: Proposed Design
https://consult.industry.gov.au/net-zero-fund

15 October 2025

Dear Minister

Re: National Reconstruction Fund - Net Zero Fund Proposed Design

The Australian Aluminium Council (the Council) represents Australia's bauxite mining, alumina refining, aluminium smelting and downstream processing industries. The aluminium industry has been operating in Australia since 1955, and over the decades has been a significant contributor to the nation's economy. The Department of Industry, Science and Resources has recently forecast[i] that earnings for Australian exports of aluminium, alumina and bauxite are expected to rise from $18 billion in 2025–26 to $19 billion in 2026–27. More than $14B of this comes from the alumina and aluminium industries, as value adding mineral processing sectors. The industry includes six bauxite mines which collectively produce over 100 Mt per annum making Australia one of the world's largest producers of bauxite. Australia is the world's largest exporter of alumina with five operating alumina refineries producing around 18 Mt per annum of alumina. Australia is the seventh largest producer of aluminium, with four aluminium smelters and additional downstream processing industries including more than 20 extrusion presses. Aluminium is Australia's top manufacturing export. The industry directly employs more than 21,000 people, including 6,600 full time equivalent contractors. It also indirectly supports a further 55,000 families predominantly in regional Australia. The integrated industry contributes around $18 B to Australia's GDP.

Aluminium is one of the commodities most widely used in the global transition to a clean energy future[ii]. It is also recognised for its importance to both economic development and low emissions transition. Aluminium use is highly correlated with GDP, so as countries urbanise, per capita use of aluminium increases. It is expected that by 2050, global demand for aluminium will nearly double[iii]. While an increasing proportion will be met through recycled aluminium, there will still be a need for increased production of primary aluminium requiring a comparable increase in global bauxite mining and alumina refining rates.

The Council welcomes the opportunity to provide input into the establishment of a new $5 billion Net Zero Fund (NZF) within the existing National Reconstruction Fund (NRF). The Council particularly notes the alignment between the objectives of supporting large-scale industrial facilities as they decarbonise to ensure Australia retains industrial capabilities vital to our national interest while working towards our 2035 emissions reduction targets. The Council notes the intention to provide support to these large industrial facilities to not only decarbonise, but also investing in the technologies and capital infrastructure required to transition to more productive processes.

The activities undertaken by the Council's Members are highly aligned with both the Value-add in resources and Renewables and low-emission technologies streams within the NRF. Co- investment plans were developed across all streams under the NRF, however, only the Medical Science Co-Investment[iv] plan has been publicly released. The Council believes it would be helpful to release the co-investment plans across the other sectors, to provide increased guidance.

Response to Consultation Questions

1. *What are the types of projects or capital expenditure that should be supported to achieve the Net Zero Fund's objectives?*

- *Consider the level of investment required for large industrial decarbonisation and/or manufacturing renewable and low emissions technologies. This includes the relevant structure and combination of funding sources from government and the private sector.*
- *What are the existing commercial barriers to these investments reaching final investment decision?*

While the Council welcomes the funding for the NZF, it is worth noting that the cost of transformational abatement in the aluminium industry is substantial. The Mission Possible Partnership, in collaboration with the International Aluminium Institute, released Making Net Zero Aluminium Possible: A Transition Strategy for a 1.5°C-compliant Aluminium Sector[v] (the Strategy). The release of the Strategy was supported by the Council and its Members. This work brought together companies across the global industry, including those operating across the value chain in Australia. The Strategy recognised that it is possible to meet rising aluminium demand, reduce emissions from the sector to net zero by 2050, and align with a 1.5°C target. The Strategy also highlighted that a global investment of approximately US$1 trillion will be required for the aluminium sector transition, including significant investment to supply the required zero-emissions electricity. Considering the size of the Australian aluminium industry (~3% of the global industry), this equates to an investment of US$30bn to deliver the same outcome.

In 2024, Scope 1 and 2 emissions from Australia's integrated aluminium industry (bauxite, alumina and aluminium) were about 30t CO2-e, which was almost 7% of Australia's national emissions (Figure 1). Energy typically accounts for 30-40% of the industries' cost base, and therefore energy efficiency is a key focus for these processes.

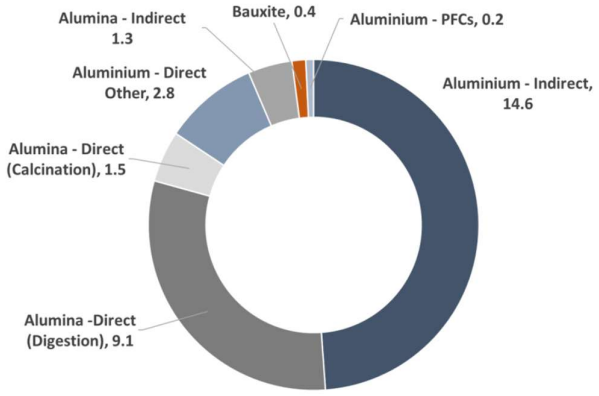

Figure 1. 2024 Industry Emissions (Mt CO_2-e) - update

Globally, there is a focus across industry to find solutions for the technology challenges required to decarbonise, including the use of hydrogen based technologies. There is an opportunity for Australia to lead the world in development and implementation of these technologies, capitalising on Australia's national advantages, providing jobs and value to the economy. The Council has produced a series of five detailed factsheets to help articulate the technology pathways:

