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Department of Climate Change, Energy, the Environment and Water
https://consult.dcceew.gov.au/safeguard-mechanism-reform-consult-on-design/new-survey

24 February 2023

Dear Minister Bowen

Re: Response to Safeguard Mechanism Reform Position Paper and Rules

The Australian Aluminium Council (the Council) represents Australia's bauxite mining, alumina refining, aluminium smelting and downstream processing industries. The Australian aluminium industry has been operating in Australia since 1955, and over the decades has been a significant contributor to the Australian economy. Alongside many decades of economic contribution, the industry is globally comparatively young and well maintained. The industry includes six bauxite mines which collectively produce over 100 Mt per annum making Australia the world's largest producer of bauxite. The six alumina refineries produce around 20 Mt per annum of alumina and Australia is the world's largest exporter of alumina. There are four aluminium smelters; in addition to downstream processing including more than 20 extrusion presses and Australia is the seventh largest global producer of aluminium. Aluminium is Australia's largest manufacturing export. The industry directly employs more than 17,000 people, including 4,000 full time equivalent contractors. The industry also indirectly supports around 60,000 families in regional Australia.

The Council welcomes the opportunity to provide feedback to the January 2023 position paper "Safeguard Mechanism Reforms" (the Paper) and supporting rules and amendment documents. The Council has considered how options presented contribute towards meeting the continued global competitiveness of the Australian aluminium industry, while recognising that declining baselines need to be delivered in the context of Australia's target of by net zero by 2050 and 43% by 2030, as well as corporate ambitions over similar periods. The Council has also considered the needs for policy settings which will provide a transition to certainty for businesses through to 2030 and beyond. However, the Council also recognises that to date, the industrial sector as covered by the Safeguard Mechanism is the only sector where there is a clearly articulated framework with financial implications and that the Government's intention for other sectors such as agriculture, transport and waste have not been outlined to demonstrate a proportional share of the abatement task.

In addition to this covering letter, this submission includes three parts:

A. Feedback on the Safeguard Mechanism Reforms Position Paper;
B. Feedback on the Rules and Amendments; and
C. Aluminium Industry Context.

The focus of policy design for Safeguard Mechanism should be on establishing a framework to maintain industry, jobs and competitiveness while also decarbonising, through the period to 2030 and beyond to achieve net zero by 2050. The success of this policy will not be measured in 2030 alone, but

in the transformation of Australia's industry in the biggest clean industrial and economic revolution this country has seen.

The Mission Possible Partnership recently released Making Net Zero Aluminium Possible: A Transition Strategy for a 1.5°C-compliant Aluminium Sector[1] which 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), an investment of US$30bn would be necessary to deliver the same outcome. The Council's Members are focussed on overcoming not only technology challenges but also commercial, physical, skills, permitting and supply timelines to deliver this abatement. Effective reform of the Safeguard Mechanism should support the industry's ambition to abate and not detract from it or cause carbon leakage.

The Government's stated policy[2] intent is to provide "tailored treatment" for emissions-intensive, trade-exposed industries based on the principle of comparative impact and to help ensure businesses are not competitively disadvantaged, and that emissions do not 'leak' overseas. The reformed Safeguard Mechanism does not currently achieve this policy intent of ensuring that carbon leakage provisions are effective to ensure industrial production, emissions and jobs are not exported to other countries. Further work is required on the current design provisions for the treatment of emission intensive trade exposed industries to ensure this aspect of the policy meets the stated policy intent.

Members of the Council may also have made submissions directly to this consultation, highlighting their specific situations. This Council submission should be considered alongside the direct input from our members.

Conclusion

The Council recognises that the Safeguard Mechanism is starting from an existing scheme and the Government's consultation to implementation timeline of the reforms is short. In this context, the Council believes that we must not let "the perfect be the enemy of the good" and urges the Government to continue to adopt a pragmatic approach to developing the final design, to enable our industry to capitalise on Australia's politico-economic stability for fostering economic growth, supporting competitiveness, and applying costs only at the margin. However, this must address the issue of carbon leakage more effectively than the draft design.

The Council seeks a national climate and energy policy framework which is equitable, transparent, stable and predictable, while maintaining the economic health of the nation where import and export competing industries hold a vital role. The Council wishes to continue to work with the government to achieve optimal outcomes for the Australian industry, through 2030 and beyond.

Kind regards,

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[1] https://missionpossiblepartnership.org/wp-content/uploads/2022/10/Making-1.5-Aligned-Aluminium-possible.pdf

[2] Powering Australia Plan, 3 December 2021 and Safeguard Mechanism Consultation Paper, September 2022.

A. Response to Safeguard Mechanism Reforms Position Paper

As each aluminium smelter, alumina refinery and bauxite mine has unique circumstances and contractual arrangements, the Council will present high level comments on the Paper.

1. Timing and Process

The Paper outlines the process to achieve a 1 July 2023 start date for the Safeguard Mechanism reforms. The Council recognises that the proposed changes will be implemented through both subordinate legislations, including the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015* (the Safeguard Mechanism Rule) as well as primary legislative changes needed to implement crediting and related changes.

The Council supports the Government's review of the Safeguard Mechanism policy settings in 2026-27, once two years of post-reform data are available, to ensure they are appropriately calibrated.

2. The Safeguard Mechanism's share of the national abatement task

The Council also recognises Australia's commitment to a 43% reduction by 2030, however, this is a national target. While the Safeguard sector should contribute to achieving it, the focus of policy design for Mechanism should be on establishing a framework to maintain industry, jobs and competitiveness while also decarbonising, through the period to 2030 and beyond to achieve net zero by 2050. The success of this policy will not be measured in 2030 alone, but in the transformation of Australia's industry in the biggest clean industrial and economic revolution this country has seen.

The Council recognises the clear decarbonisation path —with a 2030 target on a trajectory to net zero by 2050—will introduce a credible and stable investment signal to help drive research and development of new technologies and processes. While the proposed reforms do not mandate a regulated emissions outcome for individual facilities and do allow businesses to 'trade' their baselines to access the lowest cost abatement among participants, there still needs to be sufficient collective abatement to trade.

