

Regulatory Impact Statement: updating emissions factors and other NZ ETS and SGG Levy reference data.

Coversheet

Purpose of Document	
Decision sought:	This analysis and advice has been produced for the purpose of informing policy decisions to be taken by Cabinet
Advising agencies:	Ministry for the Environment
Proposing Ministers:	Minister of Climate Change
Date finalised:	28 July 2021
Problem Definition	
<p>Reference data in the New Zealand Emissions Trading Scheme (NZ ETS) and Synthetic Greenhouse Gas Levy (SGG Levy) are out of date for two main reasons, described below.</p> <ol style="list-style-type: none"> 1. Default emissions factors for waste and natural gas are based on out-of-date waste and natural gas composition data. 2. Reference data in the New Zealand Emissions Trading Scheme (NZ ETS) and Synthetic Greenhouse Gas Levy (SGG Levy) are based on input data which is inconsistent with the input data used in New Zealand's Greenhouse Gas Inventory (the Inventory). Although these input data are currently consistent with New Zealand's first nationally determined contribution (NDC1) under the Paris Agreement, and with New Zealand's provisional emissions budget, this is likely to change. 	
Executive Summary	
<p><i>Updating emissions factors to reflect waste and natural gas composition changes</i></p> <p>Emissions factors for waste and natural gas are based on the organic composition of solid waste and the chemical composition of natural gas. These compositions change over time, and if the emissions factors are not updated then the reported emissions and associated NZ ETS costs are not consistent with the actual emissions produced. Only one sensible alternative to the status quo exists, and this is to update these emissions factors based on most recent waste and gas composition data.</p> <p>This option was supported by all those who submitted in the recent consultation on these proposed updates. Updating the waste emissions factor will reduce NZ ETS revenue to</p>	

the Crown, however the alternative means that waste sector participants incur NZ ETS costs disproportionate to actual emissions.

Updating NZ ETS and SGG levy reference data to reflect most recent gas global warming potential values

The Climate Change Response Act 2002 (the Act) requires that non-carbon dioxide (non-CO₂) greenhouse gases reported in the New Zealand Emissions Trading Scheme (NZ ETS) and the Synthetic Greenhouse Gas Levy (SGG levy) use the global warming potential relative to CO₂ over a 100-year time horizon (known as GWP₁₀₀). This is in line with our international climate change obligations.

GWP₁₀₀ is assessed by the International Panel for Climate Change (IPCC). The IPCC released its Fifth Assessment Report (AR5) in 2014 and updated the GWP₁₀₀ values for all greenhouse gases, including methane and nitrous oxide.

Emissions factors and reference data in the NZ ETS and SGG levy use GWP₁₀₀ values from the Fourth Assessment Report (AR4). New Zealand's first nationally determined contribution (NDC1) under the Paris Agreement was also submitted using AR4 metrics, and the current provisional emissions budget also uses AR4 metrics.

Decisions on setting emissions budgets and updating NDC1 are expected during 2021. If decisions are made to align New Zealand's targets and emissions budgets with AR5 metrics, it is recommended that the NZ ETS and SGG levy reference data are also updated.

Limitations and Constraints on Analysis

There are no material limitations or constraints on this analysis.

Responsible Manager(s) (completed by relevant manager)

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29 July 2021

Quality Assurance (completed by QA panel)

Reviewing Agency:	Ministry for the Environment
Panel Assessment & Comment:	The Ministry for the Environment's Regulatory Impact Analysis Panel has reviewed the package of Regulatory Impact Statements supporting these proposals. The Panel confirms that the level of information provided meets the quality assessment criteria.

Section 1: Diagnosing the policy problem

What is the context behind the policy problem and how is the status quo expected to develop?

