RioTinto

Rio Tinto Limited
Level 43,
120 Collins Street,
Melbourne, VIC 3000
Australia
Tel: +61(0) 3 9283 3333

Australian Government
Department of Climate Change, Energy, the Environment and Water

Submission via the online submission portal

18 September 2026

Re: 2026-27 Safeguard Mechanism Review consultation

Rio Tinto welcomes the opportunity to make a submission to the Department of Climate Change, Energy, the Environment and Water (the **Department**) in relation to its 2026-27 Safeguard Mechanism Review (the **Review**) consultation paper, and to continue to constructively engage with the Government as it develops and reforms climate-related policy in Australia.

Rio Tinto acknowledges it has an important role to play in reducing emissions at its operations and supply chains to help drive the energy transition. In 2025, Rio Tinto's Scope 1 and 2 emissions were 31.5 million tonnes CO_2e[1] of which around 66 per cent was generated by Australian assets. We have committed to decarbonising our assets by reducing our Scope 1 and 2 emissions by 50 per cent by 2030 against a 2018 baseline and to net zero by 2050. In Australia, we are making significant progress towards reducing Scope 2 emissions by repowering our aluminium assets with renewables, and we continue to invest in onsite abatement by developing and trialling new technologies to contribute to Scope 1 emissions reductions over time.

Rio Tinto has financial interests in 19 facilities covered by the Safeguard Mechanism including aluminium smelters, alumina refineries, bauxite mines, iron ore mines and rail. Together these facilities in total accounted for ~8% of the Scope 1 emissions covered by the Safeguard Mechanism in FY2025.

Rio Tinto supports the role of the Safeguard Mechanism in helping Australia achieve its emissions reduction targets via providing a price signal for emissions reduction. We agree with the Government that the Safeguard Mechanism is working broadly as intended, and with only two years of data available, endorse the objective to not fundamentally redesign the Safeguard Mechanism but instead focus the Review on recalibrating existing settings.

We support the objectives of the Review to be carried out in a way that is fair, at lowest practicable cost and without undue complexity. We endorse the Government's recognition of the need for policy stability to underpin long-term investment decisions along the pathway to net zero and support the guiding principles of the Review, including continued support for the competitiveness of trade-exposed industries with an individual asset-based impact approach, recognising the importance of sovereign capability and competitive neutrality.

As part of the Review, based on our experience of pursuing abatement at Safeguard facilities, Rio Tinto encourages the Department to consider the critical ongoing role of complementary policy measures to support the development, commercialisation and deployment of the lower emissions technologies needed to deliver

[1] Emissions reported on an equity share basis

on-site abatement over time. The policy suite should promote an orderly and efficient transition of Australia's energy system and energy and emissions-intensive industries while managing competitiveness impacts.

We thank the Department for the opportunity to engage in this review of the Safeguard Mechanism and our submission is set out below. We would welcome the opportunity to discuss this submission with you further. In the interim, please direct any queries to Jaeson Wells (Jaeson.Wells@riotinto.com).

Sincerely,

Matt Holcz
Chief Executive Iron Ore
Country Head for Australia

Submission

Competitiveness impacts

Trade-exposed baseline-adjusted (TEBA) determination

Effective climate policy should incentivise investment in low-carbon technology without undermining the competitiveness of trade-exposed industries and shifting production, jobs and supply chains to countries with lower emissions standards. Support for trade-exposed facilities is an important policy feature of the Safeguard Mechanism. The trade-exposed baseline-adjusted (TEBA) determination introduced in 2023 plays a vital role in preventing carbon leakage, supporting sovereign manufacturing and supply chain resilience, and ensuring the continued financial viability of emissions-intensive trade-exposed activities (EITEs) such as aluminium smelting and alumina refining that are part of an Australian value chain.

Current TEBA settings for the aluminium sector remain appropriate. The design of the TEBA test for manufacturing facilities recognises facilities may have different technology constraints and operate in different geographies. This can result in different carbon intensities, differing cost and access to forms of energy, and other profitability considerations which lead to varying competitiveness impacts across facilities from the same sector. A sector-wide approach would fail to consider these structural differences and hence grant TEBA exemptions on an unequitable basis. The TEBA mechanism should continue to be based on individual facility assessment which limits support to facilities that are at risk of carbon-leakage.