1. Australia's role in a global aluminium decarbonisation pathway;
2. How Australian bauxite will help meet global demand for aluminium;
3. Australia's role in developing low carbon alumina refining technologies for the world;
4. The role of Australia's aluminium smelters in providing baseload stability in a decarbonising grid; and
5. Decarbonisation of Australia's electricity supply, which the Council sees as the single biggest opportunity to decarbonise the vertically integrated domestic aluminium industry.

In terms of the scale or potential type of projects the NZF could support, a summary of key Australian Aluminium industry initiatives is provided in
Table 1.

Table 1 Key Australian Aluminium Industry Initiatives

Activity	Link
Affreightment Carbon Reduction	https://www.combinationcarriers.com/insights-and-news/2022/1/4/kcc-and-south32-conclude-first-sustainability-linked-contract-of-affreightment
ARENA Roadmap for Alumina	https://arena.gov.au/knowledge-bank/a-roadmap-for-decarbonising-australian-alumina-refining/
Electric Calcination Study	https://arena.gov.au/projects/alcoa-renewable-powered-electric-calcination-pilot/
Gladstone Renewable Request for Proposals / PPAs	https://www.riotinto.com/news/releases/2022/Rio-Tinto-calls-for-proposals-for-large-scale-wind-and-solar-power-in-Queensland https://www.riotinto.com/en/news/releases/2024/rio-tinto-to-drive-development-of-australias-largest-solar-farm-at-gladstone https://www.riotinto.com/en/news/releases/2024/rio-tinto-signs-australias-biggest-renewable-power-deal-as-it-works-to-repower-its-gladstone-operations
HILT CRC	https://hiltcrc.com.au/
Hydrogen Calcination Study	https://arena.gov.au/projects/rio-tinto-pacific-operations-hydrogen-program/
Hydrogen Pilot Plant	https://www.riotinto.com/news/releases/2021/Rio-Tinto-and-Sumitomo-to-assess-hydrogen-pilot-plant-at-Gladstones-Yarwun-alumina-refinery
Mission Possible Partnership	https://missionpossiblepartnership.org/wp-content/uploads/2022/10/Making-1.5-Aligned-Aluminium-possible.pdf
Refinery of the Future	https://www.alcoa.com/global/en/stories/releases?id=2021/11/alcoa-to-design-an-alumina-refinery-of-the-future
Rio Tinto and GMG	https://graphenemg.com/gmg-riotinto-energysavings-battery/
Spinifex Wind Farm (Portland)	https://arena.gov.au/news/offshore-wind-could-power-portland-aluminium-smelter/ https://www.spinifexoffshore.com.au/#/
Tomago Aluminium Renewable Future	https://www.tomago.com.au/tomago-aluminium-future-renewable-energy-needs/
Weipa Solar and Battery Capacity	https://www.riotinto.com/news/releases/2021/Rio-Tinto-to-triple-Weipa-solar-capacity-and-add-battery-storage-to-help-power-operations https://www.riotinto.com/en/news/releases/2023/rio-tinto-approves-new-solar-farm-and-battery-storage-to-power-its-amrun-bauxite-operations-on-cape-york
Worsley Boiler Conversion	https://www.south32.net/news-media/latest-news/worsley-alumina-converts-first-boiler-from-coal-to-natural-gas
Yarwun Hydrogen Calcination Pilot Demonstration Program	https://www.riotinto.com/en/news/releases/2023/rio-tinto-and-sumitomo-to-build-gladstone-hydrogen-pilot-plant-to-trial-lower-carbon-alumina-refining https://arena.gov.au/projects/yarwun-hydrogen-calcination-pilot-demonstration-program/

The decarbonisation pathway for large industrial assets, such as alumina refineries and smelters, requires substantial capital investment. Key areas include energy efficiency upgrades, fuel switching (from coal and gas

to renewables and biofuels), electrification of process heat, and technology development - such as hydrogen calcination, thermal energy storage and specific to Scope 1 reduction in aluminium smelters, inert anode electrolysis. The Council believes that transmission and generation projects that secure a globally competitive electricity price to major industrial users must be considered for investment.

Decarbonisation projects are multi-phased and require long lead times for development, demonstration, and deployment. Technology development is particularly challenging. Commercial demonstration, technical readiness, and integration with existing industrial processes all take time. R&D support is critical to reduce capital intensity and accelerate the deployment of emerging technologies.