For smelters, more than 95% of Scope 1 emissions could be eliminated with conversion to inert anodes and the industry has been working on inert anode technology development for many decades at a research scale. As highlighted in the Paper, Elysis[3], a joint venture between Alcoa, Rio Tinto, Apple and the Quebec Government has been developing this technology which will be trialled for commercialisation in 2024. The technology has the potential to be used at both new and existing smelters, including those in Australia[4]. However, as articulated in the September 2022 Mission Possible Partnership[5] report, the global rollout of inert anode technology is not anticipated to be widescale until post 2030. There are, therefore, limited abatement opportunities (<5%) for smelters until this technology is deployed.

Similarly for alumina refineries, and as articulated in the Australian Renewable Energy Agency (ARENA) Roadmap for Decarbonising Australian Alumina[6], even the Innovator Abatement Pathway does not show substantial abatement potential until close to 2030.

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[3] https://www.elysis.com/

[4] Based on current smelter practices, it could be assumed that the timescale for conversion of a smelter would be 5-6 years. Conversion would also only be possible when combined with an internationally competitive, low emissions electricity contract for reasons articulated in Part C of this submission.

[5] https://missionpossiblepartnership.org/wp-content/uploads/2022/09/Making-1.5-Aligned-Aluminium-possible.pdf

[6] https://arena.gov.au/assets/2022/11/roadmap-for-decarbonising-australian-alumina-refining-report.pdf

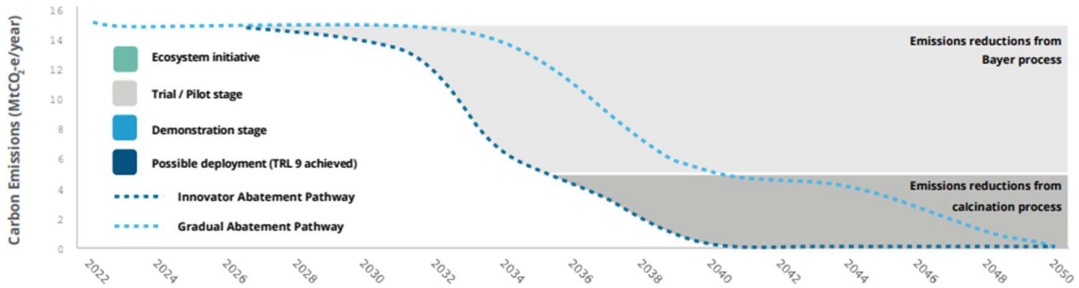

Figure 1. Alumina decarbonisation roadmap until 2050 with staging for key on-site and off-site ecosystem initiatives to achieve an 'Innovator Abatement Pathway'[6]

The biggest single opportunity to decarbonise the vertically integrated domestic aluminium industry is via decarbonisation of the electricity supply. This needs to be combined with technology availability for the facilities to enable transformation. However, in some cases it is the supply and availability of competitively priced zero emissions electricity which may be the rate limiting step. For example, the South West Interconnected System (SWIS) may not have the generation nor transmission capacity to electrify one alumina refinery, let alone four.

The Council notes that Energy Ministers have agreed a new National Energy Transformation Partnership, underpinned by the Government's Rewiring the Nation Plan, to support the ongoing decarbonisation of the electricity sector while maintaining the reliability and security of the electricity system. Increased generation of renewables in the electricity sector, which will be a key enabler of industrial transformation, is projected to increase to more than 80% by 2030, however, will have more limited abatement potential in later years.

To date, the Government has outlined incentives for all emissions sectors groupings in the economy, but Safeguard is the only sector facing significant punitive financial impacts. The Government's intention for other sectors such as agriculture, transport and waste have not been outlined and this needs to be done in a coordinated fashion to ensure the proposed sectoral approach is truly proportional. These sectors may also have voluntary targets which require ACCUs, which the Council is concerned has not been factored into the Government's modelling of their availability. At this time, the Government's policy approach to all sectors other than those covered by the Safeguard Mechanism is unclear.

The Council therefore continues to maintain that the abatement share for safeguard facilities should take into account available technology and the availability of enabling renewable electricity in the early phases of the Safeguard Mechanism, but with increased contribution post-2030s.

3. Setting baselines to achieve an equitable distribution of costs and benefits

Baselines for existing facilities

The Council welcomes the continued use of production-adjusted baselines for the reasons outlined in the Paper and acknowledges the need to retain a reserve to ensure the target is met. This reserve should be calibrated to ensure it continues to be appropriate and does not place an unnecessary impact on the competitiveness of the Safeguard facilities.

<u>Aluminium PFC Emissions</u>

The Council also notes that for some sectors such as aluminium smelting the industry average has increased since it was set. In the case of aluminium smelting the driver for this has been an increase in perfluorocarbons (PFCs) which are caused by cell instability (Figure 2). While the average of Scope

1 (excluding PFCs) remained constant at 1.75 t CO_2-e/t aluminium over the decade, the average PFC contribution nearly doubled from 0.1 t CO_2-e/t aluminium (2010-2015) to 0.19 t CO_2-e/t aluminium (2016-2021). This increase is a direct result of the increased role of smelters in stabilising the Australian electricity market since 2016 in support of Government policies for increased renewable energy penetration in the grid. For industries such as smelting, the industry average should be reset to reflect this changed external circumstance as the current industry average sits at 1.96 compared to the EI_{IA} of 1.85. The compounding effect of increased PFCs, which means all Australian smelters are now above the industry average; the hybrid model and the decline rate means that all smelters face a decline rate greater than 4.9% but with a step change technology not available until at least post 2030. The members of the Council have also prepared this data using the updated Global Warming Potentials (GWPs) to ensure consistency of reporting.

