

Carbon Border Adjustments

What are they and how will they
impact Australia?

All G7 members have sharpened their climate and trade policies to consider the use of carbon border adjustments. Australia should lean in rather than push back on the development of such a proposal while taking advantage of the opportunities in existing and new export industries

Discussion paper

Frank Muller

Hugh Saddler

Hannah Melville-Rea

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Level 1, Endeavour House, 1 Franklin St
Canberra, ACT 2601

Tel: (02) 61300530

Email: mail@australiainstitute.org.au

Website: www.australiainstitute.org.au

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Executive Summary

The European Union (EU), the US, Canada, Japan and the UK are ramping up climate commitments ahead of the COP26 Climate Summit, including through domestic carbon prices. To enable their carbon pricing to operate effectively across the global economy, they are contemplating carbon border adjustment mechanisms (CBAMs).

Once implemented, CBAMs will tax the carbon content of imports from countries with unpriced carbon, such as Australia.

The UK, as host of the upcoming G7, has confirmed the Summit will include discussions on coordinating carbon pricing and CBAMs. The G7 members have all agreed on net-zero emissions by 2050 targets and increased climate policy efforts over the next decade. The UK Prime Minister has even tested the idea of a “carbon club” of like-minded countries with high climate ambition, carbon pricing and coordinated border adjustments.

In a few weeks, the EU Commission will present the world’s first detailed CBAM proposal, a central part of their economic recovery plan under the European Green Deal and their efforts to meet their ambitious target of at least a 55% cut in emissions this decade.

While some governments have raised concerns about possible implications of the EU CBAM, including the United States, the Australian Government has gone further. Australian Ministers have repeatedly attacked the European Union’s CBAM proposal as protectionist but have not released any analysis to back up this claim. By contrast, the former head of the World Trade Organisation, Pascal Lamy, has described trade rules as a compass to follow, not an obstacle, in designing a carbon border adjustment. Indeed, from the perspective of countries making greater efforts to reduce emissions, Australia’s lack of ambition and unpriced carbon looks more like protectionism.

Australia stands almost alone among high-income advanced economies in increasing emissions from fossil fuel combustion since 2005 and falls well short of its international peers in the commitments it has made under the Paris Agreement to reduce emissions. It is also now one of the very few high-income countries without some form of a carbon price.

There are 43 manufacturing processes that are considered Emissions Intensive and Trade Exposed (EITE) in Australia. When aligned with Australia’s exports statistics, it is clear that EITEs account for only a small proportion of the total value of Australia’s exports of goods, worth \$20.1 billion or 5% (in 2019-20). Of those, primary metals accounted for the vast bulk of Australia’s EITE exports - 88% in 2018-19 and 87% in 2019-20.

However, the concern is that some of those primary metal goods are mainly produced for the export market. 83% of alumina and 92% of aluminium produced in Australia are

exported. In addition, alumina and aluminium make up over 50% (by value) of EITE exports, worth on average about \$12 billion annually.

Last year, 64% of aluminium (as well as 40% of Australia's steel) was exported to countries where carbon prices are in place or under consideration. And alumina and aluminium made in Australia are highly emissions-intensive compared to competitors (outside of China).

Therefore, a CBAM is a serious risk for some goods in Australia, and potentially a serious opportunity for those that decarbonise production methods.

Australia should engage constructively in discussions on CBAM, to help shape the mechanism. Australia can draw from its expertise with the National Greenhouse and Energy Reporting Scheme, to advise on carbon accounting. Further, decisions about how CBAM revenue will be used and ways to prevent exports from being redirected to jurisdictions without CBAM are key questions for environmental integrity.

Under all circumstances, the safest course of action is for Australia to diversify its production by investing in the production of clean exports. Transitioning industries reliant on fossil fuels – such as hydrogen, ammonia, steel, and aluminium – to be powered by renewables will allow them to operate under any scenario.

Then, a CBAM would only create positive price signals for clean exports. Indeed, Australia's abundant and low-cost solar and wind resources, minerals endowment, land availability, and scientific and technological capacity would position it to prosper in a low-emissions world.

While CBAMs won't happen overnight, they are being explored with a level of unprecedented gusto. Investing in clean production methods will allow Australia to hedge its bets and promote new and transformed industries that are cleaner and more resilient.

Introduction

The Australian Government's approach to climate action can be summed up by a commonly used phrase from the Minister for Emissions Reductions, Angus Taylor: "Technology not taxes".¹ It allows the government to support favoured technologies without levying charges on carbon pollution or polluters.

But could it be that the taxes on carbon pollution are coming? Just from outside Australia?

The paper explores the rise of carbon border adjustment mechanisms (CBAM) overseas and what this means for Australia. This is not a new issue. For decades, proposals for pricing carbon pollution in Australia also considered the potential competitiveness impacts and the risk of 'carbon leakage' abroad.

Policy experts and stakeholders have worried that energy-intensive industries might relocate overseas to escape a carbon price or other effective policy measures. In some cases, such relocation might result in higher global emissions as Australian industry is displaced by more emissions-intensive production elsewhere. In other cases, displacement by lower carbon overseas production might lower global emissions. Either way, the risk of relocation has helped undermine domestic political support for effective climate policies.

This problem results from there being wide differences in climate ambition and policy measures among countries and no realistic path to a global agreement on harmonized policies such as a uniform carbon price. It is a major barrier to individual countries taking a lead on climate change and charting a path for others to follow.

Yet competitiveness and 'carbon leakage' have featured *more* prominently in Australian climate policy debates than in most other countries. This reflects the fact that Australia's economy has relatively open borders and important regional economies and jobs depend significantly on both export-oriented and import exposed emissions-intensive industries. It also has one of the most fossil fuel-based and emissions-intensive economies of all economically developed countries. Export-oriented industries are mainly mineral processing industries such as steel, alumina, aluminium, copper, zinc and ammonia. Import exposed industries include pulp and paper, cement clinker, steel, glass, and ceramic products. When Australian Governments considered carbon price proposals in 1994 and 2008, solutions to

¹ Taylor (2020) *Media Release: Harnessing new technology to grow jobs and the economy and lower emissions*, <https://www.minister.industry.gov.au/ministers/taylor/media-releases/harnessing-new-technology-grow-jobs-and-economy-and-lower-emissions>;

Taylor (2020) *Joint media release: \$1.3B initiative backs recycling and clean energy*, <https://minister.awe.gov.au/ley/media-releases/13b-initiative-backs-recycling-and-clean-energy>;

Taylor (2021) *Media Release: Jobs Boost From New Emissions Reduction Projects*, <https://www.pm.gov.au/media/jobs-boost-new-emissions-reduction-projects>

this problem were widely discussed. The carbon price eventually adopted by the Gillard Government in 2011 included detailed provisions relating to emissions-intensive trade-exposed industries.

Fast forward to the present and Australia finds itself on the receiving end of mechanisms to prevent carbon leakage. The EU, UK, China, Japan, Republic of Korea, New Zealand, Canada and even parts of the US have or are contemplating carbon prices. Proposals are being made that these countries, or a subset of them, form a 'climate club' by coordinating aspects of their carbon prices and taxing imports from other nations. Australia is being left behind and is likely to face taxes on its carbon-intensive exports.

How has Australia gone from an early acknowledgement of the carbon leakage problem to facing border taxes? What will a new "climate club" of climate ambitious countries mean for Australia?

What is a carbon border adjustment mechanism?

A carbon border adjustment mechanism (CBAM) is essentially a tax on the carbon content of emissions-intensive imports. It can also be a tax rebate provided to exports of such products. When a country adopts a carbon price that raises the price of domestic products, imports can be taxed and exports provided a rebate to create a level playing field. Without such a mechanism, emissions may be displaced overseas. For example, if Germany seeks to further reduce the emissions involved in producing steel, by requiring European producers to purchase European emission allowances, steel imported from China or Australia with higher embodied fossil fuel emissions may be relatively cheaper. A border adjustment mechanism can prevent Chinese or Australian steel from displacing steel produced in Europe.

Border tax adjustments are a common feature of tax systems, like Australia's goods and services tax (GST) and European value-added taxes (VATs). GST, for example, is payable on most goods that are imported into Australia, either at the border or the point of sale.² Exported goods are generally GST-free.³ In the same vein, many Australian travellers will be familiar with the opportunity on departure from European airports to obtain VAT refunds for major purchases. Border adjustments are not tariffs or export subsidies, but an integral part of consumption and production tax systems that serve to clearly define the tax base and protect the revenue.

Border taxes for environmental concerns have been adopted before. Two examples are the ozone-depleting chemicals (ODC) tax and Superfund chemical excises in the USA.⁴ These border adjustments were applied not only to the target chemicals but also to certain other traded products that are manufactured using these chemicals. They applied regardless of whether the target chemicals were consumed in the manufacturing process or physically incorporated into the traded good. The ODC tax was an important part of a suite of

² GST is payable to the Australian Customs Service on goods above a threshold value that are brought into the country by individuals. Goods that would have been GST-free if supplied within Australia (e.g. 'basic food' and certain 'medical aids and appliances') are exempt.

³ Section 38-185 of *A New Tax System (Goods and Services Tax) Act 1999*. A business can claim input tax credits for the GST that it paid on goods and services that the business used to produce the export goods, even though the business did not include any GST in the price of the exported goods.

⁴ Hoerner and Muller (1993), The impact of a broad-based energy tax on the competitiveness of U.S. industry, *The Natural Resources Tax Review*, pp 428-458. Hoerner (1998), *The role of Border Tax Adjustments in Environmental Taxation: Theory and US Experience*, Presented at the International Workshop on Market Based Instruments and International Trade of the Institute for Environmental Studies, Amsterdam. For recent climate-related proposals, see Mehling, Van Asselt, Das, Droegge, Verkuil, *Designing BCAs for Enhanced Climate Action*, Climate Strategies, December 2017, pp 9-10. https://climatestrategies.org/wp-content/uploads/2017/12/CS_report-Dec-2017-4.pdf

measures that enabled the United States to lead the world in phasing out the chemicals posing the greatest threat to the ozone layer.

