PACIFIC **ALUMINIUM**

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Low-emissions economy inquiry
New Zealand Productivity Commission
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SUBMISSION ON LOW EMISSIONS ECONOMY ISSUES PAPER

Pacific Aluminium is pleased to have the opportunity to provide a submission in response to the Productivity Commission's (*PC*) paper on 'Low Emissions Economy: Issues Paper' (*the Paper*) of August 2017. This submission is made by Pacific Aluminium on behalf of Pacific Aluminium (New Zealand) Limited and New Zealand Aluminium Smelters Limited (*NZAS*). Nothing in this submission is confidential.

Pacific Aluminium is the business unit of Rio Tinto responsible for managing ownership interests in four Australasian aluminium smelters. It owns 79.36 per cent of NZAS at Tiwai Point in Invercargill, in joint venture with Sumitomo Chemical Company Limited, a Japanese company. The Tiwai Point smelter is a world-class facility which contributes $525 million to the Southland economy annually (10.5% of Southland's GDP) and supports more than 3,200 direct and indirect jobs in the region. In 2016, NZAS paid $451 million to New Zealand suppliers and in wages and salaries. This included $46 million to suppliers in Southland. NZAS is one of only two smelters in the world producing ultra-high purity aluminium and the only one producing this using hydro electricity generated from renewable sources giving it one of the lowest carbon footprints of a smelter anywhere in the world.

Aluminium will continue to have a significant role in a carbon-constrained world. It is light, strong, flexible, non-corrosive and endlessly recyclable. Recycling aluminium uses only five per cent of the energy needed to produce primary metal. Its use in lightweight vehicles means it is the fastest growing material used in the automotive sector. The use of one kilogram of aluminium to replace heavier materials in a car or light truck can save a net 20 kilograms of CO_2 over the life of the vehicle.

As NZAS is the largest single user of electricity in New Zealand and with the chemistry of the process for producing aluminium inherently requiring the production of CO_2, its owner Pacific Aluminium is vitally interested in how existing and possible future policy regarding greenhouse gas emissions will be applied in New Zealand. In considering policy measures, Pacific Aluminium adheres to the framework set out by Rio Tinto in its Climate Change Position Statement (www.riotinto.com).

NZAS has taken every opportunity to reduce emissions where it can do so economically and the smelter has reduced on-site emissions by 55% since 1990. There is limited opportunity to reduce emissions further from the existing level as the only industrial process for producing aluminium, the Hall-Héroult electrolysis process, releases CO_2 because of the inherent nature of the chemical reaction taking place. Aluminium is produced from alumina, the output of a bauxite refining process. To uncouple the oxygen atoms from the alumina they must be combined with a carbon atom and this produces CO_2. An alternative process that does not release CO_2 has not been developed to either a level where it is economic or even viable on an industrial scale.

High Level Response to the Paper

In addition to the responses below to particular questions relevant to NZAS raised in the Paper, Pacific Aluminium has the following high-level observations about the content of the Paper overall:

Climate change is an international problem requiring international action. Pacific Aluminium supports least cost abatement focussed on international action and commitments as the basis for national action on climate change. The focus of the Terms of Reference (ToR) on domestic action for this PC review is potentially problematic in this regard as domestic action should not be considered in isolation but must be seen in the context of how it fits into international action, and least cost abatement at an international level would be expected to be occurring external to the New Zealand economy.

The PC considers a two-pronged approach to a low emissions economy, one focussed on emission reduction opportunities and the other economic institutions and policy tools. Considering the latter first, implicit in a number of the questions posed in the Paper is that there is an observable deficiency or gap in the capability of existing policy and governance frameworks within New Zealand to enable New Zealand to meet its international Paris commitments. Pacific Aluminium is not convinced that this is the case. The existing Climate Change Response Act (*CCRA*) framework has the necessary capability to deliver what is required, with the NZ ETS pricing the externality that are greenhouse gases as a centrepiece, and the process governed directly by the democratically elected Parliament. New Zealand currently is in the position that it has in place a durable policy framework supported by both of the major parties of Government with points of political difference primarily able to be accommodated in the tuning and coverage of the existing NZ ETS mechanism. Pacific Aluminium believes that for the PC to support significant shifts in this framework a convincing case will need to be made.