1. Participants in the NZ ETS calculate their emissions and removals based on the methodologies and emissions factors prescribed in regulations.
2. Synthetic greenhouse gas levies (SGG levies) ensure imports of synthetic greenhouse gases (SGGs) in goods and vehicles incur comparable emission costs to bulk imports of SGGs and domestic manufacturing of SGG subject to the New Zealand Emissions Trading Scheme.
3. Emissions factors represent the carbon dioxide equivalent greenhouse gas emissions, based on the global warming potential of each greenhouse gas released. SGG levies are calculated based on reference to the amount of gas contained in a good, the price of carbon, and the GWP₁₀₀ of the gas contained.
4. Emissions factors change over time for various reasons, and the NZ ETS and SGG levy regulations need to be updated periodically to reflect these changes and maintain the accuracy of the NZ ETS and SGG levy.
5. This RIS considers changes to several emissions factors, and reference data, to reflect changes to:
 - the overall composition of waste going to landfill
 - the chemistry of natural gas
 - the global warming potentials of greenhouse gases used in our international reporting.

Updating the default emissions factor (DEF) for waste

6. Operators of disposal facilities are mandatory NZ ETS participants under the Climate Change Response Act 2002 (the Act), if the waste received is at least partially from households. The Climate Change (Waste) Regulations 2010 prescribe the emissions factor and methodology for calculating waste emissions.
7. Landfill operators calculate emissions by multiplying total tonnes of waste disposed in the year by a default emissions factor (DEF), unless use of a unique emissions factor (UEF) for their landfill has been approved. UEFs are based on either monitoring of waste composition, or in relation to collection and destruction of landfill gas. The calculation of UEFs relating to collection and destruction of landfill gas includes multiplication by the waste DEF.
8. The organic content of waste from landfills can change over time, as waste management policies and practices evolve. The waste DEF was last amended on 1 January 2016 from 1.31 tonnes of carbon dioxide equivalent per tonne of waste (tCO₂e/tW) to 1.19 tCO₂e/tW, reflecting a decrease in the organic component of the average tonne of waste.
9. The existing DEF for waste has become inaccurate due to changes in waste composition. Methane emissions arise from the anaerobic biodegradation of organic waste. New national data has shown that the proportion (by weight) of most organic waste types in an average tonne of waste has decreased since the last update to the DEF. The DEF will remain inaccurate if it is not updated.

Updating the DEFs for natural gas

10. The Climate Change (Stationary Energy and Industrial Processes) Regulations 2009 (SEIP regulations) prescribe emissions factors for each natural gas class (field).
11. Purchasers of natural gas may choose to opt-in to participation in the NZ ETS. These NZ ETS participants use the methodologies and emissions factors in the SEIP regulations to calculate their emissions.
12. Natural gas miners are required to run various tests on their gas to calculate an emissions factor specific to their field and use this field specific emissions factor to calculate their emissions.
13. Opt-in participants can report emissions by referring to the gas field-specific and national average DEFs in Table 10, Schedule 2 of the SEIP Regulations. DEFs allow gas purchasing (opt-in) participants to report their emissions without undertaking chemical composition tests on the natural gas supplied from the gas miner.
14. The composition of mined gas changes over time. To remain accurate, DEFs should be updated annually to reflect the most recent emissions factors based on data provided by natural gas miners.

Updating DEFs and reference data with updated global warming potentials

15. The Climate Change Response Act 2002 (the Act) requires that non-carbon dioxide (non-CO₂) greenhouse gases reported in the New Zealand Emissions Trading Scheme (NZ ETS) and the Synthetic Greenhouse Gas Levy (SGG levy) use the global warming potential relative to CO₂ over a 100-year time horizon (known as GWP₁₀₀).¹ This is in line with our international climate change obligations.
16. GWP₁₀₀ is assessed by the International Panel for Climate Change (IPCC). The IPCC released its Fifth Assessment Report (AR5) in 2014 and updated the GWP₁₀₀ values for all greenhouse gases, including methane and nitrous oxide.
17. Emissions factors and reference data in the NZ ETS and SGG levy use GWP₁₀₀ values from the Fourth Assessment Report (AR4). New Zealand's first nationally determined contribution (NDC1) under the Paris Agreement was also submitted using AR4 metrics.²
18. New Zealand's official annual estimate of greenhouse gas emissions and removals (the Inventory) is currently reported using AR4 metrics. However, emissions from 2021 onwards (which will not be published until 2023 in the Inventory) will be required to use AR5 metrics. New Zealand is required to submit the inventory as part of its international obligations.
19. New Zealand is currently considering revising NDC1. This is likely to use AR5 GWP₁₀₀ values to align reporting on progress towards our NDC with our inventory reporting, and because New Zealand's subsequent NDCs will be required to use AR5 metrics.

