

# Regulatory Impact Statement: Setting an Electricity Allocation Factor for the New Zealand Aluminium Smelters Limited

## Coversheet

Purpose of Document	
Decision sought:	Cabinet approval to set an electricity allocation factor for New Zealand Aluminium Smelters Limited for its emission unit allocation for their main contract under the New Zealand Emissions Trading Scheme.
Advising agencies:	Ministry for the Environment
Proposing Minister:	Hon James Shaw, Minister of Climate Change
Date finalised:	30 November 2021
Problem Definition	
<p>The Climate Change Response Act 2002 (CCRA) establishes the New Zealand Emissions Trading Scheme (NZ ETS). Under the NZ ETS, eligible participants that are emissions-intensive and trade-exposed can receive a free provision of New Zealand Units (NZUs) known as industrial allocation.</p> <p>New Zealand Aluminium Smelters Limited (NZAS) is eligible for industrial allocation for both direct emissions produced onsite through the smelting process and indirect emissions through electricity use. This Regulatory Impact Statement (RIS) is focused on NZAS's indirect emissions.</p> <p>To determine the quantity of industrial allocation to be provided for the indirect NZ ETS costs from electricity use, an electricity allocation factor (EAF) is used.</p> <p>The EAF is based on estimates of the effect of the NZ ETS on prices in the wholesale electricity market. The EAF is expressed in tonnes of carbon dioxide equivalent per megawatt-hour (tCO<sub>2</sub>-e/MWh) and is used to calculate nominal electricity emissions as part of a firm's allocative baseline<sup>1</sup> where electricity is a component.</p> <p>NZAS recently renegotiated the main electricity supply contract it has with Meridian Energy Limited (Meridian) with a substantially lower electricity supply price than the 2015 contract. This base supply contract with Meridian applies from 1 January 2021 to</p>	

<sup>1</sup> Allocative baselines are emissions intensity factors, which represent the amount of emissions that result per unit of production for eligible industrial activities. NZAS's allocative baseline is calculated and set in regulations annually using their electricity consumption data for the year. NZAS's final allocation is calculated using their actual electricity consumption data for the year and actual production, whereas the provisional allocation is calculated using projected consumption data and projected production.

31 December 2024 which should cover the remaining period NZAS intends to operate in New Zealand.

NZAS's unique EAF for the main electricity contract needs to be updated to accurately reflect the emissions costs NZAS incurs from this new Meridian contract so that it can apply to NZAS's allocative baseline set out in regulations under the CCRA.

The allocative baseline is updated annually to ensure technical accuracy of industrial allocation which, in turn, maintains the integrity of the NZ ETS. An accurate EAF will ensure NZAS receives accurate industrial allocation and the Crown recognises justifiable fiscal costs.

### Executive Summary

Industrial allocation is the free provision of NZUs to participants in the NZ ETS that undertake eligible activities deemed to be emissions-intensive and trade-exposed (EITE).

The purpose of industrial allocation is to mitigate the risk of emissions leakage. Emissions leakage is where firms shift their production overseas to avoid climate policies such as emissions pricing, which could increase global emissions.

NZAS is eligible to receive industrial allocation because, based on data from 2007/08 to 2009/10, producing aluminium is a highly emissions-intensive and trade-exposed activity.

NZAS is exposed to NZ ETS costs for its direct emissions from aluminium smelting and indirect emissions from consuming electricity. Because the NZ ETS imposes obligations on miners and importers of thermal fuels, these costs are passed from electricity generators and then to all electricity consumers, including NZAS.

To calculate industrial allocation for firms in EITE industries for indirect emissions from consuming electricity, the Government estimates the impact of the NZ ETS on electricity prices using an EAF.

NZAS has a unique EAF and is treated separately to other eligible participants because of the large size and long duration of the main electricity supply contract (main contract) it has with Meridian. The contract terms mean the indirect NZ ETS costs NZAS incurs are lower than other industrial electricity users.

Section 161C(4) and 161C(5) of the CCRA allows the Minister of Climate Change (the Minister) to take into account electricity-related contracts that affect the increases in electricity cost due to emissions costs, such as the main contract entered into by NZAS.

In January 2021, NZAS and Meridian agreed to a new price and term for their main contract. The unique EAF underlying the calculation of NZAS's allocation for electricity consumption under the main contract needs to be updated so it accurately reflects the emissions costs NZAS incurs from this contract. NZAS's current EAF for electricity consumption under the main contract is 0.206 tCO<sub>2</sub>-e/MWh.

The electricity contract for NZAS's fourth potline has not been affected in the renegotiation. NZAS has shut down the fourth potline and it is unlikely to restart.

NZAS will continue to receive the standard EAF set at 0.537 tCO<sub>2</sub>-e/MWh for spot electricity market purchases, outside its contracts with Meridian.

A decision on an EAF for the main contract needs to be made now so that NZAS's allocative baseline for 2021 and 2022 can be set in regulations before the end of April 2022. This will allow NZAS to apply for its final allocation for 2021 and provisional allocation for 2022 utilising the updated allocative baseline within the statutory deadline of 30 April 2022.

Four options for NZAS's EAF were assessed considering the renegotiated main contract. Based on our assessment of the options, option 3 of the new modelled EAF of 0.0 tCO<sub>2</sub>-e/MWh was identified as the preferred option for NZAS's main contract when assessed against the criteria.