This is not to say there are no further emission reduction opportunities, particularly in seeking to optimise the opportunity for significant abatement through forestry and to seek to leverage the already largely renewable electricity grid to expand the use and coverage of electricity in an increasingly digital economy. It is instead to reflect that these are likely to be

opportunities encouraged by the existing broadly based carbon price in the economy and by a policy framework that is sufficiently durable so as to be investible. This is aligned with Pacific Aluminium's view that markets are typically the best way to solve complex problems of allocation and efficiency, a viewpoint also consistent with the PC's own Statement of Intent[1] which points to "dynamic and competitive markets" and "openness to trade and international connectedness" as being important features of high productivity societies.

Response to selected questions in the Paper

Q12 What changes will be required to New Zealand's regulatory, institutional and infrastructural arrangements for the electricity market, to facilitate greater reliance on renewable sources of energy across the economy?

Q14 Apart from the regulation and operation of the electricity market, what are the main opportunities and barriers to reducing emissions in electricity generation?

New Zealand already has a much more significant reliance of renewables for electricity generation than do most other nations. However the relatively shallow nature of the allowable hydro storage means that New Zealand must be in a position to manage dry year risk which requires the use of thermal generation able to be dispatched as needed. This provides the necessary back-up that allows New Zealand to continue to source mostly renewable electricity at a national level.

Q15 What are the main opportunities and barriers to reducing emissions in industrial processes (such as the production of steel, aluminium and cement) and in product use (such as the use of hydrofluorocarbons in refrigeration and air conditioning equipment)?

As mentioned earlier in this paper, as a cost efficient manufacturer NZAS has already reduced its on-site emissions by 55% from ~4.5 tCO_2-e/t Aluminium to ~2 tCO_2-e/t Aluminium since 1990 and this was achieved prior to the introduction of a price on carbon. NZAS continues to take any available commercially practical measure to reduce emissions further but has largely reached the limits of what is possible in terms of the chemistry of the smelting process. Like many agricultural processes, it would take a significant scientific breakthrough to enable any further significant reduction in emissions at NZAS. Having already done all it reasonably can to reduce emissions NZAS will have to meet ongoing obligations through unit surrender.

It should also be noted that despite NZAS being by far the largest consumer of electricity in New Zealand, using up to 12% of total generation, aluminium contributed only 0.9% of this country's total emissions in 2015.[2]

[1] New Zealand Productivity Commission Statement of Intent 2014-2018
[2] Figure 10 of the Paper

Powered by renewable hydro-electricity NZAS has one of the lowest carbon footprints of a smelter in the world, emitting around 15 tonnes less of CO_2-e per tonne of aluminium produced than its coal fired competitors. NZAS is now one of a small number of smelters which has its metal marketed by Rio Tinto under its 'RenewAl' Brand[3]. This certifies the aluminium is made from traceable raw materials and is produced with electricity from low carbon sources, using world class smelting processes.

Q18 Policies to lower emissions from particular sources, technologies and processes can have interactions with emission sources in other parts of the economy. What are the most important interactions to consider for a transition to a low emission economy?

The focus of the recently released modelling work and the Paper suggests a strong reliance on forestry for abatement in the context of a domestic only NZ ETS (see for example Q7). If this is the dominant driver in setting the NZ ETS price, it leaves the performance and price of the NZ ETS extremely dependent on decision making and economic criteria for planting trees, including those criteria beyond the value of the carbon price component of this decision. This represents a material risk to any New Zealand industry which is required to purchase and surrender NZUs to meet their obligations.

Q20 Acknowledging the current review, what changes to the New Zealand Emissions Trading Scheme are needed if it is to play an important part of New Zealand's transition to a low-emissions future?

The New Zealand ETS plays a central role in New Zealand's transition to a low-emissions future. The NZ ETS is a comprehensive and flexible mechanism which can rapidly respond to changing domestic and international developments provided there is consultation with industry regarding changes to the implementation and design settings of the NZ ETS so that this transition can be managed in a way that New Zealand's renewable energy fuelled industry can continue to provide jobs, and growth into the future.

The current scheme incentivises abatement in companies that carry out EITE activities. By providing an allocation to EITE activities on the basis of their production against a historical baseline, the allocation provided does not vary with the actual emissions of the activity at the facility. This means that any saving in emissions at the facility sees at the margin the full price of carbon in the NZ economy, providing a significant incentive for the EITE activity to abate where possible. By then providing a 90% allocation against a baseline, which is adjusted according to production, the normal operation and production growth of the company is not penalised, therefore supporting growth of the New Zealand economy and the on-going competitiveness and viability of the affected organisation, while still providing a full incentive to abate at the facility.