¹ See 'carbon dioxide equivalent' definition in Section 4 of the Climate Change Response Act 2002.

² Decision 18/CMA.1 Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement – UNFCCCRA.

20. The Climate Change Commission has also recommended using AR5 for New Zealand's domestic emissions budgets. The Government is required to set the first emissions budgets by 31 December 2021. It is likely the Government will agree emissions budgets that use AR5 metrics.
21. Table one below shows the various uses of AR4 and AR5 data.

Table one: Current and expected future metrics for reporting emissions

Reporting	Metrics
NZ ETS (current)	AR4
NZ ETS (future)	Subject of this RIS
Inventory	AR5
Current NDC1	AR4
Revised NDC1	Likely AR5, revised NDC1 expected by November 2021
PEB	AR4
Commission's recommended emissions budgets	AR5
Government emissions budgets	Likely AR5, Government required to set first three emissions budgets by end of 2021.

What is the policy problem or opportunity?

Updating the default emissions factor (DEF) for waste

22. The existing default emissions factor (DEF) for waste has become inaccurate due to changes in national waste composition. This new composition data was identified in a report prepared for MfE in 2020.
23. If the DEF is not updated, waste participants would be reporting more emissions than are actually likely to occur from each tonne of waste disposed, or will have to apply for unique emissions factors (UEFs) for accurate measurements of organic content in their landfills. The latter option will impose additional and ongoing administrative and compliance costs on participants and the Environmental Protection Authority.

Updating the DEFs for natural gas

24. The DEFs for natural gas need to be updated regularly because natural gas chemistry is not constant.
25. If the DEFs are not updated, purchasers of natural gas will face increased administrative and compliance costs.

Updating DEFs and reference data with new global warming potentials

26. The Act requires that the NZ ETS and SGG levy assist New Zealand to meet its international obligations, 2050 target and emissions budgets. This requires that the NZ ETS and SGG levy reflect the same reference data as these obligations, budgets, and targets.

27. In setting how participants calculate their emissions, the Minister is required under the Climate Change Response Act 2002 to have regard to our international climate change obligations.
28. New Zealand's official annual estimate of greenhouse gas emissions and removals (the Inventory) is currently reported using AR4 metrics. However, emissions from 2021 onwards (which will not be published until 2023 in the Inventory) will be required to use AR5 metrics.
29. New Zealand's first nationally determined contribution (NDC1) under the Paris Agreement was also submitted using AR4 metrics.
30. There is a partial misalignment between the NZ ETS and New Zealand's climate change obligations because the NZ ETS has used AR4 metrics for emissions in 2021, while the 2021 Inventory will be reported using AR5 metrics.
31. While the NZ ETS is currently consistent with New Zealand's submitted NDC1 (as both use AR4 metrics), there will be a further misalignment if decisions are made to report NDC1 in AR5 metrics. This misalignment will be further increased from 2022 if emissions budgets are set using AR5.

What objectives are sought in relation to the policy problems?

32. An objective of the NZ ETS and SGG levy regulations is to ensure the efficient and accurate operation of the NZ ETS and SGG levy.
33. Another objective is to ensure that the NZ ETS and SGG levy help New Zealand to meet:
 - international climate change obligations
 - the 2050 target and emissions budgets.

Section 2: Deciding upon an option to address the policy problem

What criteria have been used to compare options to the status quo?

34. Each option in this document is assessed against the status quo, using the following four criteria:
35. **Alignment** with the objectives of the NZ ETS. The objectives are to support and encourage global efforts to reduce the emission of greenhouse gases by assisting New Zealand to meet the:
 - a. international obligations under the Convention, the Protocol, and the Paris Agreement
 - b. 2050 target and emissions budgets.
36. **Accuracy** requires ensuring the methodologies and emissions factors used in the regulations are as close as practically possible to those used in the Inventory and New Zealand's international and domestic emissions targets. Otherwise, participants or the Government will incur costs for emissions that are either not occurring or not covered by New Zealand's international obligations.
37. **Efficiency** concerns administrative and compliance costs for participants and the Government.
38. **Clarity** means the regulations must be unambiguous and consistent, so the obligations and costs imposed on regulated parties are equivalent and unavoidable.