A decision to update NZAS's EAF will be used to calculate NZAS's final 2021 allocative baseline and provisional 2022 allocative baseline. These are implemented through amendment to the Climate Change (Eligible Industrial Activities) Regulations 2010 once NZAS provides data on electricity consumption for the year.

The EAF will only be reviewed if there is another change to the contract terms, otherwise the EAF is set, and the allocative baseline is updated annually

### Limitations and Constraints on Analysis

We are confident in the evidence base and analysis in this RIS.

The analysis has mainly been drawn from three key sources:

- 1) Independent expert advice provided by an electricity modeller
- 2) Engagement with NZAS/Rio Tinto and Meridian Energy Limited
- 3) Past decisions on NZAS's unique EAF

The analysis is not informed by the contract negotiations between NZAS and Meridian as these did not involve the Government.

### Responsible Manager

James Coombes  
Manager  
NZ ETS Policy  
Ministry for the Environment

30 November 2021

### Quality Assurance

Reviewing Agency: Ministry for the Environment

**Panel Assessment & Comment:**

The Regulatory Impact Analysis Panel at the Ministry for the Environment has reviewed this RIS and considers it meets the quality assurance criteria for Regulatory Impact Assessments.

The RIS clearly sets out the problem definition and case for change, provides robust analysis of a range of viable options, is supported by consultation with the affected parties, and adequately quantifies the impacts on those parties. The panel supports the proposed proactive release of the modelling report that underpins the analysis, to promote transparency of decision making.

## Section 1: Diagnosing the policy problem

### Context behind the policy problem

1. The CCRA established the NZ ETS to reduce New Zealand's net greenhouse gas emissions and to assist New Zealand to meet its international climate change obligations and domestic climate change targets.
2. The NZ ETS places an obligation on firms carrying out certain activities to surrender emission units corresponding to the amount of greenhouse gases they have reported they are responsible for in a year.
3. Industrial allocation is the free provision of NZUs to firms in the NZ ETS that undertake eligible activities deemed to be EITE. These firms do not have to be mandatory participants and be surrendering emission units. For example, the production of cut roses is an EITE activity, but no firms producing cut roses have mandatory ETS obligations other than through industrial allocation.
4. The purpose of industrial allocation is to mitigate the risk of emissions leakage. Emissions leakage is where firms shift their production overseas or lose market share to overseas competitors because of NZ ETS costs, which could increase global emissions.
5. Industrial allocation is determined using rules set out in the CCRA. The allocative baselines are set out in the Climate Change (Eligible Industrial Activities) Regulations 2010 (the Eligible Industrial Activities Regulations). Industrial allocation is calculated using allocative baselines for each activity, and some activities have multiple baselines. Baselines are calculated on the average historical emissions of an eligible activity.
6. The CCRA lists the emission sources that are taken into account in setting the baselines. Most of these are direct emissions associated with the activity: on-site fuel use and process emissions. However, industrial allocation is also provided for indirect emissions associated with electricity use to compensate for higher electricity prices caused by the NZ ETS. This is because higher electricity prices could affect the competitiveness of EITE firms and increase their risk of emissions leakage. Free allocation offsets the indirect cost impact of the NZ ETS on electricity.
7. In 2019, a total of 8.4 million NZUs in the NZ ETS stockpile were for industrial allocation. Of that total, 2.8 million NZUs were allocated to cover indirect NZ ETS costs for electricity consumption.

8. NZAS is the second largest recipient of industrial allocation in the NZ ETS. In 2020, NZAS was allocated 1.5 million NZUs, valued at about \$56.3 million (\$37.52/unit as at April 30 2021) and \$97.3 million at current prices (\$64.90/unit at 19 November 2021). An allocation baseline for NZAS supports allocation calculations, and the EAF is very important to that baseline. Around 61 per cent of NZAS's total industrial allocation is to cover indirect NZ ETS costs from electricity consumption.

### **An EAF is used to calculate the quantity of NZUs for indirect NZ ETS costs from electricity use**

9. To determine the quantity of industrial allocation provided for indirect NZ ETS costs from electricity use, an EAF is used. The EAF is an estimate of the impact of the NZ ETS on wholesale electricity prices passed through to consumers.
10. The EAF is expressed in tonnes of carbon dioxide equivalent per megawatt-hour (tCO<sub>2</sub>-e/MWh). It is part of the rates of allocation prescribed to industries considered EITE.
11. Calculating the EAF is complex and involves electricity market modelling to estimate the marginal cost the NZ ETS adds to electricity prices.
12. A standard EAF of 0.537 tCO<sub>2</sub>-e/MWh is used to calculate most participants' industrial allocation for indirect NZ ETS costs through electricity use. NZAS is treated differently from other electricity users, as is permitted under the CCRA, because of the large size and long duration of its main contract. The indirect cost from the NZ ETS from electricity purchased under the NZAS's main contract are different than those purchased on the wholesale market. The Minister can take this into account when setting NZAS's allocative baseline.
13. Section 161C (4) and 161C (5) of the CCRA allows the Minister to take into account electricity-related contracts that affect the electricity cost increases due to emissions costs, such as NZAS.
14. NZAS has its own allocative baseline used to calculate its industrial allocation, which is informed by a unique EAF that reflects the cost impact of the NZ ETS on electricity purchased under its various electricity contracts.
15. NZAS's allocative baseline is calculated and reset annually using its electricity consumption data for the year. The allocative baseline is calculated using a weighted average of its three sources of electricity (main contract, potline four contract and spot market) using their respective EAFs.