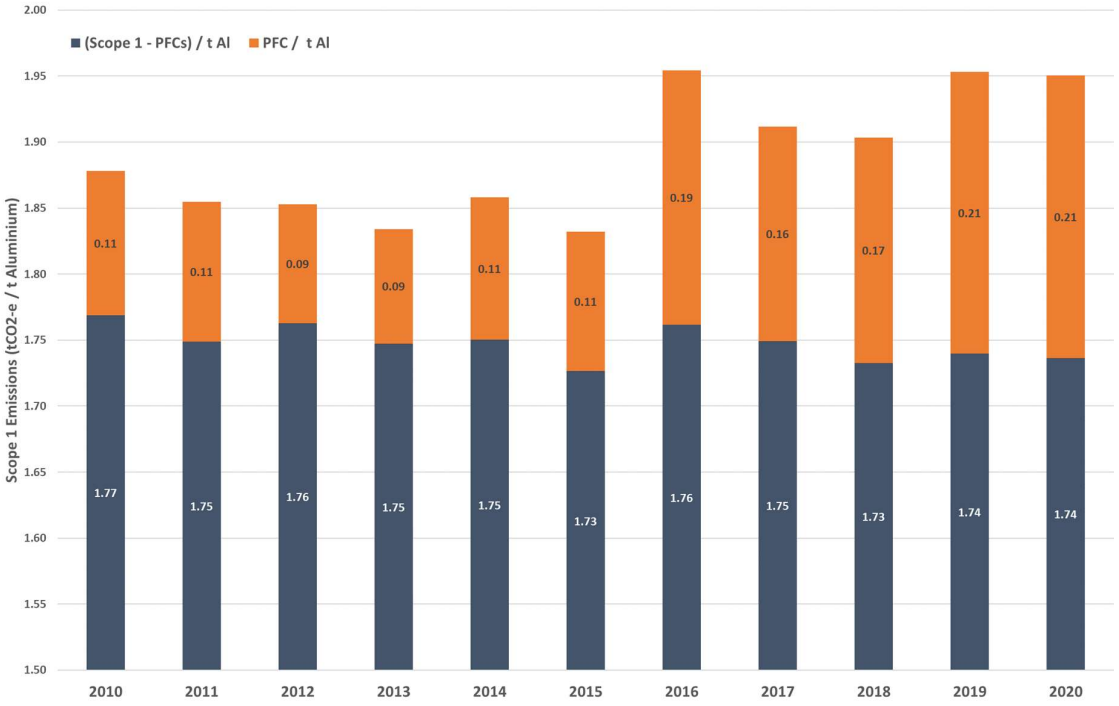

Figure 2. PFC increases 2010-2020[7]

Rehabilitation Production Variables

The Paper notes the need to finalise outstanding production variables (PVs) including mine-site rehabilitation. The Council has been involved with the development of this PV since early 2020 and notes that, to date, progress has been challenging. Consideration should be given to whether it is appropriate for PVs for rehabilitation to also decline, given the nature of this "production".

Non-Related Activities

There are instances when a facility uses fuel and generates emissions for large contracting activities that may not directly be related to a facility's production such as red mud dam pond capping at refineries or ex-refineries, partial closure rehabilitation and project implementation or upgrades using mobile equipment. Consideration for new PVs needs to be given to account for material activities that generate emissions but are not covered by current baseline allocations.

[7] https://aluminium.org.au/sustainability/

Implementing the new Hybrid Model
Council members have varied views on the proposed design rate of transition from facility-specific to industry-average emission intensities, which they will cover through individual company submissions.

However, despite differing views and the compounding effect of the weighting of the EIs (industry average and site specific), the Council seeks for a maximum decline rate limit that any single facility should reasonably be required to reduce year on year. For example, a cap on the total percentage change year on year, would help manage the decarbonisation challenge whilst staying economically viable and competitive.

The Council believes there is an ongoing role for the Department to continue consulting with liable entities on their particular needs and challenges in the baseline design, particularly for emission intensive trade exposed facilities. This will help ensure facilities' marginal abatement incentive is maintained, while maintaining scheme integrity. This is also part of the Government's commitment to tailored treatment for industry.

Baselines for new facilities
When considering application of rules to existing facilities with new products, this should not apply to mines which transition to the mine rehabilitation production variable. This should not be considered a "new product".

4. Flexible compliance options to lower costs
Crediting and trading
The Council supports the creation of automatically tradeable credits for Safeguard facilities which are below their baselines and those with multiyear monitoring, borrowing arrangements or deemed surrender provisions. The Council notes the very tight timeframe for legislative reform to enable crediting and trading and would be concerned if the changes which can be achieved through regulation are implemented ahead of the crediting, which requires legislation. The Council encourages continued consideration of ensuring these two processes are maintained in parallel.

There are additional timing issues associated with multi-year monitoring period (MYMP) processes and the creation of SMCs which are addressed in the Emerging Technologies section.

The Council supports the proposal that facilities continue to receive SMCs for five years after they fall below the coverage threshold of 100,000 tonnes CO_2-e.

Domestic Offsets
The Council supports the ability to allow Safeguard facilities to gain Australian Carbon Credit Units (ACCUs) under the Emissions Reduction Fund for emissions not covered under the Safeguard (e.g., land management and Scope 2 electricity). This should also apply to emerging methodologies, such as mineral carbonation in residue facilities. With this proposed change, it is not appropriate for these to be added to a facility's actual emissions before being compared against the baseline as per the current rules.

International Offsets
The Council supports the use of international offsets, subject to future rules of international trading, and, providing they meet integrity principles - representing real emissions reductions, make a genuine contribution to the goals of the Paris Agreement, and provide confidence in action by Australian companies to achieve targets and welcomes further consultation in 2023 on a legislative framework to support this.

Banking and borrowing
The Council supports both the banking and borrowing, which can be used to address the lumpiness of abatement.

Borrowing 10% against future baselines will also allow the industry to transition from baselines where its emissions reductions are for a short-term (i.e., one year), which will be characterised by substantial reduction in emissions upon implementation the following year is very limiting. The government's purpose to discourage accessing this flexibility mechanism is a pointless provision. Why provide a scheme that is not meant to be accessible unless a facility is cash-flow desperate to defer compliance costs at 10% interest rate to the following year, and to also provide a guarantee to pay that following year? The Council therefore believes that applying a 10% interest rate is excessive and means this feature will not be used as it far exceeds commercial interest rates.

The Council welcomes the recognition that the phased approach proposed in the August Paper is not needed and that the Government will not proceed with implementing Safeguard reforms in phases and will allow unlimited banking of SMCs to 2030. There should be no limit on the vintage for banking, including beyond 2030. When considering future banking and borrowing periods, consideration should be given to a five- and ten-year planning horizons which are typical for industry for this scale. Therefore, the policy should look to at least 2033 and then beyond.