39. Assessment of each option against each criterion 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
0	about the same as doing nothing/the status quo
-	worse than doing nothing/the status quo
--	much worse than doing nothing/the status quo

What scope have options been considered within?

Updating the DEFs for waste and natural gas

40. Due to the relative lack of complexity of these two policy proposals there is only one viable option for each other than the status quo.
41. The option implies changes to regulations, there are no non-regulatory options in this proposal. The status quo is included for reference.

Updating DEFs and reference data with new global warming potentials

42. The option implies changes to regulations, there are no non-regulatory options in this proposal. The status quo is included for reference.
43. The options around making these updates relate to timing, and consider the settings used in emissions budgets, targets, and the inventory.
44. The options are constrained in that due to the number of changes to be made, the number of regulations to be updated, and the complexity and time required to confirm calculations of updated values, there will be a delay involved in implementing any update to NZ ETS and SGG levy regulations to reflect AR5 data. This means that options 2 and 3 are equivalent if decisions are made during 2021 to update NDC1 or set the first emissions budget with reference to AR5 data.

What options have been considered?

Updating the default emissions factor (DEF) for waste in line with the new waste composition data

Option 1 - Status Quo

45. This will mean no change to the current waste DEF of 1.19 as stated in the Climate Change (Waste) Regulations 2010, Regulation 5(1) C, or to the relevant sections of the Climate Change (Unique Emissions Factors) Regulations 2009.
46. This option would fail to deliver accuracy in the operation of the NZ ETS. This option would instead result in ongoing inconsistency between waste emissions reported into the NZ ETS and the corresponding actual emissions.
47. Responses from consultation were firmly opposed to this option.

Option 2 – Update the waste DEF

48. This will involve using new waste composition data identified in waste surveys and a report prepared for MfE in 2020 to develop a revised estimate of the emissions generation potential of a tonne of waste.
49. The waste surveys used have been based on the Solid Waste Analysis Protocol (SWAP) published by the Ministry for the Environment. (Ministry for the Environment, 2002b) to ensure a consistent methodology for sampling and analysis. While the more recent SWAP surveys do not sample every site, the 2018 SWAP surveys assessed were conducted by territorial authorities from 18 disposal facilities and transfer stations, which collectively represent 66 per cent of all waste disposed of at municipal landfills in 2018.
50. The change estimated on this basis is a decrease from the existing waste DEF value of 1.19 tCO₂e/tW to a new DEF value of 0.91 tCO₂e/tW.
51. Submissions from consultation were firmly in favour of this option.
52. There will be a decrease in ETS costs faced by almost all waste participants. This decrease in costs would result from their reporting lower emissions.
53. The only other way in which this can be achieved is by use of a waste composition unique emissions factor, which imposes significant and ongoing costs on these participants, balanced by lower ETS costs. The only waste participant with such a UEF is Marlborough District Council for its Bluegums landfill. This participant is consequently not impacted by the proposal to update the DEF, as their UEF is already based on particular and up to date composition data.
54. However, for those participants using LFG capture and destruction unique emissions factors, there will be a one off cost to update these UEFs to reflect the updated DEFs and reapply to the EPA. It is likely these costs will be outweighed by the financial benefit of reporting lower emissions and consequently incurring lower ETS costs. The EPA will have a one-off increase in administration costs.

Updating the DEFs for natural gas in line with updated gas composition data

Option 1 - Status Quo

55. This will mean no change to the current DEFs stated in Table 10 of Schedule Two of the SEIP regulations.
56. This option would fail to deliver accuracy in the operation of the NZ ETS. This option would instead result in either:
 - a. ongoing, and increasing, inconsistency between natural gas emissions reported into the NZ ETS and the corresponding actual emissions; or
 - b. increased costs for NZ ETS participants registered for the activity of purchasing natural gas.
57. Responses from consultation were firmly opposed to this option.

Option 2 – Update the natural gas DEFs

58. This will involve updating natural gas DEFs by estimating national and field-specific DEFs from the annual emissions returns data for 2020 calendar year activity from gas miners.