### **NZAS receives industrial allocation for both direct and indirect emissions**

16. NZAS is eligible to receive industrial allocation for carrying out an eligible EITE activity ('producing aluminium'). Under current policy settings, NZAS is eligible to receive an allocation to offset 89 per cent of the NZ ETS costs in 2021. Its allocation covers:
  - a) Direct emissions from the processing alumina and smelting of aluminium.
  - b) The indirect emissions cost of electricity purchased on the wholesale market.
  - c) The indirect emissions cost of electricity purchased through electricity supply contracts.
17. The allocation for NZAS's direct process emissions and the indirect cost of electricity purchased on the wholesale market (points a and b above) is determined using the same rules that apply to all other industrial allocation activities in the NZ ETS.

18. NZAS has its own unique EAF to allocate units to cover the indirect cost of the NZ ETS in its main contract (point c above). This portion of the allocation is treated separately to other eligible participants because of the main contract terms which mean that the NZ ETS costs NZAS incurs are lower than other industrial electricity users. This is outlined in section 161C(4) of the CCRA where electricity-related contracts can be taken into account to set allocative baselines.
19. NZAS recently renegotiated the main contract with a substantially lower electricity supply price than the 2015 contract. The main contract is not a completely new contract, but rather an amendment to the 2015 contract, which in turn was an amendment to an earlier version. This base supply contract with Meridian applies from 1 January 2021 to 31 December 2024 which should cover the remaining period NZAS intends to operate in New Zealand.
20. The revised main contract covers supply of electricity to the smelter's three largest potlines. The main contract price is fixed for the duration of the contract, whereas the 2015 electricity price could change depending on global aluminium prices and the Consumer Price Index.
21. The fourth potline contract has not been affected in the renegotiation. NZAS has shut down the fourth potline and it is unlikely to restart. There is no change to the EAFs for the potline four contract  $9(2)$  tCO<sub>2</sub>-e/MWh) or spot market purchases (standard EAF 0.537 tCO<sub>2</sub>-e/MWh).

### What is the policy problem or opportunity?

22. The EAF underlying the calculation of NZAS's allocative baseline needs to be updated so it accurately reflects the emissions costs NZAS incurs from its main contract.
23. Independent expert modelling suggests that the current EAF of 0.206 tCO<sub>2</sub>-e/MWh risks over-allocating NZUs to NZAS for indirect emissions costs that NZAS did not incur from electricity consumption under the main contract. This means there is no longer a risk of emissions leakage under the main contract for which industrial allocation for the indirect NZ ETS cost on electricity intends to prevent.
24. Over-allocation creates fiscal costs and is unfair for other emitters and industrial allocation recipients. When over-allocation occurs, emission units are allocated for free when they could have been auctioned and cash received.
25. A decision on a new EAF for NZAS's main contract could be made now to allow NZAS's allocative baseline for 2021 and 2022 to be calculated and set in regulations before the end of April 2022. This will allow NZAS to apply for its final allocation for 2021 and provisional allocation for 2022 using the updated allocative baseline within the statutory deadline of 30 April 2022.
26. The CCRA allows for NZAS's allocative baseline to be reviewed and adjusted annually. It is important that NZAS's baseline is accurate and updated annually, with appropriate analysis and transparency, to maintain the integrity of the NZ ETS.

### Objective for updating NZAS's EAF for their industrial allocation

27. The Government's objective for this work is to set a unique EAF for NZAS that accurately reflects the indirect cost impact of the NZ ETS on the electricity purchased under the

renegotiated main contract and ensures NZAS receives an appropriate level of industrial allocation.

Proactively released



## Section 2: Considerations and scope used to decide upon an option to address the policy problem

### Criteria used to compare options to the status quo

28. The RIS assesses four options to update NZAS's EAF for the main contract against four criteria.

**Table 1: Criteria for assessing EAF options**

Criteria	Description
Aligns with industrial allocation policy	NZAS's industrial allocation should continue to minimise the risk of emissions leakage. It should mitigate any loss of competitiveness NZAS may face due to higher direct and indirect NZ ETS costs.
Accurately allocates NZUs	NZAS's EAF should be accurate and reflect the actual NZ ETS costs incurred under the new contract.
Improve regulatory certainty and predictability	Changes to NZAS's EAF should give NZAS certainty with respect to its future allocation levels.
Allocates costs and benefits appropriately	NZAS's updated EAF should allocate the costs and benefits appropriately to NZAS as a participant in the NZ ETS. Where possible, the EAF should avoid imposing excessive and disproportionate costs on NZAS.

### Legal considerations for setting a new EAF for NZAS

29. Section 161C(4) and 161C(5) of the CCRA allows the Minister to take into account electricity-related contracts that affect the electricity cost increases due to emissions costs, such as the main contract entered into by NZAS.

30. There are no direct legislative implications from updating NZAS's EAF for the main contract. The decision on the EAF will be used to calculate NZAS's final 2021 allocative baseline and provisional 2022 allocative baseline in 2022, which will require amendments to the appropriate regulations.

31. NZAS's allocative baselines are prescribed in the Eligible Industrial Activities Regulations 2010. s 9(2)(f)(iv)

### Other considerations for setting a new EAF for NZAS

32. If the Government was to review the legislation relating to industrial allocation, this updated EAF could affect NZAS's eligibility for industrial allocation, depending upon the updated settings or requirements for industrial allocation.