Emerging Technologies
Industrial processes, by their nature, are highly variable. MYMPs are currently useful in addressing this year-to-year variability and emerging technologies over longer time periods. The Council would like to see much greater accessibility to the MYMP and not have it limited to new technologies. Capital projects and other abatement programs that take time to implement but will deliver a step-change in emissions reduction should be eligible. A program of several large projects being planned and implemented together should be considered to qualify for MYMP not just individual projects.

Additionally, as referenced in the Paper, more than 5 years is required for industries such as aluminium where technologies will not be available until beyond 2030. The timescale for MYMPs needs to match the timescale for major capital investments and contractual arrangements.

The MYMP period is limited to whole year increments during which facilities cannot borrow or generate SMCs. The facility must be able to avoid a cumulative liability at the end of the last year. However, timing of projects is such that for example a facility may be able to avoid a cumulative liability 3 months into a year. Under the current rules, this facility cannot end the MYMP early and absorb these first three months nor can it generate SMCs for the last 9 months. A more flexible approach to ending MYMPs would support greater adoption of transformative abatement.

The Council and its Members would also like to continue discussions with the Government into how the design of MYMPs can be adapted to better magnify and extend the co-commitments of abatement funding, particularly through the Powering the Regions fund. For example, in Quebec, Canada, the revenues from the carbon pricing scheme are allocated as funds for decarbonisation projects. The facility's compliance costs may be given back as allowance to the facility to be strictly used to fund its decarbonisation projects[8].

The Council is, however, concerned about the workability of an application including a declaration—signed by the responsible financial officer—stating that technology was not available to allow the facility to avoid the exceedance in that first year, but that technology has either subsequently become available or will become available such that the facility can avoid a cumulative liability at the end of

[8] https://www.environnement.gouv.qc.ca/changements/carbone/allocation-gratuite/presentation-en.htm

the relevant period. This does not appropriately recognise the risk associated with transformational abatement in terms of both implementation, operation and timing. If technology is only recently available, then there will be substantial early mover risk which this does not recognise. A responsible financial officer may sign off on commitment of capital but will not sign off on outcomes of technology implementation. This may essentially render the MYMP process void.

The requirement of having to cover the entire abatement for the MYMP in the period will disadvantage longer lead time projects that are implemented in the final year of the maximum allowable MYMP duration. The Council would like to see the entry requirements set to implementation of the project and dropping below the baseline in the final year (which would allow the facility to true-up the emissions position at that time and not affect the progress towards the target), with an expectation that the abatement in subsequent years would continue.

Cost containment measure

The Council welcomes the inclusion of a cost containment measure. However, the starting price of $75 is too high and the Council believes should more closely reflect the current market cost for carbon ($38). This is particularly important during the introductory phases of the scheme while the market is being established and becoming more liquid.

However, any limiting of ACCUs for the Safeguard Mechanism could effectively negate effectiveness of the cost containment measure.

The Council also welcomes the Clean Energy Regulator (CER) establishing the Australian Carbon Exchange. This will be a critical for market transparency and to support liquidity, particularly given the relatively short time that Safeguard facilities will have to meet compliance obligations once the Rule has been made. It will also support projects, who may not have traded to the secondary market.

5. Tailored treatment for emissions-intensive, trade-exposed (EITE) businesses

Under the proposed reforms it is the intent that Australian businesses should not be competitively disadvantaged relative to international competitors, and that production, capital investments, jobs and emissions do not 'leak' overseas. The Council also recognises that, increasingly, competitiveness will depend on being a low emissions producer and having a pathway to net zero.

The Government's stated policy[9] intent is to provide "tailored treatment" for emissions-intensive, trade-exposed industries based on the principle of comparative impact and to help ensure businesses are not competitively disadvantaged, and that emissions do not 'leak' overseas. The proposed design does not achieve this policy intent and must be addressed, otherwise Australia risks exporting production, jobs and emissions.

Trade Exposed Facilities (TE)

The Council welcomes the recognition that there will be a dedicated $600 million Safeguard Transformation Stream (STS) within the Powering the Regions Fund (PRF). However, it is worth noting that the cost of transformational abatement in industry is substantial. The Mission Possible Partnership[10] highlighted that a global investment of approximately US$1 trillion will be required for the aluminium sector transition. Considering the size of the Australian aluminium industry (~3% of the global industry), an investment of US$30bn would be necessary to deliver the same outcome.

[9] Powering Australia Plan, 3 December 2021 and Safeguard Mechanism Consultation Paper, September 2022.
[10] https://missionpossiblepartnership.org/wp-content/uploads/2022/10/Making-1.5-Aligned-Aluminium-possible.pdf

Additionally, Australia is competing internationally to attract the necessary capital and investment to undertake the transition but also to attract the type of priority areas which are the focus of the PRF. The scale of the investment by the Government at this stage does not match the scale of investment of Australia's competitors, such as in the US Inflation Reduction Act. Under the US Inflation Reduction Act there are US$370[11] billion in Energy and Climate Tax Credits and Incentives, including those for which the aluminium and related industries would qualify.

Any access to funding must recognise not only the substantial cost of transformative abatement but also consider the risks taken by early movers and the need to support a whole of industry decarbonisation strategy.

Funding should focus on partnerships for developing renewables and new technologies to provide a zero emissions energy pathway and harder to abate challenges where there are no existing solutions. To decarbonise more rapidly, facilities would also value support to lower the financial hurdles for transitioning and retrofitting existing equipment to either move to electrification or to upgrade large capital equipment sooner than end of life. A review of the limitation criteria for existing funding schemes to make them more inclusive of a broader range of projects within their target areas would also be required.

While funding partnerships may be part of the solution to address competitiveness, they will still only form a portion of the total cost of transformational abatement and scheme compliance.

The Council has separately provided feedback on the PRF[12].