TEBA was introduced in recognition of understood technology constraints and competitiveness concerns that continue to be the case; it is not a question of on-site abatement effort. We note the marginal abatement cost for TEBA facilities is not impacted by the TEBA test hence these facilities are still fully incentivised to abate where economic by the Safeguard carbon price, and Rio Tinto continues to invest in decarbonisation initiatives at its TEBA facilities. Opportunities for large-scale on-site measures for Scope 1 emissions reduction are limited at this time but significant work is ongoing. For example, process emissions relating to anode consumption and baking are ~80-90 per cent of aluminium smelting Scope 1 emissions, but there are currently no deployments of inert anode technology in aluminium smelting on a commercial scale globally. Rio Tinto is actively investing in and working on this abatement technology pathway via the Elysis™ joint venture in Canada.

Cumulative compliance cost and development capita:

For hard-to-abate facilities, compliance obligations and abatement investment are concurrent, and they draw on the same pool of funds. The technologies required to materially reduce Scope 1 emissions at our alumina refineries and smelters are all still in development, and detailed design, feasibility studies and first-of-a-kind demonstrations require significant spending without materially abating emissions while they are underway. A facility can therefore be spending on climate at the limit of what it can justify given the fiscal position of the facility and still show little movement in reported emissions. In that context, dollars directed to purchasing compliance units are dollars unavailable for the technology development needed to provide a pathway for the facility to deliver permanent, physical abatement. Our experience has been that where the combined burden exceeds what an asset can carry financially, the response is not accelerated development of abatement pathways but a necessary prioritisation of near-term obligations (including compliance) and deferral of other expenditure such as the spending on the abatement technology development pipeline for that site.

In this context of immature technology, detailed development still being undertaken and overall impact of the Safeguard scheme design on the viability of assets, it is important that the Government seeks to understand the overall impact of any changes before finalising them, including consideration of the total compliance liability for an asset under any proposed changes, the potential impact on marginal assets and reinvestment decisions, the potential implications of changed compliance costs where they result in funds being redirected from abatement, potential production and investment leakage, ACCU and SMC demand and supply, and the expected incremental emissions reduction from the Safeguard Mechanism.

Multiple pathways have been canvassed to make the Safeguard mechanism do more abatement heavy lifting including a steeper decline rate, a lower coverage threshold, reduced TEBA relief, restrictions on compliance unit access and a TEBA catch-up mechanism. At this point, only two years into the updated Safeguard Mechanism, the impact of any of these changes individually will be material and that where more than one change is considered the cumulative effects even more so. For all of these reasons, it is our view that current TEBA settings for the aluminium sector remain appropriate.

A potential Border Carbon Adjustment / carbon border adjustment mechanism (CBAM)
As noted in our submission to the Department's Consultation on the first phase of the Carbon Leakage Review, full regional coordination would be needed for a domestic carbon border adjustment mechanism (CBAM) to be effective for export-oriented industries like alumina and aluminium. Rio Tinto notes the Carbon Leakage Review recommendation not to pursue a border carbon adjustment that provides rebates for exports, and hence a CBAM would not help address carbon leakage risk for export-oriented industries like alumina and aluminium at this time.

For facilities that form part of international supply chains, increasing cross-border consistency around carbon pricing, emissions accounting, offsets, allowances and embedded emissions frameworks should be an important long-term policy objective. Plurilateral engagement to progress Articles 6.2 and 6.4 of the Paris Agreement, as recommended by the Carbon Leakage Review, would help progress these objectives and therefore promote trade of low emissions products. This would also help to minimise the administrative burden going forward related to managing different schemes.

The role of complementary policies

As the Safeguard Mechanism Review progresses, it is important for the Government to recognise the fundamental requirement for timely and sufficient supply of competitively priced, reliable, low-carbon electricity to enable the decarbonisation of industry. Increasing facilities' cost to comply with the Safeguard Mechanism in the medium-term, without lowering electricity emissions and electricity costs, fundamentally limits facilities' ability to economically transition away from Scope 1 emissions. All tiers of government have a critical enabling role in addressing constraints to execution of renewable energy projects including planning regulations, permitting processes, land access and environmental approvals, and providing greater certainty around the timing of future renewable electricity supply to help speed up associated investment.

Rio Tinto recognises that where a single climate policy approach is applied across an entire economy, a market-based price on carbon is the most effective way to incentivise the private sector to make low carbon investments and drive down emissions. However, in Australia where climate policy varies for different segments of the economy, it is important to deploy a full set of policy tools beyond carbon pricing for harder-to-abate parts of our carbon footprint, such as process heat and carbon anodes, to decarbonise and remain commercially competitive in a global market.