### What scope will options be considered within?

33. The scope of this RIS is limited to a quantification of the emissions per megawatt hour under the contract, being between zero (because a negative number is non-sensical) and the standard EAF. The EAF will apply to the end of the contract.

34. s 9(2)(f)(iv)

35. A letter from the Minister of Finance (dated 15 December 2020) to NZAS that discussed on which basis allocation would be given did not influence the selection of options or the scope of this analysis. The Ministry sought legal advice on the letter and assessed it did not hold the Government to maintain the current allocation approach to NZAS.

## Section 3: Options for a new EAF for NZAS

### Determining options for setting EAFs

36. Four options are assessed to update NZAS's EAF and were determined by drawing from previous and current settings, modelling done by an independent expert and NZAS's request for continuity in methodology approach.
- Option 1 is the status quo EAF.
  - Option 2 is based on continuity of methodology in using the "combined approach" used for NZAS.
  - Option 3 is based on modelling by an independent electricity modeller who has assisted with previous determinations of NZAS's EAFs. Further information on this modelling can be found in Annex One.
  - Option 4 is drawn from the standard EAF used for other NZ ETS participants and for NZAS's spot market purchases.

### Option 1 – (status quo) – NZAS's current EAF of 0.206 tCO<sub>2</sub>-e/MWh

37. This is the current EAF value for NZAS. NZAS would continue to receive industrial allocation for its main electricity supply contract price at the same rate.

38. This option is NZAS's preferred EAF for its 2021 final allocative baseline and its 2022 provisional baseline.

39. Option 1 allocates just over 6 million NZUs from 2021-24 for industrial allocation for indirect NZ ETS costs to NZAS. This is valued at \$389 million for the financial years of 2021-2025 based on NZU prices of \$64.90 at 19 November 2021.

### Option 2 - Update the combined approach to the value of 0.263 tCO<sub>2</sub>-e/MWh

40. Under this option, the current approach to model NZAS's EAF would be used, but the value would be updated to reflect the parameters of the new electricity contract. This would be consistent with NZAS's request to maintain policy consistency.

41. This option would set an EAF fixed for the duration of the contract. The updated combined approach uses a mathematic average of the EAF for the term of the contract using year 1 as standard EAF (0.316 assumed due to IA policy change) up to year 6

when a marginal new entrant generator (EAF assumed 0.14 based on modeler assumptions).

42. If this approach was adopted, it would result in an EAF value of 0.263 tCO<sub>2</sub>-e/MWh.
43. Option 2 allocates just over 7 million NZUs from 2021-24 for industrial allocation for indirect NZ ETS costs to NZAS. This is valued at \$457.7 million NZD for the financial years of 2021-2025 based on NZU prices of \$64.90 at 19 November 2021. This is an increase in \$68.7 million NZD in NZUs from the status quo.

### **Option 3 – Modelled EAF of 0.0 tCO<sub>2</sub>-e/MWh**

44. This is a modelled value from an independent expert. The new modelled option does not follow the status quo combined approach using short run and long run marginal costs of electricity to calculate the indirect emissions cost.
45. The model considers key parameters and assumptions to create a credible value for an accurate EAF including:
  - a. What the contract price would need to be in the 'NZAS stays' future in order for Meridian to achieve the same profitability as in the 'NZAS exits' future
  - b. How a removal of NZAS's demand would significantly affect Meridian's profitability, incentivising a 'better to get something than nothing' outcome
  - c. How an NZAS closure would increase the proportion of time when the North Island's marginal generator (the electricity price setter) would not be fossil-fuelled generation, and that some (potentially all) remaining coal-fired generation would retire.
46. This option would allocate zero units to NZAS for indirect emissions costs from electricity under the main contract. NZAS would still receive industrial allocation for spot market purchases at the standard rate, and units for direct on-site emissions valued at \$152.9 million NZD for the financial years of 2021-2025 based on NZU prices of \$64.90 at 19 November 2021. This is a decrease of \$236.1 million NZD in NZUs from the status quo.

### **Option 4 – Standard EAF of 0.537 tCO<sub>2</sub>-e/MWh used for other participants**

47. This option is the standard EAF value of 0.537 tCO<sub>2</sub>-e/MWh used for other eligible participants.
48. NZAS uses this EAF when purchasing electricity from the spot market. The EAF is based on a short run emissions factor.
49. Option 4 would allocate just over 11.9 million NZUs from 2021-24 for industrial allocation for indirect NZ ETS costs to NZAS. This is valued at \$772.3 million NZD for the financial years of 2021-2025 based on NZU prices of \$64.90 at 19 November 2021. This is an increase of \$383.3 million NZD in NZUs from the status quo.
50. Annex Two shows a table 6 comparing allocation forecasts out to 2024 under each option compared to the status quo. Annex Three shows table 7 detailing the financial implications under each option compared to the status quo.