Trade Exposed Baseline Adjusted facilities (TEBA)

To maintain competitiveness and minimise the risk of carbon leakage differentiated baseline declines, which recognises the availability of technologies and zero emissions energy, combined with access to funding recognising the substantial cost of transformative abatement should be considered. As articulated previously in this submission, and outlined illustratively in Figure 3, the rate of decline towards 2050 will vary with the type of industry and region (n*ote there is deliberately no time scale on Figure 3).* For example:

- Bauxite mining may take a series of incremental steps towards fuel substitution and electrification and so the mechanisms of banking and borrowing and multi-year averaging may help a facility meet their obligations while progressing in their decarbonisation.
- Alumina refining will be a series of substantial steps as the industry is expected to first decarbonise the digestion phase (subject to the successful development and commercialisation of technologies), and then, with the development of technology, calcination. However, the required thresholds for implementation will be different for each refinery (and processes within a refinery) with considerations to the access to energy including supporting transmission infrastructure, the local emissions intensity of fuel, electricity supply and the bauxite feed quality. For some refineries access to the required generation and infrastructure outside the facility's geographical boundary may be the rate limiting step. In all cases, refinery decarbonisation requires significant capital expenditure.
- For aluminium smelters, more than 95% of Scope 1 emissions could be eliminated with conversion to inert anodes. However, deployment of this technology is not anticipated to be ready before 2030 at the earliest, with even 2035 considered by many to be optimistic.

[11] https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf
[12] https://aluminium.org.au/news/aac-submission-on-powering-the-regions-fund-prf/

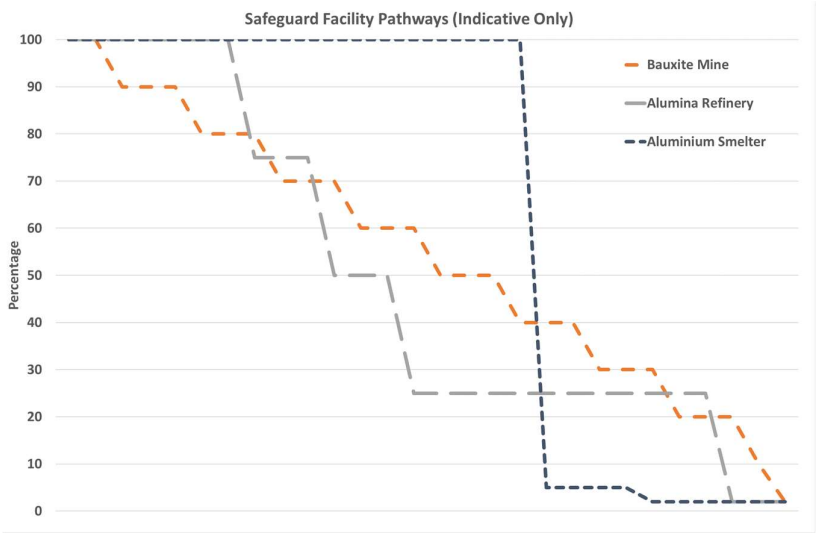

Figure 3. Indicative Industry Pathways (Scope 1 only)

However, the test for TEBA as proposed in the Paper uses revenue as the denominator. For commodity industries, revenue varies widely with international markets. Revenue is a poor metric for high revenue but thin margin sectors, such as aluminium smelting and alumina refining. The current approach does not take into consideration the profitability of the facility, the limitations of the facility to abate or to fund abatement investment from cashflows. The Council would support the determination of an additional list of Manufacturing PVs, similar to the list of Trade Exposed Production Variables in the Compilation of proposed amendments by the exposure draft of the National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Reforms) Rules 2023, reflecting these industries

Manufacturing industries frequently also have a high percentage of process emissions and incompressible Scope 1 emissions. These Manufacturing PVs should be subject to an alternative test to be eligible for TEBA. This could include:

- Lowering the threshold range to values that will be meaningful for the trade-exposed manufacturing industry's competitiveness;
- And an alternative to use a gross value added test, which may more appropriately reflect input costs and thin margins;
- Possibly other metrics to be developed in conjunction with the Department.

The Government has articulated a commitment to the manufacturing sector[13] and in particular the production of these materials , including aluminium ,which are both of both strategic national importance and aligned with the Australia's low carbon future. Australia must retain these value-added chains, particularly where these metals, such as aluminium, are of strategic importance to the low carbon future. Aluminium's role in light-weighting, electrical infrastructure and renewable energy equipment manufacture makes it fundamental to both a national and global transition to a clean energy future[14]. Comparable international emissions schemes recognise the aluminium industry as needing transitional treatment to prevent carbon leakage. It is important that policy design recognises the ongoing importance of this manufacturing in Australia and ensures that the availability of the lowest decline rate (proposed at 2%) within the scheme design does the work required to ensure their

[13] https://www.pm.gov.au/media/address-national-press-club
[14] https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action

on-going competitiveness. These industries should qualify for a decline rate of 2%, noting that even this will still result in substantial compliance costs. In order to continue to receive this recognition, these industries should continue to demonstrate their commitment to developing technologies to abate, such as Elysis[3] and be subject to periodic (e.g., 5 yearly) review of eligibility. This policy solution addresses the particular challenges with designing a universal test, which can never deliver tailored treatment to prevent carbon leakage and maintain competitiveness in all circumstances.

Additionally, where there are ongoing high compliance costs, the Council encourages consideration of a decarbonisation fund. For example, in Quebec, Canada, the revenues from the carbon pricing scheme are allocated as funds for decarbonisation projects. The facility's compliance costs may be given back as allowance to the facility to be strictly used to fund its decarbonisation projects[8]. The Council encourages further consideration of this model in Australia, particularly for manufacturing sectors such as aluminium.

Exploring additional policy options to address carbon leakage
The Council welcomes the Government's commitment to consult further in the future on a potential Carbon Border Adjustment Mechanism (CBAM). However, as this would only be an initial consultation it should not be seen as part of a current EITE package and any current EITE treatment must be sufficient to prevent carbon leakage without a CBAM in place. The Council, however, would welcome a more robust EITE treatment than currently outlined, which could be reviewed following implementation of a CBAM. The Council also notes that a CBAM is better suited to support domestic markets and not export focused markets such as the aluminium sector and therefore other future options may also need to be developed to support such businesses.