For emissions-intensive activities, other policy tools are necessary to tackle emissions and simultaneously achieve objectives related to industrial policy. Policies that positively incentivise low carbon solutions with targeted funding and support can reduce the risk of industry loss and carbon leakage relative to policies that tax existing emission heavy facilities. Beyond the Safeguard price, grant funding and production incentives, including the Future Made in Australia plan and targeted funding pools via ARENA, are supporting facilities that continue to progress on-site abatement technologies.

On-site abatement: progress and challenges

Rio Tinto is progressing a range of initiatives to reduce Scope 1 and 2 emissions, as detailed in our 2025 Annual Report. To date we have delivered a net reduction of approximately 17 per cent (gross reduction of 14 per cent) primarily underpinned by renewable electricity procurement to reduce Scope 2 emissions and operational improvement initiatives. A significant portion of Rio Tinto's Scope 1 and 2 emissions come from 'off-site' Scope 2 energy contracts, and we have made significant progress in 2026. This includes repowering agreements for Boyne Smelter and Tomago Aluminium, which will reduce Australian emissions by ~13Mt once

fully delivered, and underpin significant new renewable generation capacity. For the 10.6Mt of onsite Scope 1 emissions captured under the SGM (100 per cent asset basis) we continue to progress abatement initiatives but many of the technologies required to decarbonise our harder-to-abate emissions are still emerging and are not yet proven or economically deployed at industrial scale. This challenge is not unique to Rio Tinto and will require ongoing collaboration between industry, government and technology providers.

Rio Tinto's marginal abatement cost analysis demonstrates many of our lower-cost abatement opportunities have already been captured through determined efforts since announcing our current targets in 2021, with future emissions reductions increasingly dependent on higher-cost technologies, infrastructure investments and access to low-cost renewable electricity, hydrogen and bioenergy.

We continue to invest in abatement projects through a combination of on-site capital deployment and third-party offtake agreements for low emission and renewable energy supply, including renewable energy, electrification, fuel switching and breakthrough technologies. While some initiatives will deliver emissions reductions in the near term, a significant proportion of future abatement is expected to come from large-scale transformation projects that require long development lead times, substantial capital investment within site boundaries and installation of supporting off-site infrastructure. As a result, the cost and complexity of abatement typically increase as emissions reductions are embedded. It is our current expectation that in many cases, the technologies required to decarbonise harder-to-abate emissions sources are unlikely to be deployed at industrial scale until well into the 2030s.

The decarbonisation pathways for our operations are not linear. Significant emissions reductions often depend on the development of transformational technologies and their deployment as major capital projects. This combination requires long development and deployment lead times. Consequently, most emissions reductions are expected to occur in material step changes rather than through a smooth annual trajectory.

Delivery of these projects is dependent on several key enablers, and access to reliable, competitively priced renewable electricity at scale remains fundamental to most of our decarbonisation pathways. Electrification, hydrogen production and a range of emerging technologies depend on confidence in the timing, availability and cost of future renewable energy supply. Delivering this transition will require significant investment in generation, transmission and supporting infrastructure, with all levels of government playing an important role in enabling timely approval, development and delivery of these systems, along with, in many cases support for the underpinning renewable projects.

Stable, predictable and coordinated policy settings are also essential to support long-term decarbonisation investment. Greater visibility over future policy frameworks enables businesses to assess project economics, manage regulatory risk and commit capital to projects with long development and deployment lead times.

Aluminium assets

We have made significant progress toward repowering key assets in our aluminium portfolio with renewable electricity, with initiatives at Boyne Smelter and Tomago Aluminium. These assets together reported ~13Mt CO_2e Scope 2 emissions in 2025. These initiatives represent some of Australia's largest industrial decarbonisation opportunities and will deliver significant emissions reductions at both a company and national level. However, they do not receive recognition under the Safeguard Mechanism as they target Scope 2 emissions.

Beyond renewable energy and repowering initiatives, we are progressing a pipeline of projects aimed at reducing Scope 1 emissions from alumina refining and aluminium production. These initiatives focus on improving process efficiency, reducing energy demand, transitioning away from fossil fuel-based heat sources and advancing breakthrough technologies. Key projects include:

- **QAL Double Digestion:** Improved digestion technology to be installed in one of the three digestion units at the QAL alumina refinery, delivering around a 27% reduction in energy intensity for that unit

and lowering fuel consumption and refinery emissions. Pre-feasibility commenced in 2024, with feasibility completed in 2026. Detailed design is currently in progress, with the next step being formal notice-to-proceed.