2. *What financing mechanisms are best suited for these investments, based on the mechanisms available to the National Reconstruction Fund e.g. loans, equity, guarantees?*

- *Should corporate financing be within the scope of the fund? For example equity financing of companies or convertible options.*
- *Consider the specific parameters of any concessional support required. For example interest rates, risk tolerances, forgiveness clauses, equity or debt structures, repayment periods.*
- *Consider current barriers to the National Reconstruction Fund investment in large industrial decarbonisation and/or manufacturing renewable and low emissions technologies. How can the design of the Net Zero Fund remove these barriers?*

The Council recognises that the NRF has existing investment guidance[vi] which offer debt finance, equity finance and guarantees but not grants. The NRF investment guidance also indicates a need to provide return on investment (ROI) of 2– 3% above the 5-year Australian Government Bond rate. While the Council recognises that the NRF and the new NZF is being delivered in conjunction with a range other measures such as Rewiring the Nation, Powering the Regions Fund (PRF) and the Capacity Investment Scheme and as such is not a one size fits all vehicle, the Council's Members have not yet been able to align opportunities within the sector with the mandate of the NRF, despite the scale of opportunities in the sector.

The Council hopes that some aspects of the NZF can be better aligned with the needs of industry, noting that this may be different to the current investment guidance. This could include consideration of grant funding (on a matched basis) and / or lower ROI, as these projects are unlikely to be able to compete easily for capital as they create decarbonisation opportunities, rather than opportunities for increased production. The Council notes that the Minister's Statement of Expectations[vii] outlines that the NRF should:

- deliver a positive return to the Government but prioritise national impact over short term profit;
- adopt an ambitious approach to fully deliver on its mandate to build Australia's industrial capability; and
- focus on long term outcomes for Australia, particularly in these times of global uncertainty.

Alignment of the NZF with these expectations, as opposed to the current guidelines would be more likely to result in increased alignment with industry and likelihood of use. The Council believes the NZF may need a highly flexible and agile approach, considering the dynamic external environment facing industries such as alumina and aluminium.

Notwithstanding the NRF Corporation guidance on available funding mechanisms, the Council reiterates that grant funding and mechanisms that reduce upfront capital investment have the greatest impact on project economics. They enable early-stage investment and learning in new technologies, which is essential before commercial deployment at scale. Matched grant funding (Investment capital of 50%), where government and private capital are both committed, is particularly effective for decarbonisation projects. The ARENA model works well, combining grant funding with a commitment to knowledge sharing and transparency on project economics. This accelerates technology readiness and sector-wide learning.

Production credits are another effective measure and can encourage the conversion to electrification by helping close the gap between legacy fossil fuel prices and the flexible costs of renewable energy. By providing ongoing support for decarbonised production, production credits can improve the financial viability for operators to switch from fossil fuels to renewables, even when renewable energy costs are higher or more

variable in the short term. This mechanism directly addresses the cost differential and accelerates the transition to low-carbon operations.

There may be other more applicable examples of financing by other Government entities. For example:

- The Council believes this should include the use of concessional financing tools, such as longer loan tenors, deferral of interest and principal repayments, security and/or cash flow subordination, and concessional pricing, consistent with the operation of the Northern Australia Infrastructure Facility (NAIF).
- Similarly, a structure which allows more Ministerial direction such as used by Export Finance Australia which provides financial support to exporters on one of two accounts:
    - Commercial Account, in which EFA carries all risks and retains all margins and fees and bears all risks and losses
    - National Interest Account, where the responsible Minister can direct EFA to support transactions that are in the national interest.
- Finally, the Government could consider using forgivable loans, which may be linked to external market conditions such as alumina or aluminium commodity prices.

In considering the role of the NZF, it is important that the Government does not add additional barriers, such as requiring all applications to secure 50:50 funding arrangements with States / Territories. While this may be a requirement for a specific bilateral project, coding this into the NZF mandate or guidance would limit the agility which may be required in the future.

3. *How can the Net Zero Fund complement established financing vehicles such as the Clean Energy Finance Corporation (CEFC)?*

- *Consider the best ways to leverage existing capabilities of the Clean Energy Finance Corporation to help rapid, effective implementation of the Net Zero Fund.*

Despite strong alignment in intent between the CEFC and the sector, in the more than a decade since the establishment of the CEFC, the Council's Members have not yet successfully secured funding. This contrasts to the successful relationship between the sector with the Australian Renewable Energy Agency (ARENA) which is able to provide grant based funding, albeit at a lower scale, including through the soon to be initiated ARENA Innovation Fund[viii].

The Council would be happy to provide additional information on any issues raised in this submission.
Kind regards,

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[i] https://www.industry.gov.au/sites/default/files/2025-06/resources-and-energy-quarterly-june-2025.pdf
[ii] https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action
[iii] International Aluminium Institute High Substitution Scenario
[iv] https://www.industry.gov.au/publications/medical-science-co-investment-plan
[v] https://missionpossiblepartnership.org/wp-content/uploads/2022/10/Making-1.5-Aligned-Aluminium-possible.pdf
[vi] https://www.nrf.gov.au/sites/default/files/documents/2024-01/investment-guidance.pdf
[vii] https://www.nrf.gov.au/sites/default/files/documents/2025-08/NRFC%20Statement%20of%20Expectations.pdf
[viii] https://arena.gov.au/funding/future-made-in-australia-innovation-fund/