6. Declining baselines to deliver the target
The Paper indicates that the Government's preference is a uniform, annual decline rate of 4.9 per cent each year to meet the Safeguard's share of the national emissions budget and the 2030 target. Noting the Council's position that safeguard facilities should contribute less abatement reduction in the early phases of the Safeguard Mechanism, but with more opportunities to contribute beyond 2030, as relevant technology and electrification are further developed, the Council believes that this could be delivered through a variable decline rate. This would enable the policy settings to be tested in the early years though a "soft start" but still provide the policy signals for investment while still rewarding early abatement.

For major industry, a five- and ten-year planning horizon is not unusual. It is unlikely that almost any Safeguard facility will be able to undertake abatement of 4.9% by 30 June 2024 (noting that the reform's start date is only 4 months from the timing of this submission and before legislation has passed). Additionally, this does not recognise:

- The duration of existing commercial contracts for fuels (gas and coal) and electricity which may last for many years;
- Physical constraints in regional electricity generation, transmission infrastructure and transmission and gas pipeline capacity; and
- Availability of appropriate skills, labour and equipment to implement transformative abatement – particularly in light of the post COVID ongoing skills and supply chain shortages.

The Paper currently proposes a uniform 4.9% decline rate. However, a softer start in Year 1 (e.g., a 3% decline rate) then moving to a fixed decline would be more consistent with the time frames and scale of transformational abatement and technology development. Beyond 2030, the industry expects step changes as technology and electrification are developed.

The Government could publish an ongoing rolling 5-year publication and review of decline rates to provide the businesses with long term guides. The first of these could cover the period 2023-2028 with further calibration in the 2026-27 review.

7. Strengthening enforcement

The Council agrees with the proposed provisions for regulatory 'strengthening enforcement' through 'civil penalty' and 'anti-avoidance' measures within legal frameworks to maintain the integrity of the Safeguard Mechanism scheme.

B. Rules and Amendments

National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Reforms) Rules 2023

There are issues on the ambiguity of "technology has, or will, become available" in the declaration required from the Financial Officer to reduce the facility's covered emissions intensity when applying for the MYMP (*S*ection 35 subsections 65(3)(c)(d)), and what this means in the emissions reductions commitments and compliance.

Australian National Registry of Emissions Units Rules 2023

The Council supports the use of the Australian National Registry of Emissions Units (ANREU) system to continue ACCUs transactions and to be used for future SMCs transactions.

Carbon Credits (Carbon Farming Initiative) Amendment (No. 2) Rules 2023

The Council supports the amendments in the CFI Rules for crediting below baselines for the generation of SMCs.

C. Aluminium Industry Context

Most of the large bauxite mines, all six alumina refineries plus all four aluminium smelters are covered facilities under the Safeguard Mechanism. In 2021, Scope 1 and 2 emissions from Australia's integrated aluminium industry (bauxite, alumina, aluminium) were about 34 Mt CO_2-e, which was 7% of Australia's national emissions. About 16.9 Mt CO_2-e of this was Scope 1 emissions from Safeguard facilities, representing 12% of Safeguard emissions for the 2020/21 reporting year. Energy typically accounts for 30-40% of the industries cost base, and therefore energy efficiency is a key focus of for these processes. The integrated nature of bauxite mining, alumina refining, aluminium smelting and extrusion processes in Australia means that efficient and effective regulatory processes for each step is critically important to the ongoing operation of the overall system.

Transformational Pathways

The Mission Possible Partnership, in collaboration with the International Aluminium Institute, recently released Making Net Zero Aluminium Possible: A Transition Strategy for a 1.5°C-compliant Aluminium Sector[15] (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. It outlined not only actions the industry needs to take, but also actions required by Governments to support this. In particular, developing policy which is predictable, stable and transparent to enable businesses to confidently plan for this substantial investment. Governments also have a vital role to play designing electricity markets to support the transition and minimising the risks of carbon leakage.

The Australian Renewable Energy Agency (ARENA) in consultation with Alcoa, Rio Tinto and South32 has published a Roadmap for Decarbonising Australian Alumina[16]. The Roadmap identifies four key themes for decarbonisation that could transform the way alumina refineries consume and use energy by enabling the uptake of renewables and removing the use of fossil fuels. It also provides a framework for future policy and investment decisions and serves as a call to action to collaboratively transition the sector into an industry at the forefront of the transition to net zero.

In addition, the Council has produced a series of five factsheets:

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.

The Council intends to update these factsheets annually; reflecting not only progress in decarbonisation in the industry; but also updating the industry's views of the evolution of decarbonisation technologies, based on research undertaken in Australia and through global partnerships. The single biggest opportunity to decarbonise the energy intensive Australian vertically integrated aluminium industry is through the combination of electrification of existing processes and decarbonisation of the electricity supply.

[15] https://missionpossiblepartnership.org/wp-content/uploads/2022/10/Making-1.5-Aligned-Aluminium-possible.pdf

[16] https://arena.gov.au/assets/2022/11/roadmap-for-decarbonising-australian-alumina-refining-report.pdf

Australia's grid-connected mines, refineries and particularly smelters perform an enabling function in grid stabilisation which helps with increased penetration of variable renewable electricity. The carbon intensity of the Australian grid is declining rapidly[17], with this increased penetration of variable renewables. Our industry also will have the opportunity, as part of contract renewal, to contract a substantial share of electricity supply from firmed renewable electricity from on grid sources or behind the meter sources and members have signalled their intentions to do so[18].

In 2021 the industry's indirect emissions associated with the consumption of grid purchased electricity are around 17.6 Mt CO_2-e, of which 95% is from the production of primary aluminium (**Figure 4**). However, technologies which electrify the digestion process in alumina refineries could offset an additional 11 Mt CO_2-e of the 13.7 Mt alumina Scope 1 emissions.

Alumina refineries will require technology changes for both digestion and calcination processes to meet zero-emissions goals; either in the form of electrification or adaptation to use hydrogen for process heating. Development of this technology and its application will be stepwise as new technologies to reduce overall emissions become viable. The required thresholds for implementation will be differentiated by refinery (and processes within a refinery); locational access to energy, including supporting transmission infrastructure; the local emissions intensity of electricity supply and bauxite type. The investment required to implement these changes will be substantial.