[3] For further information, refer to: http://www.riotinto.com/aluminium/renewal-low-co2-aluminium-20272.aspx

Pacific Aluminium supports lowest cost abatement and therefore supports the availability of international units within the NZ ETS. It does not support quantitative restrictions on the use of international units to discharge surrender obligations. If such restrictions are not carefully designed, there is a high likelihood of unexpected market responses, most likely with the outcome of pushing up the price of NZUs relative to international abatement. In our view a policy objective of least-cost global abatement of emissions should be what is pursued and in this context it is counterproductive to restrict entry of offshore units unless there is fundamental issue related to their abatement integrity.

New Zealand, by moving to the use of domestic only unit surrender for 2016 onwards, has in effect already made a significant change to the NZ ETS, one which, perhaps more than any of the recently legislated changes to transitional measures has changed the impact of the NZ ETS on the New Zealand economy. In moving from international to domestic carbon units the effective carbon price in New Zealand has already increased by a factor of 20[4] from that seen in recent years because of the removal of this transitional measure.

The domestic only focus of the scheme means that the cost of and opportunities for abatement in New Zealand become very important in determining the effectiveness of the scheme.

Pacific Aluminium is however reassured that in this context the New Zealand Government supports keeping the existing settings for the 90% allocation factor in place until at least 2020[5] in recognition that, "…carbon pricing is still not widely applied in economies New Zealand competes with.."

Q21 What type of market-based instruments would best help New Zealand transition to a low-emissions economy?

Pacific Aluminium supports the retention of the existing NZ ETS.

Q25 In addition to "core" climate policies and institutions, what other changes to policy settings or institutional frameworks are required to effectively transition New Zealand to a low-emissions economy?

Pacific Aluminium is not convinced there is an observable deficiency or gap in the capability of existing policy and governance frameworks within New Zealand to enable New Zealand to meet its international Paris commitments. The existing Climate Change Response Act framework, with the NZ ETS pricing the greenhouse gas externality as a centrepiece, and governed directly by the democratically elected Parliament has the necessary capability to deliver what is required.

[4] Westpac (2016) The Paris Agreement: What it means for the New Zealand economy.
[5] Page 18 of the Paper

Q26 What are the main uncertainties affecting New Zealand businesses and households in considering investments relevant to a low-emissions future? What policies and institutions would provide greater confidence for investors?

As is highlighted within the Paper the PC is seeking to understand what might improve certainty for decision makers regarding climate policy. It is important to have certainty as to the regulatory framework for climate policy. This is not the same as having certainty over the carbon price. A price on carbon is a Government created regulatory market that it is subject to domestic political debate and that in any event it is subject to international commitments which could change. Accordingly the price of carbon will always be potentially volatile, even when the regulatory framework is unchanging. What matters to decision making is having an understanding of the regulatory framework and that the major parties of Government keep to that framework even while having differing views about the settings for the NZ ETS.

Q28 Is New Zealand's current statutory framework to deal with climate change adequate? What other types of legislation might be needed to effectively transition towards a low-emissions economy?

Yes, New Zealand's current statutory framework to deal with climate change is adequate. The NZ ETS is a comprehensive and flexible mechanism which can rapidly respond to changing domestic and international developments.

Q29 Does New Zealand need an independent body to oversee New Zealand's domestic and international climate change commitments? What overseas examples offer useful models for New Zealand to consider?

The Government is the appropriate entity to oversee New Zealand's domestic and international climate change commitments; the New Zealand parliament is the appropriate place for changes to be managed as are other decisions which have broad economic and social implications for New Zealand and the Ministry for the Environment is the appropriate administrator of the legislation.

Q36 What are the essential components of an effective emissions-mitigation strategy for New Zealand that will also be economically and politically sustainable?

As noted in the high level overview New Zealand already has in place the framework and mechanisms for an economically and politically sustainable solution. It is important that action and settings for the NZ ETS is paced to match international commitments. As has been demonstrated by a range of learning curves driving down the prices of low emissions technologies, action that is too early ends up being expensive relative to action that could be taken just a few years later and which delivers the same emissions outcome (even considering the delay in acting) for a much lower cost.