59. This option would improve accuracy in the operation of the NZ ETS. Responses from consultation were firmly supportive of this option.

Updating DEFs and reference data with new global warming potentials

Option One – Status Quo

60. Continue to use AR4 metrics for the NZ ETS and the SGG levy.
61. This option would result in inconsistency between NZ ETS costs and New Zealand's greenhouse gas inventories reporting on New Zealand's emissions from calendar year 2021 onwards.
62. This option will result in inconsistencies between the NZ ETS and New Zealand's NDC1 and domestic emissions budgets if a decision is taken to measure these with reference to AR5 metrics.

Option Two – Update NZ ETS and SGG levy reference data to AR5 GWP₁₀₀ values as soon as possible

63. Under this option the emissions factors and associated reference data used in the NZ ETS and SGG levy would be updated to reflect AR5 GWP₁₀₀ values as soon as possible.
64. This option would improve the methodological consistency between emissions reported under the NZ ETS and New Zealand's greenhouse gas inventory as soon as possible.
65. However, this option will result in inconsistencies between the NZ ETS and New Zealand's NDC1 and domestic emissions budgets unless a decision is taken to measure these with reference to AR5 metrics.
66. It is likely that decisions to update New Zealand's NDC1 and domestic emissions budgets to reflect AR5 metrics will be made during 2021. If this occurs, options 2 and 3 become identical.
67. Even if a decision is made now to update NZ ETS and SGG levy reference data, the effective date of any implementation of this work will be 1 January 2023 due to the number of changes to be made, the number of regulations to be updated, and the complexity and time required to confirm calculations of updated values.

Option Three – Update NZ ETS and SGG levy reference data to AR5 GWP₁₀₀ values if appropriate in future

68. Under this option the emissions factors and reference data used in the NZ ETS and SGG levy would be updated to reflect AR5 GWP₁₀₀ values as appropriate, when decisions on the use of AR5 GWP₁₀₀ values within emissions budgets and NDC accounting have been made.
69. This option would improve the methodological consistency between emissions reported under the NZ ETS and New Zealand's greenhouse gas inventory, but only after the change is in place. There will be a period of time when the ETS and the inventory use different metrics.
70. This option will result in continued consistency between the NZ ETS and New Zealand's NDC1 and domestic emissions budgets. However, as described in option

2, even if decisions are taken this year (as expected) to use AR5 metrics for NDC1 and domestic emission budgets, there will be at least a one year delay before the NZ ETS and SGG levy reference data can be updated.

How do the options compare to the status quo/counterfactual?

Updating the DEF for waste

	Option One - Status Quo	Option Two – Update the waste DEF
Alignment with NZ ETS objectives	0	- Lower cost incentive to reduce emissions. Slower reduction in unit stockpile.
Accuracy	0	++ Reported emissions and associated NZ ETS costs consistent with actual emissions.
Efficiency	0	+ No change for participants in how they report their emissions or for regulators in the operation of the NZ ETS. Reduces requirement for participants to apply for unique emissions factors to accurately estimate emissions.
Clarity	0	0 No impact on clarity or application of regulations.
Overall assessment	0	+ Preferred Option

Updating the DEFs for natural gas

	Option One - Status Quo	Option Two – Update the natural gas DEFs
Alignment with NZ ETS objectives	0	0 reported emissions and associated NZ ETS costs consistent with actual emissions.
Accuracy	0	+ Better reflects actual emissions.
Efficiency	0	+ No change for participants in how they report their emissions or for regulators in the operation of the NZ ETS. Reduced costs for participants to address inaccurate DEFs.
Clarity	0	0 No impact on clarity or application of regulations.
Overall assessment	0	+ Preferred Option