**Assessment against key criteria: each option is given a rating outlined in the key below**

Key	
++	much better than doing nothing/the status quo
+	better than doing nothing/the status quo
o	about the same as doing nothing/the status quo
-	worse than doing nothing/the status quo
--	much worse than doing nothing/the status quo

**Table 2: Impact analysis of EAF options for NZAS for the main contract against the four assessment criteria**

	<b>Option 1 Status quo 0.206</b>	<b>Option 2 Update combined approach 0.263</b>	<b>Option 3 New EAF 0.0</b>	<b>Option 4 Standard EAF 0.537</b>
Alignment with the objectives/purpose of industrial allocation	o	-	++	--
The EAF accurately allocates NZUs for indirect emissions costs from electricity use	o	o	+	--
Improve regulatory certainty and predictability	o	o	-	o
Allocates costs and benefits appropriately among those affected by the new EAF	o	-	+	--

**Criteria 1: Alignment with the objectives/purpose of industrial allocation**

51. Option 1 (the status quo) maintains NZAS’s current EAF and rate of allocation for electricity use. Based on the evidence provided from the independent electricity expert s 9(2)(b)(ii) the contract price agreed by Meridian indicates no indirect cost pass on to NZAS for electricity consumption under the main contract. It is therefore not a risk of emissions leakage from higher electricity prices and does not require industrial allocation for its indirect emissions.

52. Option 2 (updated combined approach) and option 4 (standard EAF) would give NZAS more industrial allocation than the status quo. Based on the evidence this would be a substantial over-allocation where there is no risk of emissions leakage.

53. Option 1, 2 and 4 do not align with the purpose of industrial allocation.

54. Option 3 (new modelled EAF) sets a new EAF for NZAS that removes industrial allocation that covers indirect emissions cost from electricity consumption. The evidence suggests there is no indirect cost from the NZ ETS on the electricity price agreed in the main contract. Therefore, compared to the status quo, option 3 strongly aligns with the objective of industrial allocation.

### Criteria 2: The EAF accurately allocates NZUs for indirect emissions costs from electricity use

55. Options 1, 2 and 4 would inaccurately represent the emissions costs of NZAS's main electricity contract. There is no evidence to suggest through modelling s 9(2)(b)(ii) that emissions costs were a factor when negotiating the price for the main contract. Options 1, 2 and 4 over-estimate the impact of the NZ ETS on electricity purchased by NZAS under the renegotiated main contract. These options do not reflect that NZAS pays a lower electricity price compared to other industrial allocation recipients that purchase electricity from the spot market.
56. Option 3 (new modelled EAF) would accurately allocate NZUs to NZAS for indirect emissions costs for the price of electricity in the main contract.

### Criteria 3: Improve regulatory certainty and predictability

57. Option 3 (new modelled EAF) is inconsistent to past approaches and will not provide regulatory certainty. There will be increased costs to NZAS from less allocation, but this should be acceptable given NZAS will not be facing high electricity prices under the new contract.
58. Option 2 (updating the combined approach) is consistent with current methodology which is favourable to NZAS. For predictability, NZAS can easily make its own forecasts of future allocations using the model, expected production and electricity consumption, no matter what option is chosen.

### Criteria 4: Allocates costs and benefits appropriately among those affected by the new EAF

59. Options 1, 2 and 4 would allocate NZAS an inappropriate amount of industrial allocation for indirect emissions costs under the NZ ETS based on the updated terms of the renegotiated main contract. This is because the price of electricity in the contract no longer indicates an emissions cost from the NZ ETS. Based on this, these options do not impose excessive or disproportionate costs on NZAS.
60. Option 3 (new modelled EAF) allocates the costs and benefits appropriately to NZAS as a participant in the NZ ETS. Based on the terms of the contract and engagement with the independent electricity modeller s 9(2)(b) and NZAS, the evidence suggests there is no impact of the NZ ETS on the electricity price in the updated main contract. Where possible, the modelled EAF avoids imposing excessive and disproportionate costs on NZAS.

### What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

61. Option 3 (new modelled EAF) is likely to best address the problem, meet the policy objectives and deliver the highest net benefits. It more accurately reflects the actual impact of the NZ ETS on electricity purchased under the main contract price. Implementing this option supports the purpose of industrial allocation by aligning NZAS's

allocation with its actual exposure to a carbon cost. Therefore, option 3 strongly supports criteria 1 and 2.

62. The trade-off is that option 1 (status quo) supports regulatory consistency and certainty, whereas option 3 reduces it.
63. On balance, having an accurate EAF that realigns NZAS's industrial allocation to its risk of emissions leakage is more important than regulatory certainty. Furthermore, regulatory certainty has less weight given the substantial change in the renegotiated main contract. It would be inappropriate to continue using the same approach. Therefore, the preferred option is option 3.

### **What are the marginal costs and benefits of the preferred option?**

64. Option 3 will reduce allocation by approximately 934,000 NZUs valued at around \$59.7 million NZD in NZUs for NZAS's 2021 final baseline. Allocations of NZUs will decrease by around 900,000 NZUs per annum from 2022-2025, valued at an average of \$58.9 million NZD per financial year from 2022-2025 at today's NZU price of \$64.90 at 19 November 2021. The fiscal impact of the reduction of over 900,00 NZUs valued at around \$60 million NZD may not affect NZAS disproportionately given NZAS will pay a substantially lower price in the main contract.
65. In NZAS's statement of comprehensive income for the year ended 31 December 2020, NZAS paid \$460.2 million NZD for raw materials, energy and consumables. The renegotiated main electricity supply contract price is substantially lower than previous contracts which will benefit NZAS by reducing energy costs, enabling potential higher future revenue for NZAS. The cost of reduced industrial allocation would not increase NZAS's risk of leakage because it does not face material NZ ETS costs for electricity under the renegotiated main contract. NZAS will not be at a competitive disadvantage because of the carbon price.
66. Option 3 allocates NZAS the most accurate quantity of units (zero units) for its electricity supply contract for which there is no evidence that NZAS suffer indirect emissions cost passed through to NZAS. This EAF setting maintains the integrity of the NZ ETS and has a positive fiscal impact per year (2021-24) to the Crown. The changed EAF would result in a reduction of approximately \$60.9 million in expense and a reduction of \$60.9 million in NZ ETS liability.
67. A reduction in NZAS's allocation against the forecast for 2022/23 to 2024/25 will increase the number of units the Government can auction from 2023, subject to Cabinet decisions on NZ ETS settings next year. Auctioning raises cash for the Crown. At current NZU prices, this will be approximately \$60.9 million per financial year.