A carbon border adjustment extends this approach to the emissions resulting from the consumption of fossil fuels to manufacture energy-intensive traded products. These emissions are commonly called ‘embodied’ carbon and a border adjustment has long been discussed as a way of dealing with the carbon leakage and competitiveness risks of pricing carbon. In the early 1990s, for example, the US House of Representatives adopted a border adjustment as part of legislation for an energy tax proposed by President Clinton that ultimately fell short in the Senate. In 2006, The Australia Institute proposed this approach for Australia when Prime Minister John Howard refused to ratify the Kyoto Protocol, largely on competitiveness grounds.⁵

Since its inception in 2005, the European Union’s emissions trading system (EU ETS) has largely dealt with carbon leakage and competitiveness concerns by allocating emission allowances for free to energy-intensive industry sectors. Australia took a similar approach in the carbon pricing schemes proposed by the Rudd Government in 2008 and adopted by the Gillard Minority Government in 2011.⁶ The problem is that the free allocation of allowances, like exemption from a carbon tax, effectively removes the incentive to reduce emissions.

The EU now proposes a carbon border adjustment mechanism (CBAM) to replace free allocation. This is part of the European Green Deal which aims to achieve carbon neutrality by 2050 and emissions reductions of at least 55 percent on 1990 levels by 2030. The EU ETS cap will be progressively tightened, leading to significantly higher carbon prices and a higher risk of carbon leakage. In response to the adoption of the new 2030 target and plans to strengthen the EU ETS, the EU carbon price already has increased steeply, passing 50 euros per tonne of CO₂ (around US\$60) for the first time in early May 2021⁷. The CBAM is viewed as a way of ensuring that energy-intensive industries contribute more effectively than they have to date while avoiding carbon leakage. The proposal, dubbed “Fit for 55”, also explicitly aims to raise the climate ambition of Europe’s trading partners.

The International Monetary Fund has noted the efficacy of a border adjustment for Europe, stating that while a global carbon price would be preferable, applying “the same carbon prices on the same products irrespective of where they are produced could help avoid

⁵ Saddler, H., Muller, F. and C. Cuevas (2006) *Competitiveness and carbon pricing: border adjustments for greenhouse policies*, Discussion Paper No. 86, The Australia Institute. <https://australiainstitute.org.au/report/competitiveness-and-carbon-pricing-border-adjustments-for-greenhouse-policies/>

⁶ In both cases, free allocation was viewed as a temporary approach until trading partners strengthened their climate commitments and embraced carbon pricing. Under the Abbot Government, Australia went on to become the only country to repeal an effective carbon price.

⁷ Krukowska (2021) *Germany Signals Record EU Carbon Price Rally May Slow Down*. <https://www.bloomberg.com/news/articles/2021-05-13/germany-signals-record-eu-carbon-price-rally-may-slow-down>

shifting emissions out of the EU to countries with different standards”⁸. Europe is set to be the first jurisdiction to tax imports based on embodied carbon. Other countries are now showing an interest.

Trade protection or climate protection?

Australia’s Trade Minister labelled the EU CBAM proposal a “protectionist approach” that “raises serious concerns about WTO compliance”.⁹ This continues the long history of crying wolf, as far back as the 1990s.

For as long as CBAMs have been proposed, complaints have been raised that they will be inconsistent with international trade rules. However, numerous studies have long shown that this need not be the case.¹⁰ After all, the World Trade Organisation (WTO) itself has never ruled them out. Indeed, jointly with the U.N. Environment Programme, the WTO published in 2009 a detailed review of relevant literature that effectively provides a roadmap for the design of a trade rule-compliant approach.¹¹

While the legal issues are highly technical, in short, a border adjustment to either a carbon tax or emissions trading scheme that simply levels the playing field between domestic and foreign production should pass muster.¹² By contrast, a border adjustment to a regulatory program without a transparent carbon price would be problematic and questionable.

WTO compliance will ultimately only be tested if a country adopts a carbon border adjustment and other countries, believing it violates trade rules, refers the matter to the WTO. The issue would then be dealt with through the WTO’s dispute settlement system.¹³

The European Union has consistently said the CBAM will be designed to comply with WTO rules, and in consultation with international partners. Former WTO Director-General, Pascal

⁸ Georgieva (2020) *Friends of Europe: In Conversation with Kristalina Georgieva on Pursuing a Green Economic Recovery*, <https://www.imf.org/en/News/Articles/2020/09/16/sp091620-friends-of-europe-md-opening-remarks>

⁹ Galloway (2021) *‘Liberalisation not protectionist’: Australia to fight EU’s carbon tariffs with its own plan*, <https://www.smh.com.au/politics/federal/liberalisation-not-protectionist-australia-to-fight-eu-s-carbon-tariffs-with-its-own-plan-20210311-p579v9.html>

¹⁰ See for example Hoerner and Muller (1996) *Carbon taxes for climate protection in a competitive world*, A paper prepared for the Swiss Federal Office for Foreign Economic Affairs by the Environmental Tax Program of the Center for Global Change, University of Maryland College Park. Also Hoerner (1998) *The role of Border Tax Adjustments in Environmental Taxation: Theory and US Experience*, presented at the International Workshop on Market Based Instruments and International Trade of the Institute for Environmental Studies, Amsterdam.

¹¹ Tamiotti, Ohloff, Teh, Simmons, Kulaçoğlu and Abaza (2009) *Trade and Climate Change: A report by the United Nations Environment Programme and the World Trade Organization*, p. 98. https://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf

¹² As per the example above of border adjustments to GST and VAT taxes, there are specific provisions in trade law relating to taxes that may set a lower hurdle for WTO compliance for a border adjustment to a carbon tax than for an emissions trading scheme.

¹³ See World Trade Organisation (n.d.) *Despite settlement*, https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm

Lamy, who has influenced the development of the EU proposal,¹⁴ notes “...the rules of international trade law can be considered not as an obstacle, but rather as the compass that the European Commission will have to follow when designing its carbon adjustment mechanism”¹⁵.

A more nuanced objection to border adjustments has been that they might complicate international trade policy agendas and priorities. For example, in rejecting border adjustments, a key 2008 Australian Government Green Paper concluded in somewhat alarmist terms that there was a risk that, if widely adopted, “... border adjustments could be used to pursue protectionist policies and constrain global trade. This could be very costly for a small, open economy like Australia.”¹⁶ That a “risk” to trade policy should so easily trump, with little detailed analysis, a promising climate policy measure, undoubtedly reflected the realpolitik of the time, not only in Australia.

But the world of 2021 is very different. The Council of the European Union has outlined a Climate and Energy Diplomacy strategy through which “the EU will ensure that its trade policy and its trade agreements are consistent with its climate ambition” and “... respect of the Paris agreement (is) an essential element for all future comprehensive trade agreements”.¹⁷

The US also now recognises the legitimacy of using trade policy to achieve climate goals. US Special Trade Representative Katherine Tai recently said, “For too long, the traditional trade community has resisted the view that trade policy is a legitimate tool in helping to solve the climate crisis”.¹⁸

While the Australian Prime Minister will warn G7 members in June 2021 not to put up carbon border adjustments,¹⁹ he will have to contend with the EU and United States, who clearly see trade policy as a legitimate tool for climate action.

¹⁴ O’Malley (2021) *European-style carbon taxes tipped to spread*, <https://www.smh.com.au/environment/climate-change/european-style-carbon-taxes-destined-to-spread-says-former-trade-chief-20210416-p57jxq.html>

¹⁵ Lamy et al. (2020) *A European Border Carbon Adjustment proposal*. https://institutdelors.eu/wp-content/uploads/2020/06/A-European-Border-Carbon-Adjustment-proposal_EN.pdf

¹⁶ Australian Government Department of Climate Change (2008) *Carbon Pollution Reduction Scheme Green Paper*, p. 301. <https://apo.org.au/sites/default/files/resource-files/2008-07/apo-nid2424.pdf>

¹⁷ Council of the European Union (2021) *Council conclusions on Climate and Energy Diplomacy - Delivering on the external dimension of the European Green Deal*, <https://www.consilium.europa.eu/media/48057/st05263-en21.pdf>

¹⁸ Remarks from Ambassador Katherine Tai on Trade Policy, the Environment and Climate Change, 15 April, 2021. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2021/april/remarks-ambassador-katherine-tai-trade-policy-environment-and-climate-change>

¹⁹ Crowe (2021) *Morrison will warn G7 nations not to put carbon tariffs on trade*, <https://www.smh.com.au/politics/federal/morrison-will-warn-g7-nations-not-to-put-carbon-tariffs-on-trade-20210602-p57xfd.html>

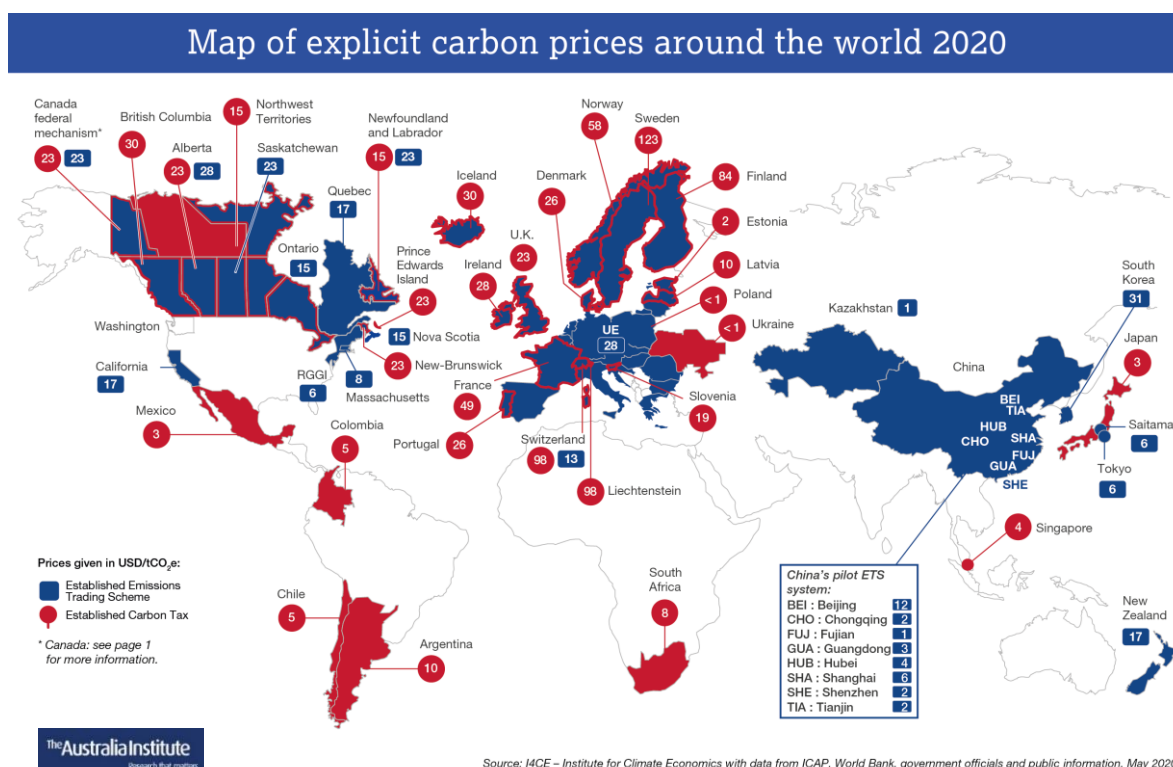
International State of Play

In line with the Paris Agreement, countries are accelerating their emission reduction targets and strengthening domestic abatement policies. The shift in recent months has been dramatic with the United States, Japan, Republic of Korea, United Kingdom and Canada all announcing strong targets for 2030 that greatly exceed Australia’s modest ambition.²⁰

Today, the majority of countries – representing the majority of the world’s population and over two-thirds of global GDP – have some form of net-zero emissions targets.²¹ This includes China, the world’s largest emitter, which has committed to carbon neutrality by 2060. At President Biden’s recent Climate Leaders Summit, President Xi Jinping announced his country would begin phasing down coal consumption from 2025.