Q35 What measures should exist (and at what scale and duration) to support businesses and households who have limited ability to avoid serious losses as a result of New Zealand's transition to a low-emissions economy?

Q38 How should the issue of emissions leakage influence New Zealand's strategy in transitioning to a low-emissions economy?

All aluminium smelters are energy intensive operations and NZAS uses around 572MW every year; a similar total load to that of all the residential households in Auckland. Ultimately NZAS' ability to compete against its international competitors relies on it having access to affordable electricity.

Unfortunately, NZAS' electricity costs are very high compared to its global competitors. In particular, our benchmarking suggests NZAS pays the highest price in the world for electricity transmission to a smelter; despite being located close to major sources of electricity generation.

Aluminium is a globally priced commodity; sold on the London Metals Exchange (*LME*), therefore aluminium smelters cannot compete on price and must compete by ensuring operating costs are as low as possible. NZAS' high electricity prices mean that it has thin operating margins with the profitability of the smelter therefore highly exposed to fluctuations in both the New Zealand dollar and the LME, affecting its ability to achieve long-term commercial sustainability.

Despite very tough operating conditions the team at NZAS continues to improve productivity, last year beating its own tonnage record for three potlines for the second year in a row. It is factors beyond the control of the team that threaten international competitiveness. These include the high New Zealand dollar and the relatively high price of power and transmission NZAS faces.

The main risk for NZAS associated with climate policy settings remains the lack of comparable action our competitors are exposed to and are unlikely to be exposed to in the short to medium term.

It would not benefit the world or reduce global emissions to introduce more stringent carbon measures in a country that has one smelter using hydro-electricity and already struggling with high delivered energy costs, thereby handing a trade advantage to smelters in other countries using coal fired electricity[6].

The Conference of the Parties at Paris demonstrated positive progress but in a context where international Intended National Determined Contributions (*INDCs*) are not legally

[6] The alternative to producing hydro-powered aluminium at NZAS is the addition of new coal fired based smelting capacity in China (where >50% of the world's aluminium is currently produced).

binding. Consequently we are not expecting to see NZAS' major competitors facing a cost of carbon "at the smelter gate" in the near to medium term. Further, the nature of linkages between carbon schemes would appear to be bi-lateral at best. Most countries are focussing on domestic policies or looking to use the existing pool of Clean Development Mechanism units as part of a strategy to meet their obligations through to 2020. This patchwork of local policy measure is delivering very slow progress toward a global price on carbon. This internationally uneven approach to carbon schemes also makes it very difficult to gauge the actual effect or effective carbon price faced by New Zealand's trade competitors.

In the case of aluminium, it is critical that our international competitors face a similar price of carbon to the cost in New Zealand, before the transitional measures are wound back in the NZ ETS. For this reason Pacific Aluminium would support the wind back of transitional measures being linked to the development of international schemes applying to a substantial percentage of that global industry, rather than based on New Zealand domestic policy. As Pacific Aluminium has previously argued, a useful metric might be eighty per cent of global emissions being covered by an equivalent price of carbon and that smelter competitors see a similar removal or phase out of transitional assistance. This would cover all of the major economies and therefore almost all of NZAS' competitors

The current structure of the CCRA means the phase out of allocation at a rate of 1% per year is suspended until participants conducting EITE activities face full surrender obligations, after which it can be removed on the recommendation of the Minister.

To this end we would suggest that one role the PC could usefully play is to undertake more robust analysis of the effective price of carbon being faced by the trade competitors of New Zealand's EITE industries. In a country fuelled by 80% renewable electricity it would be perverse to set a carbon price higher than international competitors fuelled by thermal generation are facing.

Q39 What do you see as the main benefits and opportunities to New Zealand from a transition to a low-emissions economy?

The transition to a low-emissions economy will be a net cost the New Zealand economy – the only question is how much. In that context, the primary benefit that counts for New Zealand is the contribution to meaningful international action. Unilateral action by a relatively small open economy such as that of New Zealand that is focussed on domestic abatement will not have a meaningful impact on global emissions independent of the way in which it contributes to broader international action.

Pacific Aluminium would be happy to meet further with the Productivity Commission to discuss any questions or comments you may have in relation to the points made above. If you would like to discuss our comments further, please contact either Daniel Woodfield by

email: Daniel.Woodfield@pacificaluminium.com.au or myself on (04) 916 1496 or by email: Jennifer.Nolan@pacificaluminium.com.au.

Yours sincerely

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