**Table 3: Impact analysis of preferred option on costs and benefits to affected parties**

<b>Affected groups (identify)</b>	<b>Comment nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks.</b>	<b>Impact \$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts.</b>	<b>Evidence Certainty High, medium, or low, and explain reasoning in comment column.</b>
<b>Additional costs of the preferred option compared to taking no action</b>			
Regulated groups	Compared to the status quo, NZAS will receive less NZUs per tonne of aluminium per annum for the rest of the main contract term.	59.7 million	High
Regulators	No additional cost from the status quo	\$0	High
Others (eg, wider govt, consumers, etc.)	Compared to the status quo there is no additional cost to others	Low	Low
<b>Total monetised costs</b>		\$59.7 million	
<b>Non-monetised costs</b>		Low	
<b>Additional benefits of the preferred option compared to taking no action</b>			
Regulated groups	The preferred option has no benefits for NZAS compared to the status quo	\$0	High
Regulators	The preferred option has an ongoing benefit compared to the status quo	\$59.7 million	High
Others (eg, wider govt, consumers, etc.)	The integrity of the NZ ETS will be improved because proposal is aligned better with the intent of industrial allocation policy than the status quo	High	High
<b>Total monetised benefits</b>		\$59.7 million	
<b>Non-monetised benefits</b>		High	



68. The calculations in Table 3 use NZAS’s forecasted production of 336kt per annum out to 2024. Forecasted electricity consumption for 2022 to 2024 is 5,010 GWh per annum and for 2021 is 4,956 GWh. These estimates assume that potline four will not be operational. Table 3 prices are based on an NZU price of \$64.90 at 19 November 2021.

**Engagement feedback**

**External**

69. s 9(2)(b)(ii)

70. Engagement with the independent electricity modeller indicates there will have been no uplift of the electricity price driven by the carbon price in the 2021 contract, therefore an EAF set at 0.0 tCO<sub>2</sub>-e/MWh accurately reflects that NZAS does not incur indirect costs from the NZ ETS under the main contract. The modeller’s report will be proactively released alongside this RIS after it is reviewed, after it is assessed under the Official Information Act 1982.

71. The Ministry has extensively consulted with NZAS on the calculation of its unique EAF for 2021 and 2022. NZAS provided a comprehensive submission on the independent modelling carried out for this work. Table 4 summarises the main points raised in the NZAS submission and the Ministry’s response.

**Table 4: Feedback from NZAS’s submission**

NZAS perspectives from its submission	Ministry for the Environment comment
<p><b>Using the new modelled value would be a departure from past methodologies.</b></p> <p>NZAS believes the Government has set a precedent with the status quo approach to modelling the EAF, and rejected the new approach recommended by Concept. The status quo should be retained to 2024 for consistency and to cover investments NZAS has made on allocations being provided on the same basis.</p> <p>Use of the combined allocation factor approach in 2013 and subsequent recalculations of the EAF in 2015 and 2018 created a precedent and an ongoing expectation future recalculation would be on the same basis. NZAS accepted the difference in its EAF with the main EAF derived from this approach (which is materially lower than the assistance other EITE firms receive for electricity use)</p>	<p>The CCRA allows for regulations to change pending electricity contract changes.</p> <p>Technical accuracy is the most important consideration for setting the EAF and the status quo approach is inappropriate given the new electricity contract. This aligns with and supports our objectives and criteria for updating the EAF.</p> <p>The 2021 contract is obviously different to previous NZAS-Meridian contracts with respect to timing, electricity price, and that the price is fixed. Given this, it’s appropriate to reconsider the approach to modelling NZAS’s EAF.</p> <p>Policy certainty is important. However, when policy is not addressing the issues as accurately as possible, Government should be able to change the policy as appropriate and necessary to ensure it achieves its purpose/intent and does not create further problems.</p>