Typically, to help meet these targets, domestic carbon prices are established or strengthened where they already exist. Figure 1 shows the jurisdictions that already have implemented carbon pricing through emissions trading schemes or a carbon tax.

Figure 1: Carbon Priced Regions



²⁰ Melville-Rea and Armistead (2021) *Short-term ambition: 2030 targets for the US and Australia*, <https://australiainstitute.org.au/report/short-term-ambition-2030-targets-for-the-us-and-australia/>

²¹ Climate & Energy Intelligence Unit & Oxford Net Zero (2021) *Taking Stock: A global assessment of net zero*, <https://eci.net/analysis/reports/2021/taking-stock-assessment-net-zero-targets>

As discussed, in many of the schemes, the most trade-exposed and carbon-intensive industries have been exempted from carbon pricing or subject to weakened incentives such as through free emission allowances. Consequently, there is often no strong incentive for decarbonisation in key economic sectors like basic metals, basic chemicals, and construction materials.²² The burden of achieving emissions targets falls disproportionately on regulated sectors at a higher overall economic cost.

CBAMs have gained renewed attention as countries strengthen their emissions targets and look for solutions to the carbon leakage problem. But this interest also reflects a recognition that there is no realistic path to net-zero emissions without effective policies to drive decarbonisation across the economy, including for sectors like basic materials and heavy industry.²³

European Union

The EU leads the world for carbon border adjustments. In January 2020, the EU adopted the European Green Deal to address the climate crisis.²⁴ The deal includes stronger emissions targets and an expansion of the European emissions trading scheme (EU ETS). It proposes a CBAM for selected sectors to reduce the risk of carbon leakage and “...ensure that the price of imports more accurately reflect their carbon content”.²⁵

A year later, in March 2021, the EU Parliament voted overwhelmingly to progress the CBAM proposal.²⁶ A final proposal is due to be presented by the European Commission to the European Parliament and the European Council on 14 July 2021.

²² For example, the European Commission recently reported that between 2011 and 2019 emissions from electricity and heat production installations participating in the EU ETS decreased by 34% whereas emissions from industrial installations increased by 6%. Allowances are primarily auctioned in the power sector but allocated free to industry. European Commission, Report from the Commission to the European Parliament and the Council: Report on the Functioning of the European Carbon Market. Brussels, 18/11/2020, COM (2020) 740 final. See Table 7, p. 28. https://ec.europa.eu/clima/sites/clima/files/news/docs/com_2020_740_en.pdf

²³ Many countries are investing in cleaner production technologies such as green steel and hydrogen (through what are known as ‘technology push’ policies) but demand for such products will be slow to emerge without price incentives. And getting to net-zero requires substituting low- for high-carbon materials in new buildings and infrastructure (e.g., timber for concrete). In both cases, numerous economic actors are involved and to create early demand for these products (known as ‘market pull’), an economy-wide carbon price is likely to be more effective and feasible to implement than direct subsidies or regulation alone.

²⁴ European Commission (2019) *The European Green Deal*, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#document2>

²⁵ The CBAM would replace existing provisions of the EU ETS dealing with carbon leakage such as free allocation of emission allowances and compensation for increased electricity costs.

²⁶ European Parliament (2021) *MEPs: Put a carbon price on certain EU imports to raise global climate ambition*, <https://www.europarl.europa.eu/news/en/press-room/20210304IPR99208/meps-put-a-carbon-price-on-certain-eu-imports-to-raise-global-climate-ambition>

There are many important design questions still to be fleshed out by the EU. Implementation is currently planned for 2023, but it could begin as a pilot in just a few industries to build confidence and provide learnings. Key design issues include which goods to cover, how to assess their carbon content, whether and how to factor in the climate policies and development status of exporting countries and how revenues will be used.²⁷ A senior EU official indicated last October that the core sectors might be steel, cement and electricity with possible later extension to aluminium, fertilisers and chemicals.²⁸

Given the EU has the world's largest single market and has historical expertise in the governance of international trade, the EU is well-positioned to navigate WTO rules and create a workable mechanism. The EU also explicitly views the CBAM as a building block for better aligning the world trading system with climate protection.²⁹

United Kingdom

The UK has a legislated 2050 net-zero target and has indicated that it will also embed in law a 78 percent reduction on 1990 levels by 2035, building on the 68 percent cut by 2030.³⁰ Prime Minister Boris Johnson has directed government departments to come up with options prior to the G7 for carbon border levies that could extend carbon pricing internationally.³¹

Following Brexit, the UK is now implementing its own cap-and-trade emissions trading scheme (ETS) to take over from the EU ETS. The scheme covers energy-intensive industry, power generation and aviation, together contributing around 30 to 40 percent of UK emissions. It replicates EU ETS rules on free allowances to deal with carbon leakage in the

²⁷ See for example: Delbeke and Vis (2020) *A way forward for a carbon border adjustment mechanism by the EU*, <https://cadmus.eui.eu/handle/1814/69155>

²⁸ Abnett (2020) *EU eyeing carbon border fees plan for steel, cement and power: senior official*, <https://www.reuters.com/article/us-climate-change-eu-carbon/eu-eying-carbon-border-fees-plan-for-steel-cement-and-power-senior-official-idUSKBN26Y2MX>

²⁹ See: Council of the European Union (2021) *Council conclusions on Climate and Energy Diplomacy - Delivering on the external dimension of the European Green Deal*, <https://www.consilium.europa.eu/media/48057/st05263-en21.pdf>

³⁰ Johnson (2021) *PM Statement at the Leaders' Summit on Climate: 22 April 2021*.

<https://www.gov.uk/government/speeches/pm-statement-at-the-leaders-summit-on-climate-22-april-2021>; also The White House (2021) *Leaders Summit on Climate Summary of Proceedings*, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/23/leaders-summit-on-climate-summary-of-proceedings/>

³¹ Harris and Galloway (2021) *New protectionism: Australia to fight Boris Johnson's green tariff bid*, <https://www.smh.com.au/politics/federal/new-protectionism-australia-to-fight-boris-johnson-s-green-tariff-bid-20210210-p5714j.html>

energy-intensive industry, but the government is reviewing this approach.³² Allowances are primarily auctioned with an initial floor price of approximately US\$30 per tonne of CO₂.³³

The intersection of trade and climate goals has become an important focus for the UK Government as it navigates a post-Brexit world. The British High Commissioner in Canberra recently confirmed the UK had “made very clear that climate change is our number one foreign policy priority”, noting the G7 event would be followed by the hosting of the COP26 climate summit in Glasgow in November³⁴.

United States

At the recent Leader’s Summit on Climate, host President Biden announced a new 2030 US target to achieve a 50-52 percent reduction from 2005 levels in net greenhouse gas emissions.³⁵ On his first day in office the President had announced the U.S. was re-joining the Paris Agreement and this new target represents a very substantial increase on the previous commitment by the Obama Administration. President Biden describes climate change as an “existential threat” and has established a whole-of-government process with responsibilities for all major Cabinet members to deliver emission reductions, create clean energy jobs and rally further global climate action. He also has set targets to cut emissions from electricity to zero by 2035 and to reach national net-zero GHG emissions no later than 2050. Clean energy and climate-friendly investments make up around half of the new Administration’s US\$2 trillion post-COVID economic recovery proposal, the American Jobs Plan.³⁶

During the Presidential election, the Biden campaign released a clean energy plan committing to “impose carbon adjustment fees or quotas on carbon-intensive goods from countries that are failing to meet their climate and environmental obligations”. It stated “We can no longer separate trade policy from our climate objectives. Biden will not allow

³² Department of Agriculture, Environment and Rural Affairs (2020) *The future of UK carbon pricing, UK Government and Devolved Administrations’ response*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/889037/Government_Response_to_Consultation_on_Future_of_UK_Carbon_Pricing.pdf; also

Department for Business, Energy & Industrial Strategy (2021) *Guidance: Participating in the UK ETS*, <https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets>

³³ Reuters (2021) *Britain raises planned floor price for carbon permit auctions*, <https://www.reuters.com/article/uk-britain-carbontrading-idUKKBN2ACOL7>

³⁴ Hurst (2021) *UK urges Australia to scale up climate ambition before G7 summit*, <https://www.theguardian.com/environment/2021/jun/03/uk-urges-australia-to-scale-up-climate-ambitions-before-g7-summit>

³⁵ The White House (2021) *Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies*, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>

³⁶ Jaeger et al. (2021) *Does Biden’s American Jobs Plan Stack Up on Climate and Jobs?*, <https://www.wri.org/insights/does-bidens-american-jobs-plan-stack-climate-and-jobs>

other nations, including China, to game the system by becoming destination economies for polluters, undermining our climate efforts and exploiting American workers and businesses”.³⁷ The Administration’s 2021 Trade Policy Agenda makes addressing greenhouse gases in the global trading system a key priority and states that carbon border adjustments will be considered.³⁸ Given the wide reaching implications of CBAMs, US Special Envoy for Climate Change John Kerry recently commented they should be used as a “last resort”.³⁹