- **Yarwun Thermal Energy Storage**: An industrial-scale demonstration of thermal energy storage, using renewable electricity to generate process steam and reduce reliance on fossil fuel-fired boilers. The project commenced in 2023, with pre-feasibility completed and a technology provider identified. The feasibility study has commenced.
- **Yarwun Hydrogen Calcination**: A world-first demonstration of renewable hydrogen as a substitute for fossil fuels in the alumina calcination process, delivered with Sumitomo Corporation and part-funded by ARENA. The period from ideation to trial commencement has been six years. Trials of this pilot plant are due to commence in Q4 2026 to demonstrate technical feasibility.
- **Yarwun bio-pellets:** Replaces coal with sustainable biomass-derived fuel for steam generation. The concept was developed in 2023, with operational trials completed in 2024. Development of a local supply chain was progressed through 2025, and a five-year offtake agreement was reached in 2026 to locally produce and supply from 2028.
- **ELYSIS™ inert anodes:** Next generation aluminium smelting technology that replaces traditional carbon anodes with inert materials producing oxygen instead of carbon dioxide, with the potential to significantly reduce direct smelting emissions. This vital initiative is being progressed in Canada in conjunction with Alcoa.

These initiatives illustrate that future on-site abatement opportunities exist across the aluminium value chain, but they also demonstrate the protracted development pathway. Each project must move sequentially through stage gates – order-of-magnitude assessment, pre-feasibility, feasibility, detailed design, execution approval, construction and commissioning – before any emissions reduction is realised. On current timelines, technologies entering study phases today will only begin abatement at scale at the end of the decade or beyond, and as noted below, only where and when they are proven to operate safely and reliably in a live refinery or smelter environment.

The ability to implement step-change transformational projects at existing refineries and smelters is constrained by three factors:

- **Capital and tenure.** These projects carry large capital costs and depend on the broader economics and timetables for renewable electricity supply to both refineries and smelters. There needs to be sufficient tenure – in both energy supply arrangements and policy settings – to allow the economic recovery of capital deployed for decarbonisation.
- **Safety and operational continuity.** Major process change at alumina refineries is a brownfield undertaking. Tying new technology into existing operating processes carries significant safety and operational risk, and projects cannot proceed until they can be demonstrated to work safely and reliably without compromising business continuity.
- **Time and phasing.** Each project requires long development, execution and commissioning lead times, and ability to execute multiple transformational projects concurrently at a single site is practically constrained. Shutdown windows, engineering and construction resources, and the need to protect production mean projects must be sequenced over successive years rather than delivered in parallel. This further reinforces why emissions reductions occur in step changes rather than on a smooth annual trajectory.

In addition to these factors, deployment also remains dependent on supporting infrastructure and, in some cases, on input costs that are not yet commercially viable. For example, the cost of renewable hydrogen remains significantly higher than what is needed for hydrogen calcination to be commercially deployable. Policy settings therefore need to recognise both near-term and long-term decarbonisation investment, and to accommodate the reality that abatement from these projects will arrive in step changes aligned to project commissioning dates rather than as a smooth annual decline.

Pilbara iron ore

Across our iron ore portfolio, electrification of our assets and access to firmed renewable electricity are expected to be the primary long-term decarbonisation pathways to support achievement of our emissions

reduction targets. As a significant mine and infrastructure operator in the Pilbara, we are engaging with various stakeholders in the region (including Traditional Owners) to explore and discuss various solutions for increasing transmission, renewable energy generation and storage capacity in the Pilbara region. We are progressing a range of initiatives to support this transition, including renewable energy procurement, battery-electric haul truck trails, and the development of biofuel supply chains. Key projects include:

- **Jinbi PPA:** 75MW of new renewable electricity supply has been secured for the Pilbara under a 30-year power purchase agreement from a project owned and operated by Yindjibarndi Energy Corporation (YEC) marking a landmark partnership with Traditional Owners. Construction starts in 2026 with commissioning expected in 2028.
- **Battery-electric haul truck trials:** Collaborating with BHP, Caterpillar and Komatsu to pilot battery-electric haul truck technology in the Pilbara and accelerate the development of lower-emissions mining fleets. Rio Tinto has also commenced a 12-month trial of battery electric loaders under real operating conditions
- **Pongamia biofuels pilot:** Establishing pilot Pongamia seed farms in Queensland to evaluate the potential of Pongamia seed oil as a renewable diesel feedstock and support the development of biofuel supply chains in Australia. Separately, the use of renewable diesel was successfully validated in the Pilbara via a trial in 2025.