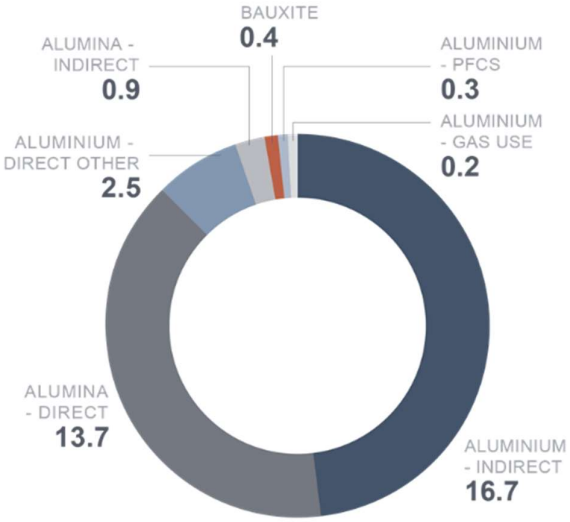

Figure 4. 2021 Industry Emissions (Mt CO_2-e)

Providing electricity is supplied consistently, with firm power, and at internationally competitive prices, aluminium smelting can be run on renewable electricity. For aluminium smelters, more than 95% of Scope 1 emissions could be eliminated with conversion to inert anodes (eliminating direct anode consumption, energy used in carbon bakes plus perfluorocarbons). The technology for inert anodes is currently under development and will be more easily *assessed* in 5 years. Deployment of this technology is not anticipated to be readily available before 2030. Additionally, this would only be implemented in conjunction with long-term internationally competitive electricity contracts to

[17] https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/market-operations/settlements-and-payments/settlements/carbon-dioxide-equivalent-intensity-index

[18] https://www.riotinto.com/-/media/Content/Documents/Invest/Presentations/2021/RT-Investor-Seminar-2021-combined.pdf?rev=2e127f507f204ecc81e2d22527949560, https://arena.gov.au/projects/spinifex-offshore-wind-farm-phase-1-development-activities/

underpin investment and available renewable electricity supply because they are more electricity-intensive (~10-15%). And even with competitive low emissions electricity, the investment would be substantial, and implementation would vary from smelter to smelter, or even potline to potline.

Electrification

Australia's alumina industry already has some of the lowest emissions in the world, with an average emissions intensity for alumina of 0.7 t CO_2-e/t compared to the global industry average of 1.2 t CO_2-e/t. Alumina refining is an energy intensive process, using about 10.5 GJ / t produced. Digestion and calcination are the two most energy intensive steps, with digestion consuming around two thirds of this energy. Currently, this energy is largely derived from gas and coal, as well as electricity. All of Australia's alumina refineries have some combined heat and power generation (cogeneration) facilities which use coal, gas, or biomass fuels. Cogeneration is an efficient way to produce process heat from the waste steam from electricity generation, resulting in the refineries using, and in some circumstances, also exporting low emissions electricity.

Around 150 PJ of energy, derived from gas or coal, is currently used in the digestion phase in alumina refineries to generate steam and electricity. This has the potential to be replaced by internationally competitive renewable electricity, subject to the successful development and commercialisation of refinery side technology (including Mechanical Vapour Recompression, thermal storage and Electric Boilers). This has the potential to require more than 4000 MW of electricity at a national level to replace the existing energy supply, on a like for like basis. This would transform both the National Electricity Market (NEM) and South West Interconnected System (SWIS) electricity markets.

However, this relies on not only the development of commercial and technological solutions for electrification of alumina refineries but also the development of sufficient competitively priced low emissions generation and storage, and transmission capacity at scale to match. The electrification of existing industry, combined with the development of new electricity intensive industries, such as hydrogen, will require substantial volumes of electricity delivered reliably, affordably and at scale. The Council is concerned that if technology development lags, or energy infrastructure is delivered in the manner and at the pace it has historically, this will become the rate limiting step in the transition[19]. For example, the SWIS may not have the generation nor transmission capacity to electrify one alumina refinery, let alone four. For example, Worsley Alumina[20] have confirmed that a substantial expansion and modification of the energy grid would be required to deliver renewable power at the necessary scale for industrial users in the region (SWIS). Therefore, decarbonisation of Worsley Alumina may be in two stages, firstly conversion of the onsite boilers to natural gas and only in the longer term application of new technologies to support increased electrification and renewable energy for the refinery, which would require broader investment in shared energy infrastructure in the region.

It is the internationally competitive cost of zero carbon electricity at industrial scale to facilities, which will enable the greatest transformation of the sector. It is hoped that some technologies for refinery digestion may be able to be deployed prior to 2030. However, access to the required generation, storage and infrastructure outside the facility could be the rate limiting step in the electrification process.

Corporate Ambitions

The major operators and joint venture participants in Australia's aluminium industry have the common ambition of net zero by 2050, supported by interim goals (Table 1). However, when

[19] https://www.worley.com/~/media/Files/W/Worley-V3/documents/our-thinking/from-ambition-to-reality/from-ambition-to-reality-report.pdf

[20] P73, https://www.south32.net/docs/default-source/all-financial-results/2022-annual-reporting-suite/sustainable-development-report-2022.pdf

comparing these targets with performance within Australia or at a facility level, it is worth noting that corporate ambitions are set at levels that are in line with their policies and subject to their accounting and transparency rules. All of the Council's members' interim ambitions are for *both* Scope 1 and Scope 2, and the application of known technologies such as increasing renewable energy supply will be the major pathways for these to be achieved. In the case of the Council's members, these targets include:

- Corporate targets can be set on ownership, operational control or equity share basis which is different to Safeguard / National Greenhouse and Energy Reporting (NGER) data at the controlling corporation level;
- Corporate targets are frequently set at a multinational level to ensure those facilities in their international portfolio that provide the cost-effective and low-risk emission reductions are actioned first. Therefore, local facility targets may differ from corporate targets, and these may not align with Australian NGER data;
- Corporate and end-market requirements can be Scope 1, Scope 1 plus Scope 2, intensity based, or may include Scope 3. While these are accepted greenhouse gas emissions accounting procedures, they may not align with NGER data;
- Can be reported on calendar or financial years (and financial years vary by corporation) which may not align with NGER data;
- Target setting relies on Government/regulator forecasts of substantial grid electricity decarbonisation by 2030; and
- Additionally, targets are generally set as long-term ambition supported by interim goals. This considers the temporal nature of targets (i.e., short, medium and long-term), and a non-annual approach to ensure businesses do not chase short-term and short-sighted annual reductions, but rather focus on long-term success.