The State of California, which accounts for 15 percent of US GDP, imposes a carbon price through a comprehensive emissions cap and trading scheme that is linked with a similar scheme in the Canadian province of Quebec.⁴⁰ In 2020, the allowance price averaged US\$17 per tonne of CO₂.⁴¹ Eleven states in the north-east and mid-Atlantic, including New York, Massachusetts and Virginia, jointly run a more limited regional program that applies a carbon price in the electricity sector.⁴² In April 2021, after a decade of failed initiatives, the State of Washington’s legislature enacted a comprehensive carbon pricing scheme (also cap and trade).⁴³ Together these thirteen states with carbon pricing make up 39 percent of the US economy.⁴⁴

With a finely balanced Congress and strong Republican opposition, President Biden is unlikely to propose a national carbon price during the current Congressional term (2021-23). Incentives and support for an expansion of state carbon prices are more likely. However, politics could shift surprisingly quickly. Most major energy corporations in the United States, including Chevron, Shell and BP, support an economy-wide carbon price.⁴⁵ A carbon tax, which returns tax revenues as a yearly dividend to all American families and involves a border adjustment, is supported by some influential Republicans and many major US corporations, especially within the energy sector.⁴⁶

³⁷ Biden Harris Democrats (2020) *The Biden plan for a clean energy revolution and environmental justice*, <https://joebiden.com/climate-plan/>

³⁸ US Trade Representative (2021) *2021 Trade Policy Agenda and 2020 Annual Report*, p. 3, <https://ustr.gov/sites/default/files/files/reports/2021/2021%20Trade%20Agenda/Online%20PDF%202021%20Trade%20Policy%20Agenda%20and%202020%20Annual%20Report.pdf>

³⁹ Reuters (2021) Kerry 'concerned' about EU carbon border tax implications: FT <https://www.reuters.com/article/uk-usa-eu-kerry-idUKKBN2B40JP>

⁴⁰ California Air Resources Board (2015) *About: Cap-and-Trade Program*, <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/about>

⁴¹ International Carbon Action Partnership (2021) USA - California Cap-and-Trade Program, https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems%5B%5D=45

⁴² The Regional Greenhouse Gas Initiative (2021) <https://www.rggi.org>

⁴³ Yoder (2021) *After a decade of failures, Washington state passes a cap on carbon emissions*, <https://grist.org/economics/after-a-decade-of-failures-washington-state-passes-a-cap-on-carbon-emissions/>

⁴⁴ Calculated from Gross domestic product (GDP) by state: All industry total (Percent of U.S.), Q4, 2020, Bureau of Economic Analysis. <https://www.bea.gov/news/2021/gross-domestic-product-state-4th-quarter-2020-and-annual-2020-preliminary>

⁴⁵ For example, see: Centre for Climate and Energy Solutions (nd.d) *Business Environment Leadership Council*, <https://www.c2es.org/our-work/belc/> and <https://clouncil.org/statements/>

⁴⁶ See: Climate Leadership Council (n.d.) <https://clouncil.org/statements/>

Japan

A 2050 Net-Zero Strategy was agreed in Japan in 2020. This year, Prime Minister Suga Yoshihide announced a new target to reduce emissions 46 percent in 2030 from 2013 levels.⁴⁷ up from the earlier goal of 26 percent, a dramatic and unexpected boost in Japan's climate ambition.

Consideration is now being given to closing 100 of Japan's 144 coal plants by 2030.⁴⁸ It is worth recalling, Japan consumes more Australian coal than Australia.⁴⁹ Japan will allocate two trillion yen (AUD 25.5 billion) to support technology investments over the next decade.⁵⁰ A doubling of Japan's renewable energy target is also under consideration.

To reach these ambitious targets, a carbon pricing scheme is being developed⁵¹ and some combination of a carbon tax, emissions trading and subsidies is considered a possible outcome.⁵² The EU CBAM proposal looms large in these deliberations⁵³ and Japan is investigating border adjustments.⁵⁴

Canada

Prime Minister Justin Trudeau has announced a strengthened target for 2030 under the Paris Agreement, a reduction of 40 to 45 percent below 2005 levels, up from the previous target of 30 percent.⁵⁵ In November 2020, the government introduced in Parliament the Canadian Net-Zero Emissions Accountability Act to formalise its 2050 net-zero target.⁵⁶ And it announced in December 2020 that it will increase Canada's carbon tax from around US\$24

⁴⁷ Leaders' Summit on Climate, Remarks by H.E. Mr. Suga Yoshihide, Prime Minister of Japan.
https://www.mofa.go.jp/ic/ch/page6e_000236.html

⁴⁸ Japan Times (2020) Japan aims to shut down 100 inefficient coal plants within decade,
<https://www.japantimes.co.jp/news/2020/07/02/business/japan-shut-100-coal-plants/>

⁴⁹ Campbell (2021) *Out of sight, out of mind: Impacts of Japanese use of Australian coal*,
<https://australiainstitute.org.au/report/out-of-sight-out-of-mind/>

⁵⁰ Bloomberg (2020) *Japan's Latest Extra Budget Adds \$210 Billion in Spending*,
<https://www.bloomberg.com/news/articles/2020-12-15/japan-third-extra-budget-sets-out-21-8-trillion-yen-in-spending>

⁵¹ Siripala (2021) *Japan's Carbon Neutral Future Divided Over Climate Pricing*,
<https://www.tokyoreview.net/2021/04/japans-carbon-neutral-future-divided-over-climate-pricing/>

⁵² Nomura (2021) *Japan begins discussions on carbon pricing framework*, <https://www.nomuraconnects.com/focused-thinking-posts/japan-begins-discussions-on-carbon-pricing-framework/>

⁵³ See: *Japan to Speed Up Discussions on Carbon Pricing*, <https://www.nippon.com/en/news/yjj2021021400298/>

⁵⁴ Bloomberg Tax (2021) *Japan Mulls Carbon Border Tax for Polluters, Nikkei Says*, <https://news.bloombergtax.com/daily-tax-report/japan-mulls-carbon-border-tax-for-biggest-polluters-nikkei-says>

⁵⁵ Government of Canada (2021) *Canada's Enhanced Nationally Determined Contribution*,
<https://www.canada.ca/en/environment-climate-change/news/2021/04/canadas-enhanced-nationally-determined-contribution.html>

⁵⁶ Government of Canada (2021) *Net-Zero Emissions by 2050*,
<https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050.html>

per tonne of CO₂ now to around US\$135 in 2030.⁵⁷ The tax is imposed in provinces that have not implemented their own carbon pricing schemes and revenue is returned to households proportionally based on the amount of revenue raised in each province.

A major 2020 economic statement released by the Deputy Prime Minister and Minister for Finance stated “...the government is exploring the potential of border carbon adjustments, and will be discussing this issue with our international partners”.⁵⁸ Indeed, it was discussed between President Biden and Prime Minister Trudeau at a virtual meeting in February this year.⁵⁹

The G7

As outlined above, all G7 nations (Canada, France, Germany, Italy, Japan, the UK and US) have adopted a net-zero emissions by 2050 target into policy or law. Further, each member is increasing its domestic climate commitments ahead of the UN climate conference in November 2021. As such, the carbon prices within G7 states are likely to increase, making border adjustments more attractive. As the British High Commissioner to Australia recently confirmed, CBAM is “something that is being discussed” at the upcoming G7 Summit.⁶⁰ Additional guests to the G7 alongside Australia, such as the Republic of Korea, have also taken major strides in developing their own carbon prices and are in stronger positions to respond to any CBAM.

Republic of Korea

President Moon Jae-in has announced that Korea will strengthen its 2030 emissions target to be consistent with its 2050 net-zero emissions goal and terminate public overseas coal finance.⁶¹ The existing 2030 target announced only last year is a 24.4 percent reduction from 2017 levels and Korea has stopped issuing permits for new domestic coal power

⁵⁷ Tasker (2020) *Ottawa to hike federal carbon tax to \$170 a tonne by 2030*, <https://www.cbc.ca/news/politics/carbon-tax-hike-new-climate-plan-1.5837709>; and Joselow (2021) *National Carbon Tax Upheld by Canada's Supreme Court*, <https://www.scientificamerican.com/article/national-carbon-tax-upheld-by-canadas-supreme-court/>

⁵⁸ Department of Finance Canada (2020) *Supporting Canadians and Fighting COVID-19: Fall Economic Statement*, p.92. <https://budget.gc.ca/fes-eea/2020/report-rapport/FES-EEA-eng.pdf>

⁵⁹ The White House (2021) *Roadmap for a Renewed U.S.-Canada Partnership*, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/02/23/roadmap-for-a-renewed-u-s-canada-partnership/>

⁶⁰ Hurst (2021) *UK urges Australia to scale up climate ambition before G7 summit*, <https://www.theguardian.com/environment/2021/jun/03/uk-urges-australia-to-scale-up-climate-ambitions-before-g7-summit>

⁶¹ Leaders Summit on Climate Summary of Proceedings, 23 April 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/23/leaders-summit-on-climate-summary-of-proceedings/>

plants.⁶² The Korean New Deal for post-COVID recovery anticipates investments of US\$135 billion in green and digital technology.⁶³

Korea launched a nationwide mandatory emissions trading scheme in 2015, which now covers approximately 74 percent of national greenhouse gas emissions.⁶⁴ Most industry sectors receive free allowances, but the share auctioned is gradually increasing. The average price in the secondary market in 2020 was US\$28 per tonne of CO₂. The scheme cap is based on last year's 2030 target and will need to be tightened to meet a new target.

A Climate Club

It has long been understood that by adopting an appropriately designed border adjustment in association with a carbon or energy tax, a country or group of countries can generate a domino effect encouraging the wider adoption of such taxes. The governments of trading partners face a choice between imposing their own taxes and collecting the associated revenue on the one hand, or otherwise having their products taxed anyway and revenues collected in the countries to which they export.⁶⁵ The CBAM proposal, whether adopted by the EU alone or in cooperation with a broader coalition, might in this way build momentum for carbon pricing.