<p>The expectation of allocations continuing the same process was an important element for NZAS’s decision to continue operations. NZAS has acted on the basis that the same approach would be used to calculate its EAF for its base electricity contract. The modelling approach used is a significant departure from this precedent.</p>	<p>The modeller estimated, based on the best available evidence, that the EAF for the 2021 price is likely to be very low. This is reflected in the analysis.</p>
<p><b>The Government assured NZAS that allocations would continue on the same basis (per letter from MoF to NZAS).</b></p>	<p>The letter from the Minister of Finance (dated 15 December 2020) sets out an agreement in principle. The letter anticipates that the principles set out in the letter will be documented in an agreement (which is not the letter).</p> <p>The letter does not include agreement in respect of the NZUs NZAS receives under the CCRA. Changes to the allocation of units are simply not affected by this proposal, and changes under the CCRA can still be considered.</p>
<p><b>It is not appropriate to model such a complex system.</b></p> <p>The approach used is problematic and complicated, and the outcomes are highly uncertain. This uncertainty means the outcomes of the factual and counterfactual are inaccurate and shouldn’t be used for the basis for calculating the EAF.</p>	<p>The model demonstrates a general case that NZAS did not suffer higher electricity prices because of carbon prices in the NZ ETS. Similar modelling for the Electricity Authority highlighted that the approach taken is the way Meridian have looked at the issue previously. This reaffirms that the system was modelled appropriately and in a similar way to previous modelling on similar issues.</p> <p>The model is appropriate given all modelling of the electricity market and EAF is complicated and subject to high levels of uncertainty. The status quo (ie, the combined approach) could rightly be accused of the same issues and inaccuracy. This does not make the case for one approach over the other.</p>

<p><b>The modeller has a bias.</b></p> <p>The modeller has demonstrated in previous analysis a consistent view that EAFs should be based on long run considerations (as opposed to short run or a combination) and should therefore be lower than it is.</p> <p>This leads to near zero EAFs under what are considered plausible assumptions and outcomes.</p> <p>A different modeller without this view would come to different EAF results.</p>	<p>The independent electricity modeller used the standard EAF to simulate the price effect of carbon on general electricity prices. NZAS's perspective that the modeller has a bias does not offer sufficient evidence or a technical argument.</p> <p>The NZAS view does not reflect that the independent electricity modeller's recommended approach is based on robust assumptions and logic. Assumptions are plausible, supported by evidence and defended.</p> <p>The electricity modeller acknowledges its approach should be tested further and improved if needed. The logical implication of NZAS's argument is that any modeller would be biased and unable to deliver a suitable EAF.</p>
<p><b>Meridian stated to NZAS that the status quo EAF should apply.</b></p> <p>According to NZAS, Meridian takes into account the emissions price when setting the price in hedge contracts. Therefore, the NZAS 2021 contract includes the same NZ ETS costs assumptions as other large electricity users with similar contracts.</p>	<p>Officials discussed the contract with Meridian. s 9(2)(b)(ii)</p> <p>As NZAS pays well below market prices for electricity, the status quo EAF would result in over-allocation where there is no risk of emissions leakage.</p>

72. It is notable that NZAS's argument did not refer to economic viability. This indicates that the investment into and operation of the additional production line is not challenged by using an EAF different from the status quo.

73. NZAS is aware of the policy objective of matching NZ ETS costs as closely as possible with emission unit allocations, given there are annual adjustments to the NZAS allocative baseline to take account of the firm's actual electricity consumption over the year.

**Interagency consultation**

74. The Treasury, Ministry of Business, Innovation and Employment, Environmental Protection Authority, Ministry for Primary Industries, and Ministry for Foreign Affairs and Trade were consulted on the proposals set out in this paper. The Department of the Prime Minister and Cabinet has been informed of the proposals in this assessment. No substantial issues were raised through consultation.

## Recommendation

75. The preferred option is option 3 because it aligns with the purpose of industrial allocation, accurately allocates NZUs to NZAS for indirect emissions costs, allocates costs and benefits appropriately to NZAS and does not extensively impair regulatory certainty.

## Section 4: Delivering an option

### How will the new arrangements be implemented?

76. The decision on the EAF will be used to calculate NZAS's final 2021 allocative baseline and provisional 2022 allocative baseline. These are implemented through amendment to the Climate Change (Eligible Industrial Activities) Regulations 2010 once NZAS provides data on electricity consumption for the year.

77. If Cabinet agrees to the recommended EAF, it will be used for the purposes of issuing drafting instructions to the Parliamentary Counsel Office to update NZAS's allocative baselines in the Climate Change (Eligible Industrial Activities Regulations) 2010. The Minister will then recommend the making of the amendment regulations to give effect to the updated allocative baselines.

### How will the new arrangements be monitored, evaluated, and reviewed?

78. The Crown as the regulator administers the process of updating the NZAS allocative baseline each year, of which the EAF is used to calculate the indirect NZ ETS costs from electricity use. This provides an opportunity to review only the allocative baseline, not NZAS's EAF for electricity consumption under the main contract.

79. The EAF will only be reviewed if there is another change to the contract terms, otherwise the EAF is set, and the allocative baseline is updated annually.

80. The annual review of the allocative baseline requires close interaction with NZAS, beginning with the 'call for data' notice and including consultation about information provided by the Ministry for the Environment and the draft baseline outcomes.

81. This process brings to the surface contract choices and their influence on the baseline. The Ministry for the Environment also interacts with NZAS and the Environmental Protection Authority to ensure all affected parties are aware of when the updated regulation is published. This active management of the process by the parties ensures that issues are identified and addressed as required.