Updating DEFs and reference data with new global warming potentials

	Option One – Status Quo	Option Two – Update DEFs and reference data to AR5 GWP₁₀₀ values as soon as possible.	Option Three - Update DEFs and reference data to AR5 GWP₁₀₀ values if appropriate in future
Alignment with NZ ETS objectives	0	0 Consistent with some NZ ETS objectives, but not others	+ Consistent with all NZ ETS objectives
Accuracy	0	+ Increased consistency with data reported in the inventory, likely to increase consistency with New Zealand's international and domestic emissions targets.	+ Maintain current level of inconsistency with data reported in the inventory and New Zealand's targets. Improved consistency if updates to targets and/or the first emissions budget is set with reference to AR5 data.
Efficiency	0	0 no change for NZ ETS participants or regulators in the operation of the NZ ETS and SGG levies	0 no change for NZ ETS participants or regulators in the operation of the NZ ETS and SGG levies
Clarity	0	0 No impact on clarity or application of regulations.	0 No impact on clarity or application of regulations.
Overall assessment	0	0	+ Preferred Option

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

Updating the default emissions factor (DEF) for waste

71. The preferred option is to update the DEF to reflect the new national waste composition data.

72. This option better reflects the actual emissions per tonne of waste. This change does not add or change the way participants report on their emissions, retaining efficiency and clarity of the existing processes.
73. Updating the DEF to reflect new national waste composition data will result in an approximately \$13 million decrease in NZ ETS revenue to the Crown compared to the status quo. This calculation is based on the carbon price of \$48 (July 2021), the change in DEF from 1.19 tCO₂e/tW to 0.91 tCO₂e/tW, and is based on the 2019 reported NZ ETS emission for waste of 1.2 million tonnes CO₂e. As a consequence of updating the DEF, NZ ETS costs faced by participants in the waste sector, and therefore landfill users, will reduce by the same amount.

What are the marginal costs and benefits of the option?

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Regulated groups: Waste participants	For those participants using LFG capture and destruction unique emissions factors, there will be a one off cost to update these UEFs to reflect the updated DEFs.	Low – orders of magnitude below a million dollars.	High – the processes and costs of the processes around applying for UEFs are well understood.
Regulators: EPA	Small. A negligible cost to update the DEF used in waste emissions returns, and a small additional cost in processing additional UEF applications.	Low – orders of magnitude below a million dollars, and easily funded out of baseline.	High – the costs to update a DEF in the NZ Emissions Trading Register, and to process UEF applications are well understood.
Crown	Decrease in NZ ETS revenue.	Approximately \$13million	High – Waste volumes reported into the NZ ETS are reasonably constant over time
Total monetised costs		Approximately \$13million	
Non-monetised costs		Low	
Additional benefits of the preferred option compared to taking no action			
Regulated groups: Waste sector NZ ETS participants	Decrease in NZ ETS costs.	Approximately \$13million	High - Waste volumes reported into the NZ ETS are reasonably constant over time
Regulators: EPA	Nil	-	

Wider government and public.	More accurate emissions data for the waste sector	Low	High – These data are not the primary data used in estimating New Zealand's overall waste emissions.
Total monetised benefits		Approximately \$13million	
Non-monetised benefits	Higher accuracy of reported emissions	Low	

Updating the DEFs for natural gas

74. The preferred option is to update the DEFs for more recent natural gas emissions factors.
75. This option is more accurate than the status quo. This change does not add or change the way participants report on their emissions, retaining efficiency and clarity of the existing processes.
76. Updating the DEFs is not expected to have material impacts on NZ ETS costs or revenues to the Crown. A small reduction in administrative and compliance costs faced by some participants is expected.

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Regulated groups: Natural gas NZ ETS participants	Overall, no additional cost	-	High – there will be small movements in default emissions factors, direction of change will vary.
Regulators: EPA	Small. A negligible cost to update the natural gas DEFs in the New Zealand Emissions Trading Register.	Low, anticipated as part of baseline funded work.	High – the costs to update DEF in the NZ Emissions Trading Register are well understood.
Crown	No additional cost	-	-
Total monetised costs		-	-
Non-monetised costs		Low	
Additional benefits of the preferred option compared to taking no action			
Regulated groups: Natural gas NZ ETS participants	Small reduction in administrative and compliance costs.	Low - orders of magnitude below a million dollars.	High – costs are well understood.
Regulators: EPA	No cost or savings	-	

Wider government and public.	Higher accuracy of reported emissions	Medium	High – NZ ETS reported emissions are a major input into estimates of energy composition and emissions for this sector.
Total monetised benefits			
Non-monetised benefits	Higher accuracy of reported emissions	Medium.	