A different approach was proposed by Nobel Prize winning US economist William Nordhaus in 2015 when he popularised the idea of a 'climate club'. His proposal envisages a coalition of countries (ideally global) agreeing on a target carbon price with an agreed general tariff on all imports from countries that refuse to join the club.⁶⁶ As Nordhaus acknowledges, this would require a new top-down international climate agreement, like the Kyoto Protocol, as well as a set of 'climate amendments' to international trade law to make the tariff legal.⁶⁷

The term 'climate club' is now widely used and has taken on a broader meaning than in the specific Nordhaus proposal⁶⁸. In that spirit, a climate club might be formed by the EU and

⁶² See: Korea.net (2021) *President announces higher targets for CO2 emissions at climate summit*, <https://www.korea.net/NewsFocus/policies/view?articleId=197349>

⁶³ See: P4G (n.d.) <https://p4gpartnerships.org/global-ecosystems/country-partners/republic-korea>

⁶⁴ International Carbon Action Partnership (2021) *Korea Emissions Trading Scheme, International Carbon Action Partnership*, https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems%5B%5D=47

⁶⁵ Hoerner and Muller (1993) *The impact of a broad-based energy tax on the competitiveness of U.S. industry*, *The Natural Resources Tax Review*, p.445.

⁶⁶ Nordhaus (2015) *Climate Clubs: Overcoming Free-Riding in International Climate Policy*, <https://www.aeaweb.org/articles?id=10.1257/aer.15000001>

⁶⁷ The Nordhaus proposal is for a uniform ad valorem tariff on all imported goods from non-members, not a border adjustment for emissions-intensive goods based on carbon content.

⁶⁸ See: van Assalt (2017) *Climate change and trade policy interaction: Implications of regionalism*, OECD Trade and Environment Working Papers. <https://www.oecd-ilibrary.org/docserver/c1bb521e-en.pdf?expires=1619588366&id=id&accname=guest&checksum=B5DB243CF512676BCCEBD3F608B4B7F3>

like-minded countries that have domestic carbon prices. Members could agree, for example, on a common approach to the design of carbon border adjustments that each would apply to its own imports (and possibly exports) of specified emissions-intensive goods. Such a bottom-up approach, prompted by the EU CBAM proposal, might emerge through the G7 or other multi-lateral discussions with climate high on international agendas.

President Biden’s ambitious climate plans could see the G7 states coordinate on climate action. Already, Canada’s Justin Trudeau and President Biden have agreed “...to work together to protect businesses, workers and communities in both countries from unfair trade by countries failing to take strong climate action”.⁶⁹

Australia

Australia is the outlier amongst friends. Australia’s emission reduction pledge for 2030 under the Paris Agreement falls well short of the commitments of other developed countries (see Table 1 below). This has become a diplomatic liability.

Table 1: 2030 emission reduction targets measured from various base-years

Base year	1990	2005	2010	2013	2018
UK	-68%	-64%	-59%	-56%	-46%
Germany	-65%	-56%	-54%	-53%	-49%
EU	-55%	-51%	-46%	-42%	-41%
USA	-43%	-52%	-49%	-47%	-47%
Japan	-40%	-44%	-41%	-46%	-39%
Canada	-27%	-45%	-41%	-43%	-45%
Australia	-28%	-28%	-25%	-18%	-17%

Source: Adapted from Simon Evans⁷⁰, Carbon Brief



Prime Minister Morrison was denied a speaking opportunity at a December 2020 climate summit co-hosted by UK Prime Minister Boris Johnson⁷¹ and Australian climate

⁶⁹ The White House (2021) *Roadmap for a Renewed U.S.-Canada Partnership*, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/02/23/roadmap-for-a-renewed-u-s-canada-partnership/>

⁷⁰ Joshi (2021) *Germany forced by court ruling to set world-leading net zero targets: Can it reach them?*, <https://reneweconomy.com.au/germany-forced-by-court-ruling-to-set-world-leading-net-zero-targets-can-it-reach-them/>

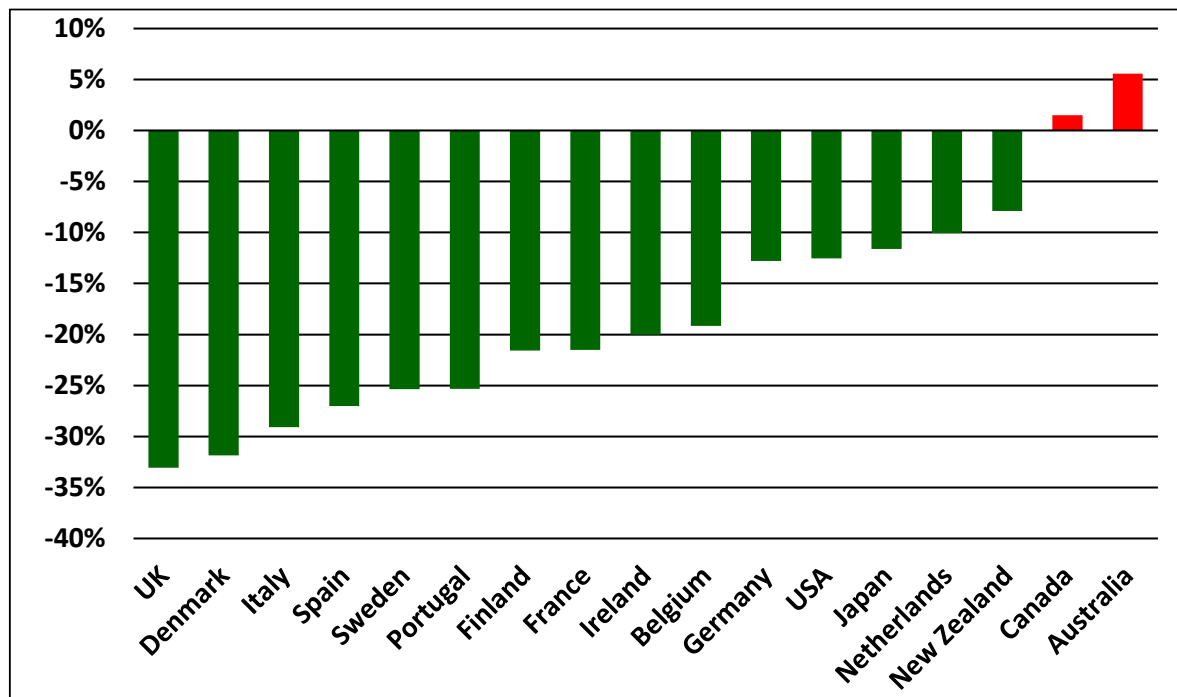
⁷¹ Harris (2021) *Boris Johnson outlines why Scott Morrison was rejected to speak at the climate summit*, <https://www.smh.com.au/politics/federal/boris-johnson-outlines-why-scott-morrison-was-rejected-to-speak-at-climate-summit-20210322-p57d2o.html>

commitments were dubbed insufficient by Biden Administration officials ahead of the President’s Climate Summit.⁷²

Yet even this 2030 target comparison understates the inadequacy of Australia’s efforts to transition to a net-zero carbon economy. Its pledges count on reductions in emission levels achieved by cutting back on unsustainably high levels of land clearing, changing rainfall and drought.⁷³ This reduction masks growing emissions associated with energy use and transport.

It is impossible to solve the climate problem without tackling the production and reliance on fossil fuels. As Figure 2 below shows, Australia is an outlier among other high-income advanced economies in this regard, as one of only two which have increased, rather than decreased emissions from fossil fuel combustion.

Figure 2: Percentage change in energy combustion emissions, 2005 to 2018



Source: UNFCCC https://di.unfccc.int/detailed_data_by_party

As countries strengthen their Paris commitments, they are embracing expanded carbon pricing in conjunction with green infrastructure and recovery spending, technology-push

⁷² Knott (2021) *‘Insufficient’: Biden Administration criticises Australia on climate*, <https://www.smh.com.au/world/north-america/insufficient-biden-administration-criticises-australia-on-climate-20210422-p571b9.html> ; and White House transcript of press briefing at <https://www.state.gov/briefings-foreign-press-centers/preview-of-president-bidens-leaders-summit-on-climate/>

⁷³ Merzian and Hemming (2021) *Banking on Australia’s Emissions*, <https://australiainstitute.org.au/report/banking-on-australias-emissions/>

and market-pull policies⁷⁴ to bring forward clean technologies and wide-ranging regulatory initiatives. Instead of green infrastructure and recovery spending, the Australian Government has expanded support for fossil fuel infrastructure, including new gas fields, pipelines and power plants, oil storage facilities and oil refining. And its high-profile clean technology initiative, a low-emissions technology ‘roadmap’,⁷⁵ is modest by international and previous Australian standards, omits any serious market-pull measures (exemplified by the highly successful mandatory renewable target enacted by a previous government) and prioritises a continued role for fossil fuels over energy efficiency and zero-emission technologies.

As a UK Government official recently observed in relation to Australia’s policies, “You can have a roadmap to lose 10 kilos in six months, but if you’re not exercising now and if you’ve got no plans to start, it’s really hard to see how you are going to get there”.⁷⁶

Australia is now one of the very few high-income countries without some form of a carbon price. That wasn’t always the case. From 2012-2014, Australia had a carbon price that reduced national emissions by two per cent and following its repeal, emissions resumed their upward trend.⁷⁷

Yet, with carbon border adjustments, Australia faces the possibility that its most energy-intensive and traded products will face an external carbon price from which other countries will reap the economic benefits and government revenues.

⁷⁴ ‘Market-pull’ policies are essential in bringing forward early commercial deployment of near-mature clean technologies often leading to declining costs through learning-by-doing, economies of scale and improved access to private finance. Carbon pricing and mandates like the renewable energy target are examples of ‘market-pull’ policies. An emerging literature is highlighting the importance of such policies in inducing technological innovation that is lowering the cost of achieving a clean energy transition from what had been predicted in many economic modeling studies. See for example, Grubb, M. et al, (2021) *Induced innovation in energy technologies and systems: a review of evidence and potential implications for CO₂ mitigation*, <https://iopscience.iop.org/article/10.1088/1748-9326/abde07>

⁷⁵ Department of Industry, Science, Energy and Resources (2020) *First Low Emissions Technology Statement – 2020*, <https://www.industry.gov.au/sites/default/files/September%202020/document/first-low-emissions-technology-statement-2020.pdf>

⁷⁶ O’Malley (2021) *World still hooked on coal, survey shows*, <https://www.smh.com.au/environment/climate-change/survey-reveals-a-world-still-hooked-on-coal-despite-best-intentions-20210604-p57y6c.html>

⁷⁷ Grudnoff (2020) *The Carbon Pricing Mechanism under the Gillard Government*, <https://australiainstitute.org.au/post/key-gillard-era-reform-carbon-price-would-have-saved-72-million-tonnes-of-emissions/>

Implications for Australia

A list of Emissions-Intensive Trade-Exposed industries (EITE industries) is published by the Clean Energy Regulator.⁷⁸ While its origins are from the 2008 Carbon Pollution Reduction Scheme development, it remains the best guide to the industries which could potentially be adversely affected by a European-led CBAM. It lists 43 manufacturing processes. Of these, 14 are to do with primary metal production, 10 with non-metallic mineral products (cement, glass, ceramics), 9 with chemical products, 5 with wood and paper products, 3 with plant and animal products, and 2 with hydrocarbon fuels.