Australia's Competitiveness

The Council believes there is an opportunity for Australia to capitalise on its own strategic advantage and maximise economic value. Today's aluminium industry contributes around $16.9B[21] a year to the economy in export value (

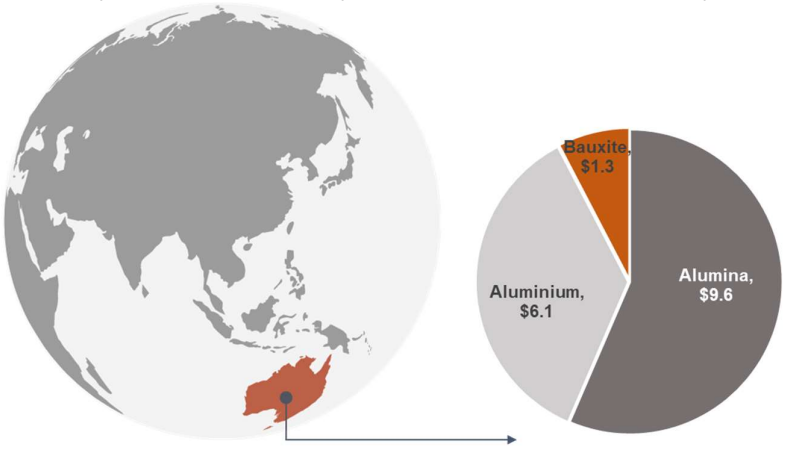

Figure 5). More than $15B of this comes from the alumina and aluminium industries, as value adding mineral processing sectors. Australia is one of the very few countries which has bauxite mining, alumina refining, aluminium smelting and aluminium extrusion industries. Importantly - aluminium is one of the few commodities which Australia mines, which is then processed all the way to a consumer product right here in Australia. Globally, there is a focus across industry to find solutions for the technology challenges required to decarbonise. There is an opportunity for Australia to lead the world

[21] https://www.industry.gov.au/sites/default/files/minisite/static/ba3c15bd-3747-4346-a328-6b5a43672abf/resources-and-energy-quarterly-september-2022/documents/Resources-and-Energy-Quarterly-September-2022-Aluminium.pdf

in development and implementation of these technologies, capitalising on Australia's national advantage providing jobs and value to the economy.

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

Table 1.Summary of Corporate Ambitions[22]

Company	Interim Goal (s)	Net Zero Ambition
Alcoa	30% reduction in scope 1 & 2 emission intensity by 2025 50% reduction in scope 1 & 2 emissions emission intensity by 2030 from 2015 baseline	Net zero by 2050
Rio Tinto	15% reduction in scope 1 & 2 emissions by 2025 50% reduction in scope 1 & 2 emissions by 2030 From a 2018 baseline (equity basis)	Net zero by 2050
South32	50% reduction in operational carbon emissions (Scope 1 & 2) by 2035 from FY21 baseline	Net zero by 2050
Alumina Ltd[23]	45% reduction in scope 1 and 2 emissions by 2030 (from a 2010 baseline)	Net zero by 2050
Hydro[24]	Reduction of 30% by 2030	Net zero by 2050

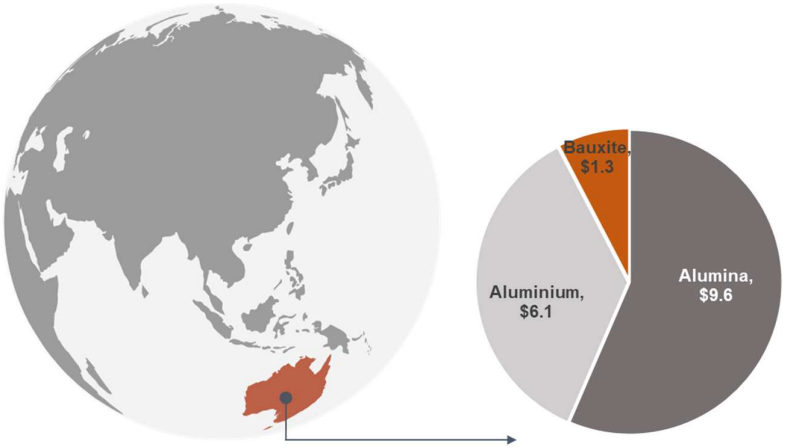

Figure 5. 2021 Industry Export Value ($B)

[22]Sources: https://www.riotinto.com/en/sustainability/climate-change; https://www.alcoa.com/global/en/stories/releases?id=2021/10/advancing-sustainably-alcoas-2050-net-zero-ambition; https://www.south32.net/docs/default-source/exchange-releases/2021-south32-sustainability-briefing.pdf?sfvrsn=d8a76a71_2; https://www.hydro.com/en/media/news/2021/hydro-capital-markets-day-2021-sustainable-value-creation/

[23] Alumina Ltd are a JV participant in Alcoa World Alumina and Chemicals, which operate two mines and three refineries in Western Australia and has equity in the Portland Aluminium Smelter.

[24] Hydro is a JV participant in Tomago Aluminium Company.

It is worth noting that the global competitors for each part of the industry vary with commodity. For bauxite, this is principally Guinea, which is the world's largest exporter, principally to China, including some captive bauxite mines; as well as Brazil, India, and Indonesia. Key competitors in alumina refining are China (>50% global production) and emerging economies such as Brazil, India, Saudi Arabia, Vietnam and Kazakhstan. Similarly, for aluminium smelting, China accounts for almost 60% of global production and the key countries for *growth* are India, United Arab Emirates, Bahrain, Saudi Arabia, and Malaysia.