Updating DEFs and reference data with new global warming potentials

77. The preferred option is to update NZ ETS and SGG levy reference data to reflect AR5 GWP₁₀₀ values if NDC1 and/or emissions budgets use AR5 global warming values. If, as is likely, decisions are taken during 2021 to align NDC1 and emissions budgets with AR5 data, this option is equivalent to option 2, to update as soon as possible.
78. There was limited diversity among the views expressed by those that chose to submit on these proposals during the recent consultation. There was general agreement with updating to use AR5 data, however there were some concerns around timing – particularly where NZ ETS costs are passed through to customers.

Affected groups	Comment <i>nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks.</i>	Impact <i>\$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts.</i>	Evidence Certainty <i>High, medium, or low, and explain reasoning in comment column.</i>
Additional costs of the preferred option compared to taking no action			
Regulated groups: NZ ETS participants and importers of SGGs contained in vehicles and goods	Changes to DEFs for AR5 GWPs will cause minor changes in costs due to the NZ ETS or SGG levy, although the impacts would be more material for some sectors such as waste, where almost all emissions are non-CO ₂ and costs will increase.	Nil-Low.	Medium-High. Good understanding of the changes to emissions factors and levy rates likely to result from any changes to reflect AR5 data.
Regulators: EPA, Customs NZ, Waka Kotahi NZTA	Updates will need to be implemented into the New Zealand Emissions Trading	Nil-Low – orders of magnitude below a million	High – the costs to update a DEF in the NZ Emissions

	Register and SGG levy collection systems.	dollars, and easily funded out of baseline.	Trading Register, and to process UEF applications are well understood.
Others (e.g. wider govt, consumers, etc.)	Increased costs to NZ ETS participants will be recoverable from consumers, therefore the retail cost of goods containing SGG and the disposal of waste may increase.	Negligible compared to cost of emitting activities (eg purchase of fridge), and variable in quantity as GWPs not all greenhouse gases have higher GWPs under AR5	Medium; while it would be possible to calculate the impact on costs from the change, there is little value in doing so as these are expected to be negligible
Total monetised costs		Low	
Non-monetised costs		Low	
Additional benefits of the preferred option compared to taking no action			
Regulated groups: NZ ETS participants and importers of SGGs contained in vehicles and goods	For some activities or levied products, the minor changes in costs will be decreases.	Nil-Low.	Medium-High. Good understanding of the changes to emissions factors and levy rates likely to result from any changes to reflect AR5 data
Regulators	Nil	NA	NA
Others (e.g. wider govt, consumers, etc.)	Providing certainty that advanced warning of any changes will be provided increases faith and trust in the NZ ETS.	Low	Low
Total monetised benefits		Low	
Non-monetised benefits		Low	

Section 3: Delivering an option

How will the new arrangements be implemented?

79. Changes will be given effect through amendment of relevant NZ ETS and SGG levy regulations. Changes will come into force 30 days after being published in the NZ Gazette and will take effect from 1 January in the year following coming into force.
80. For updates related to the composition of natural gas and waste, these will take effect from 1 January 2022.
81. A draft Table 10, Schedule 2 of the SEIP regulations has been separately forwarded to all affected NZ ETS gas mining and purchasing participants for comment prior to implementation.
82. If decisions are made during 2021 to align NDC1 and or emissions budgets with AR5 data, updates to regulations to reflect AR5 data will take effect from 1 January 2023.

83. Due to the number of changes to be made, the number of regulations to be updated, and the complexity and time required to confirm calculations of updated values, there will be a delay involved in implementing any update to NZ ETS and SGG levy regulations to reflect AR5 data.
84. Even if a decision was taken to update regulations when only the inventory is using AR5 data, such changes would not be able to be implemented until 1 January 2023. While retrospective application of these NZ ETS regulation amendments is allowed under the Act, this is not practical in this case. Participants would have to re-determine NZ ETS emissions and recover those new costs from customers for already completed transactions.

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

85. MfE will continue to work with the EPA, MPI, Customs NZ, and Waka Kotahi NZTA to monitor the functioning of the NZ ETS and SGG Levy.