Table 2 aggregates the industry sectors in the EITE list and aligns them as closely as possible with Australia's exports statistics, compiled by the ABS.⁷⁹ It lists the value of those exports, then those exports as a share of total Australian exports.

Overall, the listed exports that are EITEs account for only a small proportion of the total value of Australia's exports of goods (5% in 2019-20). By contrast, Australia exports significant quantities of metalliferous ores and concentrates, which are not included in these data, because they are much less emissions intensive commodities. The ABS data show that exports of ores and concentrates are dominated, in both volume (tonnage) and value terms, by iron ore, which contributed 16% of total commodity exports in 2018-19 and 22% in 2019-20.

Alumina and Aluminium

As seen in Table 2, primary metals accounted for the vast bulk of Australia's EITE exports - 88% in 2018-19 and 87% in 2019-20. In particular, alumina and aluminium exports⁸⁰ comprise over 50% of these exports.

⁷⁸ Clean Energy Regulator (2020) *Amount of exemption issued by activity*, <http://www.cleanenergyregulator.gov.au/RET/Scheme-participants-and-industry/emissions-intensive-trade-exposed-activity-information-for-companies/amount-of-exemption-issued-by-activity>

⁷⁹ Australian Bureau of Statistics, *International Trade in goods and services*, Table 2, <https://www.abs.gov.au/statistics/economy/international-trade/international-trade-goods-and-services-australia/latest-release>. Note: classification of commodities used in Australia's trade statistics, compiled by the ABS, does not align closely with the classification of products/production processes used to define EITEs. Table 2 is therefore only a rough estimate of the value of exports in the two most recent years of the relevant commodities.

⁸⁰ The production of aluminium from bauxite ore is a two-stage process. Firstly, bauxite is refined into alumina. Secondly, alumina is smelted into aluminium metal.

Table 2: Exports of emissions-intensive commodities

Commodity group	Export value (\$million f.o.b.)		Share of total value of exports	
	2018-19	2019-20	2018-19	2019-20
Alumina	\$11,358	\$8,876	2.4%	1.9%
Aluminium metal	\$4,248	\$3,761	0.9%	0.8%
All other primary metal products	\$9,587	\$7,873	2.0%	1.7%
Non-metallic mineral products	\$251	\$238	0.1%	0.1%
Bulk chemical products	\$274	\$265	0.1%	0.1%
Paper products	\$1,388	\$1,188	0.3%	0.2%
Basic metal products	\$1,530	\$1,191	0.3%	0.3%
Total value of these exports	\$28,636	\$23,592	6.1%	5.0%
Total value of all Australian exports of goods	\$373,509	\$383,053		
Total value of all Australian exports of goods <i>and services</i>	\$470,810	\$475,362		

Source: Australian Bureau of Statistics, Australian Harmonised Exports Commodity



Table 3 shows the destinations of Australian exports of alumina and primary metals, averaged over the five years to 2019-20. It can be seen that, excluding the exports for which no destination information was available, only 1% of the total value went to EU countries. However, 64 percent of aluminium and 40 percent of steel by value went to industrialised countries where carbon prices are in place or under consideration and border adjustments are on the agenda. The largest share of the total value went to China, as the largest importer of Australian copper and zinc, and also a large importer of alumina. Japan and South Korea are also important markets for exports of aluminium, but not for any other metal exports.

Alumina and aluminium together account for over half the total value of all the emissions-intensive exports itemised in Table 3 (see right column). Both alumina refining and aluminium smelting are very energy-intensive processes. The smelting process also emits perfluorocarbon gases, which are powerful greenhouse gases, classified as industrial process emissions. If a smelter uses electricity generated from coal, gas or fuel oil, the indirect (scope 2) emissions associated with its electricity consumption will constitute by far the largest source of emissions.

Table 3: Shares of total value of selected primary metal commodity exports to selected countries, average 2015-16 to 2019-20

	EU	UK, Norway, Iceland	USA	Japan	Korea	China incl. Hong Kong	All other countries	Not disclosed	TOTAL VALUE (\$million)
Alumina	0%	1%	0%	0%	0%	14%	18%	67%	\$8,800
Aluminium metal	0%	0%	9%	29%	25%	1%	37%		\$3,759
Copper	0%	0%	2%	0%	3%	42%	53%		\$3,391
Zinc	0%	0%	6%	0%	0%	43%	51%		\$1,424
Lead	1%	46%	1%	4%	5%	5%	37%		\$1,005
Iron and steel	5%	3%	29%	0%	3%	1%	59%	0%	\$927
Nickel	0%	0%	12%	0%	0%	1%	1%	85%	\$599
Tin, other non-ferrous metals	43%	0%	7%	5%	8%	13%	23%		\$212
TOTAL VALUE	\$165	\$619	\$844	\$1,139	\$1,131	\$3,410	\$6,435	\$6,384	\$20,118
Share of total value	1%	3%	4%	6%	6%	17%	32%	32%	

Source: Calculated from DFAT country-commodity pivot table, Feb 2021



Australia is the world's largest producer of bauxite,⁸¹ and the second-largest producer of alumina, though a long way behind China, which produces over half the world total.⁸² Australia has six alumina refineries – two in Queensland, and four in Western Australia. All use coal or gas for their processes and are broadly typical of alumina refineries around the world.⁸³

Table 4: Australian production and exports of alumina and aluminium in 2018-19 (Mt)

	Alumina	Aluminium metal
Production	20.5	1.57
Exports	17.1	1.45
Export share	83%	92%
Australian exports share of world production	13.9%	2.3%
Australian exports share of world production excl. China	31.8%	5.2%

Sources: Australian Aluminium Council, International Aluminium Institute



⁸¹ Geosciences Australia (n.d.) *Bauxite*, <https://www.ga.gov.au/data-pubs/data-and-publications-search/publications/australian-minerals-resource-assessment/bauxite>

⁸² International Aluminium Institute (2020) *Metallurgical Alumina Refining Fuel Consumption*, <https://www.world-aluminium.org/statistics/metallurgical-alumina-refining-fuel-consumption/#data>

⁸³ Ibid.

Over 80% of the output of Australia's alumina refineries is exported;⁸⁴ the remainder is converted to aluminium metal at one of four aluminium smelters. Three smelters use coal power and account for nearly 90% of total Australian smelter capacity. In the world as a whole, excluding China, only about a quarter of aluminium smelting uses coal-fired generation and another quarter uses gas-fired generation. The remainder uses zero-emission electricity – almost all hydro, with small amounts of geothermal and nuclear.

Both alumina refining and aluminium smelting in Australia is dominated, in terms of majority ownership and control, by two global companies with aluminium interests around the world – Rio Tinto and Alcoa. Both these companies own multiple aluminium smelters in Canada and Norway, all powered by hydroelectricity. In recent years, both have invested in new smelters in Iceland, using geothermal electricity, and have taken equity interest in very large new smelters using gas-generated electricity in Oman and Saudi Arabia respectively. It seems likely that these countries are the undisclosed destinations for much of Australia's alumina exports, shown in Table 3.

To the extent that either of these companies seeks to reduce their total corporate emissions in the coming years, continued operation of smelters using coal-fired electricity will be a significant obstacle to achieving this objective. Australian aluminium smelters are also likely to be disadvantaged in export markets where customers, and/or countries as a whole are seeking to reduce the emissions embodied in the commodities they import.

Other emissions-intensive exports

The dependence of Australian aluminium production on coal-generated electricity contrasts with the production of zinc metal, which is produced at refineries at Risdon, in Hobart, and in Townsville (the differing uses of the words refining and smelting in the different primary metal industries is a source of some confusion to the non-expert reader). Risdon, which according to Geosciences Australia is one of the largest zinc refineries in the world,⁸⁵ uses hydroelectricity. The Korean company Sun Metals, which owns the Townsville refinery, has built nearby its own wholly-owned solar plant, which it says has been supplying about a third of the electricity consumed at the refinery. The company has recently contracted with the developer of a very large new wind farm for a further quantity of renewable electricity, which it says will increase reliance on renewable electricity to 86%.⁸⁶

⁸⁴ Australian Aluminium Council Ltd (2021) Australian Aluminium Council Sustainability Factbook, p4. <https://aluminium.org.au/wp-content/uploads/2021/03/210311-AAC-Factbook-1.pdf>

⁸⁵ Geoscience Australia (n.d.) *Zinc*, <https://www.ga.gov.au/education/classroom-resources/minerals-energy/australian-mineral-facts/zinc#heading-8>

⁸⁶ Sun Metals (n.d.) *Renewables*, <https://www.sunmetals.com.au/sustainability/renewables/>

Ammonia and ammonium nitrate (identified as fertilisers in the export statistics), paper and paperboard, and bulk plastic resins (polyethylene, polypropylene, polystyrene etc.) are the other important emissions-intensive exports, as shown in Table 5.

Table 5: Shares of total value of other emissions intensive commodity exports to selected countries, average 2015-16 to 2019-20

	EU	UK, Norway, Iceland	USA	Japan	Korea	China incl. Hong Kong	All other countries	TOTAL VALUE (\$million)
Fertiliser	0%	0%	9%	1%	0%	0%	90%	\$307
Paper and paperboard	2%	0%	15%	1%	1%	15%	66%	\$1,044
Bulk plastics	3%	1%	5%	2%	2%	13%	73%	\$270
TOTAL VALUE	\$36	\$6	\$197	\$14	\$11	\$196	\$1,162	\$1,621
Share of total value	2%	0%	12%	1%	1%	12%	72%	

Source: Calculated from DFAT country-commodity pivot table, Feb 2021



The majority of exports of all three commodity categories are to South Asia, South East Asia and New Zealand. Gas is the predominant energy source for all these industries, and the paper industry also uses large amounts of wood-derived waste materials from the manufacturing process. Although the value of fertiliser exports is currently relatively small, the production and export of ammonia have far greater potential in the long term than either of the other two commodity groups.