These initiatives demonstrate that significant on-site and fuel-switching abatement opportunities are being pursued across the iron ore value chain. However, as noted for our aluminium business, many rely on supporting infrastructure and new energy supply chains that require substantial investment and long development timelines. Renewable energy projects such as Gudai Darri solar and the Jinbi PPA will reduce reliance on fossil fuel generated electricity assets in the Pilbara which are under the electricity sectorial baseline (not designated large facilities). While electrification represents what is expected to be the most effective long-term pathway to reduce fossil diesel consumption, large-scale deployment of battery-electric haul trucks and supporting charging infrastructure is not expected to be technically or commercially feasible across all operations in the near term. Similarly, access to sufficient renewable electricity may be constrained by battery and charging technology maturity, transmission infrastructure requirements, land access and approval processes.

Compliance and the role of offsets

Rio Tinto's focus is on delivering emissions abatement solutions to decarbonise our operations. However, due to the widely acknowledged harder-to-abate nature of some facilities including alumina processing, aluminium smelting and remote heavy haulage operations, there will be a significant lag between the delivery of these solutions and the emissions reductions required under the declining Safeguard Mechanism baselines. In the context of these declining baselines Rio Tinto's obligations will need to be met using Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs). It is therefore imperative that the ACCU Scheme is conducive to the development of a liquid market of high-quality ACCUs at the scale that will be required by Australia's harder-to-abate sectors.

We support the Department's ongoing implementation of recommendations to improve the governance, transparency and scale of the ACCU Scheme and to accelerate the development and approval of new methods to increase the supply of high-quality ACCUs, including under the proponent-led method development approach. We note recent reports by carbon market analysts that forecast tight ACCU supply relative to demand post-2030 and we encourage the Department to consider the resourcing and systems required to best support the pace required to meet Australia's ACCU demand.

Decisions on decarbonisation alongside the use of ACCUs and SMCs reflect a combination of technology readiness, deployment timing and economics. Stable and predictable market settings are important to support long-term investment decisions and enable the development of transparent forward market signals that can be incorporated into decarbonisation planning and capital allocation decisions.

Alternative compliance measures should be considered

The Safeguard Mechanism design should function to establish a durable and predictable carbon price signal which incentivises emissions reduction rather than steering facilities without viable on-site abatement options into either non-compliance or carbon leakage. In sectors where abatement technologies remain technically immature, commercially challenging or require extended deployment timeframes, access to ACCUs and SMCs provides an important transition mechanism while emissions reduction projects are developed and implemented. A well-functioning market allows investment to flow toward the lowest-cost abatement opportunities available across the economy while maintaining compliance flexibility for harder-to-abate sectors. Greater clarity is required regarding how compliance obligations would be managed where eligible units are unavailable or where cost containment units are exhausted. Long-term confidence in the scheme is supported by certainty that Safeguard facilities will continue to have access to a viable compliance pathway while sufficient emissions reduction units are available to meet national objectives.

A compliance framework should continue to provide a practical pathway to compliance in circumstances where operational constraints or market conditions limit access to emissions reduction units. For example, where a facility cannot reduce emissions on site, and cannot access ACCUs or SMCs, compliance via payment per tonne at the cost containment mechanism price should be considered. Funds raised via this route could be reserved for innovation, energy efficiency or electricity sector spending. Alternatively, the government could consider reducing the requirement to purchase offsets where a company's decarbonisation project expenditure is significant. Evidence of spending on on-site abatement initiatives could contribute to a facility's effective compliance cost.

Coverage

If there is a transition away from a minimum baseline of 100kt CO_2e per year, then consideration should be given to a staged approach to ensure the increase in liability is smoothed over time. In addition, assets currently deemed under closure or care and maintenance should be exempt from the Safeguard Mechanism due to the inherent limitations of decarbonisation for such assets and their already-defined pathway to zero emissions.

To bring forward technically feasible emissions reduction in the economy, the Department could consider permitting 'early opt in' to incentivise facilities that are not yet covered by the Safeguard Mechanism to bring forward abatement in order to generate SMCs.

Flexibility

Banking

Banking and other flexibility mechanisms play an important role in supporting efficient decarbonisation across the economy. They allow businesses to manage the timing of emissions reduction investments while maintaining compliance with the scheme. At the same time, consideration should be given to maintaining sufficient market liquidity and encouraging the availability of ACCUs and SMCs for trading. Access to emissions reduction units is particularly important for harder-to-abate sectors, where compliance may depend on purchasing credits generated by sectors with lower-cost or more readily deployable abatement opportunities. Facilitating the transfer of ACCUs and SMCs between sectors supports least-cost emissions reduction across the economy and enables facilities with more readily deployable abatement opportunities to attract investment capital through the generation of emissions reduction units. This helps accelerate economy-wide decarbonisation while maintaining practical compliance pathways for harder-to-abate sectors.