## Annex One: Summary of the modelling

**Table 5: Summary of the modelling used for this assessment**

<b>Modeller</b>	An independent expert electricity modeller from Concept Consulting did the modelling the Ministry for the Environment (the Ministry) used to inform the assessment of the identified policy problem.
<b>Credentials</b>	Concept has provided analysis and expert advice for 20 years. Concept has expertise across the wider energy sector, and in environmental and resource economics. Concept's clients include large users, suppliers, regulators and governments. Concept has provided the Ministry with advice on previous EAF determinations.
<b>Method used for modelling in the report</b>	<p>Concept developed a report that can proactively released alongside this regulatory impact statement once assessed under the Official Information Act 1982. The report included a model developed to determine the likely 2021 contract electricity price which would represent Meridian's point of indifference where Meridian is willing to accept something over nothing for the contract price. The model:</p> <ul style="list-style-type: none"> <li>• estimates the weighted average price of electricity sales that Meridian would achieve to 2024 if NZAS were to exit. This splits electricity generation between generation that would: <ul style="list-style-type: none"> <li>○ be spilt</li> <li>○ be sold via longer-term hedge contracts to other consumers and be significantly insulated from a post-Tiwai exit price fall</li> <li>○ receive the South Island constrained price (ie, when there is price separation between the North and South Islands)</li> <li>○ receive the North Island price due to periods of time when price separation does not occur or to Meridian receiving the loss and constraint rentals across the electric power transmissions system</li> </ul> </li> <li>• estimates what this weighted average price would be had there been no carbon price. This estimation uses the revised standard EAF of 0.316, a carbon price expectation for the period of \$45 per tonne of carbon dioxide, and only factors those generation sales that would be exposed to the North Island price</li> <li>• estimates what the NZAS contract price would need to be in order for Meridian to achieve the same weighted average sales price in both the with carbon and without carbon worlds</li> <li>• calculates the implied EAF from the difference between the with-carbon and without-carbon point-of-indifference for contract prices.</li> </ul>

## Annex Two: Comparison of allocation in units from the four options under the current forecast compared to status quo

**Table 6: Comparison of allocation in units from the four options under the current forecast compared to the status quo**

<b>Change to forecasted allocation</b>				
	2021	2022	2023	2024
<b>Forecasted allocation (in million NZUs)</b>				
<b>Option 1 Status quo forecast</b> [EAF = 0.206 tCO <sub>2</sub> -e/MWh]	1.534	1.516	1.499	1.482
<b>Option 2 Combined approach updated</b> [EAF = 0.2632 tCO <sub>2</sub> -e/MWh]	1.794	1.773	1.753	1.733
<b>Option 3 Fixed value approach</b> [EAF = 0.0 tCO <sub>2</sub> -e/MWh]	0.6	0.592	0.585	0.579
<b>Option 4 Standard approach</b> [EAF = 0.537 tCO <sub>2</sub> -e/MWh]	3.039	3.003	2.970	2.936
<b>Change to allocation from the status quo (in million NZUs)</b>				
<b>Option 1 Status quo</b> [EAF = 0.206 tCO <sub>2</sub> -e/MWh]	0	0	0	0
<b>Option 2 Combined approach updated</b> [EAF = 0.2632 tCO <sub>2</sub> -e/MWh]	0.26	0.257	0.254	0.251
<b>Option 3 Fixed value approach</b> [EAF = 0.0 tCO <sub>2</sub> -e/MWh]	-0.934	-0.924	-0.914	-0.903
<b>Option 4 Standard approach</b> [EAF = 0.537 tCO <sub>2</sub> -e/MWh]	1.505	1.487	1.471	1.454

The calculations in Table 6 use NZAS's forecasted production of 336kt per annum out to 2024. Forecasted electricity consumption for 2022 to 2024 is 5,010 GWh per annum and for 2021 is 4,956 GWh. These estimates assume that potline four will not be operational.

## Annex Three: Financial implications under each EAF option in financial years

**Table 7: Comparison of allocation value under the current forecast for each option**

<b>Financial implications of change to EAF in financial years</b>				
	2021/22	2022/23	2023/24	2024/25
<b>Industrial allocation based on the assessed options (in millions of NZD)</b>				
<b>Option 1 Status quo forecast</b> [EAF = 0.206 tCO <sub>2</sub> -e/MWh]	99.5	98.3	97.2	96.1
<b>Option 2 Combined approach updated</b> [EAF = 0.2632 tCO <sub>2</sub> -e/MWh]	116.4	115.0	113.7	112.4
<b>Option 3 Fixed value approach</b> [EAF = 0.0 tCO <sub>2</sub> -e/MWh]	38.9	38.4	37.9	37.5
<b>Option 4 Standard approach</b> [EAF = 0.537 tCO <sub>2</sub> -e/MWh]	197.2	194.8	192.7	190.5
<b>Change to the NZAS operating balance from status quo (in millions of NZD)</b>				
<b>Option 1 Status quo</b> [EAF = 0.206 tCO <sub>2</sub> -e/MWh]	0	0	0	0
<b>Option 2 Combined approach updated</b> [EAF = 0.2632 tCO <sub>2</sub> -e/MWh]	16.8	16.6	16.4	16.2
<b>Option 3 Fixed value approach</b> [EAF = 0.0 tCO <sub>2</sub> -e/MWh]	-60.6	-59.9	-59.3	-58.6
<b>Option 4 Standard approach</b> [EAF = 0.537 tCO <sub>2</sub> -e/MWh]	97.6	96.5	95.4	94.3

The calculations in Table 7 use NZAS's forecasted production of 336kt per annum out to 2024. Forecasted electricity consumption for 2022 to 2024 is 5,010 GWh per annum and for 2021 is 4,956 GWh. These estimates assume that potline four will not be operational.

Table 7 prices are based on an NZU price of \$64.90 at 19 November 2021.