Production of ammonia in Australia, and everywhere else in the world, uses gas (methane) as both a feedstock and an energy source. In a two-stage process, a chemical reaction between gas and steam, called steam reforming, produces hydrogen and carbon dioxide. Hydrogen is then reacted with nitrogen, from the air, to produce ammonia, while the carbon dioxide is vented into the atmosphere. The possibility of replacing gas with hydrogen produced by electrolysis of water, using renewable electricity, thereby eliminating all CO₂ emissions, is now widely seen as a potentially important part of a low emission energy future for Australia. Some advocates see ammonia as potentially a better way of exporting embodied renewable electricity than exporting hydrogen.

Whether or not that turns out to be the case, there seems certain to be a major ongoing market for use of ammonia as the most important feedstock for making fertilisers and also for making blasting explosives for use in mining. As such, the manufacturing of green ammonia, powered by renewables, has the potential to be one of the first and most important opportunities for Australia to move towards green manufacturing.

ENGAGING CONSTRUCTIVELY

The Prime Minister and other key Ministers have repeatedly denounced the EU's CBAM proposal as protectionist.⁸⁷ But they have not come forward with any meaningful solutions to the carbon leakage and competitiveness problems that have held back progress under the UN Framework Convention for Climate Change for nearly three decades, especially in Australia. They single out Europe without acknowledging that the US, UK, Japan and Canada also are exploring carbon border adjustments, nor do they seem to appreciate the emerging consensus that the trading system needs to better align with tackling the climate emergency. It is Australia that risks being viewed as a climate 'free-rider', a contemporary form of protectionism.

Instead of shouting from the sidelines, Australia should seek to engage in a multilateral approach to carbon border adjustments (starting with the EU, USA, UK, Japan, Korea and Canada). The EU is due to finalise a detailed proposal on 14 July and intends to open discussions with trading partners. This will be necessary to build support even amongst countries with carbon prices.⁸⁸ The US Special Envoy John Kerry already flagged some concerns over the potential implications of the EU CBAM.⁸⁹

The June G7 meeting, which Australia is attending, provides one possible forum to discuss a broader multilateral effort. There are various important design choices in developing a border adjustment system. Australia's engagement should aim to ensure that a common approach not only has environmental integrity but also works for Australia's economy as well as for Europe's. Some key issues on which Australia especially might engage are outlined below.

Certifying Carbon Content

To level the playing field between domestic and foreign production, the charge on the highly emissions-intensive products subject to a carbon border adjustment should equal the quantity of embodied carbon multiplied by the domestic carbon price. A key design issue then is how to determine the quantity of embodied carbon.

⁸⁷ Galloway (2021) 'Liberalisation not protectionist': Australia to fight EU's carbon tariffs with its own plan, <https://www.smh.com.au/politics/federal/liberalisation-not-protectionist-australia-to-fight-eu-s-carbon-tariffs-with-its-own-plan-20210311-p579v9.html>

⁸⁸ Simon (2021) *Asian countries see EU carbon border levy as protectionist: survey*, <https://www.euractiv.com/section/energy-environment/news/asian-countries-see-eu-carbon-border-levy-as-protectionist-survey/>

⁸⁹ Reuters (2021) Kerry 'concerned' about EU carbon border tax implications: FT

One approach long-proposed is to base this on the predominant method of production in the importing country, while allowing the importer to provide documentary evidence of lower embodied carbon. But customs authorities have little expertise in carbon accounting and issues remain on how to verify any documentation provided by importers and whether this approach is too generous to importers sourcing their products from especially high emissions sources. Since carbon border adjustments were first discussed in the 1990s, carbon accounting has advanced greatly with many large corporations and public entities now assessing their climate impact using tools such as the Greenhouse Gas Protocol,⁹⁰ and schemes emerging to certify products like green hydrogen.

In Australia, all major energy-using and greenhouse gas-emitting businesses have many years of experience in preparing detailed technical annual reports to the government under the National Greenhouse and Energy Reporting Scheme, which was introduced in 2007.

An effective system for the limited number of products likely to be subject to carbon border adjustments is entirely feasible and likely to be considerably less complex than the kind of tax and trade law issues regularly dealt with by companies engaged in international trade. Australia has considerable expertise in carbon accounting and as discussed below, can benefit from the development of a credible internationally agreed system for tracking embodied carbon that serves a broader purpose than just an EU CBAM. Australia should engage with Europe and other major economies to establish an expert-based approach.

Resource Shuffling

There is strong concern in Europe that the CBAM will result in trade partners directing their lowest-carbon production for export to EU countries while higher-carbon production is directed to countries without carbon pricing and border adjustments⁹¹, a practice commonly termed resource shuffling. This concern is legitimate to the extent that such shifts achieve no reduction in global emissions. The issue is particularly pertinent for imports of electricity directly into Europe and imports of products like primary aluminium where the amount of embodied carbon largely depends on the source of the electricity supply for the production process.

One solution sometimes proposed is that embodied carbon be calculated based on an average emissions intensity value for the electricity grid of the exporting country. This approach fails to recognise that a growing number of large electricity consumers are contractually (as distinct from the physical supply of electrons) not buying “vanilla” electricity as supplied through their local distribution network. Instead, they are entering

⁹⁰ Greenhouse gas protocol. <https://ghgprotocol.org>

⁹¹For example, Cosbey, Droege, Fischer and Munnings (2019) *Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions and Research Needs from the Literature*, p. 14.

into power purchase agreements with individual renewable generators for part of their electricity requirements, or even building their own renewable generation capacity, as in the case, for example, of Sun Metals.⁹²

The use of a grid average emissions intensity value would penalise producers, such as Sun Metals, that have genuinely displaced coal-fired generation from the grid by shifting their supply to renewables. And should Australia export electricity directly to Asia from solar and wind farms in Northern Australia (not even connected to the National Electricity Market), a national grid average would be especially inappropriate. The Australian Government should engage at an early stage in the development of border adjustments systems seeking an approach to resource shuffling that has environmental integrity while accounting for Australia's circumstances.

Use of CBAM Revenues

The European Commission intends to use revenues generated by the CBAM for the EU budget.⁹³ Some European experts have strongly opposed this, noting that such revenues may in part be raised from developing country exports, thereby acting counter to the intended flow of international climate finance. Alternative suggested uses of the revenues include funding an independent body to assess embodied carbon. The International Institute for Sustainable Development suggests a portion of the revenue be used to help foreign producers lower their costs of compliance with the CBAM.⁹⁴ This could be concentrated on financing the energy transition in Least Developed Countries and Small Island Developing States.⁹⁵

Australia should support an approach that helps build momentum for global action and enhances climate finance for developing countries, including those within our own region that are highly vulnerable to climate change.

⁹²Australia has a well-established legislative regulatory framework under which accredited renewable generators are eligible to supply certificated renewable electricity to consumers. By purchasing and then surrendering these certificates to the regulator, the consumer obtains a guarantee that this renewable electricity is additional to the contribution of legal mandates for supplies to consumers as a whole to include some renewable generation. See: <http://www.cleanenergyregulator.gov.au/csf/market-information/Pages/quarterly-Market-report.aspx>

⁹³ European Parliament Committee of Budgets (2020) *Draft opinion*, https://www.europarl.europa.eu/doceo/document/BUDG-PA-653861_EN.pdf

⁹⁴ Bernasconi-Osterwalder and Cosbey (2021) *Carbon and Controversy: Why we need global cooperation on border carbon adjustment*, <https://www.iisd.org/articles/carbon-border-adjustment-global-cooperation>

⁹⁵ Lamy et al. (2020) *A European Border Carbon Adjustment proposal*, https://institutdelors.eu/wp-content/uploads/2020/06/A-European-Border-Carbon-Adjustment-proposal_EN.pdf; and Delbeke and Vis (2020) *A way forward for a carbon border adjustment mechanism by the EU*, <https://cadmus.eui.eu/handle/1814/69155>

Rebate for Exports

Europe is primarily focused on carbon leakage that results from carbon-intensive imports displacing domestic production. Accordingly, the CBAM proposal is currently only intended to adjust at the border for imports. Nevertheless, most participants in the European Commission's initial consultation phase argued for consideration being given to a rebate for EU exporters.⁹⁶ In Australia, by contrast, whenever carbon pricing re-emerges as a real prospect, carbon leakage and competitiveness issues will arise in relation to both export and import-competing industries, though the strongest concerns are likely to be raised concerning exports (e.g., aluminium and alumina), or both (e.g. steel).

Unlike Europe, Australia's most carbon-intensive production primarily serves foreign not domestic markets, and in important cases is destined for developing country markets (e.g., China, S.E. Asia), where Australian mineral commodities, such as zinc, could face competition from higher emission sources. These developing country markets and competing suppliers are expected to lag developed countries in the implementation of carbon pricing in industry and would not initially be part of any 'carbon club' that levels the playing field among producers.

Some analysts have argued that export rebates are incompatible with international trade law⁹⁷ and this has become a common perception. While possibly true for an emissions trading scheme, there is a very strong case that export rebates are permitted for a carbon tax,⁹⁸ just as is the case for Australia's GST and Europe's VATs.

Allowing carbon price rebates for selected highly emissions-intensive products that have limited near-term abatement options may reduce opposition to the adoption of carbon pricing and facilitate a more rapid transition to a low carbon economy. Australia should seek to ensure that this approach is not ruled out by others as the world turns to carbon border adjustments.

MANUFACTURING OPPORTUNITIES

Australia is well placed to benefit economically in a world that is transitioning to net-zero emissions by 2050. In light of a serious attempt at progressing a CBAM, the Australian Government should hedge its bets and promote new and transformed industries that can

⁹⁶ European Commission (2021) *Summary Report: Public Consultation on the Carbon Border Adjustment Mechanism (CBAM)*, <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism/public-consultation>

⁹⁷ Delbeke and Vis (2020) *A way forward for a carbon border adjustment mechanism by the EU*, p.4. <https://cadmus.eui.eu/handle/1814/69155>

⁹⁸ Cosbey et al (2019) *Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions and Research Needs from the Literature*, p. 9-10. <https://ideas.repec.org/a/oup/renvpo/v13y2019i1p3-22..html>; and Hoerner and Muller (1993) *The impact of a broad-based energy tax on the competitiveness of U.S. industry*, p. 34-37.

operate under any scenario. Doing so would, according to economist Professor Ross Garnaut, transition Australia to become an economic superpower of the future post-carbon world.⁹⁹ This can be done with the abundant and low-cost solar and wind resources, minerals endowment, land availability, scientific and technological capacity, and strong project development skills that position Australia very well.

A well-designed system of carbon border adjustments can assist Australia to realise this potential. Emerging zero-emission Australian exporters will be able to compete fairly in destination countries with carbon pricing without being undercut by alternative supplies with high but unpriced embodied carbon. At home, a carbon border adjustment mechanism can help overcome the political logjam on carbon pricing, while easing the transition for existing high emissions industries like aluminium to low carbon production.

Right now, Australian industry lacks the kind of incentives to shift to lower-emission production that is emerging in countries with carbon pricing and more effective technology policies than Australia's limited *Technology Investment Roadmap*. However, with more forward-looking policy settings, we have large opportunities in green commodities and manufacturing.

Key opportunities for new or expanded export-oriented industries include:

- Production of zero-carbon energy carriers and chemical feedstocks like green hydrogen and ammonia, for use in industries where emissions are hard to abate and electrification is not a solution. While there has been much discussion about exporting these commodities, their utilisation onshore in downstream processing and manufacturing may offer even greater benefits.
- Production of primary metals such as green steel and aluminium, bringing together our minerals, renewables and green hydrogen to achieve levels of downstream processing in these industries that have previously proven elusive.
- Mining and downstream processing of battery metals such as lithium, nickel, cobalt and manganese and other minerals required in clean energy technologies such as copper and rare earths. The International Energy Agency projects that the shift to clean energy is set to drive a huge increase in demand for such "energy transition minerals" because PV plants, wind farms and electric vehicles require far more of these minerals than their fossil fuel-based alternatives.¹⁰⁰
- Low-carbon, low-cost production in new and existing mines by displacing diesel (largely imported) and other fossil fuels with renewable electricity (a process now beginning at some iron ore mines) and a mining services sector that can support this

⁹⁹ Ross Garnaut (2019) *Super-Power: Australia's Low-Carbon Opportunity*, LaTrobe University Press.

¹⁰⁰ International Energy Agency (2021) *The Role of Critical Minerals in Clean Energy Transitions: World Energy Outlook Special Report*, <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

transition globally. The users of ‘energy transition minerals’ especially can be expected to seek low carbon supplies.

- Clean, green and low-carbon food production based on sustainable agricultural practices, enhanced soil carbon and on-farm use of distributed energy resources. Also, food processing costs can be lowered while cutting emissions utilising Australia’s low-cost renewables together with efficient heat pump technology and modern energy storage.
- Electricity exports to South-East Asia from solar and wind farms in Northern Australia.

The opportunities for Australia as the world moves to electrify houses, vehicles and manufacturing industries are massive. Australia has the world’s largest reserves of nickel and zinc, ranks second for cobalt, copper and lithium and is in the top six countries for manganese ore and rare earths.¹⁰¹ The IEA warns that the concentration of minerals processing operations in a small number of countries, especially China, increases risks of physical disruption and trade restrictions, akin to the energy security issues historically associated with oil. The IEA notes “China’s share of refining is around 35% for nickel, 50-70% for lithium and cobalt, and nearly 90% for rare earth elements”.¹⁰²

It is in the interests of Australia’s trading partners and allies to diversify supply by expanding production and downstream processing in Australia. Carbon border adjustments could prevent new low-carbon processing operations in Australia from being undercut by older fossil fuel-based operations in places like China.¹⁰³

For Australia to grasp opportunities presented by electrification, it will need a much more effective policy framework, capable of setting our economy down a low-carbon path. The Morrison Government recently released a road map promoting critical minerals processing as a national manufacturing priority.¹⁰⁴ Unfortunately, however, it is yet to recognise that development of this sector will be viewed by allies and major partners through the prisms of their clean energy plans and interrelated climate and trade agendas.

¹⁰¹ Geoscience Australia (2021) *Australia’s Identified Mineral Resources 2020*, <https://www.ga.gov.au/digital-publication/aimr2020>

¹⁰² International Energy Agency (2021) *The Role of Critical Minerals in Clean Energy Transitions: World Energy Outlook Special Report*, p.12. <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

¹⁰³ International Energy Agency (2021) *The Role of Critical Minerals in Clean Energy Transitions: World Energy Outlook Special Report*, p.193-207. <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

¹⁰⁴ Australian Government (2021) *Resources Technology and Critical Minerals Processing: National Manufacturing Priority road map*, <https://www.industry.gov.au/sites/default/files/March%202021/document/resources-technology-and-critical-minerals-processing-national-manufacturing-priority-road-map.pdf>

Aluminium

Australia's three largest aluminium smelters are amongst the most emissions-intensive in the world, excluding China. Yet Australia has unparalleled opportunities to shift towards zero emissions electricity supply for these smelters. Indeed, the government's Technology Investment Roadmap highlights low emissions aluminium production as an opportunity to innovate out of emissions.¹⁰⁵

The bright spot of Australia's climate efforts of the last decade has been the rapid growth and cost reduction of solar and wind generation in the electricity grid. The cost of solar and wind is now competitive with the low prices aluminium smelters currently pay for coal-fired electricity in Australia.¹⁰⁶ Indeed, it is this shift that now makes development of industries like green aluminium, steel and hydrogen even a possibility.

This transition is already underway. The high voltage transmission line, which was originally built to supply electricity to the Portland smelter in Victoria from the Latrobe Valley brown coal power stations, is now also connected to what is currently the largest concentration of wind farms in Australia. Similarly, the existing and planned transmission infrastructure in New South Wales would be well situated to supply the Tomago aluminium smelter with electricity from the Renewable Energy Zones now being planned and developed by the state government.

The introduction of a broadly accepted CBAM would greatly reduce the risk of such re-powering initiatives being disadvantaged by competition from smelters in China and elsewhere that are still supplied by fossil fuel electricity.

¹⁰⁵ Department of Industry, Science, Energy and Resources (2020) *First Low Emissions Technology Statement – 2020*, <https://www.industry.gov.au/sites/default/files/September%202020/document/first-low-emissions-technology-statement-2020.pdf>

¹⁰⁶ Mazengarb (2021) *Green aluminium already cost competitive and huge opportunity for Australia*, <https://reneweconomy.com.au/green-aluminium-already-cost-competitive-and-huge-opportunity-for-australia/>

Conclusion

Countries are ramping up emission reduction commitments and carbon pricing in the lead up to the COP26 Climate Summit in November. Although still short of what is needed to achieve the goals of the Paris Agreement,¹⁰⁷ there has been a dramatic shift to higher ambition in recent months, including among Australia's major trading partners. Carbon border adjustments are being proposed to tackle carbon leakage and enable carbon pricing to operate more effectively across the economy, including basic industry.

In a few weeks, the EU plans to release a detailed CBAM proposal that is compliant with international trade rules and to open discussions with its trading partners. Border adjustments are also under consideration in the United Kingdom, Canada, Japan and the United States. Calls increasingly are being made for the formation of a "carbon club" of like-minded countries with high climate ambition, carbon pricing and coordinated border adjustments.

Australia stands almost alone among high-income advanced economies in increasing emissions from fossil fuel combustion since 2005 and falls well short of its peers in the commitments it has made under the Paris Agreement to reduce emissions. It is also now one of the very few high-income countries without some form of a carbon price.

The Australian Government has repeatedly attacked the European Union's CBAM proposal as protectionist but has not released any analysis to back up this claim. By contrast, the former head of the World Trade Organisation has described trade rules as a compass to follow, not an obstacle, in designing a carbon border adjustment. Indeed, from the perspective of countries making greater efforts to reduce emissions, Australia's lack of ambition and unpriced carbon looks more like protectionism.

Australia's abundant and low-cost solar and wind resources, minerals endowment, land availability, scientific and technological capacity, and strong project development skills position it better than most other countries to prosper in a world transitioning to net-zero emissions. Australia has numerous opportunities to develop new zero-emission export industries. Carbon border adjustments in destination markets can assist their development by levelling the playing field with high-emission competitors with unpriced carbon. They also can ease the transition for existing carbon-intensive export industries like aluminium and steel to a zero-emission future.

¹⁰⁷ Climate Action Tracker (2021) *Warming Projections Global Update*, https://climateactiontracker.org/documents/853/CAT_2021-05-04_Briefing_Global-Update_Climate-Summit-Momentum.pdf

Climate protection is now a central goal of the trade policies of Australia's closest allies. Instead of shouting from the sidelines, the Australian Government should engage constructively with the European Union and other trading partners to develop a multi-lateral approach to carbon border adjustments. Australia should seek an approach that has environmental integrity and works for Australia's economy as well as for Europe's.

While the Australian Government continues to push its 'technology not taxes' slogan, it nonetheless raises very significant tax revenue to fund support for the continued use of fossil fuels. But they are taxes on the income and other activities of households and businesses instead of taxes on pollution.¹⁰⁸ Australia cannot continue to stand apart from other wealthy countries, free-riding on their emission reduction efforts. Sooner rather than later, it will need to set commensurate targets under the Paris Agreement and implement policies to achieve them.

Like other countries strengthening their targets, Australia will need a comprehensive approach that includes economy-wide carbon pricing, green infrastructure spending, clean technology support with effective 'market-pull' measures and a serious effort on energy efficiency.

In 2009, Nobel Laureate in economics and trade expert Paul Krugman wrote "Sooner than most people think, countries that refuse to limit their greenhouse gas emissions will face sanctions, probably in the form of taxes on their exports. They will complain bitterly that this is protectionism, but so what? Globalization doesn't do much good if the globe itself becomes unliveable."¹⁰⁹

That day is arriving with developed country trading partners considering measures that will tax our exports of aluminium and steel. It is time for Australia to look forward, engage constructively and grasp the many opportunities available to us in a low carbon global economy.

¹⁰⁸ Revenues in this case might either come from a carbon tax or from the auction of emissions allowances under an emissions trading scheme.

¹⁰⁹ Krugman (2009) *Empire of Carbon*, <https://www.nytimes.com/2009/05/15/opinion/15krugman.html>